



KERALA STATE ELECTRICITY REGULATORY COMMISSION

**ORDERS IN THE
PETITION FILED BY KSEB LTD FOR THE APPROVAL OF
ARR, ERC AND TARIFF PROPOSALS FOR THE CONTROL
PERIOD 2018-19 TO 2021-22**

OP NO. 15/2018

8TH JULY 2019

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KERALA STATE ELECTRICITY REGULATORY COMMISSION

THIRUVANANTHAPURAM

Present : **Shri. Preman Dinaraj, Chairman**
Shri. K.Vikraman Nair, Member
Shri. S.Venugopal, Member

OA.No.15/2018

In the matter of

Petition for Approval of ARR&ERC, Tariff and Capital Investment Plan for the Control Period 2018-19 to 2021-22 filed by M/s Kerala State Electricity Board Ltd.

Petitioner

The Chairman and Managing Director,
Kerala State Electricity Board Ltd
Vydhuthi Bhavanam, Pattom, Thiruvananthapuram

ORDER DATED 08/07/2019

The Kerala State Electricity Regulatory Commission considered the petition for approval of the Aggregate Revenue Requirements (ARR) & Expected Revenue from Tariffs (ERC) and Tariff Revision Proposals filed by the Kerala State Electricity Board Limited vide letter No.KSEB/TRAC/FO/MYT/2019-22/4869 dated 31-10-2018. In compliance to Regulation 27(6) of KSERC (Conduct of Business) Regulations 2003, KSEB Ltd published a summary of the petition in the Kerala Kaumudi daily, Deshabhimani daily and Times of India daily on 9-11-2018. The petition was also placed in the web site of the Commission and KSEB Ltd for the information of the public. Thereafter, as per Regulation 32 of KSERC (Conduct of Business) Regulations, 2003 public hearings on the petition were held at the Nalanda Auditorium, Kozhikode on 26-11-2018, Corporation Town Hall, Ernakulam on 27-11-2018, Municipal Conference Hall, Kattappana on 28-11-2018 and Institution of Engineers' Hall, Thiruvananthapuram on 10-12-2018 wherein stakeholders presented their views and objections. The Commission has also consulted the State Advisory Committee on 17.12.2018.

After having carefully considered the submissions, suggestions, objections and written submissions filed by KSEB Ltd, electricity consumers/general public and other stakeholders and in exercise of the powers vested in the Commission under Section 62 and 64 of the Electricity Act, 2003 (Central Act 36 of 2003) and Regulation 20 of KSERC

(Terms and Conditions for Determination of Tariff) Regulations, 2018, the Commission hereby passes the following Order.

Dated this the Eighth Day of July, 2019

Sd/-
K.Vikraman Nair
Member

Sd/-
S.Venugopal
Member

Sd/-
Preman Dinaraj
Chairman

Approved for issue

G.Jyothichudan
Secretary

Chapter -1

INTRODUCTION

1. The Chairman and Managing Director, Kerala State Electricity Board Limited (*hereinafter referred to as KSEB Ltd or the licensee*) has, vide letter No.KSEB/TRAC/FO/MYT/2019-22/4869 dated 31-10-2018 filed in accordance with the KSERC (Terms and Conditions for Determination of Tariff) Regulations, 2018 (*hereinafter referred to as Regulations or Tariff Regulations*), the petition for approval of Aggregate Revenue Requirements (ARR) / Expected Revenue from Charges (ERC) and a petition for determination of Tariff for the control period 2018-19 to 2021-22, before Kerala State Electricity Regulatory Commission (*hereinafter referred to as KSERC or as the Commission*).
2. The petition contained the following :
 - Capital expenditure plan for SBU-G, SBU-T, SBU-D for the control period from 2018-19 to 2021-22
 - ARR&ERC for SBU-G, SBU-T and transfer cost to SBU-D
 - ARR&ERC for SBU-D and Proposal for revision of Retail tariff applicable to the consumers
 - Proposal for revision of Open Access Charges (Cross Subsidy Surcharge, Wheeling Charges)
 - Proposal for revision of low voltage supply surcharge, power factor incentive and penalty, Bulk Supply Tariff applicable to licensees other than KSEB Ltd
3. In their petition, KSEB Ltd has considered the ARR of SBU-G and SBU-T as the transfer cost to SBU-D. Thus, the revenue gap is only for the SBU-D. The KSEB Ltd projected the revenue gap for SBU-D for the control period as shown below:

Particulars	2018-19	2019-20	2020-21	2021-22
	Rs.crore	Rs.crore	Rs.crore	Rs.crore
Net ARR	14247.34	15512.25	16348.76	17240.93
Net Revenue	13146.64	14113.20	14283.48	14722.01
Revenue Gap	1100.70	1399.05	2065.28	2518.92

4. The revenue gap estimated by KSEB Ltd is inclusive of the amortisation of the approved past Revenue gap to the tune of Rs.5645.26 crore as on

31-3-2016, at a rate of Rs.806.47 crore per year. KSEB Ltd had proposed to bridge the revenue gap through tariff revision in the year 2018-19, by mobilising an additional revenue of Rs.1101.72 crore on a full year basis based on the sales projection for the year. The proposed tariff revision for the year 2018-19 is to continue for the year 2019-20 and subsequently in 2020-21 a further revision for mobilizing an amount of Rs.700.44 crore is also proposed. According to the petitioner, the tariff revision proposal is as per the provisions of the Electricity Act 2003, Tariff Policy 2016, KSERC (Terms and Conditions for Determination of Tariff) Regulations 2018, KSERC (Principles for Determination of Road Map for Cross Subsidy Reduction for Distribution Licensees) Regulations 2012, as extended vide notification dated 19-12-2017 and various judgment of APTEL.

5. After considering the petition in detail, the Commission decided to admit it as OA No.15/2018 on 5-11-2018 and issued notices for publication of the abstract of the petition.
6. The Commission had issued order dated 17-4-2017 on *suomotu* determination of tariff, in which the tariff was revised for Retail supply, Open access charges etc., effective from 18-4-2017 to 31-3-2018. The Commission had extended the validity of the tariff order from 1-4-2018 to 31-12-2018 and further to 31-3-2019 vide orders dated 27-3-2018 and 31-12-2018 respectively. The Commission further, vide the orders dated 29.03.2019 and 28.06.2019, had extended the validity of the tariff order dated 17.04.2017 till 31.07.2019, or till the date of effect of the new tariff order pertaining to the MYT period from 2018-19 to 2021-22, whichever is earlier.

Statutory provisions:

7. Section 61 of the Act confers power on the Electricity Regulatory Commissions to specify by regulations, the terms and conditions for the determination of tariff in accordance with the principles stipulated therein. Section 62 of the Act empowers the Commission to determine tariff for generation of electricity, transmission of electricity, wheeling of electricity and for retail sale of electricity. Section 64 of the Act prescribes the procedure for determination of tariff and issuance of tariff order. The Commission has, in exercise of its powers under Section 61 of the Act, and after following the due process issued vide notification No.2076/F&T/2017/KSERC dated 26-10-2018, the KSERC (Terms and

Conditions for Determination of Tariff) Regulations, 2018, which specify the detailed principles and procedures for determination of tariff.

8. Clause (f) of Section 61 of the Electricity Act, 2003, stipulates that MYT Principles shall be introduced while issuing the tariff regulations and the Commission has incorporated MYT Principles in the Tariff Regulations, 2014. Clause (h) of para 5.11 of the Tariff Policy, 2016, also stipulates the guidelines for introduction of MYT Tariff. As per Regulation 8, for determination of Tariff, multi year tariff frame work shall be applicable. As per Regulation 8(2)(f), mid term performance review is also to be conducted. Relevant provisions are given below:

8. Multi-year tariff (MYT) framework. – (1) *The multi-year tariff framework under these Regulations shall be applicable for determination of tariff for a generating business/company, transmission business/licensee, distribution business/licensee and the State Load Despatch Centre.*

(2) *The multi-year tariff framework for the generating business/company, transmission business/licensee, distribution business/licensee and State Load Despatch Centre shall, for calculation of Aggregate Revenue Requirement and expected revenue from tariff and charges, be based on the following elements:*

(a) *Forecast of Aggregate Revenue Requirement (ARR) for the Control Period along with the expected revenue from existing and proposed tariffs and charges separately for each year of the Control Period;*

(b) *Truing up of expenses and revenue of the respective year based on audited accounts of the business/licensee vis-à-vis the Commission approved forecast and variation caused by controllable factors and uncontrollable factors, as specified in Regulation 15 of these Regulations;*

(c) *The mechanism for pass-through of approved gains or losses on account of uncontrollable factors as specified by the Commission in Regulation 13 of these Regulations;*

(d) *The mechanism for sharing of approved gains arising out of controllable factors as specified by the Commission in Regulation 14 of these Regulations;*

(e) *Approval of the Aggregate Revenue Requirement of the business/licensee by the Commission for the Control Period along with the determination of tariff for each year of the Control Period;*

(f) *Mid-term Performance Review (MPR) in the year 2019-20 which shall comprise the truing up of the year 2018-19 and annual performance review upto September 2019 on account of uncontrollable parameters and for the variations in performance on account of controllable*

parameters for the Control Period vis-à-vis the ARR approved for the Control Period and the revised forecast for the years 2020-21 and 2021-22 on account of an anticipated variations if any on controllable and uncontrollable parameters;

9. Regulation 9 provides that the control period shall be four years starting from 2018-19 to 2021-22. The relevant provisions are given below:

9. Control Period. – (1) *The Control Period is the period for which the principle and norms specified under these Regulations shall be applicable.*

(2) The Control Period shall be a block of four financial years starting from the First day of April, 2018 and ending on the Thirty First day of March 2022.

Provided that the Commission may if considered necessary, through an Order extend the validity of these Regulations beyond the Thirty First day of March 2022 to such period or periods as deemed appropriate

10. Regulation 10 provides for filing under MYT framework

“10.Filing under multi-year tariff (MYT) framework. – (1) Every generating business/company or transmission business/licensee or distribution business/licensee or State Load Despatch Centre shall file, on or before the thirty first day of October 2018, the following petitions for the Control Period:

a) Petition for approval of Aggregate Revenue Requirement and determination of tariff for each year of the Control Period

b) Petition for truing up of Aggregate Revenue Requirement for the financial years till 2016-17:

Provided that the truing up for the respective financial years shall be carried out under the relevant Regulations applicable to the respective years.

Provided further that every generating business/company or transmission business/licensee or distribution business/licensee or State Load Despatch Centre shall on or before the first day of January, 2019 file the petition for Truing up of Aggregate Revenue Requirement for the financial year 2017-18 and shall file on or before the Thirtieth day of November of every subsequent financial years during the Control Period, the petition for Truing up of Aggregate Revenue Requirement for the financial years subsequent to 2017-18.

(2) Every generating business/company or transmission business/licensee or distribution business/licensee or State Load Despatch Centre shall file, on or before the Thirtieth day of November 2019, the Mid-term Performance Review (MPR) which shall comprise the truing up for the financial year upto 2018-19 and mid year performance review for the year 2019-20 and the revised forecast for the year 2020-21 and 2021-22 on account of unexpected variations if any on controllable and uncontrollable parameters;

(3) All petitions shall be filed in the manner as specified in the Kerala State Electricity Regulatory Commission (Conduct of Business) Regulations, 2003, as amended from time to time.

(4) The applicant shall submit the forecast of Aggregate Revenue Requirement and proposal for revision of tariff, if required, for the financial year or years in this Control Period, in such manner and within such time limit as specified in these Regulations

(5) The formats for furnishing information for calculating expected revenue and expenditure and for determining tariff shall be as per Annexure-XII to these Regulations.

(6) The applicant shall provide all details supporting the forecast, including but not limited to the details of past performance, proposed initiatives for achieving efficiency or productivity gains, technical studies, contractual arrangements and/or secondary research and such other details as required by the Commission, to enable it to assess the reasonableness of the forecast.

(7) The applicant shall prepare the Aggregate Revenue Requirement based on the actual and reasonably forecast the individual variables that constitute the Aggregate Revenue Requirement during the Control Period.

(8) The applicant shall prepare the forecast of expected revenue from existing tariff and charges based on the following:-

(a) In the case of generating business/company, the generation capacity allocated to distribution business/licensees and expected electricity generation by each unit/station for each financial year of the Control Period;

(b) In the case of transmission business/licensee, the transmission capacity allocated to users of the transmission system and energy

expected to be transmitted for each financial year of the Control Period;

(c) In the case of distribution business/licensee, the contracted demand and the quantum of electricity to be supplied to consumers and to be wheeled on behalf of users of the distribution system for each financial year of the Control Period;

(d) Prevailing tariffs and charges as on the date of preferring the petition.

(9) Based on the forecast of Aggregate Revenue Requirement and expected revenue from the existing tariff and charges, the generating business/company or transmission business/licensee or distribution business/licensee shall submit the sources for meeting the revenue gap if any including efficiency gains, tariff increase or any other means, with complete details of such measures, in the Aggregate Revenue Requirement.”

11. As per the Second Transfer Scheme notified by the Government under Section 131 of the Electricity Act, 2003, the activities of the company are being carried out through Strategic Business Units (SBUs) for each of the functions of generation, transmission and distribution. In line with the transfer scheme, KSEB Ltd has filed petition for approval of separate ARR&ERC for three SBUs viz., SBU-G, SBU-T and SBU-D.

Procedural formalities

12. After admitting the petition, the Commission has displayed a copy of the petition in its website and issued notice to KSEB Ltd informing the admission of the petition and informing the date of public hearing. The Commission also directed to place copy of the petition in the website of KSEB Ltd. The Commission directed the licensee to publish the approved summary of the petition by giving time till 23-11-2018 for providing comments by the public and stakeholders. The licensee published the summary of the petition in the following dailies.
 - Kerala Kaumudidaily dated 9-11-2018
 - Deshabimani daily dated 9-11-2018
 - Times of India daily dated 9-11-2018

13. The Kerala High Tension and Extra High Tension Industrial Electricity Consumers Association in their request dated 7-11-2018 requested time for preparing the comments and to postpone the public hearing after 06.12.2018. The Commission considered the request for postponement of the hearing and rescheduled the public hearing at Thiruvananthapuram to 10-12-2018.
14. KSEB Ltd vide letter dated 16-11-2018 had furnished a corrigendum to the Application for approval of ARR &ERC for the control period 2018-19 to 2021-22 for incorporating inadvertent typographical errors which crept in to the Table 6.45 of the petition. The Commission approved the same for publication and the postponement of the public hearing was included in the corrigendum. Accordingly, the same was published on 23-11-2018. The Commission vide letter dated 7-11-2018 had directed all other licensees in the State to give maximum publicity about the tariff revision proposal of KSEB Ltd among the consumers in their area of supply for obtaining comments and objections.
15. The Commission sought clarification and additional details and the reply furnished by KSEB Ltd is as shown below

Clarifications sought	Reply furnished by KSEB Ltd
Letter No. 1668/F&T/2018/KSERC/895 dated 16-11-2018	Letter No. KSEB/TRAC/FO/MYT/4954 dated 6-12-2018
1668/DD(T)/2018/KSERC/MYT/CAPEX dated 22-11-2018	Letter No. TRAC/GL/ARR&ERC-2018-22/18-19/4965 dated 15-12-2018
Letter No. 1668/F&T/2018/KSERC/986 dated 13-12-2018	Letter No. KSEB/TRAC/FO/MYT/4956 dated 7-12-2018
Letter No. 1668/F&T/2018/KSERC/18 dated 9-1-2019	Letter No. KSEB/TRAC/FO/MYT/4974 dated 21-12-2018
	Letter No. KSEB/TRAC/FO/MYT/4985 dated 26-12-2018
	Letter No. KSEB/TRAC/FO/MYT/5003 dated 4-1-2019
	Letter No. KSEB/TRAC/FO/MYT/5012 dated 10-1-2019

Public Hearings

16. Public hearings on the petition were held at following places as shown below:

Date	Venue	Time
26-11-2018	Nalanda Auditorium, Kozhikode	11:00 AM
27-11-2018	Corporation Town Hall, Ernakulam	11:00 AM
28-11-2018	Municipal Conference Hall, Kattappana	11:30 AM
10-12-2018	Institution of Engineers Hall, Vellayambalam, Thiruvananthapuram	11:00 AM

17. The lists of persons who attended the Public Hearings are given in Annexure-I. The Commission has received several comments and objections from the consumers and general public on the petition of KSEB Ltd during the public hearing and also through written submissions. A list of stakeholders who furnished written comments are enclosed as Annexure – II. The Commission has forwarded the comments received from the stakeholders to KSEB Ltd and KSEB Ltd has furnished their reply on the same as shown below:

1. Letter No. KSEB/TRAC/FO/MYT/4970 dated 20-12-2018
2. Letter No. KSEB/TRAC/FO/MYT/4977 dated 21-12-2018
3. Letter No. KSEB/TRAC/FO/MYT/4986 dated 27-12-2018
4. Letter No. KSEB/TRAC/FO/MYT/4990 dated 28-12-2018
5. Letter No. KSEB/TRAC/FO/MYT/4996 dated 29-12-2018

Deliberations in the Advisory Committee

18. The Commission convened the State Advisory Committee meeting on 17-12-2018 in Thiruvananthapuram. The Advisory Committee discussed the petition of KSEB Ltd for the Control period 2018-19 to 2021-22 and the tariff petition in detail in the meeting. The highlights of the proposed tariff revisions for the various consumer categories, revision in the transmission charges, SLDC charges, wheeling charges, cross subsidy surcharge & power factor incentive were discussed. The rationale for the capital expenditure programme such as providing sufficient redundancy in the transmission system, renovation and modernisation programmes,

distribution network strengthening and improving reliability etc., were also discussed. Some members have also raised concerns about the proposal for increase in demand charges and consequent impact on open access and competition, reduction in incentive for power factor etc. There was also discussion on the netting off of dues with Government of Kerala and adjustment of electricity duty. The Minutes of the Meeting of the State Advisory Committee is given as Annexure III

19. The Commission, after duly considering the views, suggestions and objections submitted by the consumers, the licensees and other stakeholders as well as the views expressed by the Members of the State Advisory Committee, hereby issue the following orders on the petition No.OA 15/2018 filed by KSEB Ltd.

Chapter 2

Comments of Stakeholders on various issues

- 2.1 The Commission has received several comments and objections both in writings and orally during the public hearings from the stakeholders on the petition for approval of ARR&ERC and tariff petition filed by KSEB Ltd. The major issues raised by the stakeholders, the comments of KSEB Ltd and views of the Commission is given below:

Augmenting Internal Generation of power

- 2.2 Sri. NS Alexander stated that KSEB Ltd has incurred time and cost over run in many hydel projects and the Commission should look into such increase in costs. The Democratic Human Rights and environmental protection forum stated that KSEB cites financial burden of power purchase cost from outside the state as the reason for tariff hike. However no steps have been taken to achieve self sufficiency and till date no projects have been completed in time and exceeded the estimates. Sri. Shoufar Navas has stated that many power projects are stalled and alternate source of power is not explored.

Reply of KSEB Ltd

- 2.3 In reply KSEB Ltd stated that project wise progress of ongoing and proposed projects have been submitted to the Commission. KSEB Ltd further stated that power purchase cost alone does not comprise the expense of the Utility. Economically viable projects in the State are limited and the projects in the state are delayed due to land availability and forest clearance issues, geological surprises, contractor related issues. These are not fully controllable by KSEB Ltd. KSEB Ltd has taken all steps to commission the projects on time.

Opinion of the Commission

- 2.4 The Commission notes that certain stakeholders with supporting details narrated the cost over run and delay in the execution of some of the hydel projects. Though KSEB Ltd had stated that delays were due to difficulties in case of land acquisition, geological surprises and contractor related issues, the Commission is of the view that some of the projects are delayed much beyond the accepted time frame, and some have even

stopped. As per the provisions of the Regulations, cost over run and time over run factors need to be considered while approving the capital expenditure. Accordingly, the Commission cannot approve any increase in the capital costs due to time over run without a detailed examination.

Estimation of hydro generation

- 2.5 Confederation and Indian Industries stated that projected generation from own hydel generation is to be evaluated by an independent committee. CII also stated that the rate assumed for sale outside the State is lower than industrial tariff.

Excess Rainfall and sale of surplus energy

- 2.6 Many employee unions such as Standing Council of Trade Unions, HNL, TELK employees union, Premier Tyres Workers Union, Premier Tyres Workers Association, Premier Tyres Employees Union, TCC Employees Association and Unions, PTL enterprises Limited, HIL Officers Association, HIL employees a joint trade Union council, HNL employees Association, Hindalco Joint Trade Unions, Kerala News Print Employees Union, Hindustan Paper Corporation employees association, HOC joint Trade Union, GTN Textiles, Travancore Cochin Chemicals, District Textile Mill workers Union, Palakkad district textile Mazdoor sangam, Patspin India limited employees Association have raised the issue that the KSEB Ltd has received the benefit of copious rain, which should be sufficient to raise additional revenue. It is strange that even when there is sufficient and more water, tariff revision is being proposed by KSEB Ltd.
- 2.7 Similarly, the Democratic Human Rights and environmental protection forum stated that KSEB Ltd has received excess water for generating Rs.200 crore of power but refuses to transfer the benefits. There was improper management of dams during the floods. Shri Radhakrishnan stated that Kerala had the best rainfall in recent past, but KSEB Ltd failed in utilising the natural resources.

Reply of KSEB Ltd

2.8 In reply to the above, KSEB Ltd stated that only 30% of the energy demand is met from hydro sources and balance 70% is met from imports. There is also an increase in the cost on account of imports. Moreover, the increased generation and additional revenue from outside state sales has been considered in the petition. The external sale depends not only on reservoir level but on a number of other factors. Benefit of external sale is passed on to the consumers. The rate of external sales and the consumer tariff cannot be compared as they are determined by different rationales. KSEB Ltd has accounted for the complete water inflow in the generation plan for the control period and entire generation is accounted. The unprecedented rainfall forced KSEB Ltd to open the dam shutters as these dams did not have the capacity to hold the entire flood water and are not built for controlling floods. Central Water Commission in its official report on floods in Kerala has already concluded that such allegations are baseless.

Opinion of the Commission

2.9 The Commission notes that there was excess rain fall during August 2018. Accordingly, there is a possibility for higher hydro generation in the current year compared to the previous year provided the inflow during the rest of the water year will be as expected. KSEB Ltd had estimated the hydro generation for the year 2018-19 based on the actual generation up to September 2018. While providing clarifications on the hydro energy estimation, KSEB Ltd has revised the hydro generation estimates for the rest of years in the control period duly accounting for higher inflow during the year. The Commission has also considered the excess energy generation and consequent possibility of sale of surplus energy has also been accounted in the estimates. Hence the benefits of excess generation has been accounted while deciding the ARR&ERC for the control period.

Low Cost Generation to be earmarked for domestic consumers

2.10 Sri Lorance, KM stated that domestic consumer is to be allowed to enjoy cheap hydro power with certain limit. Kerala Jana Vedhi State Committee, Kozhikode has stated that tariff for consumption upto 500 units shall be the cost of hydel generation and fixed return only.

Reply of KSEB Ltd

2.11 KSEB Ltd in its reply stated that generation cost only part of the utility expenses. The other expenses shall also be considered for tariff otherwise, there will be excess burden for other consumers and utility run the risk of business loss.

Opinion of the Commission

2.12 The argument that hydro generation is to be accounted only to domestic consumers is not tenable since such steps would increase cost to other consumers considerably. However, benefit of lower tariff has been given to the domestic consumers as the present tariff structure reflects lower tariff for low consuming segments of the domestic consumers. Thus the present tariff structure is designed to address the issue raised by the stakeholders.

Cost of Small Hydro projects

2.13 ChalakudiPuzha protection forum stated that foregoing hydro generation over imports is to be analysed. The SHPs are not economical. Anakkayam, Pahassi Sagar, Peruvannamoozhi projects all have high capital cost. Project proponents project high water availability but lack credible hydrological data. Further generation in 2021-22 is to be enhanced to reduce the power purchase cost. Shri. Jose Paul Koratty stated that stalled hydel projects should be handed over to private parties. Shri. Radhakrishnan stated that SHP expenses are above 200% of national average.

Reply of KSEB Ltd

2.14 KSEB Ltd stated that Peruvannamoozhi is tail race scheme using the tail water from Kuttiyadi HEP, KES and KAES, which has a PLF of 47%. In the case of Anakkayam SHEP, it utilises the tail water of Sholayar HEP which is designed to run throughout the year. The Pazhassi Sagar has PLF of

34%. KSEB Ltd further stated that the projects which are stalled due to land acquisition and other contractual issues are being restarted.

Opinion of the Commission

2.15 KSEB Ltd has furnished the details of capital expenditure of SBU (G) projects for the control period. The Commission in the present proceedings has considered the provisional addition of assets for the control period. Further, the asset additions for the year 2016-17 and 2017-18 is also provisional. While approving the capital expenditure programme, project viability etc., would be considered in detail.

Augmentation of internal hydro generation and renewable energy

2.16 Shri Rajasekahran Nair, Thiruvananthapuram stated that KSEB Ltd is unwilling to take up hydro projects. KSEB Pensioners Association in their comments stated that KSEB Ltd has to take immediate steps to augment internal power generation from conventional and non-conventional sources so as to achieve self sufficiency. The possibility of converting the existing LSHS stations to gas based stations may be explored. Ms Prasanna Vasavan, Secretary BharathiyaJanatha Party stated that KSEB Ltd is not promoting any small projects instead large projects are being promoted. Idukki, Palakkad and Kasaragod districts have wind potential and KSEB Ltd is neither implementing nor allowing private projects. At present 72% of the energy distributed is purchased and imported, which is obstructing the generation within the State. Shri. TT Emmanuel has also raised the issue that cost of power purchase is increasing and no long term solution is proposed for energy self sufficiency. He also stated that there is no provision for 500 MW new Idukki project.

Reply of KSEB Ltd

2.17 KSEB Ltd in its reply stated that there is limited scope for conventional hydro and thermal projects because of environmental, land availability and other issues. Renewable energy generation has its own limitations. KSEB Ltd further stated that only preliminary studies have been initiated for new Idukki project.

Opinion of the Commission

2.18 In this context, the Commission is of the view that as a distribution licensee, it is the responsibility of KSEB Ltd to procure or generate electricity at lowest cost, for supplying to its consumers. The decision to initiate hydro projects or renewable projects would by and large depend on the project viability and the Commission in any case would adopt normative parameters for approval of such projects. It is the responsibility of the licensee KSEB Ltd to propose projects after detailed study of its technical, economic and financial viability.

O&M expenses

2.19 KSEB Pensioners Association stated that O&M works shall be given its rightful importance and priority especially in the context of recent floods. The O&M expenses shall be determined based on statutory requirements and industry standards. Apollo tyres stated that though there a study by IIM Kozhikode on the HR management of KSEB Ltd the same has not been implemented.

2.20 Shri. K.R Radhakrishnan Stated that employee cost and A&G costs are increasing exorbitantly. Sri Lorance K.M. also stated that staff strength in KSEB Ltd is very high and the salary disbursements are to be computerised and establishment section in the office is to be removed. Shri. Shoufar Navas has stated that employee cost of KSEB Ltd is very high. Shri. P.P Antony stated that effective utilisation of manpower is required and excess employees are to be redeployed and the vehicle expenditure is high. M/s Nita Gelatin India Limited stated that pay revision proposed by KSEB Ltd should be reworked for the smooth working of the industry. Sri. Jose Paul Koratty Stated that no new appointments be made till KSEB is profitable. At present no. of employees are in excess.

Reply of KSEB Ltd

2.21 In reply KSEB Ltd stated that they are in final stages of employee redeployment and restructuring. In the Tariff Regulations, O&M expenses are capped by adopting norms. At present KSERC does not allow salary and benefits of about 5000 employees. Business growth and consequent man power requirement are not considered for years.

KSEB Ltd stated that several steps are being taken to control employee costs and the report given by IIMK is being finalised.

Opinion of the Commission

2.22 The Commission consider the O&M expenses as controllable factors and accordingly had determined the O&M expenses based on norms. Normally the normative O&M expenses only is allowed to be passed on to the consumers' tariff. Hence, it will act as an incentive/disincentive mechanism for cost control.

Shortage of meters

2.23 KSEB Pensioners Association stated that shortage of meters is a perennial issue in distribution. Metering is to be improved with state of art technology including smart meters. The Democratic Human Rights and environmental protection forum and Shri. C.K. Jayakumar, consultant stated that all street lights to be metered and prepaid meters to be introduced in all cities. And tariff for single point supply to be introduced. Shri. P.M Varkey stated that electricity theft cases are not seriously pursued by KSEB Ltd and the loss due theft is increasing. The Commission should undertake an enquiry in the matter.

Reply of KSEB Ltd

2.24 In reply to Shri. P.M.Varkey, KSEB Ltd stated that theft cases are being strongly monitored by APTS wing of KSEB Ltd. At present electricity theft has been declined in the state.

Opinion of the Commission

2.25 This is an operational issue to be considered by KSEB Ltd

Loss on Account of One Time Settlement

2.26 Sri. N.S Alexander, stated that KSEB Ltd has suffered losses in OTS extended to Binani Zinc and Punalur Paper Mills. According to him the Commission should examine such issues.

Reply of KSEB Ltd

2.27 In reply KSEB Ltd stated that OTS schemes are permissible under Regulations and implemented to clear long pending arrears. The

concessions to Punalur Paper Mills was a revival package of the GoK. The calculation of CAG was incorrect and is mentioned in the audit reply.

Opinion of the Commission

2.28 The Regulations provides for claiming bad debts. The Commission is also examining the actual write off during the truing up process and the same is being allowed only after prudence check.

Arrears of electricity charges

2.29 The KSEB Pensioners Association stated that KSEB Should take effective steps to collect mounting arrears from state government and related consumers. In order to avoid and eliminate litigations in metering prepaid metering system should be implemented, which is more advantageous to consumers and licensee. Sri. K. Govindankutty stated that no action for realising the arrears have been taken by KSEB.

2.30 Democratic Human Rights and Environmental Forum stated that KSEB Ltd has not complied with the orders of the Commission for furnishing quarterly reports of arrears collection since September 2013 arrears have increased to Rs.533 crore. Resident's Apex Council of Kozhikode stated that action should be initiated to collection of arrears. Shri. Shoufar Navas has stated that the arrears are increasing.

Reply of KSEB Ltd

2.31 In reply on arrears, KSEB Ltd stated that report on arrears have been included in the quarterly performance reports. A major portion of the arrears on account of dues from PSUs like KWA and other Government departments. These are essential services against which drastic action cannot be taken. Further prolonged litigation also affects recovery of arrears. Hence, one time settlement schemes are offered periodically.

Opinion of the Commission

2.32 While determining the tariff, the Commission takes into consideration the billed revenue and hence the consumers are insulated against the receivable. However, there would be cash flow issues and consequent financing cost for the licensee, if the arrears are not properly managed.

In the present order, the Commission had approved the collection efficiency of 98% for 2018-19 & 2019-20 and 99% for 2020-21 and 2021-

22. The AT&C loss for the control period from 2018-19 to 2021-22 is approved based on these parameters proposed by the licensee.

Uniform implementation of rules and regulations

2.33 The Pensioners Association stated that there is a need for uniform adoption of rules and regulations by the licensee

RPO

2.34 The Kerala Renewable Energy Entrepreneurs and Promoters Association stated that KSEB Ltd shall minimise purchase of REC from open market and reallocate the amount of other capital investments. Further RPO obligation targets to be fixed to large commercial and industrial consumers in the State.

2.35 Democratic Human Rights and Environmental Protection Forum stated that non-conventional energy to be purchased is 5% as fixed by the Commission, but KSEB Ltd has not complied with it and the renewable energy generation is only 0.3%

Reply of KSEB Ltd

2.36 In this regard, KSEB Ltd stated that it has taken best efforts to meet the RPO and it is planning to meet RPO through competitive bidding route for RE sources. Tenders for 200MW solar power from IPPs and another 200 MW from roof-top plants are being prepared. Tender for 200MW wind power is also being prepared. Thrissur Corporation stated that KSEB Ltd is not pursuing the RPO properly. Chalakudi Puzha Samrakshana Samithi stated that more RPO should be promoted. KSEB Engineers Association stated that aggressive solar penetration is not good for the grid. Sri. Mata Amruthanandamayi Matt stated that in order to meet RPO, participation of HT and EHT consumers can be used and BOOT model PPA can be entered into with the consumers. KSEB Ltd further stated that already different projects and tenders for purchase of RE power has been initiated.

Opinion of the Commission

2.37 The Commission is of the view that KSEB Ltd has to meet the RPO as per the provisions of the Regulations and Tariff Policy. However, purchase

from such projects should be strictly as per the guidelines issued by Government of India.

Fixed cost of RGCCPP

2.38 Travancore Cochin Chemicals requested that KSEB Ltd renegotiate the fixed charges to RGCCPP.

Reply of KSEB Ltd

2.39 In reply KSEB Ltd has mentioned that since already the reduction in fixed cost has been approved by KSEB Ltd and there is no necessity to review that matter.

Opinion of the Commission

2.40 The Commission in the *suomotu* order on determination of tariff did not consider the fixed cost of RGCCPP and later, after the discussion with Government of Kerala, KSEB Ltd and NTPC has reduced the fixed cost to Rs.200 crore. The same is considered for the year 2018-19. However, there is a provision in the latest agreement with NTPC for review of these fixed charges in 2018-19. KSEB Ltd must utilise this clause and should initiate steps for negotiation with NTPC to bring down the fixed costs further since the period of PPA is not over.

Master trust for Pensions

2.41 The KSEB Pensioner's Association stated that in 2015, State Government has created a Master Trust for meeting the unfunded liability of pension in KSEB and the same is not operational even now. Hence KSEB Ltd may be directed to make this fund fully operational without further delay.

2.42 Travancore Cochin Chemicals stated that disallow Rs.372.9 crore additional interest for unfunded master trust. Further liabilities prior to 31-10-2013 is to be rejected.

Reply of KSEB Ltd

2.43 In reply KSEB Ltd stated that additional liability on the Master Trust is as per the actuarial valuation report. The liability prior to 31-10-2013 has not been taken over by any agency.

Opinion of the Commission

2.44 Based on the details furnished by KSEB Ltd, the Commission is of the view that the Master Trust is not working as envisaged. KSEB Ltd stated that they will take up the matter with the Government for finalising the arrangement for funding. Since the issue involves funding for payment of pension and other retirement benefits to KSEB Ltd retirees, the Commission will take up separate proceeding to examine the working of the Master Trust shortly.

Distribution

2.45 Shri Shoufar Navas stated that losses of KSEB Ltd in the petition has been inflated. The benefits of the Uday Scheme is not shown in the petition. The T&D loss in KSEB Ltd is very high. The power purchase cost is very high even with plenty of rains.

Reply of KSEB Ltd

2.46 In reply KSEB Ltd stated that the accounts of KSEB Ltd are audited by several agencies. The projections are based on audited accounts. KSEB Ltd has signed the technical part of the Uday scheme only. The power purchase cost is based on the PPA and it is independent of hydro generation.

Tariff Related issues

a. On Domestic Tariff

2.47 General Secretary, Federation of Residents Associations, Thiruvananthapuram (FRAT) submitted that, if KSEB Ltd could recover the arrears amounting to Rs 2500.00 crore, the present proposal of KSEB Ltd for tariff revision could have been avoided. He requested to reject the tariff proposal of KSEB Ltd. General Secretary, Residents Association's Co-ordination Council (RACCO) submitted that, the proposal to increase domestic tariff may not be allowed. Residents Apex Council, Kozhikode requested not to increase the fixed charges of domestic consumers

2.48 Sri. DejoKappan, President, democratic human rights and environment protection forum submitted that, the proposal of the KSEB Ltd to

increase the tariff of the low income groups and subsidised consumers and, to reduce the tariff of the high income group is against the policy mandate of the Left Democratic Government. He further submitted that, KSEB Ltd is not taking any steps to collect the arrears from private consumers.

2.49 Sri. N. S, Alexander, Nadackal house, Puliyanor P.O, Kottayam district, submitted that, KSEB Ltd has not taking any steps to reduce their expenditure and to collect the arrears from consumers.

2.50 Many individual consumers also raised concern on the increase in tariff proposed by KSEB Ltd for domestic categories.

Reply of KSEB Ltd

2.51 Domestic tariff does not reflect the actual cost of supply. The tariff had been kept low in the past for avoiding tariff shock. As per the provisions of the EA-2003 the tariff of all categories of consumers should reflect the actual cost of supply. Further as per the provisions of the Tariff Policy notified by the Central Government, the tariff of all categories of consumers shall be within $\pm 20\%$ of the average cost of supply. There is huge accrued gap since the tariff of domestic and similar categories are kept much lower compared to the average cost of supply.

Opinion of the Commission

2.52 The Commission has examined the anxiety and demand expressed by the domestic consumers. Kerala State Electricity Regulatory Commission is a quasi judicial body functioning as per the provisions of the Electricity Act, 2003. As per the provisions of the Electricity Act, 2003, the tariff should progressively reflect the cost of supply of electricity. As per the Tariff Policy 2016 notified by the Central Government, the tariff of all categories of consumers shall be brought within $\pm 20\%$ of the average cost of electricity. Further, as per the Section 86(4) of the Electricity Act, 2003, the Commission shall be guided by the Tariff Policy, while discharging its functions. As per the various judgments of the Hon'ble APTEL, the cross subsidy of the subsidising categories cannot be increased and the subsidy level of the subsidised categories cannot be decreased. The cost coverage of the domestic category at the pre-revised tariff order dated 17.04.2017 is about 74% only. Since then, the

average cost of supply has increased by about 10%. Considering all these factors, the Commission has proposed an increase of about 10% in overall tariff of the domestic category as against about 15% increase in tariff proposed by KSEB Ltd.

- 2.53 The Commission has also examined the contention of the stakeholders that, the present tariff revision can be avoided if KSEB could collect the arrears outstanding amounts to more than Rs 2500.00 crores. This is not correct. KSEB Ltd maintains its accounts on accrual basis and not on cash basis. The Commission also determines the ARR and tariff on accrual basis. Thus, the recovery of outstanding dues by KSEB Ltd cannot be treated as income in the ARR for the year in which arrear is collected. In accrual based accounting system, the charges are recognized as income once the bills are raised. In other words, all the arrears of electricity charges of KSEB Ltd have already been treated as income for the year in which the corresponding demand was raised and the revenue gap is worked out in each year, based on the expenditure over and above such income on accrual basis. Hence the arrears cannot again be reckoned as income when the same is collected during subsequent years.
- 2.54 The Commission also fixes the tariff based on the accounts compiled on accrual basis. Treating the realization of arrears as an income would amount to double counting of income, first when the bills are raised and the second when the arrears are realized. Therefore, the arrears shown in the accounts of the KSEB Ltd which have already been considered as income when the bills were raised by KSEB Ltd cannot be treated as income again on realization. It is true that the non-realization of old dues leaves the utility cash starved with no option but to resort to short term borrowing or withholding payment of dues resulting in creation of liabilities. Hence while the realization of arrears would definitely improve the financial position of the KSEB Ltd, can in no way be treated as income.

b. LT Industrial tariff

- 2.55 The Kerala Small Scale Industries Association requested that, the fixed charges of the small scale industries may be kept unchanged. The

Association also requested to increase the limit of contract demand from 100 kVA to 150 kVA.

- 2.56 The Kerala State Small Scale Rice, flour and Oil Miller's Association requested the reduction in fixed charges approved for LT Industrial consumers having connected load less than 10 KW may be continued. The Palakkad district Rice and Flour and Oil Mini Millers Association, and the Kerala SamsthanaCherukida Rice, Flour & Oil Millers Association, also requested to not to increase the fixed charge of LT Industrial consumers.
- 2.57 KSSIA Ernakulam unit submitted that, the daily electricity use of the small industries is limited to 8 hours only, hence the fixed charge may be reduced to 1/3rd.
- 2.58 Kerala Small Scale Industrialists Federation requested that, since the consumers are paying all expenses incurred for power connection, the fixed charges may be withdrawn.
- 2.59 Kerala State Ice Manufacturers Association requested that, they cannot survive an increase in electricity tariff, as they are already in crisis due to shortage of seafood and raw materials.
- 2.60 Edayar Small Scale Industries Association submitted that, the proposed fixed charges may not be allowed. Amendment to the Supply Code, 2014 may be done to enhance the connected load at LT from 100 kVA to 150 kVA.
- 2.61 Many individual consumers also raised serious concern on the excessive increase in fixed charges proposed by KSEB Ltd.

Reply of KSEB Ltd

- 2.62 Fixed Charges shall reflect fixed cost incurred by utility. At present the fixed charges, does not cover such expenses. The FC needs to be revised to reflect the correct price signal.

Opinion of the Commission

- 2.63 The Commission examined the comments and suggestions by the various stakeholders regarding the increase in tariff proposed for LT-IV Industries by KSEB Ltd. The Commission cannot agree with the request of the certain consumers to completely eliminate the fixed charge for LT industrial consumers having connected load less than 10 KW. However,

considering the difficulties faced by the various rice and flour mills as pointed out by the Rice Mill Owners Association and other small scale consumers, and considering the importance of such small ventures in the overall economy of the State, the Commission has decided not to substantially increase the fixed charges for LT Industrial consumers having connected load up to 20 KW. However, considering the increase in cost of supply of KSEB Ltd due to increase in cost of power purchase and inflation, the Commission decided to increase marginally the energy charges for small scale industries also. The details of the tariff approved for LT-IV (A) Industrial consumers are discussed in Chapter-6 of this order.

- 2.64 As per the Regulation 8 of the Kerala Electricity Supply Code, 2014, the maximum load that can be connected at LT is specified as 100 kVA. Since the amendment to the Kerala Electricity Supply Code 2014 is in progress, this demand to enhance the limit of maximum load can be connected at LT from 100 kVA to 150 kVA stands referred to the Committee constituted for this purpose.

c. HT & EHT Industrial tariff

- 2.65 The Kerala HT& EHT Industrial Electricity Consumer's Association (herein after referred as HT&EHT Association) submitted that, with the proposed excessive increase in fixed charge, the HT&EHT consumers have to pay higher fixed charge to the DISCOM without consuming any power as and when they avail open access. KSEB Ltd proposed to recover 40% of its costs through fixed cost. The HT&EHT association further submitted that, the revision in fixed charge as proposed by KSEB Ltd is abnormally high and would result in already cross-subsidising HT&EHT consumers severely.
- 2.66 M/s GTN Textiles submitted that, the increase in fixed charge proposed by KSEB Ltd may take away the flexibility of the unit to curtail production during the periods when the demand for its products is weak. In the primary and secondary manufacturing sector, income shows declining trend from 2011 to 2017 by 15%. This will worsen with the proposed increase in electricity tariff by KSEB Ltd.

- 2.67 FACT submitted that, the financial impact on them, at the proposed tariff by KSEB Ltd is about Rs 7.00 crore per annum. The Southern India Mills Association submitted that, at present the demand charge is fixed by the KSEB Ltd to cover the cost of the infrastructure facilities. The standing council of trade unions, Ernakulam submitted that, the proposed increase in demand charge is to limit the open access consumption by industries. Hence the proposed increase in demand charge may not be allowed.
- 2.68 The management and trade unions of M/s Hindustan News Print Ltd (HNL) submitted that, the proposed increase would result in an additional burden of Rs 12.00 crore per annum to M/s HNL. The average maximum demand charge in India is Rs 250/kVA, where as the present demand charge in Kerala is Rs 290.000/kVA.
- 2.69 M/s AppolloTyres, M/s PATSPIN Ltd, trade unions of Appollo Tyres, Travancore Cochin Chemicals Ltd (TCC), Sri. V.D. Satheesan, MLA, TCC employee unions etc opposed the proposed excessive increase in demand charges.

Opinion of the Commission

- 2.70 The Commission has carefully considered the representations and concern raised by the HT&EHT Industrial consumers. While determining the tariff for the control period, the Commission has duly considered the different views and not approved the excessive increase in demand charge as proposed by KSEB Ltd for various categories of consumers including HT&EHT industrial consumers, which are explained in detail under Chapter-6 of this Order.
- 2.71 The average tariff of the HT&EHT Industrial consumers as per the pre-revised tariff approved vide the order dated 17.04.2017 is less than +120% of the average cost of supply. Further, as explained in Chapter-6, the average cost of supply during the first year of the control period 2018-19 has increased by about 10% over last revision in 17.04.2017. The Commission has to increase the tariff keeping in view this increase and also to recover the approved revenue gap. While doing so, the Commission is required to ensure that, the cross subsidy of the subsidising categories shall not increase further, and the subsidy of the subsidised categories shall not decrease further. Further, the

Commission has also to ensure that, the proposed increase in tariff would not result in tariff shock to the consumers.

- 2.72 Considering all these factors and also as per the provisions of the Electricity Act, 2003, the Commission has approved an increase in the over all tariff of the HT&EHT industrial consumers of the State, as detailed under Chapter-6. While determining the tariff, the Commission has also ensured that, there is no increase in cross subsidy of the HT&EHT industrial consumers.

d. Bulk supply tariff for small licensees

- 2.73 M/s Infopark submitted that, the proposal to increase demand charges from Rs 300/kVA to Rs 800/kVA will adversely affect M/s Infopark and other small licensees. Further, the increase in demand charge proposed for HT-1 (B), the main consumers of the Infopark and other small licensees, is from Rs 300/kVA to Rs 450/kVA only. The difference between the demand charge of the BST and RST will results in further widening the revenue gap.
- 2.74 Thrissur Corporation Electricity Demand (TCED) submitted that, the power purchase cost may be increase by Rs 7.51 crore where as the extra income expected by the proposed revision is about Rs 2.09 crore only.
- 2.75 M/s Smart City, Kochi submitted that, by the proposed BST, the cost of purchase may increase by 20%. The large difference between the proposed BST and RST of the IT and IT enabled services in LT and HT may have high impact on the development of the IT sector in Kerala.
- 2.76 M/s Technopark submitted that, on account of the proposed BST and RST, the additional liability on them for the year 2019-20 would be about Rs 1.42 crore.

Opinion of the Commission.

- 2.77 The Commission has examined in detail the views and concerns raised by the small licensees on the Bulk Supply Tariff proposed by KSEB Ltd. As explained in detail under Chapter-6, the Commission has not agreed with the excessive increase in fixed charge/ demand charge proposed by KSEB Ltd without any justifiable reasons, for the various categories of consumers availing supply LT, HT and EHT, including the BST applicable

to small licensees. So the concerns raised by the small licensees regarding the increase in demand charge is addressed by the Commission.

- 2.78 The Commission has revised the Retail Supply Tariff (RST) of all categories of consumers including the IT& IT enabled services availing supply at LT and HT. Since the Commission has been following uniform RST across the State, there will be additional revenue to the small licensees also at the approved RST. The Commission has assessed the additional revenue to each licensees at the approved tariff, and the existing BST of the small licensees has increased in proportion to the increase in additional revenue to the small licensees at the approved RST. So the concerns raised by the small licensees was addressed by the Commission in this tariff order. The details are given under Chapter-6 of this order.

e. Tariff for educational institutions run by Centre for Professional and Advanced Studies (CPAS)

- 2.79 Director, CPAS vide the letter dated requested before the Commission to allow the concessional tariff applicable to the Government / Government aided educational institutions to them.

Opinion of the Commission

- 2.80 As per the prevailing Tariff Order, Government/ Government aided educational institutions are categorised under LT-VI (A) tariff. The Commission cannot specify the appropriate tariff for each consumers in the State. KSEB Ltd and other licensees may categorise the consumers for charging electricity as per the Schedule and Terms and Conditions of Tariff notified by the Commission from time to time.

f. Tariff for LBS centre for Science and Technology and its associated Institutions

- 2.81 The Principal LBS Institute of Technology for Women, has requested before the Commission to provide electricity tariff for LBS centre for Science and Technology and its associated Institutions on par with Government/ Aided colleges, in view of the Government order G.O (Ms) No. 251/2018 dated HEDN dated 15.10.2018.

Opinion of the Commission

2.82 The Commission has examined the request as per the provisions of the Electricity Act-2003, Tariff Policy 2016 and the KSERC (Terms and Conditions for Determination of Tariff) Regulations, 2018. The Commission has noted that, in the case of the Government/ Aided educational institutions, all the expenses associated with the administration of the educational institutions are met by the Government from its exchequer.

LBS Centre for Science and Technology is an autonomous body registered under the Travancore-Cochin Literary, Scientific and Charitable Societies Registration Act XII of 1955, established by Government of Kerala in 1976. The administrative expenses of the autonomous bodies are not met by the State Government, though grants are provide by the Government to such institutions. The fees for the studying at LBS center is much higher than the that prevailing at similar Government/ Aided Educational Institutions. Hence it is not appropriate to equate the electricity tariff for LBS with that of Government / Aided Educational Institutions.

Hence the Commission is of the view that , the electricity tariff applicable to the Government / Aided Educational Institutions cannot be extended to the educational Institutions run by the autonomous bodies under the State Government. The request of the LBS centre is rejected.

g. Request to categorize Calicut International Airport under Industrial Tariff.

2.83 The Airport Director, Calicut International Airport vide the letter dated 29.11.2018 has requested to treat Calicut International Airport, at par with Industries for determining power tariff under HT-1 (A) instead of HT-II General- B tariff.

Opinion of the Commission

2.84 The Commission after duly considering the request has concluded that the airport cannot be treated as “industry” for tariff categorisation considering the composite use of electricity at airports. The Commission, as per the Section 62(3) of the Electricity Act, 2003 and also duly considering the judgments of Hon’ble APTEL in Appeal No. 106

dated 26.02.2009 and the judgment dated 17.04.2013 in Appeal No. 42 of 2012, has been categorised the airport under EHT at EHT General-B and at HT at HT-II (B) category. The HT-II(B) and EHT-General (B) tariff are less than the commercial tariff at HT and EHT level, but higher than the respective Industrial tariff. Hence the Commission declines the request of the Calicut International Airport.

h. Tariff for banking activities of LIC and postal departments.

- 2.85 KSEB Ltd submitted that, as per the prevailing tariff order dated 17.04.2017, all offices of Department of Posts, all post offices including extra departmental (ED) post offices are categorised under LT-VI (B) tariff, insurance companies under LT-VI(F) tariff, whereas the banks and ATMs are categorised under LT-VI (C) Tariff. The postal departments and insurance companies diversified their activities by starting banking activities at certain branches and also setup ATM counters at such branches. Hence KSEB Ltd requested to categorise the 'offices of departments of posts' and 'insurance companies' engaged in banking activities under LT VI(C) General category.

Opinion of the Commission

- 2.86 The Commission examined the proposal in detail. The Commission in the present order has decided to categorise the insurance companies under LT VI (C) tariff, at part with the tariff applicable to banks. The Commission noted that, the volume of banking transactions at post offices are very small. Hence it is not appropriate to categorise offices of departments of posts/ post offices engaged in banking activities under LT-VI(C) tariff and accordingly the proposal of KSEB Ltd is rejected. However, the ATMs if any setup by the post offices shall be categorised under LT VI(C) tariff along with the ATMs of banks.

i. Power factor incentives

- 2.87 The Kerala HT& EHT Industrial Electricity Consumer's Association (herein after referred as HT&EHT Association) and other HT& EHT consumers, vehemently opposed the proposal of the KSEB Ltd to reduce the power factor incentives and the disincentive proposed for PF below 0.95. The stakeholders also criticised the statement of the KSEB Ltd that, the

existing consumers were already compensated for the investment made by them for PF improvement.

Opinion of the Commission

2.88 The Commission has examined the proposal of KSEB Ltd and the objections put forth by the stakeholders in detail. It is an undisputable fact that, PF should be improved and the consumers are required to take efforts to maintain unity power factor. If the PF is not maintained by the consumers, it will affect the power system of the distribution utility.

2.89 As per the Central Electricity Authority (CEA), Technical Standards for Connectivity to the Grid) Regulations, 2007, para-2 under Part-IV specified that, the bulk consumer shall maintain PF at 0.95 or above. The relevant portion of the Regulation is extracted below.

“2. Reactive Power The distribution licensees shall provide adequate reactive compensation to compensate the inductive reactive power requirement in their system so that they do not depend upon the grid for reactive power support. The power factor of the distribution system and bulk consumer shall not be less than 0.95.”

2.90 The said Regulation also defines the ‘bulk consumer’ as the consumers availing supply at 33 kV or above. Accordingly, all such consumers of the State shall maintain a power factor not less than 0.95. As per the CEA Regulations, it is mandatory that, all bulk consumers has to maintain the PF at 0.95, however, there is no mandate for such consumers to maintain the PF above 0.95. Hence, the Commission is of the view that, proper incentive can be provided for those who maintain the PF above 0.95 which helps the licensee’s system. The Commission is of the view that there is no merit in the argument of the KSEB Ltd that, since the existing consumers are already compensated for the capacitors and other investments made for maintaining the power factor, there is no requirements for providing PF incentives.

2.91 The decision of the Commission on PF incentive and di-incentive are detailed under Chapter-6 of this order.

j. Tariff for Kochi Metro Rail Corporation (KMRL)

2.92 Kochi Metro Rail Limited (KMRL) submitted that, the increase in power bill at the tariff proposed by KSEB Ltd is about 11.00%. KMRL requested to reduce the demand charges and to retain the 110 kV tariff for 33 kV backup supply also.

Opinion of the Commission

2.93 The Commission noted the issue raised by KMRL. As explained earlier, the Commission has not accepted the increase in demand charge proposed by KSEB Ltd. The decision on the tariff applicable to KMRL is discussed under Chapter-6 of this order.

k. Halcyon Charitable trust

2.94 Halcyon Charitable Trust submitted that, they are serving the poor dialysis patients collecting only Rs 250/- per patient per dialysis. Hence they requested to change the category from LT-VI (G) to LT-VI(D).

Opinion of the Commission

2.95 The Commission, vide the Schedule and Terms and Conditions of Tariff notified from time to time, specified the class of consumers to be charged at LT-VI (D) tariff. The Commission cannot specify the applicable tariff of individual consumers. Hence, the center may approach the KSEB Ltd with necessary documents for classification under the appropriate tariff category.

l. Tariff applicable for agriculture pumping without adequate land holdings.

2.94 KSEB Ltd submitted that, presently, the minimum area prescribed by the Government for agriculture connection as per the Government order dated 06.11.2006 is as follows:

- (i) Agriculture crops - not less than 30 cents of which 75% of the area to be used for cultivation.
- (ii) Vegetables - not less than 10 cents
- (iii) Betel vine - not less than 5 cents.

The consumers holding land as above are now being provided with LT V (A) Agriculture tariff. Presently, there is no uniformity across the State in

assigning tariff for consumers (for agriculture purpose) having their land holdings below the prescribed limit as specified above. Hence, KSEB requested to categorise these group of consumers under LT IV (A) tariff, being motor/power load.

Opinion of the Commission

2.95 The Commission examined the proposal of KSEB Ltd. As per the Section 62(3) of the Electricity Act, 2003, the Commission is empowered to re-categorise consumers based on the purpose of usage. The minimum land holding specified by the State Government, cannot be considered as a criterion for assigning agriculture tariff. If the licensee convinced that, the pumping water is for agriculture purpose, irrespective of the land holdings prescribed by the Government, agriculture tariff can be assigned to such consumers.

Chapter 3

ARR&ERC of SBU-G for the control period

Introduction:

3.1 The provisions of the Regulations require, KSEB Ltd to furnish ARR&ERC for each year of the control period separately for Strategic Business Unit-Generation (SBU-G). In their petition, KSEB Ltd has stated that the generation mix is comprised of hydro, thermal, solar and wind power stations with a total installed capacity of 2232.442MW as on 31-3-2018. Of the total installed capacity, 92.08% is hydro, 7.16% thermal (diesel) and the rest are solar and wind stations. A summary of the source wise installed capacity of generation sources of SBU-G is given below:

Table :3.1

Source wise installed capacity of SBU-G as furnished by KSEB Ltd

Source	Generation (MU)	Installed Capacity (MW)
Hydel	5488.94	2055.75
Thermal	1.86	159.96
Wind	1.48	2.025
Solar	13.45	14.707
Total (Generation)	5505.73	2232.442

3.2 The following sections deals with the analysis and decision on each of the items included in the ARR.

Capital investment plan of SBU-G for the Control period:

3.3 KSEB Ltd, along with the petition for approval of ARR, ERC and Tariff petition, has also filed the 'Capital Investment Plan' for the Strategic Business Units of Generation, Transmission and Distribution, and the assets put in use in each of the above Strategic Business Units so as to approve the interest on capital liabilities, depreciation and O&M expenses of the SBUs. The total Gross Fixed Asset Addition proposed during the MYT period is Rs 15113.08 crore.

3.4 The Commission has conducted a preliminary examination of the details submitted by KSEB Ltd, and noted that, the total Gross Fixed Assets of KSEB Ltd as on 31.03.2018 is only about Rs 18, 500.00 crore excluding the cost of re-valued assets. It means that, the GFA addition proposed in the

four year control period is about 82% of the total GFA created by KSEB/ KSEB Ltd, since its existence in the year 1957 till 31.03.2018

- 3.5 Considering the huge investments proposed by KSEB Ltd in the four year period of the MYT, the Commission has decided to evaluate the investment proposal in Generation, Transmission and Distribution Units, separately through public consultation process, and to conduct prudence check on the investment proposals. The Commission may issue a public notice on the same for the information of the stakeholders separately.
- 3.6 However, as part of the determination of the ARR and Tariff for the current control period, the Commission has decided to provisionally adopt a reasonable level of asset addition for providing interest on debt, depreciation and O&M expenses, for the assets expected to put in use. Based on the details submitted by KSEB Ltd, and the progress of the capital investments made so far, and other information submitted by KSEB Ltd, the Commission provisionally approves the following GFA addition, for the purposes of providing the interest on loan, depreciation and O&M expenses as part of approving the ARR. Its further details are given under Annexure-IV of this order as 'Note on Capital Investment plan'.

Table: 3.2

Asset addition plan provisionally approved for the control period for SBU-G

Sl No	Particulars	2018-19	2019-20	2020-21	2021-22	Total
1	New Hydel projects	0.00	0.00	53.03	42.42	95.45
2	Renovation & Modernisation New		12.22			12.22
3	Solar new		57.51			57.51
4	Ongoing Hydel projects	65.79	354.94	278.30	111.34	810.37
5	RMU- Ongoing		20.40	252.26		272.66
6	Others - DRIP etc		3.00	10.00		13.00
	Total	65.79	448.07	593.59	153.76	1261.21

- 3.7 It is reiterated that this GFA addition approval is strictly provisional as indicated above and is only for estimating the ARR of each of the SBUs of KSEB Ltd. This does not mean that, the Commission has approved the GFA addition as above or dis-allowed the balance portion of the GFA

addition out of the total GFA addition proposed. As clearly stated earlier, the Commission shall separately examine for consideration and approval the capital investment in generation, transmission and distribution, through public consultation process and prudence check. The GFA so approved shall only be considered while truing up of the accounts of KSEB Ltd in each year of the control period.

Estimation of generation availability:

3.8 KSEB Ltd in their petition has estimated the energy availability for the control period from their hydro stations based on the historical water inflow data. The 10 year average water inflow data for the major reservoirs namely Idukki, Pamba, Kakki, Kuttiyad and Idamalayar are taken for estimation of energy availability from major stations and the generation for small hydro stations which do not have significant storage capacity is assessed for monsoon months only. On this basis, KSEB Ltd has estimated the hydro generation for the control period as follows :

Table: 3.3

Estimate of hydro generation from existing hydro sources by SBU-G

Year	Generation MU
2018-19	7881.25
2019-20	6925.93
2020-21	6375.06
2021-22	6131.19

3.9 KSEB Ltd further stated that the actual generation from hydro plants will be regulated based on the energy demand and peak demand, availability of power from CGS, LTA, traders, energy exchange and short term markets etc. The actual scheduling of hydro stations, according to KSEB Ltd, will be based on the following principles :

“ 1. During the monsoon months from June to November, run-of-the-river plants and small hydro stations will be operated continuously to avoid spillage of water.

2. The scheduling of storage plants like Idukki, Sabarigiri etc will be limited to peak hours during the monsoon months so as to store the maximum water for generation, irrigation, drinking and Industrial purposes, salinity control etc during the summer months.

3. *The annual maintenance works of the run-of-the-river and small hydro stations will be scheduled during the summer months so as to ensure their availability for generation during monsoon months.*
4. *On the contrary, for storage plants, the annual maintenance are scheduled during the monsoon months will be ensuring their availability during the summer months.*
5. *Buffer storage of water will be maintained in the major reservoirs in the beginning of June, to meet the contingencies of delayed monsoon. The month wise generation of plants will be scheduled by considering the above aspect.”*

3.10 Hence, the targets proposed for generation is to be considered as tentative. Regarding the drawal of power from thermal stations, KSEB Ltd has stated that because of the high variable costs of power from its two thermal stations viz., KDPP and BDPP, no generation is proposed for the control period. However, scheduling of these plants may be resorted to only in the case of contingency.

3.11 As per the petition, as on 31-3-2018, SBU-G has an installed capacity of 14.707MW from solar plants with an annual generation of about 13.45MU considering a PLF of 16%. Further, new solar plants are also proposed to be added to the system during the control period. The estimated additional installed capacity and generation expected from the solar plants of KSEB Ltd as per the petition are as shown below:

Table : 3.4

Expected generation from solar stations as per the petition

Year	Generation expected (MU)
Upto 31-3-2018	13.45
2018-19	14.96
2019-20	42.61
2020-21	47.60
2021-22	47.60

3.12 Regarding its wind projects, KSEB Ltd stated that the total installed capacity is 2.025MW and the generation expected is 1.5MU.

Auxiliary consumption and energy availability for the control period

3.13 In their petition, KSEB Ltd stated that, auxiliary consumption for their existing and new generating stations are proposed as per the Regulation and ranges from 0.7% to 1.2% based on the type of plants and excitation system. Based on this, the auxiliary consumption for the hydro plants is estimated to be 66.8 MU to 82.46 MU for the control period. The total generation from own plants of SBU-G including hydro, wind and solar stations as per the petition is as shown below:

Table : 3.5
Estimated generation from hydro stations including ongoing hydro stations during the control period

Year	Gross Hydel available(MU)	Aux. Consumption (MU)	Net Hydel Available(MU)	Solar (MU)	Wind (MU)	Aux. Cons wind + thermal	Net generation from Solar & Wind	Total Net Generation Available (MU)
(1)	(2)	(3)	(4)=(2-3)	(5)	(6)	(7)	(8)=5+6-7	9=4+8
2018-19	7,886.45	82.46	7,803.99	14.96	1.79	1.21	15.54	7,819.52
2019-20	6,998.42	72.67	6,925.75	42.61	2.04	1.22	43.43	6,969.18
2020-21	6,564.44	67.86	6,496.58	47.60	2.08	1.22	48.46	6,545.04
2021-22	6,471.77	66.80	6,404.97	47.60	1.79	1.21	48.17	6,453.14

Comments of the stakeholders

3.14 The HT-EHT Association as part of their objections estimated the availability from hydel generation for the year 2018-19 at 8022.91MU based on the actual generation of 5381MU upto October 2018, the storage as on 31-10-2018 and the average water inflow from November to May. According to the Association, there will be an additional availability of 523.08MU for the four years of control period as per their estimation. KSEB Officers Association stated that, the investment in generation sector by KSEB Ltd is low, which is not good.

3.15 Along with the reply to the comments of the Association, KSEB Ltd furnished revised projections for the control period taking into consideration 20 year moving average inflow instead of 10 year moving average given in the petition. The revised projections were resorted to for moderating the impact of two consecutive drought years in the data set.

- 3.16 Sri. NS Alexander stated that KSEB Ltd has incurred time and cost over run in many hydel projects and the Commission should look into such increase in costs. Though KSEB Ltd has paid the cost of afforestation to Kerala Forest Department, no work has been done yet. Sri. N S Alexander commented that instead of investing generating projects with long gestation periods, KSEB Ltd should establish solar projects. In reply, KSEB Ltd furnished project wise progress of ongoing and proposed projects.
- 3.17 Friends of Electricity employees and consumers (FEEC) in their comments stated that the delay in completion of projects is due to lack of decision making at appropriate time. It is better to implement the solar projects than hydro projects considering the delay in commissioning of projects. Considering the ambitious targets fixed by Government of India for renewable energy, the target of KSEB Ltd is very small.
- 3.18 Many employee unions such as Standing Council of Trade Unions, HNL, TELK employees union, Premier Tyres Workers Union, Premier Tyres Workers Association, Premier Tyres Employees Union, TCC Employees Association and Unions, PTL enterprises Limited, HIL Officers Association, HIL employees a joint trade Union council, HNL employees Association, Hindalco Joint Trade Unions, Kerala News Print Employees Union, Hindustan Paper Corporation employees association, HOC joint Trade Union, GTN Textiles, Travancore Cochin Chemicals, District Textile Mill workers Union, Palakkad district Textile Mazdoor Sangam, Patspin India limited employees Association have raised the issue that the KSEB Ltd has received the benefit of copious rain, which should be sufficient to raise additional revenue. It is strange that even with sufficient and more water, KSEB Ltd had proposed tariff revision.
- 3.19 The Democratic Human Rights and environmental protection forum stated that KSEB Ltd has received excess water for generating Rs.200 crore of power and refuse to transfer the benefits. There was improper management of dams during the floods. Shri Radhakrishnan stated that Kerala had best rainfall in recent past and KSEB Ltd failed in utilising the natural resources. Confederation and Indian Industries suggested that

projection of generation from own hydel generation is to be evaluated by an independent committee. CII also stated that the rate assumed for sale outside the State is lower than industrial tariff.

- 3.20 In reply to the above comments, KSEB Ltd stated that only 30% of the demand is met from hydro sources and 70% of the demand is met from imports. There is increase in cost on account of imports. Moreover, the increased generation and additional revenue through outside state sales has been considered in the petition. The external sale depends not only on reservoir level but on number of other factors. Benefit of external sale is passed on to the consumers. The rate of external sales and the consumer tariff cannot be compared since the price of external sale is determined by the prevailing market.
- 3.21 KSEB Ltd has accounted complete water inflow in the generation plan for the control period and entire generation is accounted. The unprecedented rainfall forced opening of dams and these dams did not have the capacity to hold the entire flood water and are not built for controlling floods. Central Water Commission in its official report on floods in Kerala has already concluded that allegations of dam management are baseless.
- 3.22 ChalakudiPuzha protection forum stated that there should be an analysis of the internal hydro generation and the imports. The SHPs are not economical. Anakkayam, Pahassi Sagar, Peruvannamoozhi projects have high capital cost. Proponents these projects estimated high water availability based on unreliable hydrological data. According to the Forum, generation in 2021-22 is to be enhanced to reduce the power purchase cost.
- 3.23 The Democratic Human Rights and environmental protection forum stated that KSEB cites financial burden of power purchase cost from outside the state as the reason for tariff hike. However no steps are taken to achieve self sufficiency in power generation and till date no projects have been completed in time leading to cost escalation. Sri. Shoufar Navas has stated that many power projects are stalled and alternate source of power is not explored.

- 3.24 In reply KSEB Ltd stated that power purchase cost is one of the expense of the Utility. Economically viable projects are limited in the State and the projects are delayed due to issues relating to land acquisition and forest clearance, geological surprises, contractor related issues etc.,. These issues are not fully under the control of KSEB Ltd. KSEB Ltd has taken all steps to commission the projects on time. Regarding excess cost of SHPs, KSEB Ltd stated that Peruvannamoozhi is tail race scheme using the water from Kuttiyadi HEP, KES and KAES, which has a PLF of 47%. The Anakkayam SHEP utilises tail water of Sholarar HEP which is designed to run through out the year. The Pazhassi Sagar has PLF of 34%.
- 3.25 Sri Rajasekahran Nair, Thiruvananthapuram stated that KSEB Ltd is unwilling to take up hydro projects KSEB Pensioners Association in their comments stated that KSEB Ltd has to take immediate steps to augment internal power generation from conventional and non-conventional sources so as to achieve self sufficiency. The possibility of converting the existing LSHS stations to gas based stations may be explored. Shri. Jose Paul Koratty stated that stalled hydel projects should be handed over to private parties. Shri. Radhakrishnan stated that SHP expenses are above 200% of national average In reply KSEB Ltd denied the existence of such issues and stated that projects are stalled due to land acquisition and other contractual issues.
- 3.26 Ms Prasanna Vasavan, Secretary BharathiyaJanatha Party stated that KSEB Ltd is not promoting any small projects but large projects are being promoted. Idukki, Palakkad and Kasaragod districts have wind potential and KSEB Ltd is neither implementing nor allowing private developers to establish projects. At present 72% of the energy distributed is purchased or imported, which is a reason for sluggish growth of generation within the State. Shri. TT Emmanuel has also raised the issue of increase in cost of power purchase. According to him no long term solution is proposed for energy self sufficiency. He also stated that KSEB Ltd has not given any provision for the proposed 500 MW new Idukki project.

- 3.27 KSEB Ltd in its reply stated that there is limited scope for conventional hydro and thermal projects in the State because of environmental issues, limited land availability and other issues. Renewable energy generation has its own limitations. KSEB Ltd further stated that only preliminary studies have been conducted for new Idukki project.
- 3.28 KSEB Engineers Association stated that project wise financial data is not available. Sri Lorance, KM stated that domestic consumer is to be allowed to enjoy cheap hydro power. Kerala Jana Vedhi State Committee, Kozhikode has stated that tariff for consumption upto 500 units shall be determined based on the cost of hydel generation. In reply KSEB Ltd stated that generation cost form only part of the utility expenses. The other expenses shall also be considered for determining the tariff.

Analysis and decision of the Commission

- 3.29 The Commission has considered the comments of the stakeholders and reply of KSEB Ltd. The Commission has noted that KSEB Ltd's estimation of the hydro generation has certain limitations. KSEB Ltd has used the 10 year historical inflow details for projecting the generation for the control period. The projections of own generation of KSEB Ltd included generation from Maniyar and Kuthungal projects (about 59 MU), which are captive projects. During the clarification sessions with KSEB Ltd held in the Commission's office, the issues regarding the projections of KSEB Ltd were discussed. KSEB Ltd thereafter, revised their hydro projections vide letters dated 7-12-2018 and 15-12-2018. In their revised hydro generations for the year 2018-19, KSEB Ltd has used the actual generation upto November 2018 and the expected generation for the rest of the year based on the average inflow. The generation for the rest of the control period was estimated based on inflow data of 20 years. A comparison of the original and revised estimates of hydro generation furnished by KSEB Ltd is shown below:

Table : 3.6

Comparison of the hydro projections by KSEB Ltd

	Initial projections 10year (MU)			Revised projections 20 year (MU)		
	Existing hydro	Ongoing Hydro	Total	Existing hydro	Ongoing Hydro	Total
2018-19	7,881.25	5.19	7,886.44	7,884.28	3.46	7887.75
2019-20	6,925.93	72.49	6,998.42	6,925.93	72.49	6,998.42
2020-21	6,375.05	189.37	6,564.42	6,677.02	189.38	6,866.40
2021-22	6,131.18	340.58	6,471.76	6,687.40	340.58	7,027.99

3.30 The Commission has examined the revised figures and noticed that SBU-G has since removed the generation from the captive hydro projects and substantially revised the energy availability in the last two years of the control period. The generation from new small hydro projects is considered in the month in which the project is proposed to be commissioned. The details of the revised projections of KSEB Ltd are as shown below:

Table : 3.7

Generation from hydro sources as projected by KSEB Ltd

	2018-19	2019-20	2020-21	2021-22
	(MU)	(MU)	(MU)	(MU)
Existing large hydro	7,752.71	6,726.39	6,510.99	6,506.13
Existing small hydro	131.58	199.54	166.04	181.27
Ongoing and new hydro				
Kakkayam	3.46	10.39	10.39	10.39
Boothathenkettu		48.71	83.50	83.50
Upper Kallar		2.14	5.14	5.14
Porigalkuthu AES		11.25	45.02	45.02
Chathankottunada			11.07	14.76
Pazhassi Sagar			9.51	22.83
Thottiyar HES			24.75	99.00
Peruvanamuzhi				21.48
Pallivasal Ext Scheme				38.48
Subtotal-new and ongoing	3.46	72.49	189.38	340.58
Total	7887.75	6,998.42	6,866.40	7,027.99

3.31 As mentioned in earlier sections, the Commission has revised the capital expenditure proposed by KSEB Ltd and the asset addition for the control period. Accordingly, some of the hydro generation stations proposed to

have been commissioned as per the schedule given by KSEB Ltd are shifted to subsequent years based on the details and progress of work furnished by KSEB Ltd. Hence, the expected generation from such stations are also to be adjusted accordingly.

- 3.32 The auxiliary consumption of the existing generating stations have been specified in Regulation 41(2) and that of small hydro stations as per the KSERC (Renewable energy) Regulations. Accordingly, the auxiliary consumption of various stations are as shown below.

Table : 3.8
Auxiliary consumption (%) as per Regulations

	Stations	Type of station	Excitation system	Aux Cons. (%)
1	Kuttiady+KES	surface hydro	Rotating	0.70
2	Poringal	surface hydro	brushless	1.00
3	PLBE	surface hydro	brushless	1.00
4	Sholayar	surface hydro	brushless	1.00
5	EDMR	surface hydro	Static	1.00
6	Pallivasal	surface hydro	brushless	1.00
7	Sengulam	surface hydro	Static	1.00
8	Panniar	surface hydro	Static	1.00
9	NLM	surface hydro	Static	1.00
10	LP	surface hydro	Static	1.00
11	Idukki	Underground	Static	1.20
12	Sabarigiri	surface hydro	Static	1.00
13	Kakkad	surface hydro	Rotating	0.70
14	Small Hydro projects	surface hydro	Static	1.00

- 3.33 Considering the estimates given by KSEB Ltd and the proposed commissioning of the projects, the approved generation from hydro stations for the control period as per the estimates of the Commission is as shown below:

Table : 3.9
Hydro generation approved for the control period

	2018-19		2019-20		2020-21		2021-22	
	Gross Generation (MU)	Aux. consumption (MU)	Gross Generation (MU)	Auxiliary consumption (MU)	Gross Generation (MU)	Auxiliary consumption (MU)	Gross Generation (MU)	Auxiliary consumption (MU)
Existing large hydro	7,536.76	78.53	6,503.17	67.41	6,294.28	65.03	6,279.15	64.68
Existing small hydro	347.53	3.48	422.76	4.23	382.74	3.83	408.25	4.08
Ongoing and new hydro								
Kakkayam	5.19	0.05	10.39	0.10	10.39	0.10	10.39	0.10
Boothathenkettu			48.71	0.49	83.50	0.83	83.50	0.83
Upper Kallar			2.14	0.02	5.14	0.05	5.14	0.05
Porigalkuthu AES			11.25	0.11	45.02	0.45	45.02	0.45
Chathankottunada					11.07	0.11	14.76	0.15
Pazhassi Sagar					9.51	0.10	22.83	0.23
Thottiyar HES					24.75	0.25	99.00	0.99
Peruvanamuzhi							21.48	0.21
Sengulam Aug. Scheme							85.00	0.85
Subtotal-new and ongoing	5.19	0.05	72.49	0.72	189.38	1.89	387.11	3.87
Gross Generation	7,889.48	82.05	6,998.42	72.36	6,866.40	70.75	7,074.51	72.64
Less Auxiliary Consumption	82.05		72.36		70.75		72.64	
Net Generation	7,807.42		6,926.06		6,795.65		7,001.88	

Generation from solar and wind projects

3.34 KSEB Ltd in their petition, stated that some new solar projects are expected to be commissioned during the control period. The generation from these projects are also included in their estimates. KSEB Ltd had also furnished the expected generation from the wind projects. The Commission has considered of generation proposals of the existing and new projects given by KSEB Ltd. KSEB Ltd has as part of the approval for the capital investment programme for the control period furnished the details of new projects. These details are being scrutinised. Pending approval for these projects, the Commission has provisionally considered the energy from these projects as proposed by KSEB Ltd subject to the

condition that the same shall not be construed as the approval of projects and its project cost.

Table : 3.10

Generation approved from wind and solar projects for the control period

	Wind (MU)	Solar projects (MU)	Total (MU)	Auxiliary consumption (MU)	Net Generation (MU)
2018-19	1.79	14.96	16.75	0.17	16.58
2019-20	2.04	42.61	44.64	0.45	44.20
2020-21	2.08	47.60	49.68	0.50	49.18
2021-22	2.08	47.60	49.68	0.50	49.18

Total Net Generation from all sources

3.35 As shown above, the total net generation approved from the various projects of SBU-G is as shown below:

Table : 3.11

Net Generation approved from own stations

	2018-19	2019-20	2020-21	2021-22
	MU	MU	MU	MU
Existing large hydro	7,536.76	6,503.17	6,294.28	6,279.15
Existing small hydro	347.53	422.76	382.74	408.25
Ongoing and new hydro	5.19	72.49	189.38	387.11
Total Hydro	7,889.48	6,998.42	6,866.40	7,074.51
Aux. Consumption	82.05	72.36	70.75	72.64
Net Hydro Generation	7,807.42	6,926.06	6,795.65	7,001.88
Net Wind and Solar	16.58	44.20	49.18	49.18
Total Net Generation	7,824.01	6,970.26	6,844.83	7,051.05

O&M expenses

3.36 SBU-G in their petition has sought O&M expenses for the existing generating stations as per the provisions of the Regulation 45(1)(a). The O&M expenses sought for existing stations of SBU-G is as shown below:

Table : 3.12

O&M expenses claimed for existing stations of SBU-G

Item	2018-19	2019-20	2020-21	2021-22
O&M Expenses (Rs Cr)	123.77	129.77	136.05	142.63

3.37 KSEB Ltd stated that the Regulations further allow O&M expenses for new generating stations at four percent (4%) of the original project cost (excluding cost of rehabilitation and resettlement works) in the first year of operation and for the subsequent years, by applying an escalation rate of 4.84% on first year expenses. The O&M expenses estimated by KSEB Ltd for new projects (including solar projects) are at the rate of 4% of the project cost for the first year of and for the subsequent years of the control period. The list of new generating stations and units expected to be commissioned during the control period and their O&M expenses sought by KSEB Ltd is given below:

Table : 3.13

Proposed O&M expenses for new stations during the control period

New Stations	Project cost (Rs. Cr)	Expected completion	2018-19 (Rs. Cr)	2019-20 (Rs. Cr)	2020-21 (Rs. Cr)	2021-22 (Rs. Cr)
Perunthenaruvi SHP*	58.80	2017-18	2.352	2.466	2.585	2.7103
Kakkayam HEP	41.42	2018-19	1.6568	1.736	1.8211	1.9092
Boothathankettu SHEP	214.31	2019-20		8.57	8.9873	9.4223
Upparkallar SHEP	28.31	2019-20		1.1324	1.1872	1.2447
Porigalkuthu AES	141.13	2019-20		5.6452	5.9184	6.2049
Sengulam PH	20.40	2019-20		0.816	0.8555	0.8969
Chathankottunada SHEP	95.53	2020-21			3.82	4.0061
Pazhassisagar SHEP	87.99	2020-21			3.5196	3.6899
Thottiyar HES	235.88	2020-21			9.4352	9.8919
Shengulam Aug. Scheme	111.34	2021-22				4.4536
Peruvanamuzhi SHEP	87.29	2021-22				3.4916
Pallivasal Extn	467.14	2021-22				18.6856
Kottiyam Solar	3.27	2019-20		0.1308	0.1371	0.1438
Kanjikode Solar	11.40	2019-20		0.456	0.4781	0.5012
Agali Solar	5.70	2019-20		0.228	0.2390	0.2506
Brahmapuram Solar	37.14	2019-20		1.4856	1.5575	1.6329
Total O&M Cost	--	--	4.0088	22.666	40.541	69.1355
<i>*The Perunthenaruvi SHP commissioned on 24.10.2017 is also included, as capitalized on 2018-19</i>						

3.38 The total O&M expenses as per norms for the control period 2018-19 to 2020-21 for SBU-G as per the petition is as shown below:

Table : 3.14
Total Operation & Maintenance Cost of SBU-G as per petition

	2018-19 (Rs. Cr)	2019-20 (Rs. Cr)	2020-21 (Rs. Cr)	2021-22 (Rs. Cr)
Existing Stations	123.77	129.77	136.05	142.63
New Stations	4.088	22.666	40.541	69.1355
Total O&M cost	127.858	152.436	176.591	211.7655

Expenses on account of ‘Force majeure’

3.39 KSEB Ltd stated that the State of Kerala had witnessed exceptionally high and continuous rainfall across the State from June 2018, with the monsoon reaching its severity in the 2nd week of August 2018. This unprecedented rainfall in the State caused huge flooding and landslides, resulting in severe losses to KSEB Ltd. As per the petition, five major hydro generating stations and fourteen small hydel stations of KSEB Ltd were badly affected in the flooding. The estimated cost for reconstruction for these stations is estimated at Rs 80.85 Crore (ie., Rs 25.96 Cr for five Major Stations and Rs. 54.89 Cr in Small Stations), excluding the business loss on account of loss of generation. KSEB Ltd further stated that with their earnest efforts, generation at Idamalayar Power House (2x37.5MW), Poringalkuthu PLBE (1X16MW) and Lower Periyar has been restored. Six Small Hydel Projects were also normalized. Poringalkuthu HEP has been partially restored. All the stations except Adiyannpara are expected to be restored by the end of the current financial year. Adiyannpara SHEP is expected to be operational in the next financial year (2019-20) only. KSEB Ltd requested that these losses due to natural calamity are to be treated as a ‘Force Majeure’ event and the additional financial expenditure incurred for restoration may be allowed as a onetime expense of SBU-G for 2018-19, during the truing up of accounts for that year.

Pay revision expenses

3.40 Regulation 14 (3) provides for admission of expenses relating to pay revision during the control period for the same number of employees as admitted in the truing up of accounts for the year 2016-17. KSEB Ltd in their petition has submitted that the pay revision of Officers/workmen is due from July / August 2018. The additional liability is estimated at 10% of Basic pay and DA. Accordingly, the provision estimated to discharge liability as per the petition is furnished below :

Table : 3.15

Pay Revision expenses estimated by KSEB Ltd

Particulars	2018-19 (Rs. Crore)	2019-20 (Rs. Crore)	2020-21 (Rs. Crore)	2021-22 (Rs. Crore)
Basic + DA	2429.97	2631.10	2843.33	3067.19
10% of above	242.997			
Provision for Pay Revision	182.25	263.11	284.33	306.72

3.41 KSEB Ltd has not included the above provision in their ARR and requested that these expenses be allowed as and when it materializes during the truing up process.

Comments of the Stakeholders

3.42 KSEB Pensioners Association stated that O&M works shall be given its rightful importance and priority especially in the context of recent floods. The O&M expenses shall be determined based on statutory requirements and industry standards. Apollo tyres stated that though there a study by IIM Kozhikode on the HR management of KSEB Ltd the same has not been implemented. Shri. K.R Radhakrishnan stated that employee cost and A&G costs are increasing exorbitantly. Sri Lorance K.M. also stated that staff strength in KSEB Ltd is very high and the salary disbursements are to be computerised and establishment section in the office is to be removed. Shri.ShoufarNavas has stated that employee cost of KSEB Ltd is very high. Sri. Satheesh, Electricity Workers Federation, KSEB Ltd stated that the staff strength was fixed in 2002, after that there was increase in section offices & substations, but only redeployment was made. So cost escalation is not just due to increase in

employee cost. Sri. Jayaprakash, Workers Association, KSEB Ltd the costs are increasing, but revenue is not increasing. The allegation that employee cost is high is to be considered with similar entities. Though new substations and section officers are created no new recruitments are taken place. Sri. Navakumar, Oorja Navamadhya koottayima stated that 13% increase in costs over 4 year period cannot be considered as very high, since it is lower than CPI increase. Reduction in employees is not good as it will reduce quality of supply. According to him, Online services are to be popularised and hence sufficient incentives should be given. KSEB Ltd should consider express service option such as tatkal. KSEB OA stated that the number of employees in 2008-09 was 27,000 and in 2018-19 it is 33,000. The actual employee cost is to be allowed. Sri. DijoKappen, stated that if the Employee cost is reduced, there is no need for increase tariff. Sri. N S Alexander stated that it is not known whether the recommendation of the IIM report is regarding redeployment has been implemented. The loss reported by KSEB Ltd has been doubled from 2015-16 to 2016-17. KSEBOA stated that the revenue gap proposed by KSEB Ltd is not inclusive of pay revision, actual depreciation, cost relating to Master Trust and actual O&M expenses. Hence the revenue gap is underestimated.

- 3.43 Shri. P.P Antony stated that effective utilisation of manpower is required and excess employees are to be redeployed and the high vehicle expenditure is to be reduced. In reply KSEB Ltd stated that they are in final stages of employee redeployment and restructuring. In the tariff regulations, O&M expenses are capped by adopting norms. At present KSERC does not allow salary and benefits of about 5000 employees. Business growth and consequent man power requirement are not considered for years. M/s Nita Gelatin India Limited stated that pay revision proposed by KSEB Ltd should be reworked for the smooth working of the industry. Sri. Jose Paul Koratty Stated that no new appointments be made till KSEB is profitable. At present no. of employees are in excess. KSEB Ltd stated that several steps are being taken to control employee costs and the report given by IIMK is being finalised.

Provisions in the Regulations

3.44 Relevant Provisions in the Regulation are given below:

“45. Operation and maintenance expenses. – (1) (a) In the case of existing generating stations of the generation business of KSEB Limited shall be allowed to recover operation and maintenance expenses for each financial year of the Control Period, as per the norms specified in Annexure-VII to these Regulations: Provided that in the case of one time maintenance of special nature, not in the form of routine repair and maintenance if any is required and is undertaken for the generating stations/unit, expenses for such maintenance may be allowed by the Commission after prudence check considering the details and justification furnished by the Generating business/company for incurring such an expenditure to the satisfaction of the Commission.

(b) The generation business of KSEB Limited shall, subject to prudence check by the Commission, be allowed to recover, in addition to the above specified normative operation and maintenance expenses, the annual pension contribution payable by KSEB Limited to the Master Trust, based on actuarial valuation in respect of the personnel allocated to the generation business of KSEB Limited.

(2) In the case of new generating stations, the generating company shall be allowed to recover during the Control Period, the operation and maintenance expenses as specified hereunder,-

a) the operation and maintenance expenses in the first year of operation shall be four percent of the original project cost (excluding cost of rehabilitation and resettlement works); and

b) the operation and maintenance expenses for each subsequent financial year of the Control Period shall be determined using the escalation rate on the operation and maintenance expenses for the first year as determined above.

The Commission may revise the norms for operation and maintenance expenses applicable to subsequent Control Periods.”

3.45 The Annexure VII to Regulation 45(1) is shown below:

Annexure-VII

O&M norms for existing generating stations of generation business of KSEB Limited

	Control period			
	2018-19 (Rs. crore)	2019-20 (Rs. crore)	2020-21 (Rs. crore)	2021-22 (Rs. crore)
O&M Expenses	123.77	129.77	136.05	142.63

Analysis and Decision of the Commission

3.46 KSEB Ltd had claimed the O&M expenses for the existing stations as provided in the Regulations. The O&M expenses for the control period is mentioned as per Regulation 45 as given below:

Table : 3.16

O&M expenses for existing station of KSEB Ltd

	2018-19	2019-20	2020-21	2021-22
	Rs. Crore	Rs. Crore	Rs. Crore	Rs. Crore
Existing stations	123.77	129.77	136.05	142.63

3.47 As per Regulation 45(2), the O&M expenses for new stations will be 4% of the approved capital cost and for the subsequent years of the control period, the O&M expense determined will be escalated at the approved escalation rate of 4.84%. Accordingly, KSEB Ltd has claimed O&M expenses for new stations including the upcoming solar generating stations as indicated in the table above.

3.48 The Commission has examined the details furnished by KSEB Ltd. The O&M expenses for the SHPs and new solar projects are to be as per the KSERC (Renewable Energy) Regulations and in its absence, norms of Central Commission are applicable. Since for the year 2018-19, norms are not available under the Commission's Regulations, CERC norms are to be made applicable. The escalation rates for the control period is 4.84%. Accordingly, the O&M expenses per MW for the SHPs and solar projects for the control period are determined as shown below:

Table : 3.17

Base level and escalated O&M expenses for new SHP and Solar projects

	2017-18	2018-19	2019-20	2020-21	2021-22
SHP >5MW	21.00	22.02	23.08	24.20	25.37
SHP < 5MW	29.00	30.40	31.88	33.42	35.04
Solar	7.34	7.69	8.07	8.46	8.87

3.49 As per the details furnished, the proposed date of commissioning of the ongoing and new projects is as shown below:

Table : 3.18
Proposed month of commissioning

Name of the project	Month of Commissioning
Kakkayam	Oct-18
Boothathenkettu	Sep-19
Upper Kallar	Nov-19
Porigalkuthu AES	Jan-20
Chathankottunada	Jul-20
Thottiyar HES	Jan-21
Pazhassi Sagar	Nov-20
Peruvanamuzhi	Jun-21

3.50 Based on the above, the O&M expense for the new and on going projects are estimated as shown below:

Table : 3.19
Approved O&M expenses for new and ongoing hydro and solar projects

	Name of Scheme	Gen Capacity (MW)	Expected Completion	Benchmark O&M expenses (Rs.lakh/MW)	2018-19 (Rs.crore)	2019-20 (Rs.crore)	2020-21 (Rs.crore)	2021-22 (Rs.crore)
ONGOING HYDEL	Kakkayam	3.00	2018-19	29.00	0.38	0.96	1.00	1.05
	Boothathenkettu	24.00	2019-20	21.00		2.77	5.81	6.09
	Upper Kallar	2.00	2019-20	29.00		0.21	0.67	0.70
	Porigalkuthu AES	24.00	2019-20	21.00		0.92	5.81	6.09
	Chathankottunada	6.00	2020-21	21.00			0.97	1.52
	Thottiyar HES	40.00	2020-21				1.57	9.89
	Sengulam Aug. Scheme		2021-22					
NEW HYDEL	Pazhassi Sagar	7.50	2020-21	21.00			0.63	1.99
	Peruvanamuzhi	6.00	2021-22	21.00				1.14
NEW SOLAR	Brahmapuram	6.50	2019-20	7.00		0.26	0.55	0.58
	Kottiyam	0.60	2019-20	7.00		0.02	0.05	0.05
	Kanjikode	2.00	2019-20	7.00		0.08	0.17	0.18
	Agali	1.00	2019-20	7.00		0.04	0.08	0.09
	Total				0.38	5.27	17.32	29.38

3.51 As shown above, the O&M expenses including solar projects for the control period for SBU-G is approved as Rs.0.38 crore for 2018-19, Rs.5.27 crore for 2019-20, Rs.17.32 crore for 2020-21 and Rs.29.38 crore for 2021-22.

3.52 The total O&M expenses approved for the control period is as shown below:

Table : 3.20
Approved O&M expenses for the control period for SBU-G

SBU-G	As per the petition (Rs. Crore)				Approved for the control period (Rs crore)			
	2018-19	2019-20	2020-21	2021-22	2018-19	2019-20	2020-21	2021-22
Existing Stations	123.77	129.77	136.05	142.63	123.77	129.77	136.05	142.63
New Stations	4.01	22.67	40.54	69.14	0.38	5.27	17.32	29.38
Total	127.78	152.44	176.59	211.77	124.15	135.04	153.37	172.01

Depreciation

3.53 In the petition, KSEB Ltd stated that depreciation has been estimated for the control period as per the methodology followed by the Commission while approving the depreciation for the truing up. KSEB Ltd in their petition stated that in the Truing up order for FY 2015-16, the Commission had approved an amount of Rs.334.87 Croreas depreciation for the year after excluding the depreciation applicable for the assets created out of Consumer contribution and grants. The details given in the petition is as shown below:

Table : 3.21
Depreciation as per Truing up for FY 2015-16 as given in the petition

Item	SBU-G	SBU-T	SBU-D	Total
	Rs.crore	Rs.crore	Rs.crore	Rs.crore
GFA at the beginning of the year	16395.04	4097.22	6115.79	26608.05
Less: Revaluation	11988.98			11988.98
GFA excluding revaluation	4406.06	4097.22	6115.79	14619.07
Addition during the year	34.79	212.24	491.41	738.44
Total	4440.85	4309.46	6607.2	15357.51
Depreciation for the year	122.05	132.84	236.13	491.02
Less: Claw back depreciation			156.15	156.15
Net depreciation allowable	122.05	132.84	79.98	334.87
Average rate of depreciation (gross)	2.77	3.24	3.86	3.36
Average rate of depreciation (net)	2.77	3.24	1.31	2.29

3.54 SBU-G in their petition has stated that they have adopted the same approach taken by the Commission in the true up order for estimating

the depreciation. KSEB Ltd estimated the net average depreciation (after allowing for reduction of depreciation for assets created out of contribution and grants) for the year as 2.77% for SBU-G, 3.24% for SBU-T and 1.21% of GFA. The depreciation on the fixed assets of SBU-G has been calculated at the net average rate of depreciation. Accordingly, the depreciation in line with Regulation 27 of the Tariff Regulations, 2018 for the control period proposed by KSEB Ltd is given below:

Table : 3.22
Depreciation for the control period as per petition

Item	2018-19	2019-20	2020-21	2021-22
	Rs.crore	Rs.crore	Rs.crore	Rs.crore
GFA excl revaluation	4413.63	4513.09	4970.32	6069.18
Addition during the year	99.47	457.23*	1098.86	665.71
Total	4513.09	4970.32	6069.18	6734.89
Depreciation for the year	122.26	125.01	137.68	168.12
Less: Claw back depreciation	--	--	--	--
Net depreciation proposed	122.26	125.01	137.68	168.12

*Excluding grants of Govt of India

3.55 As shown above, KSEB Ltd has estimated depreciation for SBU-G considering the asset additions planned for the control period.

Comments of the Stakeholders

3.56 There was no specific comment from the stakeholders. The HT-EHT Association followed the same methodology adopted by KSEB Ltd for projecting their estimate of depreciation. However, the difference in figures is on account of the amount of GFA used by the Association for the estimations.

Provisions in the Regulations

3.57 Provisions regarding depreciation is given below:

“27.Depreciation. – (1) The value base for the purpose of depreciation shall be the original capital cost of the asset as approved by the Commission:

Provided that no depreciation shall be allowed on increase in the value of assets on account of revaluation of assets.

Provided further that depreciation shall not be allowed on assets funded through consumer contribution, deposit works, capital subsidies and grants.

(2) The generation business/company or transmission business/licensee or distribution business/licensee shall be permitted to recover depreciation on the value of fixed assets used in their respective business, computed in the following manner:-

(a) depreciation shall be computed annually based on the straight line method at the rates specified in the Annexure-I to these Regulations for the first twelve financial years from the date of commercial operation;

(b) the remaining depreciable value as on the Thirty First day of March of the financial year ending after a period of twelve financial years from the date of commercial operation shall be spread over the balance useful life of the assets as specified in Annexure- I;

(c) the generating business/company or transmission business / licensee or distribution business/licensee, shall submit all such details and documentary evidence, as may be required under these Regulations and as may be required by the Commission from time to time, to substantiate the above claims;

(d) the salvage value of the asset shall be ten per cent of the allowable capital cost as approved by the Commission excluding cost of assets created out of contributions and grants and depreciation shall be a maximum of ninety per cent of such approved capital cost of the asset.

(3) In the case of existing assets, the balance depreciable value as on the First day of April, 2018, shall be worked out by deducting the cumulative depreciation approved by the Commission upto the Thirty First day of March, 2018, from the gross depreciable value of the assets.

(4) Depreciation shall be chargeable from the first financial year of commercial operation:

Provided that in the case of commercial operation of the asset for part of the financial year, depreciation shall be charged on pro-rata basis:

Provided further that depreciation shall be re-calculated for assets capitalised during the financial year at the time of truing up, based on documentary evidence for capitalisation of assets submitted by the applicant, subject to the prudence check of the Commission, in such a way that the depreciation is calculated proportionately from the date of capitalisation.

(5) In case a single tariff needs to be determined for all the units of the generating station, the depreciation shall be computed from the effective date of commercial operation of each of the unit taking into consideration the depreciation of individual generating units thereof.”

Analysis and decision of the Commission

- 3.58 The Commission has examined the details furnished by KSEB Ltd. In the petition, KSEB Ltd has taken the average rate of depreciation as on 2015-16 for estimating the depreciation for the control period. While doing so some of the issues with respect to depreciation is not considered by KSEB Ltd. The assumption of KSEB Ltd is valid only if the asset addition and contribution and grants follow the same ratio in the control period as that in 2015-16. In the case of SBU-G and SBU-T, gross depreciation rate and net depreciation rate is same as there was no assets created out of contribution and grants in 2015-16. However, in the petition, there are assets created out of contribution and grants during the control period for SBU-G and SBU-T. Thus, the net percentage of depreciation is not consistent in the case of SBU-T and SBU-G. Further, as per the provisions of the Regulations, accelerated depreciation is applicable for first 12 years and the balance depreciation is distributed to the rest of the useful assets, leaving the salvage value of 10%.
- 3.59 On being pointed out, KSEB Ltd in their letter dated 21-12-2018 has furnished a revised estimation of depreciation for the control period. In the said estimation, KSEB Ltd had considered depreciation at a rate of 1.48% for assets having life more than 12 years and 5.28% for assets having life of 12 years or less. In order to remove the value of fully depreciated assets (ie., assets having only salvage value), assets having life above 30 years was excluded from estimation of depreciation. Since the average value of land in the total GFA is about 2.8%, which was also excluded. The summary of depreciation estimated by KSEB Ltd vide letter dated 21-12-2018 is as shown below:

Table : 3.23

Revised estimation of depreciation furnished by KSEB Ltd

Year	Depreciation as per petition (Rs.Crore)				Revised estimation of depreciation (Rs. Crore)				Difference (Rs.Cr)
	SBU-G	SBU-T	SBU-D	KSEB Ltd	SBU-G	SBU-T	SBU-D	KSEB Ltd	
	1	2	3	4	5	6	7	8	9=(8-4)
2018-19	122.26	172.32	109.72	404.30	138.50	204.97	182.90	555.67	151.37
2019-20	125.01	199.58	143.99	468.58	159.32	280.27	205.36	673.27	204.69
2020-21	137.68	257.03	163.89	588.60	212.80	405.64	250.78	890.33	301.73
2021-22	168.12	344.70	181.71	694.53	235.78	420.37	288.16	964.19	269.66

3.60 As shown above, the revised depreciation for the year is Rs.555.67 crore for KSEB Ltd and is about Rs.151 crore more than the originally estimated value of Rs.404.30 crore for 2018-19 and about Rs.270 crore higher in 2021-22. In this context, it may be noted that KSEB Ltd has not furnished the revised revenue gap in tune with the increase in depreciation.

3.61 The Commission has examined the details furnished by KSEB Ltd. The estimation of depreciation made by KSEB Ltd is a gross approximation of the depreciation as per Regulations. The Commission notes that the depreciation worked out by KSEB Ltd is based on the asset addition as proposed in the petition. Further the rates used for depreciation especially for the new assets having life less than 12 years is 5.28%, which may be high, though about 80% of assets having rate of depreciation at 5.28%.

3.62 The Commission is inclined to use the methodology for estimating depreciation with certain modifications due to the inherent limitations of the Fixed Asset ledger figures as provided by KSEB Ltd, based on which depreciation is to be estimated. The methodology used by the Commission for estimating the depreciation is as shown below:

3.63 As per the accounts of KSEB Ltd, the GFA at the end of financial year 2017-18 is Rs.18516.71 crore including grants and contributions but excluding the revalued assets. The value of land as at the end of the year is Rs.508.17 crore. Thus, the GFA excluding land is Rs.18008.54 crore.

Of this, two asset categories viz., plant and machinery (32.9%) and lines, cable, networks (50.3%) has major share. As per the regulations, the useful life of different categories of assets ranges from 15 to 35 years. Considering the mix of assets and the useful life, the weighted average life of asset is about 31 years as shown in the table below. Similarly, the weighted average depreciation rate for first 12 years based on the mix of assets works out to be 5.14% for the first 12 years.

Table : 3.24
Average life of assets and depreciation rate for KSEB Ltd

	GFA (Rs. Crore)	Share of Assets (Excluding land) (%)	Useful life (Years)	Weighted average life (years)	Depreciation rate (%)	Weighted average rate of depreciation (%)
Land	508.17	0				
Building	852.16	4.7%	35	1.66	3.34%	0.16%
Hydraulic works	1379.29	7.7%	25	1.91	5.28%	0.40%
Other civil works	580.91	3.2%	35	1.13	3.34%	0.11%
Plant & Machinery	5917.18	32.9%	25	8.21	5.28%	1.73%
Lines, Cable networks etc	9065.66	50.3%	35	17.62	5.28%	2.66%
Vehicles	25.00	0.1%	15	0.02	9.50%	0.01%
Furniture & Fixtures	43.81	0.2%	15	0.04	6.33%	0.02%
Office Equipment	144.52	0.8%	15	0.12	6.33%	0.05%
Total GFA Excluding land	18008.54	100%		30.71		5.14%

3.64 As shown in the table, the average life of asset is 31 years. Hence, in the first 12 years, 63% of the assets will be depreciated and this depreciation will be for loan repayment purpose considering the debt : equity ratio of 70:30 and salvage value of 10%. Thus, 70 % of the 90% of the assets will be depreciated in first 12 years or 63% of the assets will be depreciated in first 12 years. The balance value of assets ie., 27% (90%-63%) has to be depreciated in the rest of the useful life of 19 years (19=31-12 years).

3.65 Based on the mix of assets, for the first 12 years the average rate of depreciation will be 5.14%. Since the weighted average life of the assets is 31 years, the balance 27% of the value of assets (90%-63%) is to be depreciated in balance 19 years (31-12 years) of the useful life. Hence

the average rate of depreciation for assets more than 12 years old will be 27%/19 ie., 1.4% per year on a straight line basis.

Asset addition for 2016-17 and 2017-18.

3.66 During the truing up for the year 2016-17, the Commission had sought the details of assets completed and capitalised for the year including part commissioned assets, its original approved cost, project completion cost, cost and time over run etc., KSEB Ltd had not furnished these details except, the details of part completed projects. In the absence of these details, the Commission was not in a position to recognise the asset additions for the year 2016-17. However, for the purpose of estimating depreciation and normative loan, the Commission has considered provisionally, pending details from KSEB Ltd, 50% of the Asset additions less grants and contributions for the year 2016-17. For 2017-18, since truing up is not over the Commission used the figures as per the accounts on a provisional basis. However, the asset additions for the these years will be finalised based on the final approval by the Commission once complete details are furnished by KSEB Ltd.

Provisional Asset additions during the control period

3.67 As mentioned earlier, the Commission has provisionally allowed the capital additions after considering the proposal of capital additions for the control period furnished by KSEB Ltd as shown below:

Table : 3.25
Provisional Capital expenditure additions including grants and contributions
for the control period

	As per Petition				Provisionally considered for the control period by the Commission			
	SBU-G	SBU-T	SBU-D	KSEB Ltd	SBU-G	SBU-T	SBU-D	KSEB Ltd
	Rs. Crore	Rs. Crore	Rs. Crore	Rs. Crore	Rs. Crore	Rs. Crore	Rs. Crore	Rs. Crore
2018-19	99.47	840.84	2,620.25	3,560.56	65.79	511.60	1,768.70	2,346.09
2019-20	477.63*	1,772.05	1,521.74	3,771.42	448.07	1,082.11	1,222.17	2,752.35
2020-21	1,098.86	2,703.95	1,362.97	5,165.78	593.59	1,427.76	811.69	2,833.04
2021-22	665.71	769.32	1,270.24	2,705.27	153.76	615.21	880.75	1,649.72
Total	2,341.67	6,086.16	6,775.20	15,203.03	1,261.21	3,636.68	4,683.31	9,581.20

*Including grants of Govt. of India

Asset additions excluding Grants and contributions:

3.68 The grants and contributions for the year and net asset additions eligible for depreciation is as shown below:

Table : 3.26

Asset Additions excluding grants and contributions

	Year	GFA addition (Rs. Crore)	Grants & contributions (Rs. Crore)	Net GFA for Depreciation (Rs. Crore)
As per Accounts (including Ind AS additions)	2015-16	1,021.17	358.35	662.82
As per Provisional approval	2016-17	1,066.45	646.94	419.51
	2017-18	1,390.57	573.45	817.12
Provisional approval for the control period	2018-19	2,346.09	906.94	1,439.15
	2019-20	2,752.35	424.28	2,328.07
	2020-21	2,833.04	593.29	2,239.75
	2021-22	1,649.72	305.74	1,343.98

Assets eligible for depreciation (GFA excluding contribution and grants)

3.69 As per the order on truing up for the year 2015-16, the GFA excluding revalued assets for KSEB Ltd as on 1-4-2015 was Rs.14619.07 crore and the total grants and contribution as on 1-4-2015 was Rs.4669.99 crore. Since depreciation is not allowed for the assets created out of contribution and grants, the net assets eligible for depreciation as on 1-4-2015 was Rs.9949.06 crore. The Asset addition net contributions and grants which are eligible for depreciation is as shown in the table.

Table : 3.27

SBU wise Value of GFA eligible for depreciation

		SBU-G (Rs. Crore)	SBU-T (Rs. Crore)	SBU-D (Rs. Crore)	GFA eligible for depreciation added for the year (Rs. Crore)	Total GFA excluding contributions and grants (Rs. Crore)
GFA less revalued assets as on 1-4-2015		4,406.06	4,097.22	6,115.79		14,619.07
Total grants & Contributions as on 1-4-2015		-	3.90	4,666.11		4,670.01
GFA eligible for depreciation as on 1-4-2015		4,406.06	4,093.32	1,449.68		9,949.06
Additions Net of Grants-2015-16	2015-16	35.00	280.57	347.25	662.82	10,611.88
	2016-17	289.89	212.73	-83.11	419.51	11,031.39
	2017-18	162.17	478.78	176.17	817.12	11,848.51
	2018-19	65.79	511.60	861.76	1,439.15	13,287.67
	2019-20	448.07	1,057.11	822.90	2,328.08	15,615.74
	2020-21	593.59	1,038.18	607.98	2,239.75	17,855.50
	2021-22	153.76	515.21	675.01	1,343.98	19,199.47

Note: In 2016-17 in the absence of approved capital additions, the Commission has provisionally taken the 50% of 'Asset addition for the year less grants and contributions'

3.70 As shown above, as on the beginning of the year 2018-19, the opening value of assets eligible for depreciation is Rs.11848.51 crore. For 2017-18 and for the control period, the assets addition excluding value of grants and contribution is to be taken for estimating the depreciation. As per the provisions of the Regulations, depreciation is to be estimated for assets having life less than or equal to 12 years and assets having life more than 12 years using different rates. The average life of the assets is estimated at about 31 years. Hence the value of assets more than 31 years is to be excluded since it has reached the salvage value. In addition, the value of land is to be deducted from the gross assets as there is no depreciation for land. In 2016-17, the average value of land is 2.80% of GFA. Based on these details, the depreciation estimated as shown below:

Table : 3.28
Approved depreciation for the control period for KSEB Ltd

ESTIMATION OF DEPRECIATION													
	Assets more than 12 years (Rs. Crore)						Assets less than 12 years (Rs. Crore)				Depreciation (Rs. Crore)		
	>12 Years	>31 years	GFA having life 12 to 31 years	Land	Contribution & Grants	GFA eligible for depreciation	GFA 1 to 12 years old	Land	Contribution & Grants	GFA eligible for depreciation	GFA >12 years @1.4 2%	GFA <12 years @5.14 %	Total
2017-18	7,711.62	535.20	7,176.42	200.94	1,678.96	5,296.52	8,995.05	251.86	3,996.32	4,746.87	75.26	243.99	319.25
2018-19	8,216.85	548.61	7,668.24	214.71	1,895.10	5,558.43	9,880.39	276.65	4,353.63	5,250.11	78.99	269.86	348.84
2019-20	8,684.55	631.57	8,052.98	225.48	2,081.57	5,745.93	11,758.78	329.25	5,074.10	6,355.44	81.65	326.67	408.32
2020-21	9,249.11	669.41	8,579.70	240.23	2,504.14	5,835.33	13,946.57	390.50	5,075.80	8,480.27	82.92	435.89	518.81
2021-22	10,185.03	705.17	9,479.86	265.44	2,953.92	6,260.50	15,843.69	443.62	5,219.31	10,180.76	88.96	523.29	612.25

3.71 Depreciation arrived at as above, is apportioned among the SBUs based on the value of GFA. Accordingly, the depreciation for SBU-G for 2017-18 and for the control period is as shown below:

Table : 3.29
Depreciation applicable for SBU-G

SBU-G			
Year	Total Depreciation of KSEB Ltd	% share of GFA of SBU-G in total GFA eligible for depreciation	Depreciation for SBU-G
	Rs.crore		Rs.crore
2017-18	319.25	41.3%	131.84
2018-19	348.84	37.3%	130.19
2019-20	408.32	34.6%	141.38
2020-21	518.81	33.6%	174.35
2021-22	612.25	32.1%	196.26

*estimate only

3.72 The depreciation arrived at above is purely provisional considering the provisional approval of addition of assets for the year 2016-17 and 2017-18 and for the control period. However, since KSEB Ltd is yet to provide the necessary details to the Commission regarding the value of assets added during this period, the allowable depreciation will be considered during the truing up and shall be based on submission of necessary details as required by the Commission. Any estimation of depreciation as shown above is necessitated due to the non-adherence of Regulations while accounting depreciation by KSEB Ltd. The estimation of depreciation in such matter is not only an approximation, but also susceptible to errors. Hence the Commission is of the view that KSEB Ltd has to maintain the books as per provisions of the Regulations, and if necessary separate books of accounts for regulatory purpose is to maintained.

Interest and financing charges

3.73 In the petition, KSEB Ltd has claimed interest on capital liabilities, interest on working capital, interest on GPF, interest on security deposits and interest on Master Trust under interest and financing charges. Each of the item is explained below:

Interest on capital liabilities:

3.74 KSEB Ltd as per the provisions of Regulation 29, estimated the normative opening loan as on 01.04.2018 after considering GFA, approved depreciation, applicable consumer contribution and grants. Normative loan thus determined is allocated among SBU G, SBU T & SBU D according to the ratio of GFA. Thus, opening normative loan for the control period i.e., 1-4-2018 is determined at Rs 4627.54 Cr and the share of SBU-G is Rs.1127.26 Cr. According to KSEB Ltd, against the normative loan, the actual loan is Rs.6479.35 Cr. The details given in the petition is as shown below:

Table : 3.30

Computation of Normative loan as on 01.04.2018 as per petition

No	Item	SBU G (Rs. Crore)	SBU T (Rs. Crore)	SBU D (Rs. Crore)	Total (Rs. Crore)
1	GFA as on 01.04.2018	16402.61	5314.77	8390.15	30107.53
2	Less: revalued	11988.98			11988.98
3	Balance GFA as on 01.04.2018	4413.63	5314.77	8390.00	18118.39
4	Less: Approved depreciation till 01.04.2017				6840.99
5	Net Fixed Assets				11277.40
6	Less: Equity				3499.00
7	Less: Contributions & grants (62% of Rs.5747 Cr)				3563.14
8	Normative loan 01.04.2017				4215.26
9	Less: Estimated depreciation for 2017-18				405.00
10	Normative loan balance (A)				3810.26
11	Asset addition 2017-18				1390.57
12	Less: contribution received in 2017-18				573.45
13	Normative loan for 2017-18 (B)				817.12
14	Normative loan as on 31.03.2018				4627.38
15	GFA ratio				
16	GFA as on 01.04.2018	16402.61	5314.77	8390.00	30107.38
17	Less: revalued	11988.98			11988.98
18	Balance GFA as on 01.04.2018	4413.63	5314.77	8390.00	18118.55
19	Proportion	24.36	29.33	46.31	
20	SBU wise Loan balance	1127.23	1357.37	2142.78	4627.38

3.75 After considering the normative loan of Rs.4627.38 crore as on 01-4-2018, the asset addition as well as contribution/ grant anticipated and allowable depreciation etc., for each year of the control period is duly taken into account while ascertaining the interest on normative loan. The rate of interest projected for 2018-19 is 9.5% and thereafter a rate of 10% is used for estimating the interest charges for the rest of the

years in the control period. Accordingly, the interest charges for SBU-G estimated by KSEB Ltd for the control period is as shown below:

Table : 3.31
Interest on capital liabilities for SBU-G estimated by KSEB Ltd

Item	2018-19	2019-20	2020-21	2021-22
	(Rs. Crore)	Rs. Crore)	Rs. Crore)	Rs. Crore)
Opening loan	1127.23	1104.44	1436.65	2397.83
GFA addition	99.47	457.23	1098.86	665.71
Less: Consumer contribution & Grants	--	--	--	--
Less: Allowable depreciation	122.26	125.01	137.68	168.12
Normative loan during the year	-22.79	332.22	961.18	497.59
Closing normative loan	1104.44	1436.65	2397.83	2895.42
Average normative loan	1115.83	1270.54	1917.24	2646.63
Interest *	106.00	127.05	191.72	264.66
<i>* @ 9.50% for 2018-19 and @10% thereafter</i>				

3.76 According to KSEB Ltd, the Regulation 29(2) stipulates that the normative loan outstanding as on the First day of April, 2018, shall be worked out by deducting the amount of cumulative repayment as approved by the Commission up to the Thirty First day of March, 2018, from the normative loan. Further, the Regulation 29(5) mandates that the interest on loan shall be calculated average loan as per the norms approved by the Commission for the financial year by applying the weighted average rate of interest. The Regulation 29(4) stipulates that the rate of interest allowed shall be the weighted average rate of interest calculated on the basis of the actual loan portfolio at the beginning of each financial year.

3.77 The Commission has sought clarifications on the estimation of normative loans vide letter dated 16-11-2018. KSEB Ltd have furnished the reply vide letter dated 7-12-2018 in which the figures for the normative loans for the control period were revised. The revised figures are as shown below:

Table : 3.32

Revised statement showing normative loan as on 1-4-2018 by KSEB Ltd

No	Item	SBU G	SBU T	SBU D	Total
		Rs. crore	Rs. crore	Rs. Crore	Rs. crore
1	GFA as on 01.04.2018	16861.56	5178.65	8067.32	30107.53
2	Less: revalued	11988.98			11988.98
3	Balance GFA as on 01.04.2018	4872.58	5178.65	8067.32	18118.55
4	Less: Approved depreciation till 01.04.2018				6539.59
5	Net Fixed Assets				11578.96
6	Less: Equity				3499.05
7	Less: pro rata Contribution & grants				3993.37
8	Normative loan 01.04.2018				4086.54
9	Normative loan balance (A)				4086.54
10	Normative loan as on 31.03.2018				4086.54
11	GFA ratio				
12	GFA as on 01.04.2018	16861.56	5178.65	8067.32	30107.53
13	Less: revalued	11988.98			11988.98
14	Balance GFA as on 01.04.2018	4872.58	5178.65	8067.32	18118.55
15	Ratio	26.89	28.58	44.53	
16	SBU wise Loan balance	1098.98	1168.02	1819.54	4086.54

3.78 As can be seen the normative loan as on 1-4-2018 was revised to Rs.4086.54 crore from Rs.4627.38 crore showing a reduction of Rs.540.84 crore. However, KSEB Ltd did not correspondingly furnished the revised estimate of interest charges in line with the revision in normative loans.

Comments of stakeholders:

3.79 The Association stated that in the past KSEB Ltd had made significantly lower capital additions than the projections for the control period. The HT-EHT Association has relied on alternate estimation of normative loan considering a lower asset additions and contribution for the control period. The Association has not made any comments on the opening level of loans or applicable interest charges. According to the Association, the interest on normative loan will be Rs.239.41 crore in 2018-19 and Rs.449.56 crore in 2021-22.

3.80 On the objection of the Association that actual asset additions are lower than estimated figures, KSEB Ltd stated that dedicated teams were assigned with specific responsibilities for capital additions. Hence it was

stated that the past level of performance may not be a realistic yardstick to measure the proposed capital additions.

Provisions in the Regulations

26. Debt-equity ratio.—(1) *For the purpose of determination of tariff, debt-equity ratio as on the date of commercial operation in the case of a new generating station, transmission line and distribution line or substation commissioned or capacity expanded on or after the First day of April 2018, shall be 70:30 of the capital cost approved by the Commission:*

Provided that the debt-equity ratio shall be applied only to the balance of such approved capital cost after deducting the financial support provided through consumer contribution, deposit work, capital subsidy or grant, if any.

(2) *Where equity employed is more than thirty percent of the approved capital cost, the amount of equity for the purpose of tariff shall be limited to thirty percent and the balance amount shall be considered as normative loan and interest on the same may be allowed at the weighted average rate of interest of the actual loan portfolio.*

(3) *Where actual equity employed is less than thirty percent of the capital cost, the actual equity shall be considered and the balance of the Commission approved capital cost after adjusting for grants and/or contribution shall be treated as normative loan.*

(4) *If any fixed asset is capitalised on account of capital expenditure incurred prior to the First day of April, 2018, the debt-equity ratio allowed by the Commission for determination of tariff for the period ending the Thirty First day of March, 2018 shall be considered.*

(5) *The equity invested in foreign currency if any shall be designated in equivalent Indian rupees at the exchange rate specified by Reserve Bank of India as on the date of each such investment.*

(6) *In the case of retirement or replacement of assets, the equity capital approved as mentioned above, shall be reduced to the extent of thirty percent or actual equity component based on documentary evidence, if it is lower than thirty percent of the original cost of the retired or replaced asset.*

(7) (a) *Swapping of foreign currency loans shall be permitted provided it does not have the effect of increasing the tariff;*

(b) *Cost of swapping and interest expenses thereon, shall be allowed by the Commission only after prudence check;*

(c) *The generating business/company or transmission business/licensee or distribution business/licensee shall provide full particulars of the swapped loans.*

(8) (a) *Restructuring of capital in terms of relative share of equity and loan shall be permitted during the life of the project provided it does not have the effect of increasing the tariff.*

(b) *Any benefit from such restructuring shall be shared in the ratio 1:1 among,-*

(i) *the generating business/company and the persons sharing the capacity charge; or*

(ii) *transmission business/licensee and long-term intra-State open access customers including distribution business/licensee; or*

(iii) *distribution business/licensee and consumers.*

29. Interest and finance charges. – (1) (a) *The loans arrived at in the manner indicated in Regulation 26 shall be considered as gross normative loan for calculation of interest on the loans.*

(a) *The interest and finance charges on capital works in progress shall be excluded from such consideration and not be considered in the ARR and truing up processes.*

(b) *In the case of retirement or replacement of assets, the loan amount approved by the Commission shall be reduced to the extent of outstanding loan component of the original cost of the retired or replaced assets, based on documentary evidence.*

(2) *The normative loan outstanding as on the First day of April, 2018, shall be worked out by deducting the amount of cumulative repayment as approved by the Commission up to the Thirty First day of March, 2018, from the normative loan.*

(3) *Notwithstanding any moratorium period availed by the generating business/company or the transmission business/licensee or the distribution business/licensee, the repayment of loan shall be considered from the first financial year of commercial operation of the project and shall be equal to the depreciation allowed for that financial year.*

(4) *The rate of interest allowed shall be the weighted average rate of interest calculated on the basis of the actual loan portfolio at the beginning of each financial year applicable to the generating business/company or the transmission business/licensee or the distribution business/licensee or State Load Despatch Centre:*

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

Provided further that if the regulated business of the generating business/company or the transmission business/licensee or the distribution business/licensee or State Load Despatch Centre does not have actual loan,

but normative loan is outstanding, then interest shall be allowed at the base rate.

(5) The interest on loan shall be calculated average loan as per the norms approved by the Commission for the financial year by applying the weighted average rate of interest.

(6) The generating business/company or the transmission business/licensee or the distribution business/licensee or the State Load Despatch Centre, as the case may be, shall make every effort to re-finance the loan as long as it results in net savings on interest and in that event the costs associated with such re-financing shall be borne by the beneficiaries and any benefit from such refinancing shall be shared in the ratio 1:1 among,-

(i) the generating business/company and the persons sharing the capacity charge; or

(ii) transmission business/licensee and long-term intra-State open access customers including distribution business/licensee; or

(iii) distribution business/licensee and consumers.

(7) The changes to the terms and conditions of the loans during the financial year, if any, shall be effective from the date of coming into force of such changes.

(8) Interest shall be allowed on the amount held as security deposit in cash from users of the transmission system or distribution system and consumers at the bank rate as on the First day of April of the financial year in respect of in which the petition is filed:

Provided that interest on security deposit actually paid to the users of the transmission system or distribution system and to the consumers during the financial year, shall only be considered at the time of truing up for the financial year.

Analysis and decision of the Commission

3.81 The Commission has examined the details furnished by KSEB Ltd. KSEB Ltd has arrived at the opening level of normative loans for the control period i.e., as on 1-4-2018 based on the asset additions for the year 2016-17 and 2017-18 as per the accounts. However, as mentioned in pre pages, KSEB Ltd in their truing up petition for 2016-17 did not provide the complete list and capital cost details of fixed assets added during the year. Hence the Commission while truing up the accounts for 2016-17 had directed KSEB Ltd to furnish the details of asset additions for the year 2016-17 as per the provisions of the Regulations. But the same has not been furnished yet to the Commission.

3.82 It is to be noted that the Commission in the truing up of accounts of KSEB Ltd for 2015-16 and 2016-17 had arrived at the normative loan of Rs.1951.51 crore as on 31-3-2017 for KSEB Ltd as shown below:

		Rs. crore
1	Net Fixed Assets as on 1-4-2015	8483.82
2	Equity as per accounts	3,499.05
3	Grants and Contribution	2,708.60
	(after depreciation)	
4=1-2-3	Normative Loan as on 1-4-2015	2,276.17
5	Net Addition to loans in 2015-16	380.08
6	Repayment equivalent to depreciation for the year	(334.87)
7	Opening levels of Loan (as on 1-4-2016) (4+5-6)	2,321.38
8	Repayment for the year 2016-17 (Depreciation)	(369.87)
9	Closing level of loans (31-3-2017) (7-8)	1,951.51

3.83 While arriving at the above level of normative loan, the Commission has not considered the asset additions during 2016-17 and 2017-18, for want of sufficient details. However, in order to arrive at the normative loan for the control period, appropriate adjustments have to be made to take care of the assets addition during 2016-17 and 2017-18. Further, KSEB Ltd, as part of adoption of accounting standards as per IndAS, recasted the GFA figures for the previous three from 2016-17 thereby assets which are put into use, but not capitalised and remain under the head 'Capital work in progress' had been transferred to GFA. Considering these aspects, the opening level of normative loan as on 1-4-2016 is arrived at as shown below:

Table : 3.33
Normative loan as on 1-4-2016

		SBU-G	SBU-T	SBU-D	KSEB Ltd
		Rs. crore	Rs. crore	Rs. crore	Rs. Crore
1	Normative Loan as on 1-4-2015	686.02	637.93	952.22	2,276.17
2	Asset Addition in 2015-16	34.79	212.24	491.41	738.44
3	Less Grants and Contribution in 2015-16	(13.11)	(12.93)	(332.31)	(358.35)
4	Net Addition to Assets in 2015-16 (2-3)	21.68	199.31	159.10	380.09
5	Transfer of Assets from CWIP as part of IndAS adoption for the year 2015-16	13.32	81.26	188.15	282.73
6	Repayment equivalent to Depreciation for 2015-16	122.05	132.84	79.98	334.87
7	Opening level of Normative loan as on 1-4-2016 (1+4+5-6)	598.97	785.66	1,219.49	2,604.12

3.84 The asset additions as per the annual accounts and the details furnished by KSEB Ltd as part of clarifications dated 21-12-2018 are as shown below:

Table : 3.34

Addition to GFA excluding grants and contributions as per accounts

		SBU-G	SBU-T	SBU-D	KSEB Ltd
		Rs.crore	Rs.crore	Rs.crore	Rs.crore
1	Addition 2016-17 as per Accounts	450.22	410.19	908.25	1,768.66
2	Less adjustments made as part of Ind AS for 2015-16	(13.32)	(81.26)	(188.15)	(282.73)
3	Net Asset Additions 2016-17 (1-2)	436.90	328.93	720.10	1,485.92
4	Asset Additions 2017-18	182.98	499.01	707.30	1,390.57
5	Assets added from Contributions and Grants 2016-17	(23.67)	(23.34)	(599.93)	(646.94)
6	Assets added from Contributions and Grants 2017-18	(20.98)	(20.69)	(531.78)	(573.45)
7	Asset additions excluding contributions and Grants -2016-17 (3-5)	413.23	305.58	120.17	838.98
8	Asset additions excluding contributions and Grants -2017-18 (4-6)	162.00	478.32	175.52	817.12

3.85 From the above table, the net asset additions excluding those assets created from grants and contributions based on the accounts for 2016-17 would be Rs.838.98 crore and that of 2017-18 Rs.817.12 crore respectively. However, as mentioned above, the Commission is not in a position to approve the entire capital additions for 2016-17 for want of sufficient details from KSEB Ltd. Therefore, in order to arrive at the normative loans for the control period, the figures of asset additions during 2016-17 is to be considered. The Commission is of the view that pending details from KSEB Ltd, as part of approving the normative loan for the control period, asset additions are to be considered on a provisional basis only. Hence the Commission has taken 50% of the net asset additions for 2016-17 (ie., Asset Addition for the year less contribution and grants) and in the case of 2017-18 asset addition as per accounts provisionally. Accordingly the asset additions considered for the year 2016-17 and 2017-18 is as shown below:

Table : 3.35
Provisionally approved assets additions for 2016-17 and 2017-18

	SBU-G	SBU-T	SBU-D	KSEB Ltd
	Rs.crore	Rs.crore	Rs.crore	Rs.crore
Asset Additions 2016-17	313.56	236.07	516.82	1,066.45
Asset Additions 2017-18	183.15	499.47	707.95	1,390.57
Addition to Contributions and Grants 2016-17	23.67	23.34	599.93	646.94
Addition to Contributions and Grants 2016-18	20.98	20.69	531.78	573.45
Asset additions excluding contributions and Grants -2016-17	289.89	212.73	-83.11	419.51
Asset additions excluding contributions and Grants -2017-18	162.17	478.78	176.17	817.12

3.86 As shown above, the asset additions excluding grants and contributions for the year 2016-17 was Rs.419.51 crore and that of 2017-18 is Rs.817.12 crore, as against the actual net asset addition of Rs838.98 crore for 2016-17.

3.87 Based on the above, the value of provisional normative loan as on 1-8-2018 is arrived at as shown below:

Table : 3.36
Provisional normative loan as on 1-4-2018

	SBU-G	SBU-T	SBU-D	KSEB Ltd	
	Rs.crore	Rs.crore	Rs.crore	Rs.crore	
1	Opening levels of normative Loan (as on 1-4-2016)	598.97	785.66	1,219.49	2,604.12
2	Provisional Asset Addition Excluding grants for 2016-17	289.89	212.73	-83.11	419.51
3	Repayment for the year 2016-17 (Depreciation)	(124.59)	(147.71)	(97.57)	(369.87)
4	Net Addition to Normative loan 2016-17 (2-3)	165.30	65.02	-180.68	49.64
5	Opening level of normative loans (1-4-2017) (1+4)	764.27	850.68	1,038.81	2,653.77
6	Addition to normative loan 2017-18	162.17	478.78	176.17	817.12
7	Repayment for 2017-18 (Depreciation)	(131.84)	(136.48)	(50.92)	(319.25)
8	Net Addition to Normative loan 2017-18 (6-7)	30.33	342.29	125.25	497.87
9	Opening levels of Normative Loan (as on 1-4-2018) (5+8)	794.60	1,192.98	1,164.06	3,151.64

3.88 As shown above, the opening level of normative loan for SBU-G is Rs.794.60crore.

Rate of interest for normative loan

3.89 In the petition, KSEB Ltd has estimated the interest charges for the normative loan for the control period at the rate of 9.5% for the first year and 10% for the rest of the control period. As per the provisions of Regulations, average interest rate for the existing loan portfolio is to be used for allowing interest charges for the normative loan. KSEB Ltd has furnished the actual loan portfolio for SBU-G based on the allocation of existing loans for the year 2017-18 as per the clarification dated 7-12-2018. Based on the details furnished by KSEB Ltd the weighted average interest rate is estimated as shown below:

Table : 3.37

Details of the loan portfolio for SBU-G for 2017-18 as furnished by KSEB Ltd

NAME OF THE FINANCIAL INSTITUTION	Net loan-Opening (01/04/17)	Add: Drawal(s) during the Year	Less: Repayment (s) during the year	Net loan – Closing – (31/03/18)	Average loan	Weightage (%)	Interest on loan	Weighted average interest Rate
(A) SECURED LOANS								
LIC Loan	0.98	-	0.49	0.49	0.73	0.05%	0.06	0.00%
REC Loan Thottiyar SHEP	53.73	-	-	53.73	53.73	3.67%	6.63	0.45%
REC Loan Other Schemes	9.20	-	7.42	1.78	5.49	0.37%	0.82	0.06%
REC Special Loan Assistance	305.93	24.47	-	330.40	318.16	21.73%	30.37	2.07%
SOUTH INDIAN BANK Loan Barapole SHEP	90.00	-	4.50	85.50	87.75	5.99%	8.75	0.60%
Dam Rehabilitation and Improvement Project	8.60	40.61	-	49.21	28.90	1.97%	-	0.00%
NABARD RIDF Loan :UKallar HEP &B'sagar SVP	0.45	3.61	-	4.06	2.26	0.15%	0.20	0.01%
PFC Loan - Pallivasal HEP	190.93	0.95	-	191.88	191.41	13.07%	21.84	1.49%
PFC Special Loan Assistance	305.93	31.59	-	337.52	321.72	21.97%	30.43	2.08%
PFC Loan : GEL Kakkayam	12.58	8.00	-	20.58	16.58	1.13%	1.85	0.13%
PFC Loan : GEL Perumthenaruvi	19.92	18.54	-	38.45	29.18	1.99%	2.97	0.20%
TOTAL	998.24	127.78	12.41	1,113.61	1,055.92	72.11%	103.91	7.10%
(B) Unsecured Loan								
Union Bank of India (UBI)Loans - Short Term	-	98.26	98.26	-	-	0.00%	-	
REC Loans - Short Term	-	122.37	-	122.37	61.19	4.18%	1.24	0.08%
SBI Loans - Short Term	122.37	244.74	183.56	183.56	152.96	10.45%	13.87	0.95%
Vijaya Bank Loans - Short term	48.95	97.90	146.85	-	24.47	1.67%	3.55	0.24%
Canara Bank Loans - Short Term	-	122.37	122.37	-	-	0.00%	-	
South Indian Bank Loans - Short Term	48.95	73.42	122.37	-	24.47	1.67%	3.29	0.22%
Bank of India Loans - Short Term	94.84	333.46	379.37	48.93	71.88	4.91%	6.12	0.42%
Andhra Bank Loans - Short Term	146.85	73.42	220.27	-	73.42	5.01%	4.66	0.32%
TOTAL	461.95	1,165.94	1,273.03	354.86	408.40	27.89%	32.74	2.24%
GRAND TOTAL	1,460.19	1,293.72	1,285.45	1,468.47	1,464.33	100.00%	136.65	9.33%

- 3.90 The weighted average rate of interest for the existing loans of SBU-G, as per the details furnished by KSEB Ltd for the year 2017-18 is 9.33%. In their petition, KSEB Ltd had proposed interest rate of 9.5% for the year 2018-19 and a higher rate of 10% for the rest of the control period. The Commission has examined the proposal of the KSEB Ltd. It is a fact that there is hardening of interest rate in the recent past as the repo rate have been increased by 25 basis points, after generally falling for the last three years. Hence there is a case of higher rate of interest in future, though the same is to be established.
- 3.91 The Commission has also examined the interest rate of existing loans. As per the details furnished by KSEB Ltd the opening level of loans for KSEB Ltd as a whole as on 1-4-2017 is Rs.6423.73 crore and closing loans is Rs.6479.35 crore with an average loan balance of Rs.6451.54 crore in 2017-18. The average rate of interest for the entire loans is 9.47%. The share of loans and the interest rate applicable are also given below:

Table : 3.38

Details of the loans of KSEB Ltd for 2017-18

% of loans	Rate of interest
26%	8.02%
47%	9 to 9.08%
21%	9.92 to 11.15%
6%	12.13 to 11.75%
100%	9.47%

- 3.92 As shown above, about 73% of the loans are below 9.08%. and 27% of the loans have more than 9.92%. The Commission notes that the latest loans have comparatively lower rate of interest and the high cost loans have relatively less period for maturity. Hence, even if there is an increase in the rate of interest for the future loans, the average rate of interest may not increase substantially considering the mix of loans. Hence, the Commission decided to maintain the rate of interest for the control period constant. The rate of interest applicable for the control period will be the average rate applicable for the SBUs based on the loan portfolio for 2017-18 furnished by KSEB Ltd. Accordingly, the rate of interest for SBU-G is taken as 9.33%.

Asset addition for the control period

3.93 As mentioned above, the Commission has provisionally approved the asset additions as shown below for SBU-G.

Table : 3.39

Asset additions provisionally approved for SBU-G for the control period

	2018-19	2019-20	2020-21	2021-22	Total
	Rs.crore	Rs.crore	Rs.crore	Rs.crore	Rs.crore
New Hydel projects	-	-	53.03	42.42	95.45
Renovation & Modernisation-new		12.22			12.22
Solar new		57.51			57.51
Ongoing Hydel projects	23.37	354.94	278.30	111.34	767.95
RMU- Ongoing		20.40	252.26		272.66
Others - DRIP etc		3.00	10.00		13.00
Total	23.37	448.07	593.59	153.76	1,218.79
Perunthenaruvi 6 MW	42.42				
Grand Total	65.79	448.07	593.59	153.76	1,261.21

3.94 There are no grants or contribution for creation of assets for the control period. This is because, the grants available for SBU-G is from MNRE, Govt. of India, is booked on receipt basis. As such, the grants are not received yet. Based on the above, interest and financing charges for SBU-G is worked out for the control period.

Table : 3.40

Normative loan and interest charges for the control period

SBU-G	2018-19	2019-20	2020-21	2021-22
	Rs.crore	Rs.crore	Rs.crore	Rs.crore
Opening level of Normative loan (as of 1st April)	794.60	730.20	1,036.89	1,456.13
Provisional Asset Additions for the year	65.79	448.07	593.59	153.76
Contributions and Grants for the year	-	-	-	-
Net Addition to normative loan for the year	65.79	448.07	593.59	153.76
Repayment for the year (Depreciation)	130.19	141.38	174.35	196.26
Closing provisional Normative loan (as on 31st March)	730.20	1,036.89	1,456.13	1,413.64
Average loan	762.40	883.55	1,246.51	1,434.88
Rate of interest	9.33%	9.33%	9.33%	9.33%
Interest Charges	71.15	82.45	116.32	133.90

3.95 As shown above, for the control period, interest charges applicable for SBU-G is Rs.71.15 crore for 2018-19 and Rs.133.90 crore for 2021-22.

Interest on Security deposits

3.96 KSEB Ltd did not claim interest on security deposits for SBU-G as there is no security deposits against SBU-G

Interest on GPF

3.97 As per the petition, Interest on GPF for the control period is estimated @8.40% on the average anticipated balance of GPF. At the end of 2017-18, the closing balance of GPF is was Rs.2207.33 crore. KSEB Ltd estimates that GPF balance will increase by Rs.150 crore during the control period. The details are given below:

Table : 3.41

Estimation of interest on provident fund as per petition

Item	2017-18	2018-19	2019-20	2021-21	2021-22
	Rs. Crore	Rs. Crore	Rs. crore	Rs. crore	Rs. crore
Opening: Provident Fund as on 1 st April	2029.93	2207.33	2357.33	2507.33	2657.33
Addition (net)during the Financial Year	177.40	150.00	150.00	150.00	150.00
Closing: Provident Fund as on 31 st March	2207.33	2357.33	2507.33	2657.33	2807.33
Average PF during the Financial Year	2118.63	2282.33	2432.33	2582.33	2732.33
Average interest rate (%)		8.40%	8.40%	8.40%	8.40%
Interest Charges	156.26	191.72	204.32	216.92	229.52

3.98 KSEB Ltd had segregated the GPF balance among SBUs based on the share of employee cost in 2017-18 and the share of SBU G is shown in the table below:

Table : 3.42

SBU wise interest on provident fund estimated by KSEB Ltd

SBU	Employee cost ratio (2017-18)	2018-19	2019-20	2020-21	2021-22
		Rs. Crore	Rs. Crore	Rs. Crore	Rs. Crore
SBU G	5.13	9.83	10.48	11.12	11.77
SBU T	11.32	21.7	23.12	24.55	25.97
SBU D	83.56	160.19	170.72	181.24	191.77
Total	100	191.72	204.32	216.92	229.52

3.99 As shown above, the share of SBU-G based on the employee cost in 2017-18 is 5.13% and the estimated interest of GPF is allocated based on the said percentage to SBU-G.

Objections of stakeholders

3.100 HT-EHT Association has commented that the GPF balance has to be based on the *suomotu* order for 2017-18. In the said order, the Commission has approved an amount of Rs.1600 crore as the closing balance of GPF and the actual addition as per the balance sheet is Rs.409.90 crore. Hence according to the Association the GPF balance would be Rs.2009.90 crore as on 1-4-2018. The Association has not objected to the interest rate used or the addition to GPF.

3.101 In reply to the comments, KSEB Ltd has stated that the actual GPF balance as per the audited accounts as on 31-3-2018 has been used in the petition. According to KSEB Ltd the determination of GPF balance by arbitrary methods as proposed by the objector is not tenable and is to be rejected.

Analysis and decision of the Commission

3.102 As per the estimates of KSEB Ltd, the closing balance of Provident Fund is Rs.2207.33 crore as on 31-3-2018 and KSEB Ltd has assumed Rs.150 crore per year net additions to GPF balance. In order to estimate the interest charges, 8.4% rate of interest is assumed. The Commission has considered the objections of HT-EHT Association and decided that since the actual GPF balance is available for 2017-18, the same is to be used for projection during the control period.

3.103 As per the details furnished, the average interest rate for GPF for the year was 7.38%. The interest rate applicable for the GPF accumulations for July-Sept quarter of 2018-19 was 7.6% as per the Government of India notifications, which is applicable for State Government as well. The rate has been increased by 0.4% for the period October to December 2018 and the rates as of now is 8%. Accordingly, the Commission has adopted the interest rate for GPF for the control period as 8%. The interest charges for the concerned SBUs has been allocated

as per the methodology used by KSEB Ltd ie., 5.13% for SBU-G. Thus the interest charges for GPF is worked out as shown below :

Table : 3.43

Interest charges approved for the control period

Item	2017-18	2018-19	2019-20	2021-21	2021-22
	Rs.crore	Rs.crore	Rs.crore	Rs.crore	Rs.crore
Opening: Provident Fund as on 1 st April	2,029.93	2,207.33	2,357.33	2,507.33	2,657.33
Addition (net)during the Financial Year	177.40	150.00	150.00	150.00	150.00
Closing: Provident Fund as on 31 st March	2,207.33	2,357.33	2,507.33	2,657.33	2,807.33
Average PF during the Financial Year	2,118.63	2,282.33	2,432.33	2,582.33	2,732.33
Average interest rate (%)	7.38%	8.00%	8.00%	8.00%	8.00%
Interest Charges	156.26	182.59	194.59	206.59	218.59

3.104 Interest charges applicable to SBU-G is as shown below:

Table :3.44

Interest charges for GPF applicable for SBU-G

		2018-19	2019-20	2020-21	2021-22
Interest Charges for KSEB Ltd (Rs. Crore)		182.59	194.59	206.59	218.59
SBU G (Rs. Crore)	5.13%	9.37	9.98	10.60	11.21

Interest on Master Trust

3.105 KSEB Ltd stated that Government of Kerala, as per notifications dated 31.10.2013 and 28.01.2015, establish a scheme for the creation of a Master Trust to meet the unfunded liability of pension, gratuity and leave surrender as on 31.10.2013, in respect of the personnel who were on the rolls of KSEB Ltd and transferred from the erstwhile KSEB to KSEBLtd. The total additional estimates of liability as on 31.10.2013 was estimated by KSEB Ltd appointed Actuaries at Rs.12418.72 Crore. Further, necessary funding arrangements were put in place through issue of 2 series of Bonds. According to KSEB Ltd, the Commission had recognized the unfunded pension liabilities as above and approved recovery of interest on KSEBLtd share of Bonds as per Tariff Regulations, 2014 and 2018. Accordingly, KSEB Ltd claimed interest on the bond issued by KSEB Ltd (Rs 8144.00 Crore) in the present control period. Tariff Regulations, permits claims on interest on the share of bonds

issued to Master Trust. The repayment has started from 2017-18 and the interest due for the control period and its SBU wise segregation are furnished below:

Table : 3.45

Interest on Master Trust Bonds

Item	2017-18	2018-19	2019-20	2020-21	2021-22
	Rs. crore	Rs. Crore	Rs. Crore	Rs. crore	Rs. Crore
Bond Amount	8144	7736.8	7329.6	6922.4	6515.2
Repayment	(407.2)	(407.2)	(407.2)	(407.2)	(407.2)
Interest@10%	814.4	773.68	732.96	692.24	651.52
Balance	7736.8	7329.6	6922.4	6515.2	6108

Table :3.46

SBU wise Interest on Master Trust Bonds

SBU	Employee cost ratio	2018-19	2019-20	2020-21	2021-22
		Rs. Crore	Rs. Crore	Rs. Crore	Rs. Crore
SBU G	5.13	39.67	37.58	35.50	33.41
SBU T	11.32	87.56	82.95	78.34	73.73
SBU D	83.56	646.45	612.43	578.4	544.38
Total	100	773.68	732.96	692.24	651.52

3.106 KSEB Ltd stated that the operationalization of the Master Trust was delayed due to issues relating to Income tax exemption. The Master Trust became operational only from 01.04.2017. KSEBL has been making pension payments, gratuity and leave surrender of the employees retired from 01.11.2013 to 31.03.2017, as 'pay as you go principle', as was done by KSEB till 31.10.2013 and the Commission had approved the same till the truing up of 2016-17.

Additions to Master Trust

3.107 KSEB Ltd further stated that since the actual date of operationalization of the master trust is made only from 01.04.2017, actuarial valuation has been done as on 31.03.2017. The assessed unfunded pension liability, gratuity liability and leave surrender liability is Rs.16147.70 Cr. There was an increase of Rs.3728.98 crore in the liability for the period from 01.11.2013 to 31.03.2017. Thus the net additional unfunded liability as on 01.04.2017 was Rs 3728.98 crore over that on 31.10.2013.

3.108 In their petition KSEB Ltd stated that in order to meet the additional liability as stated above, it was decided to issue 20 year bonds amounting to Rs. 3728.98 Cr at a coupon rate of 10% to the Master Trust. The interest liability of the additional bonds during the control period is apportioned among the SBUs based on the employee ratio.

Table : 3.47
Interest on Additional Bond to Master Trust

SBU	Emp. Ratio	2018-19	2019-20	2020-21	2021-22
	Rs.crore	Rs.crore	Rs.crore	Rs.crore	Rs.crore
G	5.13	19.12	19.12	19.12	19.12
T	11.32	42.20	42.20	42.20	42.20
D	83.56	311.58	311.58	311.58	311.58
Total	100.00	372.90	372.90	372.90	372.90
Total Interest on the total Liability to Master Trust					
G	--	58.79	56.7	54.72	52.53
T	--	129.76	125.15	120.54	115.93
D	--	958.03	924.01	889.98	855.96
Total	--	1146.58	1105.86	1065.14	1024.42

3.109 In the petition, KSEB Ltd further stated that Tariff Regulations also provide recovery of the annual pension contribution by KSEBL to the Master Trust based on the actuarial valuation through tariff on an annual basis. Since, claiming the entire additional contribution to the Master Trust in one-go is likely to result in tariff shock, KSEB Ltd proposed to prepare a detailed scheme in consultation with the Government and the same will be submitted separately.

Comments of the Stakeholders

3.110 The HT-EHT Association requested that the additional commitment to the tune of Rs.3728.98 crore on account of delay in formation of the Master Trust shall not be levied on the consumers. Friends of Electricity Consumers stated that at present KSEB Ltd is giving only the amount required for disbursing the pension to the Master Trust. In order to effectively operate the funds, KSEB Ltd should properly transfer the interest charges and repayment amount to the trust. It is still unclear, how the balance amount will be transfer to the fund.

3.111 In their reply, KSEB Ltd stated that the additional liability is related to actuarial valuation and not related to any delay in formation of the Trust. Further, as per Regulations 45, 58 and 79, KSEB Ltd is entitled to recover the annual pension contribution paid to the Master Trust based on the actuarial valuation in respect of the personnel allocated to the respective functions of KSEB Ltd. KSEB Ltd further stated that though KSEB Ltd is entitled to claim the additional liability accrued from 1-11-2013 to 31-3-2017 to the tune of Rs.3728.98 crore, the same was not claimed in the years from 2013-14 to 2016-17. KSEB Ltd has decided to issue bonds for the additional liability but the process has not been completed yet. Hence only interest portion is claimed in the petition.

Analysis and decision of the Commission

3.112 As per the transfer scheme notified by the Government of Kerala and as per the Regulations, interest on the bonds issued to Master Trust is included in the ARR. KSEB Ltd has accordingly claimed interest on bond value of Rs.8144 crore having maturity of 20 years at the rate of 10% on the consideration that the Master Trust was operational from 1-4-2017. The interest rate allowable for the same is Rs.773.63 crore for the year 2018-19, which is the second year of operation of the Trust.

3.113 In addition to the above, KSEB Ltd has claimed an amount of Rs.372.90 crore per year as the interest cost of additional bonds to be issued to Master Trust on account of increase in the liability. According to KSEB Ltd, actuarial valuation as on 31-3-2017 on the unfunded pension liability, gratuity liability and leave surrender liability was made and the liability was estimated at Rs.16147.70 crore which shows that the fund size has increased by Rs.3728.98 crore during the period from 1-11-2013 to 31-3-2017 for which additional funding is required. KSEB Ltd claims that additional bonds for 20 year period will be issued for an amount of Rs.3728.98 crore at a coupon rate of 10%. Accordingly interest liability of Rs.372.29 crore was claimed. As part of the clarifications, KSEB Ltd has also furnished the copies of the actuarial valuation reports. In the letter dated 26-12-2018, KSEB Ltd has furnished some details on the actuarial valuation. KSEB Ltd claimed that the valuation done on 31-3-2017 pegged the liability at Rs.16148 crore showing an increase of

Rs.3729 crore and the same was incorporated in annual accounts for the year 2016-17. The audited accounts for the year 2016-17 was adopted on 8-11-2018. The actuarial valuation done as on 31-3-2018 resulted in increase in liability of Rs.1584.87 crore, which was incorporated in the annual accounts.

3.114 As per the details furnished by KSEB Ltd, the actuarial liability of gratuity and leave encashment is applicable to all employees including the staff recruited after 1-4-2013 though the pension liability of such employees are not covered in the valuation. The details and explanations furnished by the Actuary was included in the reply furnished by KSEB Ltd, which did not contain the entire details sought by the Commission.

3.115 The Commission has noted several limitations in the proposal. First, the actuarial valuation is not in line with the formation of master trust and its funding. As per the second transfer scheme, Master Trust is created to discharge the terminal liabilities of the pensioners and employees as on the date of transfer ie., 31-10-2013 and KSEB Ltd's commitment for payment to the Master Trust based on actuarial valuation subsequent to the transfer is limited to such personnel only. It is noted that the valuation is carried out for the entire employees of KSEB Ltd in the case of gratuity and leave encashment etc., whereas the Master Fund is for the unfunded liability of pensioners and employees as on the date of transfer scheme ie., 31-10-2013. Secondly, the trust is not functioning as it is originally envisaged. Thirdly, KSEB Ltd could not explain why the additional liability created on account of valuation needs to be funded at a rate of 10%, though no bonds was issued till date. Fourthly, the proposal of KSEB Ltd does not show any amortisation of the additional liability and how the same is accounted in the books of accounts properly. Though KSEB Ltd has stated that the liability has been incorporated in the annual accounts, the same is not properly reflected in the audited accounts for the year 2017-18. As per the annual accounts for the year 2017-18, KSEB Ltd has included as on 31-3-2017 an amount of Rs.16147.7052 crore under *Staff Pension Fund*, whereas the value of the fund is decreased to Rs.5785.62 crore as on 31-3-2018.

- 3.116 The Commission also noted that the actuarial valuation is not carried out as envisaged at least for complying with provisions of Regulations and Orders of APTEL and Hon. High Court of Kerala. KSEB Ltd has furnished the copy of the Actuarial valuation report for the period after 30-11-2013 till 1-4-2017, which shows an enhancement in the value of liabilities by Rs.3728.98 crore. It is observed that the number of employees included is as at the date of transfer ie., 30-10-2013, while the Commission finalising the norms for the present Regulations and in conformity with the Hon. APTEL and Judgment of Hon. High Court had limited the no. of employees to 27175 only. It is not clear that the Master Trust has been properly functional with separate bank accounts and proper inflow of funds as envisaged.
- 3.117 In the reply dated 7-12-2018, KSEB Ltd stated that decision has already been taken to create funding arrangement for the actuarial liability and also furnished a copy of the Board Order No. B.O. (FTD) No.1976/FA&CAS/Actuarial Valuation/2018-19 dated 7-12-2018. In the said Order, it is stated that the Full Time Directors in the meeting held on 5-12-2018 has resolved to accord formal approval for incorporating the actuarial valued terminal liabilities as on 31-3-2017 and 31-3-2018 in the books of accounts for the year 2016-17 and 2017-18 respectively and also authorised the Financial Advisor to taken steps for issuing the additional bonds for the unfunded liability for Rs.5314 crore (Rs.3729 crore+Rs.1585 cr). Thus it is noted that the Full time directors have resolved to take up the liability to the tune of Rs.5314 crore towards terminal liabilities and it is not clear from the reply that the Full time Directors have power to create liability of such magnitude.
- 3.118 As per clause 6(8) and (9) of the Government Order dated 31-10-2018, KSEB Ltd has to pay the annual pension contribution based on the actuarial valuation to the Master Trust in respect of the personnel transferred to KSEB Ltd as on 31-10-2013. Accordingly it is clear that the Master Trust is envisaged for discharging the terminal liabilities of the pensioners and employees on the rolls of the KSEB Ltd as on the date of transfer.

3.119 As per the transfer scheme and constitution of Master Trust, a funding scheme for unfunded terminal liabilities for the employees in the rolls as on 31-10-2013 was created. It was envisaged to issue two streams of bonds in the maturity period of 10 year and 20 years. It was also envisaged that the additional liability on account of actuarial valuation subsequently to be included in the Trust. Thus, as per the scheme the consumers have the obligation of paying for the pension and other terminal benefits of the employees of KSEB Ltd as on the date of second transfer scheme for a limited period of 20 years from the formation of trust. The commitment beyond the period of 20 years are to be met through the surpluses created in the trust. The Commission has obtained the details of cash inflows and outflows from the trust since its formation. KSEB Ltd vide letter dated 7-12-2018 has furnished the following details:

Table :3.48
Details of funds to /from Master Trust

Month		Amount paid to the Trust by KSEB Ltd (Rs. Crore)	Amount paid to pensioners by Trust (Rs. Crore)	Balance in the Trust (Rs. Crore)	Month		Amount paid to the Trust by KSEB Ltd (Rs. Crore)	Amount paid to pensioners by Trust (Rs. Crore)	Balance in the Trust (Rs. Crore)
1	Apr-17	107.17	107.17	-	10	Jan-18	99.48	99.48	-
2	May-17	153.04	153.04	-	11	Feb-18	95.83	95.83	-
3	Jun-17	124.60	124.60	-	12	Mar-18	94.30	94.30	-
4	Jul-17	98.14	98.14	-	13	Apr-18	104.16	104.16	-
5	Aug-17	219.54	219.54	-	14	May-18	103.33	103.33	-
6	Sep-17	25.68	25.68	-	15	Jun-18	121.55	121.55	-
7	Oct-17	110.82	110.82	-	16	Jul-18	116.52	116.52	-
8	Nov-17	112.94	112.94	-	17	Aug-18	219.04	219.04	-
9	Dec-17	99.82	99.82	-	18	Sep-18	35.14	35.14	-

3.120 As shown above, KSEB Ltd is paying only the amount necessary for discharging the pension liabilities in each month and no surplus funds accumulated in the Trust even after 18 months of operation of the Trust. The above details clearly shows that the present operation of the Trust doesn't reflect the envisaged scheme. Considering all these factors, the Commission is decided to hold a separate proceedings towards the determination of funds requirements of Master Trust. Till such time, the Commission provisionally allows Rs.200 crore as an additional funding

for the Master Trust. Hence the figures shown as additional funding for the trust is only provisional and is subject to a prudency check before the same is finally allowed.

Table :3.49

SBU wise Interest on Master Trust Bonds approved for the control period

Funding as per Initial Scheme	Emp. Ratio	2018-19	2019-20	2020-21	2021-22
		Rs. crore	Rs. Crore	Rs. Crore	Rs. Crore
SBU G	5.13	39.67	37.58	35.50	33.41
SBU T	11.32	87.56	82.95	78.34	73.73
SBU D	83.56	646.45	612.43	578.40	544.38
Total	100	773.68	732.96	692.24	651.52
Additional funding for the Trust	Emp. ratio	2018-19	2019-20	2020-21	2021-22
SBU G	5.13%	10.26	10.26	10.26	10.26
SBU T	11.32%	22.64	22.64	22.64	22.64
SBU D	83.55%	167.10	167.10	167.10	167.10
Total	100.00%	200.00	200.00	200.00	200.00
Total Interest on the total Liability to Master Trust		2018-19	2019-20	2020-21	2021-22
SBU G	--	49.93	47.84	45.76	43.67
SBU T	--	110.20	105.59	100.98	96.37
SBU D	--	813.55	779.53	745.50	711.48
Total	--	973.68	932.96	892.24	851.52

3.121 As shown above, the contribution for the Master for SBU G will be Rs. 49.93 crore for 2018-19 and Rs.43.67 crore in 2021-22

Interest on working capital

3.122 KSEB Ltd in their petition has claimed interest on working capital for SBU-G as per the provision of Regulation 32. Interest is allowed on the working capital estimated on a normative basis. Regulation 32(2) allows Interest on normative level of working capital at two percent higher rate than the base rate as on first day of April of the year of ARR. Therefore KSEB Ltd has computed the Interest on Working Capital at a rate of 10.70% (8.70% as on 1-4-2018 + 2%). The parameters adopted for computation of Interest on Working capital for the control period for SBU-G are given below:

Table : 3.50
Parameters for Interest on Working Capital (SBU-G) as per petition

Item	2018-19	2019-20	2020-21	2021-22
Opening GFA (RsCr)	4413.63	4513.09	4970.32	6069.18
O&M Cost (RsCr)	127.858	152.436	176.591	211.7655

Table : 3.51
Interest on Working capital (SBU-G) as per petition

No	Item	2018-19	2019-20	2020-21	2021-22
		Rs. crore	Rs. Crore	Rs. Crore	Rs. crore
1	O&M expenses (as per norms)	10.65843	12.703	14.7159	17.64713
2	Maintenance Spares (as per norms)	44.1363	45.1309	49.7032	60.6918
3	Receivables (as per norms)	0	0	0	0
4	Less: security deposits	0	0	0	0
5	Total Working Capital	54.79463	57.8339	64.4191	78.33893
6	Interest Rate (as per norms)	10.70%	10.70%	10.70%	10.70%
7	Interest on Working Capital	5.863	6.188	6.893	8.382

3.123 As shown above, the interest on working capital for the year 2018-19 is estimated at Rs.5.863 crore and that of 2021-22 as Rs.8.382 crore.

Comments of the Stakeholders

3.124 The HT-EHT Association has stated that the petitioner has calculated at the working capital requirement correctly in the case of generation and transmission. According to the Association, net current assets for SBU-G and SBU-T for the year 2015-16 and 2016-17 and 2017-18 as per the accounts is negative. The components of the balance sheet such as borrowing for working capital and other current liabilities (which is mainly the trade payable due but not paid) results in negative working capital. KSEB Ltd has not detailed the treatment of such items in the petition. Hence, according to the Association, KSEB Ltd is a cash rich entity with negative working capital requirements. Hence interest on working capital shall not be allowed to SBU-G and SBU-T.

3.125 In this context, KSEB Ltd in their reply stated that the working capital is regulated as per Regulation 32. As per the Regulation, working capital is allowed on a normative basis. Hence, the argument of the petitioner is not tenable.

Provisions of the Regulations

“32. Interest on working capital. –(1) The generation business/company or transmission business/licensee or distribution business/licensee or the State Load Despatch Centre shall be allowed interest on the normative level of working capital for the financial year, computed as under,-

(a) In the case of liquid fuel based generating stations the working capital shall comprise of,-

(i) Cost of liquid fuel for one month corresponding to approved generation;
plus

(ii) operation and maintenance expenses for one month; plus

(iii) cost of maintenance spares at one per cent of the historical cost of plant and equipments; plus

(iv) receivables equivalent to fixed charges and energy charges for sale of electricity for one month calculated at the approved generation:

Provided that in the case of own generating stations, no amount shall, in the computation of working capital in accordance with these Regulations, be allowed towards receivables, to the extent of supply of power by the generation business to the distribution business.

(b) In the case of gas turbine/combined cycle generating stations the working capital shall comprise of,-

(i) cost of gas and liquid fuel for one month corresponding to approved generation; plus

(ii) operation and maintenance expenses for one month; plus

(iii) cost of maintenance spares at one per cent of the historical cost of plant and equipments; plus

(iv) receivables equivalent to fixed charge and energy charge for sale of electricity for one month calculated at approved generation:

Provided that in the case of own generating stations, no amount shall, in the computation of working capital in accordance with these Regulations, be allowed towards receivables, to the extent of supply of power by the generation business to the distribution business.

(c) In the case of hydro-electric generating stations the working capital shall comprise of,-

(i) operation and maintenance expenses for one month; plus

(ii) cost of maintenance spares at one per cent of the historical cost of plant and equipments; plus

(iii) receivables equivalent to fixed cost of one month:

Provided that in the case of own generating stations, no amount shall, in the computation of working capital in accordance with these Regulations, be allowed towards receivables, to the extent of supply of power by the generation business to the distribution business.

(2) Interest on normative level of working capital as per this Regulation shall be allowed at a rate equal to two percent higher than the base rate as on the First day of April of the financial year in respect of which the petition for approval of Aggregate Revenue Requirement and determination of tariff is filed. ”

Analysis and decision of the Commission

- 3.126 KSEB Ltd has claimed interest on working capital at a rate of 10.70% for an amount of Rs.5.863 crore for 2018-19, 6.19 crore for 2019-20, Rs.6.893 crore for 2020-21 and Rs.8.382 crore for the year 2021-22. The Association has stated that in actual terms, there is negative working capital requirements for SBU-G and hence interest on working capital shall not be allowed.
- 3.127 The Commission has duly considered the arguments of the Association. As per the provisions of the Regulations, interest on working capital is allowed on a normative basis considering the requirements. Hence, the Commission is not in a position to accept the objections of the Association.
- 3.128 As per the Regulation 32(2), interest on working capital is allowed normatively at a rate equal to two per cent higher than the base rate as on the first day of the financial year in which petition is filed. Accordingly base rate as on 1-4-2018 is applicable. Base rate is the MCLR of State bank of India applicable for the first day of April of the respective financial year for one year tenor and the MCLR of 1 year as on 1-4-2018 was 8.15%. Thus the interest applicable to working capital is 10.15%. Based on the above, the interest on working capital is worked out as shown below:

Table 3.52
Interest on working capital approved for the control period

SBU-G	2018-19	2019-20	2021-21	2021-22
	Rs.crore	Rs.crore	Rs.crore	Rs.crore
O&M Expenses	124.15	135.04	153.37	172.01
GFA - Plants and Equipment	4,950.88	5,016.67	5,464.74	6,058.33
O&M Expenses for one month	10.35	11.25	12.78	14.33
1% of Historical cost of plants & Equipment	49.51	50.17	54.65	60.58
Total requirement of working capital	59.85	61.42	67.43	74.92
Rate of interest	10.15%	10.15%	10.15%	10.15%
Interest on working capital	6.08	6.23	6.84	7.60

Summary of Interest and financing Charges

3.129 The summary of interest and finance charges estimated by KSEB Ltd for SBU-G for the control period is submitted below:

Table : 3.53

Summary of Interest & Finance Charges proposed as per the petition for SBU-G

No	Item	2018-19	2019-20	2020-21	2021-22
		Rs.crore	Rs.crore	Rs.crore	Rs.crore
1	Interest on capital liabilities	106	127.05	191.72	264.66
2	Interest on GPF	9.83	10.48	11.12	11.77
3	Interest to Master Trust	39.67	37.58	35.50	33.41
4	Interest on working capital	5.86	6.19	6.89	8.38
5	Charges to provisional additions to Trust	19.12	19.12	19.12	19.12
6	Total Interest & Finance Charges	180.48	200.42	264.35	337.34

3.130 The summary of interest charges approved by the Commission for the control period is as shown below:

Table : 3.54

Summary of interest charges approved by the Commission

SBU-G	2018-19	2019-20	2020-21	2021-22
Item	Rs.crore	Rs.crore	Rs.crore	Rs.crore
Interest on capital liabilities	71.15	82.45	116.32	133.90
Interest on GPF	9.37	9.98	10.60	11.21
Interest to Master Trust	49.93	47.84	45.76	43.67
Interest on working capital	6.08	6.23	6.84	7.60
Total Interest & Finance Charges	136.52	146.51	179.53	196.39

One Time Expenses : Contribution to CMDRF

3.131 KSEB Ltd in their petition, sought to claim Rs.35 crore, which is their contribution to Chief Ministers Relief Fund in connection with the natural calamity and damage caused due to the floods and land slides during August 2018. The share of SBU-G is estimated at Rs.1.79 crore on this account and the same is included in the ARR as a one time expenses.

Comments of the Stakeholders

3.132 Many participants in the public hearing objected to the inclusion of contribution made by KSEB Ltd towards CMDRF, in the ARR. The stakeholders argued that while it is the prerogative of KSEB Ltd to contribute towards such causes, such contribution should not be included in the ARR and thereby passed to the consumers. Instead KSEB Ltd must make such contributions from their own source of funds. Since the decision to contribute to CMDRF was made by KSEB Ltd without obtaining the consent of the consumers, it is not correct to pass such contribution to the consumers. However, the Association in their comments stated that since amount contributed is small, which may not impact the ARR and hence may be allowed in the ARR.

Analysis and decision of the Commission

3.133 The Commission has examined the proposal of KSEB Ltd in this regard. As per the information furnished by KSEB Ltd, the Full Board and Extraordinary General meeting dated 20-8-2018 resolved to contribute to the Chief Ministers' Distress Relief Fund on behalf of the KSEB Ltd an amount of Rs.35.00 crore in view of the huge destruction caused by natural calamity during August 2018 in the State of Kerala. The decision was taken as per Section 181 and applicable provisions of the Companies Act 2013 and subject to clause 42(12) of the Articles of Association of the Company. In the Board of Directors meeting held on 20-8-2018, it was decided to contribute Rs.35 crore to CMDRF, subject to the approval of the EGM, since KSEB Ltd is not having average profit for the last three years. EGM held on the same day also resolved to contribute to the said amount.

3.134 The Companies Act 2013 provides for three kinds of contributions under Section 181, 182 & 183. Section 181 pertains to charitable contributions, Section 182 pertains to contribution to Political Parties and Section 183 pertains to contribution to National Defence Fund. In the present case, the contribution has been made under Section 181 of the Companies Act. The said Section is quoted below:

Section 181. The Board of Directors of a company may contribute to bona fide charitable and other funds:

Provided that prior permission of the company in general meeting shall be required for such contribution in case any amount the aggregate of which, in any financial year, exceed five per cent. of its average net profits for the three immediately preceding financial years.

3.135 From the above, it is clear that under section 181 such contributions to charitable and other funds can be made only if there is a profit and contribution is out of the profit of the company. Based on the above statutory provision, KSEB Ltd can contribute the amount out of their profit. Such payments cannot be made as a charge on the company's expenses ie., in the ARR and subsequently recovered from the consumers through the tariff.

Return on Equity

3.136 In the petition, KSEB Ltd has stated that as per Regulation 34(b), the equity of Government of Kerala as per the Second Transfer Scheme published under section 131 of the Act is to be considered, for the computation of return on equity. The Government equity in KSEB as per the second transfer scheme is Rs 3499 crore. The Regulation 28 allows a RoE of 14% per annum. Accordingly, the RoE of KSEBLtd is proposed as Rs 489.86 crore (14% on the equity of Rs 3499 Crore). The SBU wise share of equity as per the annual accounts for the year 2017-18, is given below. The RoE of SBU-G is apportioned by KSEB Ltd in the petition based on the above criteria.

Table : 3.55
SBU Wise Return on Equity proposed

SBU	Equity Share	% of Equity	RoE
	Rs. crore		Rs. Crore
SBU-G	831.27	23.76	116.38
SBU-T	857.05	24.49	119.99
SBU-D	1810.73	51.75	253.50

3.137 Thus the ROE for SBU-G would be Rs. 116.38 crore each year during the Control Period.

Comments of the Stakeholders

3.138 The Association has pointed out the Order of the Hon.APTEL dated 18-11-2015 in Appeal No. 247 of 2014 in Kerala HT EHT Industrial Consumers Association Vs. KSEBL & KSERC. In the said order, APTEL had directed the Commission to determine the RoE as per the recommendation of the consultant and as per the report of the consultant, the Commission may allow RoE either on the equity capital allowed earlier by the Commission (Rs.1553 crore) or on the reduced equity capital of Rs. 283.91 crore (Rs. 1553 crore - Rs. 1269 crore). The order of the APTEL is reproduced below:

“14.7 We are of the view that since the consultant appointed by the State Commission has studied the whole system and recommended the equity value, hence, we direct the Commission to consider the equity amount specified by the Consultant and 14% rate of return on this amount has to be considered.

14.8 Accordingly, this issue is remanded back to the Commission to go through and compute accordingly instead of accepting the figures of KSEB.”

3.139 Hence, the Association stated that as per the terms of Tariff Regulations 2018, the Commission may allow 14% return on equity of Rs.283.91 crore i.e. Rs.39.75 crore only.

3.140 In this regard, KSEB Ltd has pointed out that Regulation 34(b) provides that equity of the government of Kerala as per the transfer scheme published under section 131 of the Act will be considered for computation of return on equity. According to KSEB Ltd, the argument of the Association is against the provisions of the Regulations.

Provisions in the Regulation

“28.Return on Equity Share capital or Net Fixed Assets. – (1) Return on equity shall be computed in rupee terms, on the paid up equity share capital determined in accordance with the Regulation 26 and shall be allowed at the rate of fourteen percent for generating business/companies, transmission

business/licensee, distribution business/licensee and State Load Despatch Centre:

Provided that, at the time of approving Aggregate Revenue Requirements return on equity share capital for generating business/ company, transmission business/licensee, distribution business/licensee and State Load Despatch Centre, shall be allowed on the amount of equity share capital approved by the Commission for the assets put to use at the commencement of the financial year and on fifty percent of equity share capital portion of the approved capital cost for the investment put to use during the financial year:

Provided further that at the time of truing up for the generating business/company, transmission business/licensee, distribution business/licensee and State Load Despatch Centre, return on equity share shall be allowed on monthly pro-rata basis, taking into consideration the documentary evidence provided for the assets put to use during the financial year.

Provided also that if the equity or any portion of it, is invested in the generating business/company, transmission business /licensee or distribution business/licensee is part of the scheme or programme funded by the Central Government or State Government for which no return is payable, such portion of the equity shall not be eligible for any form of return.

(2) If there is no equity invested in the business or equity invested in the regulated business of the generating business/company or transmission business/licensee or distribution business/licensee or State Load Despatch Centre is not clearly identifiable, return at the rate of three percent shall be allowed on the net fixed assets at the beginning of the financial year for such regulated business:

Provided that net fixed assets shall be exclusive of the assets created out of consumer contribution, deposit works, capital subsidy or grants.”

Regulation 34 provides as follows:

34.Principles for adoption of Transfer Scheme under Section 131 of the Act.- The Commission may, for the purpose of approval of Aggregate Revenue Requirements and determination of tariff, adopt the changes in the balance sheet, due to the re-organisation of the erstwhile Kerala State Electricity Board as per the provisions of the Transfer Scheme published by the Kerala State Government under Section 131 of the Act, subject to the following principles,-

- (a) Increase in the value of assets consequent to the revaluation of assets shall not qualify for computation of depreciation or for return on net fixed assets;*
- (b) The equity of the Government of Kerala as per the above Transfer Scheme published under Section 131 of the Act will be considered for computation of return on equity.*
- (c) The reduction of the contribution from consumers, grants and such other subventions for creation of assets, made as a part of Transfer Scheme, shall not be considered while computing the depreciation or return on net fixed assets;*
- (d) Only the payment of interest on the bonds issued to the Master Trust will be approved for computation of Aggregate Revenue Requirement and the amount of repayment of such bonds shall not be reckoned for computation of Aggregate Revenue Requirement.*
- (e) The Commission subject to the petition by KSEB Ltd may take appropriate decision on the other issues relating to the Transfer Scheme and its implementation on a case to case basis.*

Analysis and decision of the Commission

3.141 The Commission has carefully considered the issue of equity especially with regard to the amount that is required to be considered for its calculations. KSEB Ltd in their submission has claimed anRoE @ of 14% per annum for an equity amount of Rs.3499 crore. KSEB Ltd has submitted Regulation 34(b) provides that equity of the Government of Kerala as per the transfer scheme published under section 131 of the Act will be considered for computation of return on equity. As per clause 5 of the second transfer scheme “Kerala Electricity Second Transfer Scheme (Revesting) 2013” notified by Government of Kerala vide G.O.(P) No.46/2013/PD dated 13-10-2013, asset and liabilities of the erstwhile KSEB, which was vested into Government of Kerala, has been revested into the Company namely Kerala State Electricity Board Limited and opening balance sheet has been notified as part II of Schedule A of the said G.O, with and Equity amount of Rs.3499 crore.

The HT & EHT Association has drawn attention of the Commission to the order of the Hon’ble APTEL wherein, the Commission was directed to determine the recommendation of the consultant. In this context, the Commission notes that the Government of Kerala subsequent to the G.O

dated 13-10-2013 had issued G.O. (P) NO.3/2015/PD dated 28-1-2015 and G.O. (Ms) No.17/2015/PD dated 13-5-2015. The G.O. dated 28-1-2015 pertains to the amendments to Kerala Electricity Transfer Scheme (Revesting) 2013 and G.O dated 13-5-2015 pertains to the netting off of dues between Government and KSEB as on 13-10-2013 ie., the date of revesting. In the G.O dated 13-5-2013, it is mentioned that :

“.....Taking into consideration that netting off of dues between KSEB Ltd and Government forms an integral part of re-structuring of KSEB along with cleaning up of KSEB Limited’s Balance sheet, a part of the duty collected ie., Rs.1946 crore stands converted into the increased portion of equity (3499-1553) so as to ensure that the increase equity is a result of cash infusion to KSEB Ltd by Government thereby enabling the Government to participate in the increased return on equity in future years...”.

The Commission also notes that in compliance to the above GO, KSEB Ltd has issued 349,92,00,000 equity shares of Rs.10 each in favour of Government Kerala for Rs.3499 crore as per the provisions of the Companies Act, 2013, deals with the issue of equity shares and its allotments. In this regard the Commission is satisfied that the allotment of equity shares for Rs.3499.2 crore in compliance to the GO conforms to the requirement for allotment of equity shares as per the provisions of the Companies Act, 2013. It was on this basis that, the Commission while considering the truing up petitions of KSEB Ltd for 2015-16 and 2016-17 had recognized the equity amount as Rs. 3499 crore and allowed RoE @ of 14% per annum.

Considering the above facts, the Commission is of the considered view that the claim of KSEB Ltd for anRoE @ 14% per annum for an amount of Rs.3499 crore is established and justified. Therefore the Commission allows Rs.116.38 crore as the RoE in the ARR of SBU-G.

3.142 As per the provisions of the Regulation 34, the Commission is allowing the amount of equity as per the provisions of the Transfer Scheme and

RoE of 14% is permissible on this amount of equity. The Regulations were finalised by the Commission after following the due process such as previous publication, public hearing etc., Once the Regulation has been finalised and notified after following the due procedure, it is binding on all the parties concerned and there is no scope for any deviation whatsoever. Therefore the arguments of the Association cannot be accepted. Accordingly the share of RoE for SBU-G at the rate of 14% is allowed to be included in the ARR. Accordingly Rs.116.38 crore is included in the ARR.

Aggregate Revenue Requirement for SBU-G

3.143 The SBU-G handles the Generation assets of KSEB Ltd and the cost of SBU-G is passed on to SBU-D as a transfer cost of internal generation i.e., the revenue requirement of SBU-G is the transfer cost of internal generation to SBU-D. The revenue requirement for SBU-G during the control period as proposed by KSEB Ltd is as shown below:

Table :3.56
ARR of SBU-G for the control period as proposed by KSEB Ltd

No	Item	2018-19	2019-20	2020-21	2021-22
		Rs. crore	Rs. Crore	Rs. Crore	Rs. crore
1	Operation & Maintenance Expenses	127.86	152.44	176.59	211.77
2	Interest on long-term loans	106	127.05	191.72	264.66
3	Interest on Master Trust Bonds	39.67	37.58	35.50	33.41
4	GPF Interest	9.83	10.48	11.12	11.77
5	Depreciation	122.26	125.01	137.68	168.12
6	Interest on WC	5.86	6.19	6.89	8.38
7	Interest on Additional Bond to Trust	19.12	19.12	19.12	19.12
8	One Time Expenses CMDRF	1.79	--	--	--
9	Adjustment Controllable factors Etc	0	0	0	0
10	Total Revenue Expenditure	432.39	477.87	578.62	717.23
11	Return on Equity	116.38	116.38	116.38	116.38
12	Tax on RoE	0	0	0	0
13	Gross Aggregate Revenue Requirement	548.77	594.25	695.0	833.61

3.144 As against the proposal of KSEB Ltd, the ARR approved by the Commission is as shown below:

Table : 3.57

ARR of SBU-G for the control period as approved by the Commission

Item	2018-19	2019-20	2020-21	2021-22
	Rs. Crore	Rs. Crore	Rs. Crore	Rs. Crore
Operation & Maintenance Expenses	124.15	135.04	153.37	172.01
Interest on long-term loans	71.15	82.45	116.32	133.90
Interest on Master Trust Bonds	39.67	37.58	35.50	33.41
Interest on Additional Bond to Trust	10.26	10.26	10.26	10.26
GPF Interest	9.37	9.98	10.60	11.21
Interest on WC	6.08	6.23	6.84	7.60
Depreciation	130.19	141.38	174.35	196.26
One Time Expenses CMDRF	-	--	--	--
Adjustment Controllable factors Etc	-	-	-	-
Return on Equity	116.38	116.38	116.38	116.38
Gross Aggregate Revenue Requirement	507.24	539.31	623.62	681.03

Non-Tariff Income

3.145 As per the petition, the non-tariff income of SBU-G includes income from sale of scrap, interest on advances made to contractors, interest on staff loans and advances, Rent from buildings etc. The projection of Non-Tariff income of SBU-G for the control period as per the petition is furnished below:

Table :3.58

Other income and Non-Tariff Income for SBU-G

No	Items	2018-19	2019-20	2020-21	2021-22
		Rs. crore	Rs. crore	Rs. crore	Rs. crore
1	Interest on loans and adv to licensees	0.33	0.33	0.33	0.33
2	Interest on adv.to suppliers and contractors	2.32	2.47	2.61	2.76
3	Interest on staff loan	0.01	0.01	0.01	--
4	Interest from banks FD	1.47	1.47	1.47	1.47
5	Income from sale of scrap & tender forms	3.11	7.73	8.69	9.66
6	Rental from staff quarters	0.06	0.06	0.07	0.08
7	Rental from contractors	0.12	0.14	0.15	0.17
8	Rent from others	0.62	0.72	0.81	0.9
9	Excess found on PV	0.01	0.02	0.02	0.02
10	SD forfeited	13.77	15.83	17.89	19.95
11	Sale of trees	0.02	0.03	0.03	0.03
12	Usufructs	0.14	0.16	0.18	0.21
13	Penalty/LD from Contractors /suppliers	1.68	1.94	2.19	2.44
14	Outside Student Project	0.03	0.03	0.03	0.04
15	Cost of DPR PVT shp developers	0.13	0.15	0.17	0.19
16	Revenue energy audit consultancy	0.01	0.01	0.01	0.01
17	Testing fee from contractors	0.02	0.02	0.02	0.02
18	Others	1.98	2.28	2.58	2.88
	Total other Income	25.83	33.38	37.28	41.17

3.146 The Commission has obtained the details of Other Income & Non-tariff Income for 2016-17 and 2017-18. As per the details furnished by KSEB Ltd in 2016-17 and 2017-18, the Other income and Non-Tariff income was Rs.22.23 crore and Rs.25.00 crore respectively. The projections of KSEB Ltd for SBU-G for the control period is consistent and accordingly, the Commission approves the Non-Tariff income and other income as projected by KSEB Ltd.

Net ARR of SBU-G

3.147 The net ARR of SBU-G, for the control period 2018-19 to 2021-22 as per the petition is given below:

Table : 3.59

Net ARR for SBU-G as proposed by KSEB Ltd

No	Item	2018-19	2019-20	2020-21	2021-22
		Rs. Crore	Rs. Crore	Rs. Crore	Rs. Crore
1	Gross ARR	548.77	594.25	695.00	833.61
2	Less: Other Income	25.83	33.38	37.28	41.17
3	Net ARR of SBU-G	522.94	560.87	657.72	792.44

3.148 As mentioned in the previous para, the net ARR for SBU-G approved for the control period is as shown below:

Table :3.60

Net ARR for SBU-G as approved by the Commission

	2018-19	2019-20	2020-21	2021-22
	Rs. Crore	Rs. Crore	Rs. Crore	Rs. Crore
Gross Aggregate Revenue Requirement	507.24	539.31	623.62	681.03
Less Non-Tariff /Other income	25.83	33.38	37.28	41.17
Net ARR	481.41	505.93	586.34	639.86

CHAPTER 4
ARR&ERC OF SBU-T FOR THE CONTROL PERIOD

4.1 KSEB Ltd in their petition stated that the functions of the STU as envisaged in the Electricity Act is entrusted to the Strategic Business Unit – Transmission (SBU-T). The Second Transfer Scheme entrusts the responsibility on the STU to develop and execute long term plans for evacuation and supply of power at voltages of and above 33KV, in consultation and co-ordination with the other SBUs and under the policy framework developed by KSEB Ltd. At present SBU-T is also carrying out the functions of State Load Despatch Centre, as provided in Part-II of Schedule-A1 of the Second Transfer Scheme. The Second transfer scheme requires that all assets of voltage level of 66KV and above is assigned to SBU-Transmission. At the same time, SBU-T is entrusted with the construction of 33kV and above system. *A profile SBU-T as on 31-3-2018 is given below:*

Table : 4.1
Transmission System (as on 31-3-2018)

No	Item	Unit	Quantity
1	400 kV Lines	Ckt-km	855.96*
2	220 kV Lines	Ckt-km	2855.98
3	110 kV Lines	Ckt-km	4528.08
4	66 kV Lines	Ckt-km	2154.63
5	33KV lines	Ckt-km	1945.64
6	400 kV Substations	Nos	5* + 1
7	220 kV Substations	Nos	22
8	110 kV Substations	Nos	154
9	66KV Substations	Nos	76
10	33 KV Substations	Nos	148
11	Total transmission capacity (MVA)	MVA	19994.70
	*owned by PGCIL		

4.2 KSEB Ltd stated that the SBU-T handles the transmission assets of KSEB Ltd and manages the bulk transmission of power within the State for supply to SBU-D. SBU-T as an independent business unit and its cost of which is recovered from SBU-D as transfer cost as intra-state transmission charges. In their petition, KSEB Ltd stated that Separate

ARR for SLDC is not prepared, but KSEB Ltd expects to submit separate ARR for SLDC at the time of mid term review in 2019-20.

Table : 4.2
Summary of the ARR&ERC claimed by SBU-T

Item	2018-19	2019-20	2020-21	2021-22
	Rs. crore	Rs. Crore	Rs. Crore	Rs. crore
Operation & Maintenance Expenses	363.23	397.46	452.88	491.28
Interest and finance charges	151.37	257.99	435.91	555.01
Interest on Bonds	129.76	125.15	120.54	115.93
GPF Interest	21.70	23.12	24.55	25.97
Depreciation	172.32	199.58	257.03	344.70
Interest on WC and deposits	17.60	20.20	25.18	30.60
Adj.of Controllable/uncontrollable factors	-	-	-	-
Other items	3.96			
Total Revenue Expenditure	859.94	1,023.50	1,316.09	1,563.49
Return on Equity	119.99	119.99	119.99	119.99
Tax on RoE	-	-	-	-
Aggregate Revenue Requirement (10+11+12)	979.93	1,143.49	1,436.08	1,683.48
Less: Other Income	28.85	37.3	41.82	46.35
Less: Revenue from Open Access	--	--	--	--
Less: Income from Other Business	--	--	--	--
ARR from Transmission Tariff	951.08	1106.19	1394.26	1637.13

4.3 In the following sections, analysis and decision of each of the items of the ARR is explained.

Capital investment plan for SBU-T

4.4 KSEB Ltd, along with the petition for approval of ARR, ERC and Tariff petition, has also filed the 'Capital Investment Plan' in Generation, Transmission and Distribution, and the assets put in use in each of the above Strategic Business Units, for consideration while approving the interest on capital liabilities, depreciation and O&M expenses of the SBUs. The Commission has examined the details submitted by KSEB Ltd and as detailed in Annexure-IV, the capital expenditure for SBU-T is provisionally approved as given below:

Table : 4.3

Asset addition plan provisionally approved for the control period for SBU-T

Sl No	Particulars	2018-19	2019-20	2020-21	2021-22	Total
		(Rs. Cr)	(Rs. Cr)	(Rs. Cr)	(Rs. Cr)	(Rs. Cr)
1	Ongoing & new works with capital cost less than Rs 10.00 Cr	499.60	312.80	20.00	0.00	832.40
2	New capital works with capital cost above Rs 10.00 crore	0.00	353.74	150.92	141.80	646.46
3	Transgrid works	0.00	362.57	1244.84	260.96	1868.37
4	SLDC works	12.00	53.00	12.00	212.45	289.45
5	Total	511.60	1082.11	1427.76	615.21	3636.68
6	PSDF grant	0.00	25.00	389.58	100.00	514.58
7	GFA excluding consumer contribution & grants	511.60	1057.11	1038.18	515.21	3122.10

O&M expenses

4.5 The Operation & Maintenance Expenses of SBU-T is allowed on a normative manner as per the provisions of the Regulations for the control period. The O&M expenses of SBU-T is recovered on the basis of the no. of bays and circuit length in the system. Normative O&M expenses for each bay and kilometre length of lines are fixed as per Annexure-VIII of the Tariff Regulations, 2018. The total O&M expenses for each year of the control period is allowed based on the no. of bays and the length of lines at the beginning of the year. KSEB Ltd in their petition had estimated the number of bays and line length in ckt-km for 66KV and above for the control period considering the capital additions planned for these years. Accordingly, the O&M expense for each year in the Control Period is proposed as shown below:

Table : 4.4

O&M norms for SBU-T proposed by KSEB Ltd for the control period

No	Item	2018-19	2019-20	2020-21	2021-22	Remarks
1	O&M cost for Bay (Rs lakh/Bay)	10.71	11.23	11.77	12.34	Norm
2	O&M cost (Rs lakh/circuit km)	0.93	0.98	1.03	1.08	Norm
3	Bays (No.) (for Previous year)	2564	2682	2914	3007	Projected
4	Line (Ckt-Km)(for previous year)	9529.589	9823.195	10670.15	11130.965	Projected
5	Normative O&M cost (Rs.Cr.)	363.23	397.46	452.88	491.28	Estimated

Functional separation of O&M expenses of SLDC

- 4.6 As per the provisions of the Regulations, KSEB Ltd has to file separately the ARR&ERC for the SLDC and in case separate accounts are not available, as per Regulation 66 (2), the Commission may approve as the Aggregate Revenue Requirement of State Load Despatch Centre, a portion of the approved Aggregate Revenue Requirement of the transmission business of KSEB Limited, based on the proposal submitted by it but only for the first year of the Control Period.
- 4.7 KSEB Ltd in their petition has stated that earnest efforts are being taken to segregate the accounts of SBU-T and SLDC. However, the segregation has not been finalized. However, as part of these efforts, KSEB Ltd could arrive at a provisional segregation of O&M expenses and GFA of SLDC as per the methodology stated herein, based on which, the projection of accounts of SLDC for the control period is made. It is stated in the petition that the expenditure incurred for the following offices are considered as SLDC expenditure:
- Main LD station at Kalamassery and Sub LD at Thiruvananthapuram
 - SCADA Sub division, Kalamassery and Thiruvananthapuram
 - TNMS, Kalamassery
 - Office of Chief Engineer, Transmission – System Operation, Kalamassery.
- 4.8 For segregation and for assessing the O&M expenses of SLDC, the expenditure details corresponding to the above offices are extracted from SARAS software. The ownership of the land rests with Transmission Circle, Kalamassery. Total amount capitalised under SCADA and IT system (under SCADA – up gradation project) in the books of accounts of SLDC during the financial year is Rs. 9.55 Cr. Value of assets capitalised excluding relay equipment is Rs.6.30 Cr for the FY 2017-18.
- 4.9 For projecting the expected normal increase in expenditure for the subsequent years, an escalation of 10% is taken. In the case of repairs and maintenance expenditure, additional amount of Rs. 14 lakhs per

year is also included considering the high AMC charges for SCADA equipments. The GFA of SLDC for each year of the control period is computed based on the asset addition projected for the respective year as per the Capital Investment Plan for SLDC given in the ARR petition. Based on this, segregation of accounts of SLDC is considered and the O&M expenses of SLDC projected by KSEB Ltd for the control period are given below.

Table : 4.5
O&M expenses of SLDC projected by KSEB Ltd

	2018-19	2019-20	2020-21	2021-22
	Rs. Crore	Rs. crore	Rs. Crore	Rs. crore
O&M expenses	17.35	19.22	21.28	23.55

4.10 Further, the net O&M expenses of SBU-T for the control period is arrived after deducting the O&M expenses of the SLDC as shown below:

Table : 4.6
Net O&M Expenses of SBU-T projected by KSEB Ltd

Item	2018-19	2019-20	2020-21	2021-22
	Rs. crore	Rs. Crore	Rs. Crore	Rs. Crore
Normative O&M cost	363.23	397.46	452.88	491.28
Less: SLDC expenses	17.35	19.22	21.28	23.55
Net Normative O&M Cost	345.88	378.24	431.6	467.73

One time expenses

4.11 KSEB Ltd in their petition stated that it had suffered badly during the Monsoon floods of 2018. The flood impaired operation of 50 Substations in 10 districts across the State. According to KSEB Ltd, as many as ten Power Transformers were submerged and many transmission towers and 10 major transmission lines were disrupted in flooding. The estimated financial loss for SBU-T for rectification works is assessed as Rs.29.77 Crore as shown below:

Table : 4.7
Estimated loss due to floods for SBU-T as estimated by KSEB Ltd

No	Description	AmountRs. Crore
1	Loss due to Tower / Insulator / Conductor failure	13.68
2	Loss due to equipment / transformer failure	14.03
3	Civil components	2.06
	TOTAL	29.77

- 4.12 In the Petition KSEB Ltd stated that the damages that occurred in the transmission sector due to natural calamity may be treated as ‘Force Majeure’ event and the additional financial expenditure incurred by SBU-T for restoring normalcy may be allowed as one time expense of SBU-T for 2018-19 over and above that incurred for normal operations at the time of truing up of accounts for the year 2018-19.
- 4.13 KSEB Ltd also mentioned the provision for pay revision expenses will be a part of the O&M expenses for SBU-T, though the same is not claimed in the petition. An estimate of the pay revision expenses of SBU-T and SLDC are submitted below.

Table : 4.8

Pay revision expenses of SBU-T projected by KSEB Ltd

Business Unit	Employee cost ratio	2018-19	2019-20	2020-21	2021-22
		Rs. crore	Rs. crore	Rs. Crore	Rs. Crore
SBU T	11.32%	20.63	29.78	32.18	34.71

Objections of the Stakeholders

- 4.14 The HT-EHT Association stated that the actual growth rate of no. bays and circuit km for the last 7 years is 1.24% and 0.94% respectively, whereas KSEB Ltd has projected the growth rate at around 5%. Accordingly, the Association has projected the O&M expenses for SBU-T at a lower level of about Rs.36.81 crore in 2018-19 and Rs.101.10 crore in 2021-22.

Provisions of the Regulations

“58.Operation and maintenance expenses.—The transmission business/licensee shall be allowed to recover operation and maintenance expenses as per the norms specified in Annexure-VIII to these Regulations for each financial year of the Control Period:

Provided that in case one time maintenance of special nature not in the form of routine repair and maintenance if any is required and is undertaken for transmission system, expenses for such maintenance may be allowed by the Commission after prudence check considering the details and justification furnished by the Transmission business/licensee for incurring such an expenditure to the satisfaction of the Commission

Provided further that the transmission business of KSEB Limited shall be allowed to recover the annual pension contribution to the Master Trust, based on actuarial valuation, in respect of the personnel allocated to the transmission business of KSEB Limited, in addition to the above specified normative operation and maintenance expenses.

Explanation :-

(i) For the purpose of deriving normative O&M expenses, 'bay' shall mean a set of accessories that are required to connect an electrical equipment at 66 kV and above voltages such as transmission line, bus section breakers, potential transformers, power transformers, capacitors and transfer breaker and the feeders emanating from the bus at sub-station of the transmission business/licensee.

(ii) For the purpose of deriving normative O&M expenses, 'ckt km' means the length in circuit kilometres, of the transmission lines at voltages of and above 66 kV.

Annexure-VIII

O&M norms for the transmission business of KSEB Limited and transmission licensee

	<i>Control period</i>			
	<i>2018-19</i>	<i>2019-20</i>	<i>2020-21</i>	<i>2021-22</i>
<i>O&M cost for Bay (Rs.lakh/Bay)</i>	<i>10.71</i>	<i>11.23</i>	<i>11.77</i>	<i>12.34</i>
<i>O&M cost per Circuit km (Rs.lakh/circuit km)</i>	<i>0.93</i>	<i>0.98</i>	<i>1.03</i>	<i>1.08</i>

Explanation: The O&M expenses for any year of the Control Period shall be allowed by multiplying the O&M norms for that year with the actual number of bays and transmission line length in ckt km for the previous year, i.e., the O&M expenses for FY 2018-19 shall be allowed by multiplying the O&M norms for FY 2018-19 with the actual number of bays and transmission line length in ckt km for FY 2017-18."

Analysis and decision of the Commission

4.15 As per the provisions of Regulation 58, the O&M expenses applicable for the SBU-T is based on the number of bays and transmission line length in ckt km for the previous year. As per the details furnished by KSEB Ltd, the no. bays and circuit kilometres and the O&M cost based on the norms are as shown below:

Table :4.9

O&M expenses for SBU-T approved for control period

Item	2018-19	2019-20	2020-21	2021-22
O&M cost for Bay (Rs lakh /Bay)	10.71	11.23	11.77	12.34
O&M cost (Rs lakh /circuit km)	0.93	0.98	1.03	1.08
Bays (No.) (for Previous year)	2564	2682	2914	3007
Line (Ckt-Km)(for previous year)	9529.589	9823.195	10670.15	11130.965
Normative O&M cost (Rs.Cr.)	363.23	397.46	452.88	491.28

Depreciation

4.16 The depreciation for SBU-T as estimated by KSEB Ltd as per the provisions of Regulation 27 of the Tariff Regulations, 2018 for the control period is given below:

Table :4.10

Depreciation for SBU-T & SLDC proposed by KSEB Ltd

Item	2018-19	2019-20	2020-21	2021-22
	Rs. crore	Rs. crore	Rs. crore	Rs. crore
GFA excl revaluation	5314.77	6155.61	7927.66	10631.61
Addition during the year	840.84	1772.05	2703.95	769.32
Total	6155.61	7927.66	10631.61	11400.93
Depreciation for the year	172.32	199.58	257.03	344.70
Less: Claw back depreciation	--			
Net depreciation allowable	172.32	199.58	257.03	344.70

4.17 The netdepreciation based on the capital additions proposed for the year was estimated for the control period based on the average rate of depreciation. KSEB Ltd has assumed that consumer contribution and grants are not part of SBU-T.

Objections of the Stakeholders

4.18 There was no specific comment made by the stakeholders. The Association has followed the same methodology adopted by KSEB Ltd for projecting their estimate of depreciation. However, there is a difference in figures of the estimation of KSEB Ltd and the Association, which is on account of the GFA used for the estimations.

Provisions in the Regulations

4.19 Regulation 27 provides for estimation of depreciation. The same has been quoted in chapter 3

Analysis and decision of the Commission

4.20 The Commission has examined the details furnished by KSEB Ltd. In their petition, KSEB Ltd has taken as average rate of depreciation as on 2015-16 for estimating the depreciation for the control period. As mentioned in chapter 3, there are many limitations to the methodology proposed by KSEB Ltd. After considering the limitations in the methodology of estimating depreciation, KSEB Ltd in their letter dated 21-12-2018 has furnished a revised estimation of depreciation for the control period.

4.21 In the said estimation, KSEB Ltd has considered depreciation rates of 1.48% for assets having life more than 12 years and 5.28% for assets having life of 12 years or less. In order to remove the value of fully depreciated assets (ie., assets having only salvage value), assets having life above 30 years was excluded from the estimation of depreciation. Since the average value of land in the total GFA is about 2.8%, which was also excluded. The comparison of depreciation as per the petition and revised as per letter dated 21-12-2018 is as shown below:

Table :4.11

Revised Depreciation as estimated by KSEB Ltd

	As per petition		Revised as per letter dated 21-12-2018	
Year	SBU-T	KSEB Ltd	SBU-T	KSEB Ltd
	Rs. Crore	Rs. Crore	Rs. Crore	Rs. Crore
2018-19	172.32	404.30	204.97	555.67
2019-20	199.58	468.58	280.27	673.27
2020-21	257.03	588.60	405.64	890.33
2021-22	344.70	694.53	420.37	964.19

4.22 The Table above reveals that the depreciation has been increased substantially in the revised submissions. Though there are limitations,

the Commission is inclined to use the methodology for estimating depreciation with certain modifications.

- 4.23 As mentioned in chapter 3, the depreciation for the control period has been estimated by the Commission based on the asset additions provisionally approved and after making adjustments for assets having life more than 31 years.
- 4.24 The Asset addition provisionally approved by the Commission is as shown below:

Table :4.12

Asset addition provisionally approved for SBU-T for the control period

	2018-19	2019-20	2020-21	2021-22
	Rs. crore	Rs. Crore	Rs. Crore	Rs. Crore
Ongoing & new works with capital cost less than Rs 10.00 Cr	499.60	312.80	20.00	0.00
New capital works with capital cost above Rs 10.00 crore	0.00	353.74	150.92	141.80
Transgrid works	0.00	362.57	1244.84	260.96
SLDC works	12.00	53.00	12.00	212.45
Total	511.60	1082.11	1427.76	615.21
Less PSDF grant	0	25	389.58	100
GFA excluding consumer contribution & grants	511.60	1057.11	1038.18	515.21

Based on the methodology mentioned in chapter 3, the depreciation for SBU-T estimated by the Commission is as shown below:

Table :4.13

Depreciation approved for SBU-T the control period

SBU-T			
Year	Total Depreciation of KSEB Ltd	% share of GFA of SBU-T in total GFA eligible for depreciation	Depreciation for SBU-T
	Rs. Crore	(%)	Rs.crore
2017-18*	319.25	42.8%	136.48
2018-19	348.84	42.0%	146.41
2019-20	408.32	42.5%	173.47
2020-21	518.81	43.0%	222.92
2021-22	612.25	42.6%	261.09

**estimates only*

Interest and financing charges

4.25 In their petition, KSEB Ltd has claimed interest on capital liabilities, interest on working capital, interest on GPF, interest on security deposits and interest on Master Trust under interest and financing charges. Each of the item is explained below:

Interest on capital liabilities:

4.26 As per the petition of KSEB Ltd, the Interest on normative loan is determined after considering asset addition as well as contribution/ grant anticipated, allowable depreciation etc for each year of the control period. Details are furnished in the Table below.

Table :4.14

Interest on capital liabilities for SBU-T and SLDC proposed by KSEB Ltd

No	Item	2018-19	2019-20	2020-21	2021-22
		Rs. crore	Rs. crore	Rs. crore	Rs. crore
1	Opening loan	1357.41	1834.24	3346.63	5411.19
2	GFA addition	840.84	1772.05	2703.95	769.32
3	Less: Consumer contribution & Grants	196.60	71.37	389.58	100.00
4	Less: Allowable depreciation	172.32	199.58	257.03	344.70
5	Normative loan during the year	471.92	1501.10	2057.34	324.62
6	Closing normative loan	1829.34	3330.44	5387.78	5712.40
7	Average normative loan	1593.37	2579.89	4359.11	5550.09
8	Interest for the year*	151.37	257.99	435.91	555.01

** @ 9.50% for 2018-19 and @10% thereafter.*

4.27 KSEB Ltd in their petition has estimated the interest charges estimated based on interest rate at 9.5% for the first year of the control period and 10% for rest of the control period.

Comments of the Stakeholders

4.28 The Association stated that in the past KSEB Ltd had made significantly lower capital additions than the projections made for the control period. The HT-EHT Association has relied on alternate estimation of normative loan considering a lower asset additions and contribution for the control period. The Association has not made any comments on the opening level of loans or applicable interest charges. According the Association,

the interest on normative loan will be Rs.239.41 crore in 2018-19 and Rs.449.56 crore in 2021-22.

- 4.29 In their reply to the objections of the Association, KSEB Ltd stated that unlike in the past, dedicated teams were assigned with specific responsibilities for carrying out ensuing capital additions. Hence the past level of performance may not be a realistic yardstick to measure the proposed capital additions.

Analysis and decision of the Commission

- 4.30 The Commission has sought clarifications on the estimation of normative loans vide letter dated 16-11-2018. KSEB Ltd has furnished the reply vide letter dated 7-12-2018 in which the figures for the normative loans for the control period was revised. The revised figures are as shown below:

Table :4.15

Revised opening levels of normative loans furnished by KSEB Ltd

No	Item	SBU G	SBU T	SBU D	Total
		Rs. crore	Rs. crore	Rs. Crore	Rs. Crore
1	GFA as on 01.04.2018	16861.56	5178.65	8067.32	30107.53
2	Less: revalued	11988.98			11988.98
3	Balance GFA as on 01.04.2018	4872.58	5178.65	8067.32	18118.55
4	Less: Approved depreciation till 01.04.2018				6539.59
5	Net Fixed Assets				11578.96
6	Less: Equity				3499.05
7	Less: pro rata Contribution & grants				3993.37
8	Normative loan 01.04.2018				4086.54
9	Normative loan balance (A)				4086.54
10	Normative loan as on 31.03.2018				4086.54
11	GFA ratio				
12	GFA as on 01.04.2018	16861.56	5178.65	8067.32	30107.53
13	Less: revalued	11988.98			11988.98
14	Balance GFA as on 01.04.2018	4872.58	5178.65	8067.32	18118.55
15	Ratio	26.89	28.58	44.53	
16	SBU wise Loan balance	1098.98	1168.02	1819.54	4086.54

- 4.31 The Commission has examined the details furnished by KSEB Ltd. KSEB Ltd has arrived at the opening level of normative loans for the control period i.e., as on 1-4-2018 based on the asset additions for the year 2016-17 and 2017-18 as per the accounts. However, the Commission

while truing up the accounts for 2016-17 could not approve the asset additions for want of details. Though the details were called for, KSEB Ltd is yet to furnish the details as directed.

- 4.32 As mentioned in Chapter 3, as per the truing up of accounts for 2016-17, the Commission has arrived at the normative loan of Rs.2321.38 crore as on 1-4-2016. While arriving at the above level of normative loan, the Commission has not considered the asset additions for 2016-17 for want of sufficient details. However, in order to arrive at the normative loan for the control period, appropriate adjustments have to be made to take care of the assets addition during 2016-17 and 2017-18. Further, KSEB Ltd, as part of adoption of accounting standards as per IndAS, revised the GFA figures for the previous three years from 2016-17 thereby assets which are put into use, but not capitalised and remain under the head 'Capital work in progress' had been transferred to GFA. Correspondingly, the opening level of normative loan for SBU-T was Rs.785.66 crore as on 1-4-2016.
- 4.33 As noted, the Commission could not approve the entire capital additions for 2016-17 for want of sufficient details. However, in order to arrive at the normative loans for the control period, asset additions during 2016-17 is to be considered. The Commission is of the view that pending submission of details by KSEB Ltd, in order to facilitate the estimation of the normative loan for the control period, a provisional asset addition is to be considered. Hence the Commission after due deliberation has taken 50% of the net asset additions (ie., Asset Addition for the year less contribution and grants) was taken for the said purpose. In the case of 2017-18, provisionally asset addition proposed as per books of accounts is considered, as truing up is not completed yet. However, this shall not be construed as approval for the asset additions for these years, and the present consideration is purely on provisional basis only. It is to be understood that this figure is purely provisional and actual asset additions with complete details thereof is to be provided by KSEB Ltd on or before the Mid Term Review. Based on these details if any, the Commission shall finalise the approve asset additions for 2016-17 and 2017-18. Accordingly the asset additions considered for the year 2016-17 and 2017-18 is as shown below:

Table :4.16
Provisionally approved assets additions for 2016-17 and 2017-18

	SBU-G	SBU-T	SBU-D	KSEB Ltd
	Rs.crore	Rs.crore	Rs.crore	Rs.crore
Asset Additions 2016-17	313.56	236.07	516.82	1,066.45
Asset Additions 2017-18	183.15	499.47	707.95	1,390.57
Addition to Contributions and Grants 2016-17	23.67	23.34	599.93	646.94
Addition to Contributions and Grants 2016-18	20.98	20.69	531.78	573.45
Asset additions excluding contributions and Grants -2016-17	289.89	212.73	-83.11	419.51
Asset additions excluding contributions and Grants -2017-18	162.17	478.78	176.17	817.12

4.34 As shown above, the asset additions excluding grants and contributions of KSEB Ltd for the year 2016-17 was Rs.419.51 crore and that of 2017-18 is Rs.817.12 crore, as against the net asset addition in KSEB Ltd annual accounts of Rs.838.98 crore for 2016-17. In the case of SBU-T, the net Asset additions would be Rs.212.73 crore and Rs.478.78 crore respectively.

4.35 Based on the above, the value of provisional normative loan as on 1-4-2018 is arrived at Rs. 2742.46 crore and Rs.1045.23 crore for SBU-T as shown below:

Table :4.17
Provisional normative loan as on 1-4-2018

		SBU-T	KSEB Ltd
		Rs.crore	Rs.crore
1	Opening levels of normative Loan (as on 1-4-2016)	785.66	2,604.12
2	Provisional Asset Addition Excluding grants for 2016-17	212.73	419.51
3	Repayment for the year 2016-17 (Depreciation)	147.71	369.87
4=2-3	Net Addition to Normative loan 2016-17	65.02	49.64
5=1+4	Opening level of normative loans (1-4-2017)	850.68	2,653.77
6	Addition to normative loan 2017-18	478.78	817.12
7	Repayment for 2017-18 (Depreciation)	136.48	319.25
8=6-7	Net Addition to Normative loan 2017-18	342.29	497.87
9=5+8	Opening levels of Normative Loan (as on 1-4-2018)	1,192.98	3,151.64

4.36 As shown above, the opening level of normative loan for SBU-T is Rs.1192.98 crore.

Rate of interest for normative loan

4.37 In the petition, KSEB Ltd has estimated the interest charges for the normative loan for the control period at the rate of 9.5% for the first year and 10% for the rest of the control period. As per the provisions of Regulations, average interest rate for the existing loan portfolio is to be used for allowing interest charges for the normative loan. KSEB Ltd has furnished the actual loan portfolio for SBU-T based on the allocation of existing loans for the year 2017-18 as per the clarification dated 7-12-2018. Based on the details furnished by KSEB Ltd, the weighted average interest rate is estimated as shown below:

Table :4.18

Details of the loan portfolio for SBU-T for 2017-18 as furnished by KSEB Ltd

NAME OF THE FINANCIAL INSTITUTION	Net loan-Opening (01/04/17)	Add: Drawals during the Year	Less: Repayment (s) during the year	Net loan Closing (31/03/18)	Average loan	Weightage	Interest on loan	Weighted average rate of interest
	Rs.crore	Rs.crore	Rs.crore	Rs.crore	Rs.crore	Rs.crore	Rs.crore	%
(A) SECURED LOANS								
Loan from L I C	1.17	-	0.58	0.58	0.87	0.00	0.07	0.00%
REC Loan :Kattakkada – P'code Scheme	128.99	-	14.33	114.65	121.82	0.08	13.95	0.96%
REC Loan :TRAN-Group I	67.56	4.33	1.38	70.51	69.04	0.05	7.48	0.52%
REC Loan : Various Schemes	10.96	-	8.84	2.12	6.54	0.00	0.97	0.07%
REC Special Loan Assistance	364.53	29.16	-	393.69	379.11	0.26	36.19	2.50%
PFC Special Loan Assistance	364.53	37.65	-	402.18	383.35	0.26	36.26	2.51%
TOTAL	937.74	71.14	25.13	983.74	960.74	0.66	94.91	6.56%
(B) Unsecured Loan								
Union Bank of India (UBI) Short Term Loan	-	117.08	117.08	-	-	-	-	
REC : Short Term Loan	-	145.81	-	145.81	72.91	0.05	1.47	0.10%
SBI : Short Term Loan	145.81	291.62	218.72	218.72	182.27	0.13	16.53	1.14%
Vijaya Bank Short term loan	58.32	116.65	174.97	-	29.16	0.02	4.23	0.29%
Canara Bank Short Term Loan	-	145.81	145.81	-	-	-	-	
South Indian Bank Short Term Loan	58.32	87.49	145.81	-	29.16	0.02	3.92	0.27%
Bank of India (BOI) Short Term Loan	113.00	397.34	452.04	58.30	85.65	0.06	7.30	0.50%
Andhra Bank Short Term Loan	174.97	87.49	262.46	-	87.49	0.06	5.56	0.38%
TOTAL	550.44	1,389.29	1,516.90	422.84	486.64	0.34	39.01	2.70%
GRAND TOTAL	1,488.18	1,460.43	1,542.03	1,406.58	1,447.38	1.00	133.92	9.25%

4.38 The weighted average rate of interest for the existing loans of SBU-T, as per the details furnished by KSEB Ltd for the year 2017-18 is 9.25%. In the petition, KSEB Ltd had proposed interest rate of 9.5% for the year 2018-19 and a higher rate of 10% for the rest of the control period.

Analysis and decision of the Commission

4.39 The Commission has examined the proposal of KSEB Ltd. It is a fact that there is an increasing in the interest rate in the recent past as the repo rate has been started increasing after a period of about three years. Hence there is a case of higher rate of interest in future, though the same is not certain.

4.40 The Commission has also examined the interest rate of existing loans. As per the details furnished by KSEB Ltd the opening level of loans for KSEB Ltd as a whole as on 1-4-2017 is Rs.6423.73 crore and closing loans is Rs.6479.35 crore with an average rate of interest for the entire loans at 9.47%. Of the total loan balance, about 73% of the loans have interest rates below 9.08% and 27% of the loans have interest rates more than 9.92%. It is also to be noted that the latest loans have comparatively lower rate of interest and the high cost loans have relatively less period for maturity.

4.41 Hence, even if there is an increase in the rate of interest for the future loans, the average rate of interest may not increase substantially considering the portfolio of loans. Hence, the Commission has decided to keep the rate of interest for the control period constant. Thus the rate of interest applicable for the control period will be the average rate applicable for the SBUs based on the loan portfolio for 2017-18 furnished by KSEB Ltd. Accordingly, the Commission has decided to provide a rate of interest for SBU-T is 9.25%.

Asset addition for the control period

4.42 As mentioned above, the Commission has provisionally approved the asset additions for the control period. Based on the above, interest and financing charges for SBU-T is worked out as follows for the control period.

Table : 4.19

Normative loan and interest charges approved for the control period

SBU-T	2018-19	2019-20	2020-21	2021-22
	Rs. crore	Rs. crore	Rs. crore	Rs. crore
Opening level of Normative loan (as of 1st April)	1,192.98	1,558.17	2,441.81	3,257.06
Provisional Asset Additions for the year	511.60	1,082.11	1,427.76	615.21
Contributions and Grants for the year	-	25.00	389.58	100.00
Net Addition to normative loan for the year	511.60	1,057.11	1,038.18	515.21
Repayment for the year (Depreciation)	146.41	173.47	222.92	261.09
Closing provisional Normative loan (as on 31st March)	1,558.17	2,441.81	3,257.06	3,511.18
Average loan	1,375.57	1,999.99	2,849.43	3,384.12
Rate of interest	9.25%	9.25%	9.25%	9.25%
Interest Charges	127.28	185.05	263.65	313.12

4.43 As shown above, for the control period, interest charges applicable for SBU-T is Rs.127.28 crore for 2018-19 and Rs.313.12 crore for 2021-22.

Interest on security deposits:

4.44 KSEB Ltd has not claimed any interest on security deposit as SBU-T does not hold any security deposit.

Interest on GPF :

4.45 The interest on GPF was estimated based on total balance of GFP for KSEB Ltd and the interest charges thereon is apportioned among the three SBUs based on the ratio of employees. The interest on GPF for SBU-T furnished by KSEB Ltd is reproduced in the Table Below:

Table : 4.20

Interest on provident fund for SBU-T proposed by KSEB Ltd

SBU	Employee cost ratio (2017-18)	2018-19	2019-20	2020-21	2021-22
		Rs. Crore	Rs. Crore	Rs. crore	Rs. crore
SBU T	11.32 %	21.7	23.12	24.55	25.97

Analysis and decision of the Commission

4.46 As per the estimates of KSEB Ltd, the closing balance of Provident Fund is Rs.2207.33 crore as on 31-3-2018 and KSEB Ltd has assumed Rs.150 crore per year net additions to GPF balance with interest charges at 8.4% per annum of interest.

4.47 As per the details furnished, the average interest rate for GPF for the year 2017-18 was 7.38%. The interest rate applicable for the GPF accumulations for July-Sept quarter of 2018-19 was 7.6% as per the Government of India notifications, which is applicable for State Government as well. The rate has been increased by 0.4% for the period October to December 2018 and the rate stands now at 8%. Accordingly, the Commission has adopted the interest rate for GPF for the control period as 8%. The interest charges for the concerned SBUs has been allocated as per the methodology used by KSEB Ltd ie., 11.32% for SBU-T. Interest charges applicable to SBU-T is as shown below:

Table : 4.21
Interest charges for GPF applicable for SBU-T

		2018-19	2019-20	2020-21	2021-22
Interest Charges for KSEB Ltd (Rs. Crore)		182.59	194.59	206.59	218.59
SBU T (Rs. Crore)	11.32%	20.67	22.03	23.39	24.74

Interest on Master Trust bonds

4.48 Interest on the Master Trust is apportioned based on the employee cost ratio for SBU-T. In addition, the additional contribution to master trust is also included based on the actuarial valuation. Thus the total interest charges on Master Trust claimed in the petition is as shown below:

Table : 4.22
Interest on Master Trust Bonds for SBU-T as per petition

SBU	Employee cost ratio	Item	2018-19	2019-20	2020-21	2021-22
			Rs.crore	Rs.crore	Rs.crore	Rs.crore
SBU T	11.32 %	Existing bond	87.56	82.95	78.34	73.73
		Additional contribution to Master Trust	42.20	42.20	42.20	42.20
Total			129.76	125.15	120.54	115.93

4.49 As per the transfer scheme notified by the Government of Kerala and as per the Regulations, interest on the bonds issued to Master Trust is included in the ARR. KSEB Ltd has accordingly claimed interest on bond value of Rs.8144 crore having maturity of 20 years at the rate of 10% on the consideration that the Master Trust was operational from 1-4-2017.

The interest rate allowable for the same is Rs.773.63 crore for the year 2018-19. Considering the repayment each year, the interest charges for the existing bonds for 2019-20 is Rs.732.96 crore, for 2020-21 Rs.692.64 crore and that of 2021-22 is Rs.651.52 crore. The share of SBU-T for the interest charges on existing bonds based on the employee cost ratio used by KSEB Ltd is Rs.73.73 crore for 2021-22.

- 4.50 In addition to the above, KSEB Ltd has claimed an amount of Rs.372.90 crore per year as the interest cost of additional bonds to be issued to Master Trust on account of increase in the liability as per the actuarial valuation. According to KSEB Ltd, actuarial valuation as on 31-3-2017 on the unfunded pension liability, gratuity liability and leave surrender liability was made and the liability was estimated at Rs.16147.70 crore which shows that the fund size has increased by Rs.3728.98 crore during the period from 1-11-2013 to 31-3-2017 for which additional funding is required. KSEB Ltd claimed that additional bonds for 20 year period will be issued for an amount of Rs.3728.98 crore at a coupon rate of 10%. Accordingly interest liability of Rs.372.29 crore was claimed. The share of SBU-T is also accordingly apportioned based on employee cost ratio.
- 4.51 As part of the clarifications, KSEB Ltd has also furnished the copies of the actuarial valuation reports. In the letter dated 26-12-2018, KSEB Ltd has furnished some details on the actuarial valuation. KSEB Ltd claimed that the valuation done as on 31-3-2017 resulted in a liability of Rs.16148 crore showing an increase of Rs.3729 crore and the same was incorporated in Annual Accounts for the year 2016-17. The audited accounts for the year 2016-17 was adopted on 8-11-2018. The actuarial valuation done as on 31-3-2018 resulted in further increase in liability to the extent of Rs.1584.87 crore, which was incorporated in the annual accounts.
- 4.52 As per the details furnished by KSEB Ltd, the actuarial liability of gratuity and leave encashment is applicable for all employees including the staff recruited after 1-11-2013 though the pension liability of such employees are not covered in the valuation. The details and explanations furnished by the Actuary was included in the reply furnished by KSEB Ltd, which did not contain the entire details sought for by the Commission.

Analysis and decision of the Commission

4.53 The Commission has examined the proposal and noted several deficiencies. For eg: KSEB Ltd statement that the actuarial liability of gratuity and leave encashment is applicable to all employees, including the staff recruited after 1-11-2013 is to be examined by the Commission especially since the current Regulation norms have been derived taking into account the employee strength at 2009-10 levels as per APTEL orders. Accordingly, as detailed in Chapter 3, the Commission has arrived at the conclusion that present operation of the Trust is not as envisaged in the scheme. Therefore, the Commission is of the considered view that there is a need for a separate proceedings on the functioning of the Master Trust. Till such time, the Commission provisionally allows interest charges for the existing bonds as envisaged in the scheme and Rs.200 crore as an additional funding for the Master Trust instead of Rs.372.90 crore claimed by KSEB Ltd.

Table : 4.23

SBU wise Interest on Master Trust Bonds approved for the control period

Funding as per Initial Scheme	Emp. Ratio	2018-19	2019-20	2020-21	2021-22
		Rs. crore	Rs. Crore	Rs. Crore	Rs. Crore
SBU G	5.13	39.67	37.58	35.50	33.41
SBU T	11.32	87.56	82.95	78.34	73.73
SBU D	83.56	646.45	612.43	578.40	544.38
Total	100	773.68	732.96	692.24	651.52
Additional funding for the Trust	Emp. ratio	2018-19	2019-20	2020-21	2021-22
SBU G	5.13%	10.26	10.26	10.26	10.26
SBU T	11.32%	22.64	22.64	22.64	22.64
SBU D	83.55%	167.10	167.10	167.10	167.10
Total	100.00%	200.00	200.00	200.00	200.00
Total Interest on the total Liability to Master Trust		2018-19	2019-20	2020-21	2021-22
SBU G	--	49.93	47.84	45.76	43.67
SBU T	--	110.20	105.59	100.98	96.37
SBU D	--	813.55	779.53	745.50	711.48
Total	--	973.68	932.96	892.24	851.52

4.54 As shown above, the contribution to the Master for SBU T is Rs. 110.20 crore for 2018-19 and Rs.96.37 crore in 2021-22

Interest on working capital

4.55 In petition, KSEB Ltd has claimed normative working capital for SBU-T and SLDC as per Regulation 32. This include one month of O&M cost, cost of maintenance spares at 1% historical cost and receivables for one month less security deposit held, if any.

4.56 The interest rate for working capital, as per Regulation 32(2), is 2% higher than the Base rate on First of April of the ARR filing Year. Thus, KSEB Ltd has computed the Interest on Working Capital at a rate of 10.70% (8.70% as on 1-4-2018 + 2%) per annum. The parameters adopted for computation of Interest on Working capital for the control period 2018-19 to 2021-22 as per the petition are given below:

Table : 4.24

Parameters for Working Capital proposed by KSEB Ltd

Item	2018-19	2019-20	2020-21	2021-22
SBU-T				
Opening GFA (Rs.Cr.)	5307.41**	6144.33**	7861.27**	10565.22**
O&M Cost (Rs.Cr.)	386.81	419.17	472.53	508.66
SLDC				
Opening GFA (Rs.Cr.)	7.36	34.08	93.11	105.10
O&M Cost (Rs.Cr.)	17.35	19.22	21.28	23.55

** excluding GFA of SLDC

4.57 As per the petition, the Interest on Working Capital projected for the control period for SBU-T and SLDC are given in the tables below:

Table :4.25

Interest on Working capital proposed by KSEB Ltd

No	Item	2018-19	2019-20	2020-21	2021-22
		Rs. crore	Rs. crore	Rs. Crore	Rs. crore
1	O&M expenses (as per norms)	28.82	31.52	35.97	38.98
2	Maintenance Spares (as per norms)	53.07	61.22	78.35	105.27
3	Receivables (as per norms)	79.26	92.18	116.19	136.43
4	Less: security deposits				
5	Total Working Capital	161.15	184.92	230.50	280.67
6	Interest Rate (as per norms)	10.70%	10.70%	10.70%	10.70%
7	Interest on Working Capital	17.24	19.79	24.66	30.03

Table : 4.26

Interest on Working capital for SLDC proposed by KSEB Ltd

No	Item	2018-19	2019-20	2020-21	2021-22
		Rs. crore	Rs. crore	Rs. Crore	Rs. Crore
1	O&M expenses (as per norms)	1.45	1.60	1.77	1.96
2	Maintenance Spares (as per norms)	0.07	0.34	0.93	1.05
3	Receivables (as per norms)	1.77	1.93	2.12	2.33
5	Total Working Capital	3.28	3.88	4.83	5.34
6	Interest Rate (as per norms)	10.70%	10.70%	10.70%	10.70%
7	Interest on Working Capital	0.35	0.41	0.52	0.57

Comments of the Stakeholders

- 4.58 The Association has stated that the petitioner has not arrived at the working capital requirement correctly in the case of generation and transmission. According to the Association, net current assets for SBU-G and SBU-T for the year 2015-16 and 2016-17 and 2017-18 as per the accounts is negative. The components of the balance sheet such as borrowing for working capital and other current liabilities (which is mainly the trade payable due but not paid) results in negative working capital. KSEB Ltd has not detailed the treatment of such items in the petition. Hence, according to the Association, KSEB Ltd has been a cash rich entity with negative working capital requirements. Hence interest on working capital shall not be allowed to SBU-G and SBU-T.
- 4.59 In this context, KSEB Ltd in their reply stated that the working capital is regulated as per Regulation 32. As per the Regulation, working capital is allowed on a normative basis. Hence, the argument of the petitioner is not tenable.

Analysis and Decision of the Commission

- 4.60 As per the provisions of Regulations, interest on working capital is allowed on a normative basis. KSEB Ltd has claimed interest on working capital of Rs.17.24 crore for SBU-T and Rs.0.35 crore for SLDC for the year 2018-19 at a rate of 10.7%. The Association has stated that in actual terms, there is negative working capital and hence interest on working capital shall not be allowed to KSEB Ltd.

- 4.61 The Commission has carefully considered the differing views of the KSEB Ltd and the Association. Regulation 32(2) permits the calculation of interest on working capital considering the working capital requirements estimated on a normative basis. Hence, the Commission does not accept the objections of the Association.
- 4.62 As per the Regulation 32(2), interest on working capital is allowed normatively at a rate equal to two per cent higher than the base rate as on the first day of the financial year in which petition is filed. Accordingly base rate as on 1-4-2018 is applicable. Base rate is the MCLR of State bank of India applicable for the first day of April of the respective financial year for one year tenor and the MCLR of 1 year as on 1-4-2018 was 8.15%. Thus the interest applicable to working capital is 10.15%. Based on the above, the interest on working capital is worked out as shown below:

Table :4.27
Interest on working capital approved for the control period

SBU-T	2018-19	2019-20	2021-21	2021-22
O&M Expenses	363.23	397.46	452.88	491.28
GFA Plants and Equipment	5,126.26	5,637.86	6,719.97	8,147.73
Transmission charges	874.60	983.69	1,162.47	1,283.53
O&M Expenses for one month	30.27	33.12	37.74	40.94
1% of Historical cost of plants & Equipment	51.26	56.38	67.20	81.48
Receivables (Transmission charges for one month)	72.88	81.97	96.87	106.96
Total requirement of working capital	154.42	171.47	201.81	229.38
Rate of interest	10.15%	10.15%	10.15%	10.15%
Interest on working capital	15.67	17.40	20.48	23.28

Summary of Interest and financing charges

- 4.63 The summary of interest and finance charges approved for SBU-T for the control period as per the petition is given below:

Table : 4.28
Summary of Interest & Finance Charges approved for SBU-T

	2018-19	2019-20	2020-21	2021-22
Item	Rs.crore	Rs.crore	Rs.crore	Rs.crore
Interest on capital liabilities	127.28	185.05	263.65	313.12
Interest on GPF	20.67	22.03	23.39	24.74
Interest on Master Trust	110.20	105.59	100.98	96.37
Interest on working capital	15.67	17.40	20.48	23.28
Total Interest & Finance Charges	273.82	330.07	408.50	457.51

Contribution to CMDRF

4.64 KSEB Ltd has claimed as part of the ARR of SBU-T, the contribution made by KSEB Ltd to the Chief Minister's Distress Relief Fund. The contribution was made as per the Full Board and Extraordinary General Meeting decisions dated 20-8-2018 and pursuant to the provisions of Section 181 and other applicable provisions of the Companies Act,2013, as amended from time to time and subject to clause 42(12) of the Articles of Association of the Company. The share of SBU-T under this head is Rs.3.96 Crores.

Objections of the Stakeholders

4.65 Some stakeholders have objected to the inclusion of the contribution in the ARR, whereas the HT-EHT Association has stated that since the amount claimed is small, the same can be included.

Analysis and decision of the Commission

4.66 The Commission has examined the proposal of KSEB Ltd in this regard. As per the information furnished by KSEB Ltd, the Full Board and Extraordinary General Meeting dated 20-8-2018 resolved to contribute to the Chief Ministers' Distress Relief Fund on behalf of the KSEB Ltd an amount of Rs.35.00 crore in view of the huge destruction caused by natural calamity in the State of Kerala during August 2018. The decision was taken as per Section 181 and applicable provisions of the Companies Act 2013 and subject to clause 42(12) of the Articles of Association of the Company.

4.67 The Companies Act 2013 provides for three kinds of contributions under Section 181, 182 & 183. Section 181 pertains to charitable contributions, by implication, the provisions of the Section 181 reveals that the contribution to charitable and other funds can be made only if there is a profit and contribution is out of the profit. Based on the above statutory provision, KSEB Ltd can contribute the amount out of their profit. Such payments cannot be made as a charge on the company's expenses ie., in the ARR and subsequently recovered from the consumers through the tariff.

Return on Equity

4.68 KSEB Ltd in their petition has proposed the ROE for SBU-T (including SLDC) at rate of 14% amounting to Rs. 119.99 Cr each year during the Control Period. This ROE is apportioned to SLDC based on GFA ratio and is given below.

Table :4.29
Segregation of ROE proposed by KSEB Ltd

Item	2018-19	2019-20	2020-21	2021-22
	Rs. Crore	Rs. Crore	Rs. Crore	Rs. crore
SBU-T	119.82	119.82	119.82	119.82
SLDC	0.17	0.17	0.17	0.17
Total	119.99	119.99	119.99	119.99

Comments of the stakeholders

4.69 The Association has pointed out that in the Order dated 18-11-2015 in Appeal No. 247 of 2014 in Kerala HT EHT Industrial Consumers Association Vs. KSEBL & KSERC, Hon. APTEL had directed the Commission to determine the RoE as per the recommendation of the consultant and as per the report of the consultant, the Commission may allow RoE either on the equity capital allowed earlier by the Commission (Rs.1553 crore) or on the reduced equity capital of Rs. 283.91 crore (Rs. 1553 crore - Rs. 1269 crore). Hence, the Association stated that as per the terms of Tariff Regulations 2018, the Commission may allow 14% return on equity of Rs.283.91 crore i.e. Rs.39.75 crore only.

4.70 In this regard, KSEB Ltd has pointed out that Regulation 34(b) that equity of the Government of Kerala as per the transfer scheme published under Section 131 of the Act will be considered for computation of return on equity. According to KSEB Ltd, the argument of the Association is against the provisions of the Regulations.

Provisions in the Regulation

4.71 As per Regulation 28 (1), RoE is to be allowed at a rate of 14% of the equity capital computed as per Regulation 26 in rupee terms. As per Regulation 34(b), equity as per the Transfer Scheme is to be considered for providing return on equity.

Analysis and decision of the Commission

4.72 The Commission has carefully considered the claim of KSEB Ltd, the objections raised by the Association and further clarification provided by KSEB Ltd. Regulation 34(b) provides the basis for computation of RoE. The Regulations were finalised by the Commission after following the due process such as previous publication, public hearing etc., Once the Regulation has been finalised and notified after following the due procedure, it is binding on all the parties concerned and there is no scope for any deviation what so ever. Therefore the arguments of the Association that there is lower amount of equity, cannot be accepted. As per the provisions of the Regulation 34(b), the Commission admitted the amount of equity as per the provisions of the Transfer Scheme and RoE of 14% is also allowed on this amount of equity. Accordingly the share of profit for SBU-T at the rate of 14% is allowed to be included in the ARR. The Commission therefore approves Rs.119.99 crore to be included in the ARR.

Table :4.30

RoE approved for SBU-T for the control period

SBU	Share of Equity	% of Equity	RoE
	Rs.crore	Rs.crore	Rs.crore
SBU-T	85,7.462	24.49	119.99
KSEB Ltd	3,49,9.05	100.00	489.87

Aggregate Revenue Requirement

4.73 As per the petition, the total Aggregate Revenue Requirement of SBU-T and SLDC proposed for the control period 2018-19 to 2021-22 is given below:

Table : 4.31

ARR of SBU-T and SLDC projected by KSEB Ltd for the control period

No	Item	2018-19	2019-20	2020-21	2021-22
		Rs. crore	Rs. crore	Rs. crore	Rs. Crore
1	Operation & Maintenance Expenses	363.23	397.46	452.88	491.28
2	Interest and finance charges	151.37	257.99	435.91	555.01
3	Interest on Bonds	129.76	125.15	120.54	115.93
4	GPF Interest	21.7	23.12	24.55	25.97

No	Item	2018-19	2019-20	2020-21	2021-22
		Rs. crore	Rs. crore	Rs. crore	Rs. Crore
5	Depreciation	172.32	199.58	257.03	344.7
6	Interest on WC and deposits	17.60	20.20	25.18	30.60
7	Adjustment of Controllable/uncontrollable factors	0	0	0	0
8	Other items	3.96			
10	Total Revenue Expenditure	859.94	1023.50	1316.09	1563.49
11	Return on Equity	119.99	119.99	119.99	119.99
12	Tax on RoE	0	0	0	0
13	Aggregate Revenue Requirement (10+11+12)	979.93	1143.49	1436.08	1683.48

4.74 Based on the Commission's decision in earlier sections of this chapter, the approved ARR for SBU-T is as shown below:

Table : 4.32
Approved Gross ARR for the control period for SBU-T

Item	2018-19	2019-20	2020-21	2021-22
	Rs. crore	Rs. crore	Rs. crore	Rs. Crore
Operation & Maintenance Expenses	363.23	397.46	452.88	491.28
Interest and finance charges	127.28	185.05	263.65	313.12
Interest on Bonds	110.20	105.59	100.98	96.37
GPF Interest	20.67	22.03	23.39	24.74
Depreciation	146.41	173.47	222.92	261.09
Interest on WC and deposits	15.67	17.40	20.48	23.28
Adjustment of controllable/uncontrollable factors				
Other items				
Total Revenue Expenditure	783.46	901.00	1,084.30	1,209.89
Return on Equity	119.99	119.99	119.99	119.99
Tax on RoE	0	0	0	0
Aggregate Revenue Requirement	903.45	1,020.99	1,204.29	1,329.88

Non-Tariff Income

4.75 The non-tariff income of SBU-T includes income from sale of scrap, interest on advances made to contractors, interest on staff loans and advances, Rent from buildings etc. The projection of Non-Tariff income of SBU-T for the control period is given below.

Table : 4.33
Other Income

No	Other Income	2018-19	2019-20	2020-21	2021-22
		Rs.crore	Rs.crore	Rs.crore	Rs.crore
1	Interest on staff loans and advances	0.01	0.02	0.02	0.03
2	Income from statutory investments	0	0	0	0
3	Income from rent of land or buildings	0.47	0.5	0.52	0.55
4	Income from sale of scrap	5.07	2.87	3.01	3.17
5	Income from staff welfare activities	0	0	0	0
6	Rental from staff quarters	0.11	0.12	0.12	0.13
7	Excess found on physical verification	0.03	0.03	0.04	0.04
8	Interest on investments, FD and call deposits and bank balances	1.75	0.05	0.05	0.05
9	Interest on advances to suppliers/contractors	0.33	0.05	0.05	0.05
10	Income from hire charges from contractors and others	0.01	0	0	0
11	Income from fibre optic cables/co-axial cables on transmission system	3.79	3.9	4.49	5.07
12	Income from advertisements, etc.	0	0	0	0
13	Miscellaneous receipts	17.28	29.76	33.52	37.26
	Total Other Income	28.85	37.3	41.82	46.35

4.76 The Commission has obtained the details of other income for the year 2016-17 and 2017-18. As per the details furnished by KSEB Ltd, the non-tariff income for SBU-T was Rs.35.46 crore and Rs.28.06 crore respectively for 2016-17 and 2017-18. Based on these details, Commission accepts the projection of KSEB Ltd for the control period since the same is being reasonable. Thus, the non-tariff income is approved as proposed by KSEB Ltd.

Net ARR of SBU-T and SLDC

4.77 Based on the above, the net ARR of SBU-T and SLDC for the control period claimed by KSEB Ltd in the petition is as shown below, which is proposed to be recovered as transfer cost of intra-state transmission from SBU-D.

Table : 4.34
Net ARR of SBU-T proposed by KSEB Ltd

No	Item	2018-19	2019-20	2020-21	2021-22
		Rs. Crore	Rs. Crore	Rs.crore	Rs. Crore
1	Aggregate Revenue Requirement	979.93	1143.49	1436.08	1683.48
2	Less: Other Income	28.85	37.3	41.82	46.35
3	Less: Revenue from Open Access	--	--	--	--
4	Less: Income from Other Business	--	--	--	--
5	ARR from Transmission Tariff	951.08	1106.19	1394.26	1637.13

4.78 As mentioned in the previous para, the net ARR approved by the Commission is as shown below:

Table : 4.35
Approved Net ARR of SBU-T

	2018-19	2019-20	2020-21	2021-22
	Rs. Crore	Rs.crore	Rs.crore	Rs.crore
Gross Aggregate Revenue Requirement	903.45	1,020.99	1,204.29	1,329.88
Less Non-Tariff /Other income	28.85	37.30	41.82	46.35
Net ARR	874.60	983.69	1,162.47	1,283.53

ARR of SLDC

4.79 As per the provisions of the Regulations, the petition for approval of ARR has to be given by SLDC. However, KSEB Ltd in their petition stated that separate accounts are not available for SLDC and hence as per the provisions of Regulation 66(2) furnished apportionment of O&M expenses and RoE of SLDC.

Analysis and decision of the Commission

4.80 The Commission has examined the proposal of KSEB Ltd. The relevant provision of the Regulation is as shown below:

“66.Aggregate revenue requirement of the State Load Despatch Centre.–(1)
The Commission shall, after prudence check, determine the aggregate revenue requirement of the State Load Despatch Centre, which shall comprise of the following items of expenditure:-

(i) operation& maintenance expenses;

- (ii) interest on working capital;
- (iii) depreciation;
- (iv) interest and finance charges; and
- (v) return on investment.

(2) The State Load Despatch Centre shall submit separate audited accounts of its business:

Provided that, in case separate accounts are not available, the Commission may approve as the Aggregate Revenue Requirement of State Load Despatch Centre, a portion of the approved Aggregate Revenue Requirement of the transmission business of KSEB Limited, based on the proposal submitted by it only for the first year of the Control Period:

(3) *The Commission may adopt the general and financial principles specified in these Regulations for the determination of Aggregate Revenue Requirement of the State Load Despatch Centre. “*

4.81 As per Regulation 66(1), the components of ARR of SLDC are specified. Further, proviso to Regulation 66(2), in case separate accounts are not available, the Commission may approve a portion of the ARR of the Transmission business of KSEB Ltd based on the proposal furnished by KSEB Ltd. As per the proposal of KSEB, the ARR of the SLDC covers only two components such as O&M and RoE. Considering the provision of the Regulations, Commission is of the view that a portion of the ARR of STU-D is to be apportioned towards ARR of SLDC for one year. As per the proposal of KSEB Ltd the ARR of SLDC is on an average 1.68% of the Net ARR of SBU-T for the control period as a whole, as shown below:

Table : 4.36

ARR of SLDC projected by KSEB Ltd

	2018-19	2019-20	2020-21	2021-22
	Rs. Crore	Rs. Crore	Rs. Crore	Rs. Crore
Net ARR	951.08	1,106.19	1,394.26	1,637.13
ARR of SLDC	17.84	19.77	21.93	24.26
Share	1.88%	1.79%	1.57%	1.48%

4.82 The ARR of SLDC is on an average 1.68% for the year 2018-19 as shown above. Accordingly, as per Regulation 66(2) the Commission also assigns 1.88% of the net ARR of SBU-T as the ARR of SLDC for the first year. **KSEB**

Ltd shall furnish the ARR of SLDC as per the provisions of Regulations during the mid term review for the approval of the Commission.

Table : 4.37
ARR of SLDC

	2018-19 Rs. Crore	Percentage
ARR of SLDC	16.44	1.88%
ARR of SBU-T	858.16	98.12%
ARR of SBU-T & SLDC	874.60	100%

Norms for Operation during the control period

Transmission System Availability :

- 4.83 As per the Regulation, the ARR of the SBU-T is recovered based on the norms for operation during the control period. The availability of the transmission system is the operational parameter for recovery of transmission revenue requirements. KSEB Ltd in their petition has claimed availability of transmission system as 98% for the control period from 2018-19 to 2021-22
- 4.84 KSEB Ltd also stated that many of the transmission facilities were badly damaged and out of service for several weeks during the monsoon period of 2018 and that has severely affected the performance norms of SBU-T. Hence it was requested that the performance norms for the year 2018-19 may be relaxed in view of the above force majeure event. Further, KSEB Ltd also claimed relaxation on availability norms during shutdown works carried out at the time of execution of 'TRANSGRID WORKS'.

Analysis and decision of the Commission

- 4.85 The Commission notes that the recent floods have an impact on maintaining the availability of the system. KSEB Ltd also claimed relaxation in the norms during the shutdown taken for the execution of the Transgrid works.

4.86 The Commission has examined the proposal of KSEB Ltd. The transmission system availability is specified in the Regulations and the manner of estimation of the availability is also mentioned in the Regulations. Relaxation in the normative availability is allowed for shutdowns in the transmission elements availed by STU for transgrid works and other agency works for maintenance or construction of their transmission system. Further as per Regulations, relaxations are also available for *force majeure* events. Since there are sufficient provisions available for claiming relaxation for availability, the Commission is not inclined to take any decisions at present. KSEB Ltd may approach the Commission with necessary and sufficient details for claiming relaxation in the transmission system availability during the truing up process for the respective year. The Commission after considering the details, may take appropriate decision, as per the provisions of the Regulations and the details furnished.

Chapter 5

ARR&ERC OF SBU-D FOR THE CONTROL PERIOD

Introduction

5.1 SBU-D of KSEB Ltd is the deemed distribution licensee and is responsible for distribution of about 97% of the electricity in the State. Brief profile of the of SBU-D is given below:

Table : 5.1
Profile of SBU-D

Particulars	As on 31-3-2018
Area Sq.km.	38863 km ²
No. of Districts	14
Electrical Circle Offices	25
Population (Cr)	3.45
Consumers (Nos)	12276321
Distribution transformers (Nos)	77724
HT lines (11 KV,22 KV,33 KV lines) (Ckt Kms)	62835
LT lines (Ckt. Kms)	286784
Energy sales in MU	20881
Total consumption(in MU)	21259
Per capita consumption (units)	609
Consumption per consumer (units)	1701

5.2 A comparison of the growth of the electricity distribution business during the last 15 years is shown in the Table below:

Table : 5.2
Growth of the distribution system

Particulars	Units	2002-03	2017-18	Growth (%)
Consumers	Nos	6947803	12276321	77%
Energy sales n MU	MU	8752.1	20880.7	139%
T&D loss	%	29.08	13.07	-55%
Revenue	Rs Cr	2480.69	12058.06	386%
Distribution transformers	Nos	32637	77724	138%
33 KV lines	Ckt Km	408.17	1943	376%
11 KV& 22 KV lines	Ckt Km	31455	60892	94%
LT lines	Ckt Km	199721	286784	44%

KSEB Ltd projection of Energy sales:

5.3 KSEB Ltd in their petition has projected the energy sales for the control period based on past data of consumer strength, energy consumption, connected load, consumption per consumer, regional characteristics of the consumers, seasonal variations, economic and other conditions etc., The historical sales details from 2011-12 to 2017-18 furnished by KSEB Ltd is as shown below:

Table : 5.3

Category wise Energy sales from 2011-12 to 2017-18

Category	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	6Y CAGR
	(MU)	(MU)	(MU)	(MU)	(MU)	(MU)	(MU)	(%)
Domestic	7705.86	8313.36	8739.52	9367.26	9943.48	10280.74	10574.84	5.44
Commercial	2141.22	2224.06	2229.34	2418.28	2735.36	2957.95	3063.48	6.14
Industrial	1097.04	1101.96	1096.56	1096.93	1103.23	1131.91	1112.33	0.23
Agricultural	286.18	306.08	310.24	291.41	279.48	321.98	346.03	3.22
Streetlight	294.26	313.2	319.06	346.43	366.62	375.77	373.48	4.05
Sub Total (LT)	11524.56	12258.66	12694.72	13520.31	14428.16	15068.35	15470.15	5.03
HT category	2586.27	2687.56	2791.64	2988.14	3130.94	3301.83	3494.04	5.14
EHT Category	1243.12	1217.59	1243.85	1158.45	975.06	826.38	1041.94	-2.90
Railways	154.49	173.67	200.69	205.31	212.83	229.59	265.8	9.47
Bulk Supply	472.09	500.76	523.15	554.06	578.08	612.1	608.77	4.33
Total Sales	15980.53	16838.24	17454.05	18426.27	19325.07	20038.25	20880.7	4.56
Open Access *				4.43	135.25	441.55	378.02	
Total Conspn	15980.53	16838.24	17454.05	18430.7	19460.32	20479.8	21258.71	4.87

* includes captive generation energy

5.4 The following table shows the growth in number of consumers in the previous years.

Table : 5.4

Growth in number of consumers from 2011-12 to 2017-18

Category	FY-12	FY-13	FY-14	FY-15	FY-16	FY-17	FY-18
Domestic	8324961	8573938	8788916	8987947	9124747	9384957	9562253
Commercial	1538786	1633689	1795160	1830937	1923402	1994916	2081567
Industrial	132051	131583	137744	142001	136693	141683	136964
Agricultural	455078	460263	463006	461287	473882	447551	462763
St Lights	3160	3505	3789	4072	4281	20350	27131
Total (LT)	10454036	10802978	11188615	11426244	11663005	11989457	12270678
HT category	3540	3854	4217	4592	4963	5293	5577
EHT Category	40	40	39	40	42	42	43
Railways	8	8	8	8	9	12	12
Bulk Supply	13	10	11	11	12	12	11
Total HT& EHT	3601	3912	4275	4651	5026	5359	5643
Total	10457637	10806890	11192890	11430895	11668031	11994816	12276321

5.5 The total consumption in the State for the year 2017-18 is as shown below:

Table : 5.5
Total consumption of electricity in 2017-18

Category	KSEBL Sales	Open access Energy	Captive (MU)		Total (MU)
	(MU)	(MU)	SHP	Solar	
LT total	15470.15	0		6.04	15476.19
HT Total	3494.04	27.87		2.59	3524.50
EHT Total	1307.74	241.99	68.03	30.69	1648.45
Bulk Licensees	608.77				608.77
Off- grid Solar				0.80	0.80
Grand Total	20880.7	269.86	68.03	40.12	21258.71

5.6 As shown in the table above, the total sales in 2017-18 was 20881MU and the energy consumption through open access by the consumers in the state is 269.86MU. The captive consumption through small hydel and solar energy schemes is 108.15 MU, totalling to 21258.71MU. KSEB Ltd stated that based on the historical consumption and other parameters, the energy sales for the various consumer categories have been projected by KSEB Ltd for the control period. The rationale used by KSEB Ltd for the projections for different categories is explained below:

- *“For domestic category, the consumption shows a steady decreasing trend (3 year Compounded Annual Growth Rate (CAGR) is 4.13% against 6 year CAGR of 5.44%) during the last three years. Since, year 2012-13 was a drought year, 5 year CAGR cannot be applied for projection. Further, the factors contributing to reduction in consumption (saturation, LED DSM impact, solar penetration etc) are applicable to last three years, hence CAGR of 3 years seems to be appropriate for the domestic category. An allowance of 0.25% reduction is allowed for savings due to DSM activities.*
- *The 6 year CAGR is used for energy sales projection of LT Commercial, LT Agriculture and Public lighting category.*
- *As for Industrial category, the consumption shows a small negative growth in CAGR for last 6 years and year over year change from 2017-18 is negative. Hence 1 % growth is considered for the projection.*

- *Impact of Solar installations by consumers in future years is not considered for projection because of difficulty in predicting the same.*
- *In the case of HT & EHT category, it is not possible to predict the quantum of energy purchase by open access consumers because they resort to short term power purchase and have not furnished any definite proposals for the future. Hence energy sales including energy wheeled by embedded open access consumers is also considered for future projections. Energy consumed from captive generation is not considered for future energy sales projection.*
- *The 6 year CAGR is used for energy sales projection of HT Industrial, Commercial & General combined and HT Agriculture category. HT domestic is relatively a new category formed in 2014-15 and CAGR is on the higher side. Hence a growth of 5 % growth is considered.*
- *In the case of EHT categories, 3 year CAGR is taken for EHT 66 KV, 110 KV and EHT non-industrial category because of re-categorisation of categories during 2012-13 and 2013-14. In the case of EHT 220 KV, being a captive generator, there is a wide variation in their consumption; hence projection based on their previous trends cannot be relied.*
- *In addition to the sale to its own consumers, KSEBL has been providing electricity to other licensees at the Bulk Supply Tariff (BST) approved by the Hon Commission. In the case of these licensees, 6 year CAGR ie., 4.33% is taken for energy sales projection."*

5.7 The energy sales for the year 2018-19 was estimated by KSEB Ltd based on the actual consumption till September 2018, new service connections proposed during the ensuing years, DSM initiatives taken by the KSEB Ltd and its impact of wheeled energy, solar penetration etc. The energy sales for various customer categories are estimated primarily based on the CAGR trends during past years. Wherever it is observed that the trend is unusual, the growth factors have been corrected based on experience to arrive at more realistic projections. For instance, for the year 2018-19, the energy demand for the first half of the financial year showed a considerable reduction owing to the heavy monsoon and consequent floods.

5.8 Based on the above, the energy sales projected for the control period is as shown below:

Table : 5.6

Energy sales projected by KSEB Ltd for the control period

Category	Control period				
	2017-18	2018-19	2019-20	2020-21	2021-22
	(MU)	(MU)	(MU)	(MU)	(MU)
LT I Domestic	10,569.99	10,856.52	11,439.87	11,901.30	12,381.33
LT VI&VII Commercial	3,063.48	3,168.22	3,448.97	3,660.73	3,885.49
LT IV Industrial	1112.33	1,100.98	1,134.68	1,146.03	1,157.49
LT V Agricultural	346.03	350.02	368.65	377.80	387.19
LT VIII Street Lights	373.48	380.84	404.36	420.75	437.81
LT II Colonies	4.85	4.90	5.05	5.10	5.15
LT IX Adv. Hoardings		2.01	2.12	2.18	2.25
LT Total	15,470.16	15,863.49	16,803.70	17,513.89	18,256.71
HT I Industrial	2062.99	2,137.66	2,280.91	2,385.08	2,494.01
HT II General	761.64	797.91	864.87	918.70	975.88
HTIII Agricultural	9.61	9.69	10.17	10.46	10.76
HT IV Commercial	644.82	671.26	727.59	772.88	820.98
HT V Domestic	14.97	15.41	16.51	17.33	18.20
EHT I 66kV Industrial	247.34	355.56	369.22	375.75	382.38
EHT II 110kV industrial	631.13	748.67	778.40	793.12	808.12
EHT III 220kV Industrial	77.99	94.83	101.61	106.69	112.02
EHT Non industrial	70.14	70.48	73.75	75.62	77.54
Railway Traction	265.80	273.51	293.05	307.70	323.09
KMRL	15.35	15.79	16.92	17.77	18.66
HT & EHT Total	4801.78	5,190.77	5,533.00	5,781.10	6,041.64
Bulk	608.77	593.03	632.99	662.29	693.10
Total	20,880.71	21,647.29	22,969.69	23,957.28	24,991.45
Growth (%)		2.35	6.10	4.30	4.32

5.9 The overall growth rate in energy sales to consumers within Kerala for the first year of the control period ie., 2018-19 is projected at 2.35% and 6.10% for the next year. The lower sales during 2018-19 is due to reduced consumption on account of floods etc., in 2018-19. However, in the next year ie.2019-20, the growth rate is 6.10%, following the compounded annual grow rate.

Comments of the stakeholders

5.10 The HT-EHT Association observed that the LT level sale is decreasing and taking 6/5 year CAGR do not depict a true picture and such estimations may lead to inflated projections. According to the Association sales on year to year basis would better reflect the fair picture of consumption

pattern. In the case of HT-EHT sales, there is no specific trend and hence a year to year average growth rate in sales over the previous year is better. Thus the objector has estimated the energy sales, which is at variance with the growth pattern and the sales forecast used by KSEB Ltd. The Association's projections are shown in Table below:

Table : 5.7
Energy sales projections of HT-EHT Association

Category	FY 2018-19 (MU)	FY 2019-20 (MU)	FY 2020-21 (MU)	FY 2021-22 (MU)
Domestic	10856.52	11195.92	11545.93	11906.88
Commercial	3168.22	3377.76	3585.15	3805.27
Industrial	1100.98	1111.99	1123.11	1134.34
Agricultural	350.02	361.28	370.24	379.44
Street Lights	380.84	396.28	412.34	429.05
LT II	4.90	4.95	5.10	5.15
LT IX	2.01	2.07	2.18	2.25
LT Total	15863.49	16450.25	17044.05	17662.39
HT I	2137.66	2256.07	2359.10	2466.84
HT II	797.91	845.68	896.31	949.97
HTIII	9.69	10.17	10.46	10.76
HT IV	671.26	705.20	740.86	778.32
HT V	15.41	16.51	17.33	18.20
HT Total	3631.93	3833.63	4024.06	4224.10
EHT I	355.56	369.22	375.75	382.38
EHT II	748.67	762.37	776.32	790.53
EHT III	94.83	101.61	106.69	112.02
EHT non industrial	70.48	71.89	73.33	74.79
Railway Traction	273.51	287.19	301.55	316.63
KMRL	15.79	16.92	17.77	18.66
EHT Total	1558.84	1609.20	1651.41	1695.02
Bulk	593.03	618.70	645.48	673.43
HT & EHT Total	5783.80	6061.53	6320.95	6592.54
Total sales for the year – (2)	21647.29	22511.78	23365.01	24254.93
Growth over previous year (%)	1.83%	3.99%	3.79%	3.81%
Difference in sales as projected by the Objector and Petitioner (1-2)	0.00	457.89	592.25	736.51

5.11 In this regard, KSEB Ltd stated that energy projections based on a year to year trend may not be reasonable as it reflect only last years trend and may be erroneous if the year is an abnormal one. According to KSEB Ltd, 2016-17 was a drought year and hence 2017-18 growth rate was low due to reasons such as Demand Side Management (DSM) measures. Hence using such year for base figure to forecast future trends is not

reasonable. KSEB Ltd stated that the objector has deliberately taken a lower growth during the past 10 years and such projections cannot be accepted.

Provisions in the Regulations

“71. Sales forecast. –(1) The distribution business/licensee shall submit, along with the petition for approval of Aggregate Revenue Requirement and determination of tariff, a forecast of expected demand and sale of electricity to different categories of consumers and to each consumption slab within each tariff category, in its area of supply for the Control Period.

(2) Sale of electricity, if any, to electricity traders or other distribution licensees shall be separately indicated.

(3) The Commission shall examine the forecasts for its reasonableness based on the growth in number of consumers and consumption per consumer, the demand of electricity in the preceding financial years, anticipated growth in the succeeding financial years and any other factor, which the Commission may consider relevant and approve forecast of sale of electricity to the consumers with such modifications as deemed appropriate.”

Analysis and decision of the Commission

5.12 As per the Regulations, KSEB Ltd is required to file the energy sales forecast for the control period and the Commission has to verify the projections based on the parameters such as the previous year sales, growth in the number of consumers, specific consumption etc., KSEB Ltd has furnished the historical sales details, annual average growth rate, compounded growth rate, number of consumers etc., for substantiating the sales projections. Further rationale used for projecting the sales for each category of consumers is also given. In the case of the major category ie., Domestic category which constitutes about 51% of sales and 78% of total consumers, as per the details, KSEB Ltd has used three year CAGR for projecting the sales as there is a decrease in growth in the sales in the recent past due to saturation, LED/DSM effect, solar penetration etc., However, the trends in the recent years would reasonably reflect the short term future growth. Further an allowance

0.25% is applied for DSM activities. In the case of LT commercial, LT Agriculture and public lighting, KSEB Ltd has used 6 year CAGR as it reflect the average growth in the previous years.

- 5.13 In the case of LT industrial, there is a negative growth in the previous year and the 6 year CAGR is also negative. Hence 1% growth rate is used. In the case of HT Industrial, Commercial, General and HT agriculture, 6 year CAGR is used. In the case of EHT category, 3 year CAGR was used for 66kV and 110 kV industrial and EHT general as there was recategorization of categories in the past. For bulk supply also 6 year CAGR was used.
- 5.14 It is also mentioned that the impact of solar installations by consumers has not taken into consideration and future projection of energy sales to embedded open access consumers is inclusive of energy wheeled by these consumers, as there is no definite proposals for open access procurement in the future.
- 5.15 The Commission has examined the projections of sales for the different categories in detail. The rationale given by KSEB Ltd seems to be reasonable for most of the categories consumers. The share of energy sales and consumer mix for the year 2017-18 is as shown below:

Table : 5.8
Share of sales and no. of consumers in 2017-18

Category	2017-18			
	Sales (MU)	% share	No. consumers	% share
LT I Domestic	10,569.99	51%	9562060	77.9%
LT VI&VII Commercial	3,063.48	15%	2079316	16.9%
LT IV Industrial	1112.33	5%	136964	1.1%
LT V Agricultural	346.03	2%	462763	3.8%
LT VIII Street Lights	373.48	2%	27131	0.2%
LT II Colonies	4.85	0%	193	0.0%
LT IX Adv. Hoardings		0%	2116	0.0%
LT Total	15,470.16	74%	12270543	99.954%
HT I Industrial	2062.99	10%	2158	0.018%

Category	2017-18			
	Sales (MU)	% share	No. consumers	% share
HT II General	761.64	4%	1321	0.011%
HTIII Agricultural	9.61	0%	60	0.000%
HT IV Commercial	644.82	3%	1938	0.016%
HT V Domestic	14.97	0%	100	0.001%
EHT I 66kV Industrial	247.34	1%	15	0.000%
EHT II 110kV industrial	631.13	3%	20	0.000%
EHT III 220kV Industrial	77.99	0%	1	0.000%
EHT Non industrial	70.14	0%	5	0.000%
Railway Traction	265.80	1%	12	0.000%
KMRL	15.35	0%	2	0.000%
HT & EHT Total	4801.78	23%	5632	0.046%
Bulk supply to licensees	608.77	3%	11	0.000%
Total	20,880.71	100%	12276175	100.0%

5.16 As shown above, in 2017-18, the total sale was 20881MU and with LT sales is about 74%, HT& EHT 23% and 3% to bulk supply to licensees. Regarding the number of consumers, LT consumers constitute 99.9% of which domestic category alone accounts for 78%.

5.17 The Commission has also examined the projections of KSEB Ltd on the number of consumers. The details are given below:

Table : 5.9

Projections of no. of consumers for the control period by KSEB Ltd

Category	6 year CAGR in %	% taken	2018-19	2019-20	2020-21	2021-22
LT category						
Domestic	2.34	2.34	9785425	10014007	10247929	10487315
Commercial	5.16	5.16	2189067	2302119	2421009	2546040
Industrial	0.61	0.61	137800	138642	139489	140340
Agricultural	0.28	0.28	464056	465353	466654	467958
Street Lights	43	7.2	28522	30307	32342	34692
LT II		3	199	205	211	217
Sub Total			12605069	12950633	13307634	13676563

Category	6 year CAGR in %	% taken	2018-19	2019-20	2020-21	2021-22
HT & EHT Category						
HT I Industrial	8.52	8.52	2342	2542	2758	2993
HT II Non Industrial Non Commercial	32.97	6.45	1406	1497	1593	1696
HTIII -Agriculture	1.46	1.46	61	62	63	64
HT IV- Commercial	0.11	5.84	2051	2171	2298	2432
HT V		3.00	103	106	109	113
EHT 66/110/220 KV/General	0.41	0.41	41	41	42	42
Railway Traction	6.99	6.99	13	14	15	16
Bulk Supply	-2.75		11	11	11	11
KMRL			3	3	3	3
HT & EHT Total			6031	6446	6892	7369
Total			12611100	12957080	13314525	13683932

5.18 In the reply to clarifications on the projections of the number of consumers, KSEB Ltd in their letter dated 7-12-2018, has furnished the method of estimation of number of consumers as shown above. KSEB Ltd has used a reasonable level of increase in the case of HT and EHT consumers and 6 year CAGR for other LT consumers for projecting the number of consumers, which is reasonable. Based on the details furnished by KSEB Ltd, the Commission has also examined the projections on consumption per consumer per year for various categories of the consumers. The details are given below:

Table : 5.10
Consumption per consumer for the control period

	Control period					CAGR for the control period
	2017-18	2018-19	2019-20	2020-21	2021-22	
	kWh	KWh	kWh	kWh	kWh	kWh
Domestic	1,105	1,109	1,142	1,161	1,181	2.1%
Commercial	1,473	1,447	1,498	1,512	1,526	1.8%
Industrial	8,121	7,990	8,184	8,216	8,248	1.1%
Agricultural	748	754	792	810	827	3.1%
Street Lights	13,766	13,352	13,342	13,009	12,620	-1.9%
LT II	25,130	24,623	24,634	24,171	23,733	-1.2%
Sub Total	1,261	1,258	1,297	1,316	1,335	2.0%

	Control period					CAGR for the control period
	2017-18	2018-19	2019-20	2020-21	2021-22	
HT & EHT Category						
HT I Industrial	9,55,973	9,12,750	8,97,290	8,64,786	8,33,281	-3.0%
HT II Non Ind/comm	5,76,563	5,67,504	5,77,735	5,76,711	5,75,401	0.5%
HTIII -Agriculture	1,60,167	1,58,852	1,64,032	1,66,032	1,68,125	1.9%
HT IV- Commercial	3,32,724	3,27,284	3,35,140	3,36,327	3,37,574	1.0%
HT V	1,49,700	1,49,612	1,55,755	1,58,991	1,61,062	2.5%
EHT 66/110/220 KV/General	2,50,39,024	3,09,64,390	3,22,67,805	3,21,70,952	3,28,58,571	2.0%
Railway Traction	2,21,50,000	2,10,39,231	2,09,32,143	2,05,13,333	2,01,93,125	-1.4%
Bulk Supply	5,53,42,727	5,39,11,818	5,75,44,545	6,02,08,182	6,30,09,091	5.3%
KMRL	76,75,000	52,63,333	56,40,000	59,23,333	62,20,000	5.7%
HT & EHT Total	9,58,807	9,59,012	9,56,561	9,34,909	9,13,929	-1.6%
Total	1,701	1,717	1,773	1,799	1,826	2.1%

5.19 As shown above, consumption per consumer of domestic category is projected to increase by about 2.1% during the control period. In the case of HT industrial category, there is a reduction in consumption per consumer by 3%.

5.20 The overall rate of growth of sales during the control period for various categories of consumers is as shown below.

Table : 5.11
Rate of growth of sales for control period

Category	CAGR for the control period (%)
LT I Domestic	4.48%
LT VI&VII Commercial	7.04%
LT IV Industrial	1.68%
LT V Agricultural	3.42%
LT VIII Street Lights	4.76%
LT II Colonies	1.67%
LT IX Adv. Hoardings	3.83%
LT Total	4.80%
HT I Industrial	5.27%
HT II General	6.94%
HTIII Agricultural	3.55%
HT IV Commercial	6.94%
HT V Domestic	5.70%

Category	CAGR for the control period (%)
EHT I 66kV Industrial	2.45%
EHT II 110kV industrial	2.58%
EHT III 220kV Industrial	5.71%
EHT Non industrial	3.23%
Railway Traction	5.71%
KMRL	5.72%
HT & EHT Total	5.19%
Bulk	5.34%
Total	4.90%

- 5.21 The overall growth in sales projected by KSEB Ltd during the control period is about 4.9%. The analysis of the projections reveals that the same is reasonable and based on the recent trend. However, some of the limitations in the sales growth are required to be highlighted.
- 5.22 KSEB Ltd has not considered the impact of penetration of solar energy installations during the control period, which may negatively impact the proposed rate of growth. Further, according to KSEB Ltd, energy projections of HT and EHT consumers is inclusive of energy consumed through open access, which does not give a true picture of the energy sales of KSEB Ltd. KSEB Ltd should compile database on these critical parameters and study the impact of these issues in detail as the same has a bearing on the future energy requirements and consumption from the grid. Since there is limited information at present about these parameters, the Commission has not made any adjustments in the projected growth rate. With these comments, the Commission accepts the energy sale projections of the KSEB Ltd for the control period.

Capital expenditure programme for SBU-D for the control period

- 5.23 In their petition for approval of ARR, ERC and Tariff petition, KSEB Ltd has also filed the proposed 'Capital Investment Plan' in all the three SBUs. They have also submitted details of the assets to be put in use in each of the above Strategic Business Units, for estimating the interest on capital liabilities, depreciation and O&M expenses of the SBUs. The total Gross Fixed Asset Addition proposed during the MYT period is Rs 15113.08 crore.

- 5.24 The Commission has conducted a preliminary examination of the details submitted by KSEB Ltd, and noted that, the total Gross Fixed Assets of KSEB Ltd as on 31.03.2018 is only about Rs 18,500.00 crore excluding the cost of re-valued assets. It means that, the GFA addition proposed in the four year control period is about 82% of the total GFA created by KSEB/ KSEB Ltd, since its existence in the year 1957 till 31.03.2018
- 5.25 Considering the huge investments proposed by KSEB Ltd in the four year period of the MYT, the Commission has decided to evaluate the investment proposal in Generation, Transmission and Distribution Units, separately through public consultation process, and to conduct prudence check on the investment proposals. The Commission may issue a public notice on the same for the information of the stakeholders separately.
- 5.26 However, as part of the determination of the ARR and Tariff for the current control period, the Commission has decided to provisionally adopt a reasonable level of asset addition for providing interest on debt, depreciation and O&M expenses, for the assets expected to put in use. Based on the details submitted by KSEB Ltd, and the progress of the capital investments made so far, and other information submitted by KSEB Ltd, the Commission provisionally approves the following GFA addition, for the purposes of providing the interest on loan, depreciation and O&M expenses as part of approving the ARR. Its further details are given under Annexure-IV of this order as 'Note on Capital Investment plan'.

Table : 5.12

Asset Addition plan provisionally approved for the control period for SBU-D

Particulars	2018-19	2019-20	2020-21	2021-22	Total
Normal woks -Dhyuthi 2021	302.23	651.67	567.98	393.37	1915.25
Continued Electrification	5.00	20.00	20.00	5.00	50.00
Sub total	307.23	671.67	587.98	398.37	1965.25
Estimated & other funded Works	199.70	201.69	203.71	205.74	810.84
System strengthening & IT works	1243.77	329.31			1573.08
IT related works (CAP)				258.14	258.14

Particulars	2018-19	2019-20	2020-21	2021-22	Total
Safety	18.00	19.50	20.00	18.50	76.00
Total assets addition considered for approving O&M cost	1768.70	1222.17	811.69	880.75	4683.31
Grants for RAPDRP, IPDS etc	707.24	197.59			904.82
Estimated & other funded works	199.70	201.69	203.71	205.74	810.84
Sub total	906.94	399.28	203.71	205.74	1715.66
Net Gross Fixed Assets (excluding consumer contribution and grants) for approving depreciation and Interest and Finance charges	861.76	822.90	607.98	675.01	2967.65

5.27 It is reiterated that this GFA addition approval is strictly provisional as indicated above and is only for estimating the ARR of each of the SBUs of KSEB Ltd. This does not mean that, the Commission has approved the GFA addition as above or dis-allowed the balance portion of the GFA addition out of the total GFA addition proposed. As clearly stated earlier, the Commission shall separately examine for consideration and approval the capital investment in generation, transmission and distribution, through public consultation process and prudence check. The GFA so approved shall only be considered while truing up of the accounts of KSEB Ltd in each year of the control period.

T&D Loss

5.28 KSEB Ltd has stated that the Transmission & Distribution loss depends upon various factors such as size of the network, energy demand, connected Load etc. KSEB Ltd has consistently been reducing the Transmission and Distribution losses of its system. Also the technical losses is including transformation loss and $I^2 R$ losses, which cannot be completely eliminated. The commercial losses include losses due to theft and pilferage, low metering efficiency, non reading of meters, faulty meter reading, inefficient billing, under billing, faulty bill distribution, software errors, prolonged disputes, inadequate revenue collection etc. According to KSEB Ltd, the major share of distribution loss is in LT distribution network.

- 5.29 In order to reduce this loss, network improvements such as augmenting the transmission and distribution infrastructure, timely replacement of sluggish meters with modern electronic and smart meters, conducting inspections, conducting energy audits, motivating consumers to reduce reactive energy by providing incentives etc are continuously taken up. On account of the above activities during the period between 2001-02 and 2017-18, the T&D loss of KSEB Ltd has been reduced from 30.76% to 13.07%, a reduction of 17.69% during the last 16 years.
- 5.30 According to KSEB Ltd, high loss reduction target for coming years is not practicable. Further any significant reduction in T&D loss requires higher capital investments. The schemes proposed under Transgrid 2.0 and Dyuthi 2021 projects would results in reduction in loss which is expected from 2019-20 onwards. Hence KSEB Ltd has proposed a target T&D loss reduction of 0.25% in 2018-19 and 0.40% annually thereafter.

Table : 5.13

T&D loss proposed by KSEB Ltd during the control period

No	Particulars	FY-19	FY-20	FY-21	FY-22
1	T&D loss reduction estimated	0.25%	0.4%	0.4%	0.4%
2	T & D loss	12.82%	12.42%	12.02%	11.62%
3	Transmission Losses	4.05 %	3.95 %	3.85 %	3.75 %

- 5.31 As per the Regulations, KSEB Ltd has to furnish the voltage level losses. In this regard, KSEB Ltd has stated in the petition as follows:

“The voltage wise losses of distribution network, KSEBL committed to furnish the same before the Honourable Commission once R-APDRP works were completed. However, the loss report obtained from R-APDRP scheme does not provide realistic values as all the updation works are not completed and cannot be used for actual segregation of the distribution losses. The abnormal values obtained could be due to frequent Network topology changes in the field which is not automatically updated in the system. Though KSEBL had planned and taken earnest effort to complete the data sanitization works and submit the loss data along with this petition, the massive flood had hit the distribution infrastructures badly including the R-APDRP towns. The network of IT infrastructure created for Energy Audit and

AT&C loss calculation has been severely damaged as border, feeder & DTR meters and modems were submerged. Replacement has to be done for restarting Energy Audit and AT&C loss calculation activities.

Therefore, exemption was requested from PFC for a period of at least one year for the generation of loss reports and also to waive the 15% loss target condition conversion of loan to grant. KSEBL has given priority to the restoration works during the period. Under these circumstances KSEBL is not in a position to furnish the voltage wise distribution losses as well as segregation of technical losses along with this petition. Hence KSEBL humbly requests before the Honorable Commission to permit KSEBL to furnish the same along with mid-term review petition to be filed during November-2019.”

- 5.32 Based on the above, KSEB Ltd has requested the Commission to consider the loss targets as proposed below:

Table : 5.14
KSEB Ltd Projected loss during the control period

No	Particulars	2018-19	2019-20	2020-21	2021-22
1	Energy injected into the system (MU)	24846.15	26243.43	27247.53	28295.30
2	Percentage of transmission loss (%)	4.05	3.95	3.85	3.75
3	Loss of energy (MU)	1006.27	1036.62	1049.03	1061.07
4	Energy handled (MU)	23839.88	25206.82	26198.50	27234.22
5	Sale of energy at 66 KV and above (MU)	2023.64	2130.57	2198.85	2269.92
6	Less Substation Aux Consumption (MU)	15.58	16.36	17.18	18.04
7	Energy transmitted to HT system (MU)	21800.66	23059.89	23982.47	24946.26
8	HT loss (MU)	5.35%	5.15%	5.00%	4.85%
9	Energy handled at HT level (MU)	20634.33	21872.31	22783.34	23736.37
10	Loss of energy at HT level (MU)	1166.34	1187.58	1199.12	1209.89
11	Sale of energy at HT level(MU)	3760.16	4035.42	4244.53	4464.82
12	Energy transmitted to LT system(MU)	16874.16	17836.89	18538.81	19271.55
13	Energy sale at LT level(MU)	15863.49	16803.69	17513.88	18256.70
14	Loss at LT level(MU)	1010.68	1033.20	1024.93	1014.85
15	LT level loss %	5.99	5.79	5.53	5.27
16	Distribution loss for sale at HT level (MU)	9.18	8.90	8.66	8.42
17	Distribution loss for sale at LT level (MU)	9.85	9.56	9.21	8.86
18	Total Distribution Losses	9.99	9.63	9.27	8.92

Comments of the Stakeholders

- 5.33 The HT-EHT Association pointed out that as per the Regulations, the petitioner KSEB Ltd is required to carry out proper studies for the estimation of voltage wise distribution loss in the system and also to segregate technical and commercial losses. However, petitioner has not undertaken any initiatives in this direction.
- 5.34 The Association highlighted that the National Electricity Policy issued under Section 3 of the Act stipulates that the technical loss and commercial loss should be assessed separately. Recently the Parliamentary Committee on Power and Government of India have also given direction to separate technical and commercial loss. However, the KSEBL Ltd has not so far submitted application in this regard with supporting data and documents. The Association wanted that a direction is to be issued to the petitioner to the effect that a detailed report on actual voltage wise loss levels of the network be submitted within 3 months of the date of issuance of the order.
- 5.35 Regarding loss reduction targets, the Association stated that KSEB Ltd was able to achieve a loss reduction percentage to the extent of 0.83% in the past year (13.9% in FY 17 to 13.07% in FY 18). Since KSEB Ltd has replaced/refurbished majority of the distribution equipment during the recent floods and the new distribution infrastructure is more efficient, it is easier to contain the losses to a greater extent. Keeping this view, the Objector proposed a loss reduction target of 0.50% for 2018-19 and the target for the subsequent years as proposed by the KSEB Ltd.
- 5.36 Regarding transmission losses, the Association stated that the transmission loss levels proposed by KSEB Ltd is on the higher side when compared to all India basis (4.5%) and states bigger than Kerala have achieved transmission loss of less than 4%. KSEB Ltd is not complying with the directives of the Commission to conduct studies on transmission loss and the Commission should seriously deal with such non-compliances under the relevant provisions of the Act. However, it is observed that the Association has used the transmission losses proposed by KSEB Ltd for its own estimations. The Association has suggested T&D loss level of 12.57% for 2018-19 as against 12.82% proposed by KSEB Ltd. Accordingly they have re-estimated the energy input.

- 5.37 In their reply, KSEB Ltd stated that the replacement of equipment does not by itself contribute to loss reduction. The works undertaken were for urgent restoration of supply and that does not contribute to system improvement and is not expected to bring down technical loss. Further KSEB Ltd could not carry out the works as planned during the floods. Hence the proposed loss reduction of 0.25% for 2018-19 and 0.4% for subsequent years may be approved.
- 5.38 Sri Shoufar Navas stated that losses projected in the petition have been inflated. The benefits of the Uday scheme are not shown in the petition. The T&D loss in KSEB Ltd is very high. The power purchase cost is very high in spite of plenty of rain.
- 5.39 In reply KSEB Ltd stated that the accounts of KSEB Ltd are audited by several agencies. The projections are based on audited accounts. KSEB Ltd has signed only the technical part of the Uday scheme. The power purchase cost is based on the PPA and it is independent of hydro generation.
- 5.40 Sri. N.S Alexander, stated that KSEB Ltd has suffered losses in OTS extended to Binani Zinc and Punalur Paper Mills. According to him the Commission should examine such issues. Sri. Alexander further stated that the steps taken for arrear collection has not been reported and arrears are mounting. The major defaulters are HT-EHT consumers and the domestic consumers are ultimately bearing the impact. KSEB Ltd should create steps for effective arrear collection. The task force is to be revived. As per the details received through RTI, amount worth Rs.365 crore are pending in court cases. Out of this, 228 cases are given stay by High court in 1989 for which no counter were filed by KSEB Ltd. As one time settlement huge amounts have been withdrawn and the legality of such action is not examined.
- 5.41 In reply KSEB Ltd stated that OTS schemes are permissible under the Regulations and is implemented to clear long pending arrears. The concessions to Punalur Paper Mills was a revival package of Government of Kerala. The calculation of CAG was incorrect and appropriate reply to audit has been given.
- 5.42 The KSEB Pensioners Association stated that KSEB should take effective steps to collect the mounting arrears from the state government and

related consumers. In order to avoid and eliminate litigations in metering, prepaid metering system should be implemented, which is more advantageous to consumers and the licensee. Sri. K. Govindankutty stated that no action for realising the arrears have been taken by KSEB,

- 5.43 Democratic Human Rights and Environmental Forum stated that KSEB Ltd has not complied with the orders of the Commission for furnishing quarterly reports of arrears collection and since September 2013, the arrears have increased to Rs.533 crore.
- 5.44 Resident's Apex Council of Kozhikode stated that action should be initiated for collection of arrears. Shri.Shoufar Navas has stated that the arrears are increasing.
- 5.45 In their reply on arrears, KSEB Ltd stated that report on arrears have been included in the quarterly performance reports. A major portion of the arrears is on account of dues from PSUs like KWA and other government departments. These are essential services against which drastic action cannot be taken. Further prolonged litigation also affects the recovery of arrears. Hence one time settlement schemes are offered periodically.

Provisions in the Regulations

5.46 Transmission loss

"64. Transmission losses.-The energy losses in the transmission system, as determined by the State Load Despatch Centre and approved by the Commission, shall be borne by the users of the transmission system in proportion to their usage of the transmission system."

5.47 Distribution loss

"72.Distribution losses.-(1) (a) The distribution business/licensee shall carry out proper studies for the estimation of distribution losses, in order to set a realistic base line of the estimates of losses at different voltage levels and to segregate commercial and technical losses in the system:

(b) The distribution business/licensee shall submit separate details of loss at different voltages, while computing its total energy requirement.

(2) (a) The distribution business/licensee shall submit, along with the petition for approval of Aggregate Revenue Requirement for the Control Period, the information on actual total distribution losses and voltage-wise distribution losses in the preceding four financial years and estimates for each year of the Control Period and the basis on which such losses have been worked out.

(b) The distribution business/licensee shall also propose the loss reduction targets for each financial year of the Control Period, along with absolute loss levels:

(c) The distribution business/licensee shall substantiate, the proposed loss levels with necessary studies and their results.

(3) The Commission shall approve the target of distribution loss for each financial year of the Control Period considering the opening loss levels, filings of the distribution business/licensee, submissions and objections raised by stakeholders and findings of the Commission.

(4) Any variation between the actual level of distribution losses and the approved level of distribution losses shall be dealt with, as part of the truing up of the respective financial year in the Control Period, in the following manner:-

(a) If the actual distribution loss is higher than the approved level of distribution loss for any particular financial year of the Control Period, then the quantum of power purchased corresponding to the excess distribution loss for that financial year, shall be disallowed at the average cost of power purchase for the respective financial year;

(b) If the actual distribution loss is lower than the approved level of distribution loss for any particular financial year of the Control Period, then the savings in power purchase cost corresponding to the difference in distribution loss for that financial year at the average cost of power purchase for the respective financial year, shall be shared between the distribution business/licensee and the consumers in the ratio of 2:1.

(c) Export of power to other states if any and the revenue thereof shall be considered by the Commission appropriately while determining the disallowance on account of excess distribution loss."

Analysis and decision of the Commission

- 5.48 As per the Regulations 71(1), KSEB Ltd has to furnish detailed studies on the voltage level losses and also separately for technical and commercial loss. Further, actual voltage wise distribution loss for the previous years are also to be furnished. With appropriate studies, KSEB Ltd is to suggest the proposed level of losses for the control period.
- 5.49 In their petition, KSEB Ltd has proposed a loss reduction plan for the control period with 0.25% for the first year of the control period and 0.4% for the subsequent years of the Control period. However, no proper studies or base details as required by the Regulation have been furnished It is also stated that during the mid term review such studies will be submitted.
- 5.50 The Commission has examined the past details of loss reduction approved by the Commission and achieved by KSEB Ltd. The details are furnished below:

Table : 5.15
T&D loss approved and achieved

Year	Proposed in the ARR (%)	Approved by the Commission (%)	Actual achieved by KSEB (%)	Actual T&D loss (%)
2005-06	2.72	2.72	1.99	22.96
2006-07	1.76	2.50	1.50	21.47
2007-08	1.83	2.00	1.45	20.02
2008-09	1.63	1.63	1.19	18.83
2009-10	1.27	1.00	1.12	17.71
2010-11	0.92	0.92	1.62	16.09
2011-12	0.69	0.69	0.44	15.65
2012-13	0.25	0.50	0.35	15.30
2013-14	0.32	0.50	0.34	14.96
2014-15	0.25	0.50	0.39	14.57
2015-16			0.20	14.37
2016-17		0.30	0.44	13.93
2017-18		0.25	0.86	13.07

- 5.51 The Commission approved loss reduction target of 0.30% in 2016-17 and 0.25% in 2017-18 as per the order dated 17-4-2017. Correspondingly the loss level mentioned was 13.90% and 13.65% respectively.

However, the actual loss reduction and loss level reported by KSEB Ltd for 2017-18 was 13.93% for 2016-17 and 13.07% for the year 2017-18, thereby showing a loss reduction of 0.44% and 0.86% respectively for 2016-17 and 2017-18.

- 5.52 It can be seen that in 2017-18, the Commission has approved a loss target of 0.25%, whereas the achievement reported as per the accounts is 0.86%. Such a level of reduction has never occurred since 2011-12. KSEB Ltd did not explain the reasons for this reduction in the previous year, though there was no special initiatives taken up for such loss reduction. Further, it is also not known whether this reduction is due to change in the methodology of calculation of T&D loss on account of open access consumption, energy sale outside and captive consumption, distributed solar generation etc., KSEB Ltd has attributed the recent floods as the reason for not furnishing the details as per the provisions of the Regulations, though they have committed to furnish the details during the mid term review.
- 5.53 In their petition, KSEB Ltd has proposed a loss reduction target at a moderate level, though large scale capital expenditure programmes have been planned for the control period. The Commission also notes that the loss reduction estimated as part of the justifications given for the proposed capital expenditure programme is substantial. If such loss reduction is considered, the loss level in the distribution system would be reduced to unrealistically low levels.
- 5.54 The Commission has also considered the objections raised by the Association, reply of KSEB Ltd and other objections by stakeholders. Based on this analysis, and in the absence of any further information, the Commission accepts the loss reduction target proposed by KSEB Ltd for the control period. However, the loss reduction targets may be reviewed considering the progress in capital works of SBU-D along with the necessary studies to be furnished by KSEB Ltd during the mid term review.

Table : 5.16
Approved T&D loss for the control period

Particulars	Control Period				
	2017-18	2018-19	2019-20	2020-22	2021-22
T & D loss	13.07	12.82%	12.42%	12.02%	11.62%
T&D loss reduction over previous year	0.86%	0.25%	0.40%	0.40%	0.40%

Energy requirement

5.55 Based on the approved sales and approved distribution loss, the energy requirement for the control period is as shown below:

Table : 5.17
Energy sales and energy requirement for the control period

	Unit	2018-19	2019-20	2020-22	2021-22
Energy Sales	MU	21,647.29	22,969.69	23,957.28	24,991.45
T&D Loss	%	12.82%	12.42%	12.02%	11.62%
Substation auxiliary consumption	MU	15.58	16.36	17.18	18.04
Energy Requirement	MU	24,846.15	26,243.46	27,247.55	28,295.31

Collection Efficiency and AT&C loss

5.56 As per Regulation 74(2), the distribution licensee is required to propose collection efficiency target. Regulation 74(3) requires the Commission has to approve the collection efficiency target based on the filing of the licensee and comments of the stakeholders. During the public hearings many consumers commented that KSEB should improve the collection efficiency and reduce the pending arrears. The Commission has considered the comments of the stakeholders. It is a fact that the accumulation of arrears will adversely impact the cash flow of KSEB Ltd. As per the annual accounts of KSEB Ltd, the debtors for sale of power as on 1-4-2017 was Rs. 2422.40 crore. This increased by Rs.380.20 crore and the closing balance on 31-03-2018 was Rs. 2802.60 crore. Such an increase in receivables by nearly 16% during the year is not a good trend. Hence it is important to have AT&C loss targets for KSEB Ltd for the control period.

5.57 In their petition, KSEB Ltd has proposed the collection efficiency target at 98%. Adopting the methodology for calculation of AT&C loss by CEA communicated vide letter dated 08-08-2018, the AT&C loss target for KSEB Ltd at 98% collection efficiency is given below:

Table : 5.18
AT&C loss for KSEB Ltd as per CEA methodology at 98% collection efficiency

		2018-19	2019-20	2020-21	2021-22
A	Energy Input (MU)	24,846.15	26,243.46	27,247.56	28,295.31
B	Transmission loss (%)	4.05%	3.95%	3.85%	3.75%
	Transmission loss (MU)	1,006.27	1,036.62	1,049.03	1,061.07
C	Net Energy input (MU) (A-B)	23,839.88	25,206.82	26,198.50	27,234.22
D	Energy Sold (MU)	21,647.29	22,969.67	23,957.26	24,991.44
E	Revenue from sale of power (Rs. Crore)	12,352.03	13,150.46	13,765.29	14,409.63
F	Adjusted Revenue based on subsidy received basis (Rs. Crore)	12,352.03	13,150.46	13,765.29	14,409.63
G	Opening debtors (Rs. Crore)	2,802.60	3,049.64	3,312.65	3,587.96
H	Closing Debtors sale of energy (Rs.Crore)	3,049.64	3,312.65	3,587.96	3,876.15
I	Adjusted closing debtors (Rs. Crore)	3,049.64	3,312.65	3,587.96	3,876.15
J	Collection efficiency (F+G-I)/E*100	98.00	98.00	98.00	98.00
K	Units realised (MU) (D*j/100)	21,214.34	22,510.28	23,478.11	24,491.61
L	Units unrealised (MU) (C-K)	2,625.54	2,696.54	2,720.38	2,742.61
M	AT&C Loss (%) (L-C*100)	11.01%	10.70%	10.38%	10.07%

5.58 In the above estimation, the subsidy booked is taken as subsidy received from the Government of Kerala, since the Government of Kerala often make adjustments/netting off against the electricity duty receivable from KSEB Ltd and subsidy payable to KSEB Ltd.

5.59 The Commission after considering the proposal of the KSEB Ltd for the collection efficiency for the control period, fixes the target collection efficiency and AT&C loss for the control period as shown below:

Table : 5.19
Approved target for collection efficiency and AT&C loss

	2018-19	2019-20	2020-21	2021-22
Energy input (distribution)(MU)	23,839.88	25,206.82	26,198.50	27,234.22
Energy Sales (MU)	21,647.29	22,969.67	23,957.26	24,991.44
Collection Efficiency (Target)	98%	98%	99%	99%
Units realised (MU)	21214.34	22510.28	23717.69	24741.53
Units unrealised (MU)	2,625.54	2,696.54	2,480.81	2,492.70
AT&C Loss (%)	11.01%	10.70%	9.47%	9.15%

Aggregate Revenue Requirement of SBU-D

Cost of Internal generation

5.60 As stated in Chapter 3, internal generation from various sources approved is as shown below:

Table : 5.20
Approved Cost of internal generation

	Unit	2018-19	2019-20	2020-21	2021-22
Internal Hydro Generation	MU	7,889.48	6,998.42	6,866.40	7,074.51
Auxiliary Consumption	MU	82.05	72.36	70.75	72.64
Net Hydro generation	MU	7,807.42	6,926.06	6,795.65	7,001.88
Net Internal Wind & Solar gen	MU	16.58	44.2	49.18	49.18
Total internal generation	MU	7,824.01	6,970.26	6,844.83	7,051.05
Internal Generation Cost	Rs. Crore	481.36	505.80	586.34	642.63
Average cost of Generation	Rs./kWh	0.62	0.73	0.86	0.91

Intra state Transmission charges

5.61 KSEB Ltd in the petition has furnished the intra state transmission charges as shown below:

Table : 5.21
Intra state transmission charges as per petition

No	Item	2018-19	2019-20	2020-21	2021-22
1	Energy injected into the system (MU)	24846.15	26243.43	27247.53	28295.30
2	Percentage of loss (%)	4.05	3.95	3.85	3.75
3	Loss of energy (MU)	1006.269	1042.325	1058.408	1074.192
4	Energy handled (MU) (1-3)	23839.88	25201.11	26189.12	27221.10
5	Cost of Intra State transmission(Rs Cr)	951.08	1106.19	1394.26	1637.13
6	Transmission charges (Rs/unit)	0.40	0.44	0.53	0.60

5.62 As against the proposal of KSEB Ltd the Commission has approved the intra-state transmission charges in Chapter 4 as shown below:

Table : 5.22
Intra State Transmission charges approved for the control period

Item	Unit	2018-19	2019-20	2020-21	2021-22
Energy input	MU	24,846.15	26,243.43	27,247.53	28,295.30
Percentage of loss	%	4.05	3.95	3.85	3.75
Loss of energy	MU	1,006.27	1,036.62	1,049.03	1,061.07
Substation Auxiliary consumption	MU	15.58	16.36	17.18	18.04
Energy handled	MU	23,824.30	25,190.45	26,181.32	27,216.19
Cost of Intra State transmission	Rs. Crore	874.60	983.69	1,162.47	1,283.53
Transmission charges	RS./kWh	0.37	0.39	0.44	0.47

Power purchase cost

5.63 The requirement of energy after considering the internal generation is met through purchase from various sources such as central generating stations, long term agreements and through independent power producers. In the petition, KSEB Ltd stated that forecast of energy generation is made based on the assumption that power purchase cost from sources other than renewable sources is based on merit order despatch and transmission charges payable to ISTS operator PGCIL excluding supplementary claims are considered in the projections.

Power purchase cost for 2018-19

5.64 In their petition, KSEB Ltd stated that power purchase for the year 2018-19 is projected based on the actual availability during the first six months and the balance is by projection.

5.65 The cost projections are based on the annual monthly fixed charges approved by CERC and the actual variable charges for 2018. The transmission losses and transmission charges are arrived at based on the average of the actual point of connection losses and transmission charges from April to September 2018.

Capacity allocation from Central Generating Stations (CGS)

5.66 The total allocated share of power from CGS for the state is 1677.92 MW. KSEB Ltd has stated that it expects from NTPC Kudgi III Station about 35.92 MW of power (4.49 % of 1 x 800 MW) additionally from January 2019. For the year 2019-20, ie., from June 2019 onwards 43MW (8.6% from 800MW) from Bhavini nuclear plant is also expected to be available. Accordingly, the total capacity available from CGS including new CGS scheduled for commissioning for the control period is as shown below:

Table : 5.23

Capacity allocation from Central Generating Stations for the control period

No	Station	Installed Capacity (MW)	Allocation (%)	Allocation (MW)			
				2018-19	2019-20	2020-21	2021-22
1	RSPTS Stage I & II	2100	11.67%	245.07	245.07	245.07	245.07
2	RSTPS Stage III	500	12.20%	61.00	61.00	61.00	61.00
3	TALCHER - Stage II	2000	21.35%	427.00	427.00	427.00	427.00
4	Simhadri Exp	1000	8.29%	82.90	82.90	82.90	82.90
5	NLC-II- Stage-1	630	10.00%	63.00	63.00	63.00	63.00
6	NLC-II- Stage-2	840	10.71%	89.96	89.96	89.96	89.96
7	NLC- Exp- Stage-1	420	15.93%	66.91	66.91	66.91	66.91
8	NLC - II Exp	500	15.93%	79.65	79.65	79.65	79.65
9	MAPS	440	5.23%	23.01	23.01	23.01	23.01
10	KAIGA Stg I	440	8.64%	38.02	38.02	38.02	38.02
11	KAIGA Stg II	440	7.96%	35.02	35.02	35.02	35.02
12	Kudamkulam Unit I	1000	13.91%	139.10	139.10	139.10	139.10
13	Kudamkulam unit II	1000	13.30%	133.00	133.00	133.00	133.00
14	Vallur JV with	1500	3.33%	49.95	49.95	49.95	49.95
15	NTPL(Tuticorin JV)	1000	7.25%	72.50	72.50	72.50	72.50
16	Kudgi Unit I	800	4.49%	35.92	35.92	35.92	35.92
17	Kudgi Unit II	800	4.49%	35.92	35.92	35.92	35.92
18	Kudgi Unit III	800	4.49%	35.92	35.92	35.92	35.92
19	Bhavini	800	8.60%		43.00	43.00	43.00
	Total			1,713.85	1,756.85	1,756.85	1,756.85

Energy availability from Central Generating Stations

5.67 In the petition, KSEB Ltd stated that for arriving at the energy and power purchase cost for 2018-19, judicious assumptions on PLF and auxiliary consumption based on the operational norms specified in CERC (Terms and Conditions of Tariff) Regulations, 2014 and Operating norms of the CGS as per the invoices raised by these stations and past performance was used. The interstate transmission losses in the PGCIL lines is calculated on the basis of the average of PoC losses for the period from April-September 2018 approved by CERC vide orders dated 05.06.2018 and 30.08.2018.

5.68 In the first half of the 2018-19, KSEBL did not avail power from CGS for a few days on account of demand crash caused by incessant rain and consequent floods. Further, the availability of contracted power from CGS has been badly affected by severe coal shortage. But KSEBLtd is expecting that the coal shortage will be relieved within a short time and has estimated their availability based on these facts. Due to maintenance of Kudamkulam units only 60 MW is expected to be available till November. Therefore, full availability of power cannot be expected from Central Generating Stations. The energy availability from CGS at the generator bus and state periphery has been estimated by KSEB Ltd after considering the above aspects. Thus, the energy availability for 2018-19 is lower when compared to the other years of control period.

Table : 5.24

Energy availability projection by KSEB Ltd from CGS for 2018-19

No.	Station	Allocation (MW)	Aux Cons (%)	Target PLF	Ex-bus Energy (MU)	ISTS losses (MU)	Net Energy (MU)
1	RSPTS Stage I & II	245.07	6.68%	85%	1763.58	67.17	1696.40
2	RSTPS Stage III	61	5.75%	85%	426.10	16.44	409.66
3	TALCHER - Stage II	427	5.75%	85%	3105.98	130.14	2975.83
4	Simhadri Exp	82.9	5.25%	85%	550.33	19.29	531.04
5	NLC-II- Stage-1	63	10.00%	80%	397.35	15.02	382.32
6	NLC-II- Stage-2	89.96	10.00%	80%	557.67	21.23	536.44
7	NLC- Exp- Stage-1	66.91	8.50%	80%	429.02	15.90	413.12
8	NLC - II Exp	79.65	10.00%	75%	282.58	10.24	272.34
9	MAPS	23.01	10.50%		85.30	3.12	82.18
10	KAIGA Stg I& II	73.04	10.50%		486.75	19.58	467.18
11	Kudamkulam I& II	272.2	7.80%		1285.78	53.08	1232.69
12	Vallur JV with	49.95	5.75%	85%	346.70	11.58	335.12
13	NTPL(Tuticorin JV)	72.5	7.01%	85%	486.64	20.53	466.11
14	Kudgi Unit I II & III	107.76	7.50%	85%	472.19	18.37	454.96
	Total	1713.95			10675.96	421.69	10255.41

5.69 Energy availability projected by KSEB Ltd from 2019-20 to 2021-22 is as shown below:

Table : 5.25
Energy availability projected by KSEB Ltd for 2019-20 to 2021-22

No	Station	Allocated Capacity (MW)	Aux Consumption (%)	Target PLF (%)	Expected PLF (%)	2019-20			2020-21 & 2021-22		
						EX-bus Energy (MU)	PGCIL losses (MU)	Energy at periphery (MU)	EX-bus Energy (MU)	PGCIL losses (MU)	Energy at periphery (MU)
1	RSPTS Stg I & II	245.07	6.68%	85%	90%	1,808.01	63.24	1,744.76	1,808.01	63.24	1,744.76
2	RSTPS Stage III	61.00	5.75%	85%	90%	453.27	15.85	437.42	453.27	15.85	437.42
3	TALCHER - Stge II	427.00	5.75%	85%	90%	3,172.90	128.99	3,043.91	3,172.90	128.99	3,043.91
4	Simhadri Exp	82.90	5.25%	85%	85%	584.87	18.41	566.46	584.87	18.41	566.46
5	NLC-II- Stage-1	63.00	10.00%	80%	80%	397.35	13.50	383.85	397.35	13.50	383.85
6	NLC-II- Stage-2	89.96	10.00%	80%	80%	567.42	19.28	548.14	567.42	19.28	548.14
7	NLC- Exp- Stage-1	66.91	8.50%	80%	80%	429.02	14.58	414.44	429.02	14.58	414.44
8	NLC - II Exp	79.65	10.00%	75%	45%	282.78	9.61	273.17	282.78	9.61	282.78
9	MAPS	23.01	10.50%		68.50%	123.59	3.94	119.65	123.59	3.94	119.65
10	KAIGA Stg I & II	73.04	10.50%		80%	486.76	17.72	469.05	486.76	17.72	469.05
11	Kudamkulam I & II	272.20	7.80%		70%	1,538.37	62.11	1,476.26	1,538.37	62.11	1,476.26
12	Vallur JV with	49.95	5.75%	85%	85%	347.05	10.06	336.99	347.05	10.06	336.99
13	NTPL(Tuticorin JV)	72.50	7.01%	85%	85%	501.99	20.86	481.13	501.99	20.86	481.13
14	Kudgi Unit I II & III	107.76	7.50%	85%	85%	742.20	25.22	716.98	742.20	25.22	716.98
15	Bhavini	43.00	10.00%		70%	237.31	7.57	229.75	271.21	8.65	262.56
	Total	1,756.95				11,672.88	430.94	11,241.94	11,706.78	432.01	11,274.76

5.70 As shown above, the net energy availability for 2019-20 was projected at 11241.94MU and 11274.76 MU for 2020-21 to 2021-22.

5.71 The fixed charges for CGS is computed based on the annual fixed charges approved by CERC for the year 2018-19 and variable charges are computed by using the average variable cost for the year 2017-18. The tariff approved by the Department of Atomic Energy for Kaiga Atomic power station and MAPS is a single part tariff and the same has been used for estimating the cost of power purchase from these stations. In addition to fixed and variable charges, incentives, income tax, water cess, foreign exchange variation etc., are to be paid. Based on these assumptions the power purchase cost for the various stations estimated by KSEB Ltd are as given below:

Table :5.26
Power purchase cost parameters for CGS as per petition

No	Name of Station	Capacity (MW)	Allocation (%)	Allocation (MW)	Fixed Cost (Rs Cr)	Av. variable Cost (Rs /unit)
1	RSPTS I& II	2100	11.67%	245.07	123.85	2.36
2	RSTPS III	500	12.20%	61	33.00	2.31
3	TALCHER II	2000	21.35%	427	215.04	1.56
4	Simhadri Exp	1000	8.29%	82.9	89.01	2.84
5	NLC-II- Stage-1	630	10.00%	63	29.90	2.96
6	NLC-II- Stage-2	840	10.71%	89.964	44.25	2.97
7	NLC- Exp- Stage-1	420	15.93%	66.906	44.00	2.73
8	NLC - II Exp	500	15.93%	79.65	73.24	2.73
9	MAPS	440	5.23%	23.012		2.79
10	KAIGA - I & II	880	8.30%	73.04		3.63
11	Kudamkulam I & II	2000	13.61%	272.2		4.09
12	Vallur JV with	1500	3.33%	49.95	61.53	2.89
13	NTPL (Tuticorin JV)	1000	7.25%	72.5	79.04	3.10
14	Kudgi Unit I	800	4.49%	35.92	39.12	3.50
15	Kudgi Unit II	800	4.49%	35.92	39.12	3.50
16	Kudgi Unit III	800	4.49%	35.92	9.78	3.50
	Total	16210		1713.95	880.86	

5.72 For projecting the fixed and variable charges, KSEB Ltd for the year 2019-20, assumed 2% reduction in fixed charges, whereas for 2020-21 and 2021-22 fixed charges are assumed to be reduced by 2% and variable charges are assumed to increase by 2% year to year. Power purchase cost for the CGS projected for the control period as per the petition is given below:

Table : 5.27
Power purchase cost projected by KSEB Ltd for CGS for 2018-19

No	Name of CGS	Ex- bus Energy (MU)	External loss (MU)	Net Energy (MU)	Fixed Cost (Rs Cr)	Variable cost (Rs Cr)	Total cost (Rs Cr)	Avg.Rate (Rs/Unit)
1	RSPTS Stage I & II	1763.58	67.17	1696.40	123.85	416.27	540.11	3.06
2	RSTPS Stage III	426.10	16.44	409.66	33.00	98.52	131.52	3.09
3	TALCHER - Stage II	3105.98	130.14	2975.83	215.04	484.45	699.49	2.25
4	Simhadri Exp	550.33	19.29	531.04	89.01	156.50	245.51	4.46
5	NLC-II- Stage-1	397.35	15.02	382.32	29.90	117.55	147.45	3.71
6	NLC-II- Stage-2	557.67	21.23	536.44	44.25	165.55	209.79	3.76
7	NLC- Exp- Stage-1	429.02	15.90	413.12	44.00	117.12	161.12	3.76
8	NLC - II Exp	282.58	10.24	272.34	73.24	77.18	150.42	5.32

No	Name of CGS	Ex- bus Energy (MU)	External loss (MU)	Net Energy (MU)	Fixed Cost (Rs Cr)	Variable cost (Rs Cr)	Total cost (Rs Cr)	Avg.Rate (Rs/Unit)
9	MAPS	85.30	3.12	82.18		23.81	23.81	2.79
10	KAIGA Stg I & II	486.75	19.58	467.18		176.90	176.90	3.63
11	Kudamkulam I & II	1285.78	53.08	1232.69		525.40	525.40	4.09
12	Vallur JV with	346.70	11.58	335.12	61.53	100.23	161.76	4.67
13	NTPL (Tuticorin JV)	486.64	20.53	466.11	79.04	151.10	230.14	4.73
14	Kudgi Unit I,II& III	472.19	18.37	454.96	88.02	165.05	253.07	5.36
15	Total	10675.96		10255.41	880.86	2775.64	3656.50	3.42

Table : 5.28
Power purchase cost projected by KSEB Ltd for CGS for 2019-20

No	Name of CGS	Energy at gen. bus (MU)	External loss (MU)	Net Energy (MU)	Fixed Cost (Rs Cr)	Variable cost (Rs Cr)	Incentives (Rs Cr)	Total cost (Rs Cr)	Av.Rate Gen Bus (Rs)
1	RSPTS Stage I & II	1808.01	63.24	1744.76	121.37	426.76	5.01	553.13	3.06
2	RSTPS Stage III	453.27	15.85	437.42	32.34	104.80	1.26	138.40	3.05
3	TALCHER - Stage II	3172.90	128.99	3043.91	210.74	494.88	8.81	714.44	2.25
4	Simhadri Exp	584.87	18.41	566.46	87.23	166.33		253.55	4.34
5	NLC-II- Stage-1	397.35	13.50	383.85	29.30	117.55		146.85	3.70
6	NLC-II- Stage-2	567.42	19.28	548.14	43.36	168.44		211.80	3.73
7	NLC- Exp- Stg-1	429.02	14.58	414.44	43.12	117.12		160.24	3.74
8	NLC - II Exp	282.78	9.61	273.17	71.78	77.24		149.01	5.27
9	MAPS	123.59	3.94	119.65		34.50		34.50	2.79
10	KAIGA Stg I & II	486.76	17.72	469.05		176.90		176.90	3.63
11	Kudamkulam I & II	1538.37	62.11	1476.26		628.62		628.62	4.09
12	Vallur JV with	347.05	10.06	336.99	60.30	100.33		160.63	4.63
13	NTPL (Tuticorin)	501.99	20.86	481.13	77.46	155.87		233.32	4.65
14	Kudgil,II& III	742.20	25.22	716.98	115.01	259.43		374.44	5.05
15	Bhavini	237.31	7.57	229.75		96.97		96.97	4.09
	Total	11672.88	430.94	11241.94	891.99	3125.75	15.08	4032.82	3.45

Table : 5.29
Power purchase cost projected by KSEB Ltd for CGS for 2020-21

No	Name of CGS	Energy schedule at gen. bus (MU)	External loss (MU)	Net Energy input (MU)	Fixed Cost (Rs Cr)	Variable cost (Rs Cr)	Incentives (Rs Cr)	Total cost (Rs Cr)	Avg. Rate at ex-Bus (Rs / Unit)
1	RSPTS I& II	1808.01	63.24	1744.76	118.94	435.29	5.01	559.24	3.09
2	RSTPS Stage III	453.27	15.85	437.42	31.69	106.90	1.26	139.85	3.09
3	TALCHER - Stg II	3172.90	128.99	3043.91	206.53	504.78	8.81	720.12	2.27
4	Simhadri Exp	584.87	18.41	566.46	85.48	169.65		255.13	4.36
5	NLC-II- Stage-1	397.35	13.50	383.85	28.72	119.90		148.62	3.74
6	NLC-II- Stage-2	567.42	19.28	548.14	42.50	171.81		214.31	3.78
7	NLC- Exp- Stage-1	429.02	14.58	414.44	42.25	119.47		161.72	3.77

No	Name of CGS	Energy schedule at gen. bus (MU)	External loss (MU)	Net Energy input (MU)	Fixed Cost (Rs Cr)	Variable cost (Rs Cr)	Incentives (Rs Cr)	Total cost (Rs Cr)	Avg. Rate at ex-Bus (Rs / Unit)
8	NLC - II Exp	282.78	9.61	274.01	70.34	78.78		149.12	5.27
9	MAPS	123.59	3.94	119.65	0.00	35.19		35.19	2.85
10	KAIGA Stg I & II	486.76	17.72	469.05	0.00	180.44		180.44	3.71
11	K'kulam I & II	1538.37	62.11	1476.26	0.00	641.19		641.19	4.17
12	Vallur JV	347.05	10.06	336.99	59.09	102.34		161.43	4.65
13	NTPL(Tuticorin)	501.99	20.86	481.13	75.91	158.99		234.89	4.68
14	Kudgil,II& III	742.20	25.22	716.98	112.71	264.62		377.33	5.08
15	Bhavini	271.21	8.65	262.56	0.00	113.04		113.04	4.17
	Total	11706.78	432.01	11274.76	874.15	3202.39	15.08	4091.62	3.50

Table : 5.30

Power purchase cost projected by KSEB Ltd for CGS for 2021-22

No	Name of CGS	Energy scheduled Exbus (MU)	External loss (MU)	Net Energy input (MU)	Fixed Cost (Rs Cr)	Variable cost (Rs Cr)	Incentives (Rs Cr)	Total cost (Rs Cr)	Avg. Rate at exbus (Rs/unit)
1	RSPTS - I & II	1808.01	63.24	1744.76	116.56	444.00	5.01	565.57	3.13
2	RSTPS - III	453.27	15.85	437.42	31.06	109.04	1.26	141.36	3.12
3	TALCHER - II	3172.90	128.99	3043.91	202.40	514.88	8.81	726.08	2.29
4	Simhadri Exp	584.87	18.41	566.46	83.77	173.05		256.82	4.39
5	NLC-II- Stage-1	397.35	13.50	383.85	28.14	122.30		150.44	3.79
6	NLC-II- Stage-2	567.42	19.28	548.14	41.65	175.25		216.89	3.82
7	NLC- Exp- Stg-1	429.02	14.58	414.44	41.41	121.86		163.26	3.81
8	NLC - II Exp	282.78	9.61	273.17	69.38	80.36		149.74	5.30
9	MAPS	123.59	3.94	119.65		35.89		35.89	2.90
10	KAIGA Stg I & II	486.76	17.72	469.05		184.05		184.05	3.78
11	Kudamkulam I & II	1538.37	62.11	1476.26		654.01		654.01	4.25
12	Vallur JV with	347.05	10.06	336.99	57.91	104.39		162.30	4.68
13	NTPL(TuticorinJV)	501.99	20.86	481.13	74.39	162.17		236.55	4.71
14	Kudgi Unit I,II& III	742.20	25.22	716.98	118.88	269.92		388.80	5.24
15	Bhavini	271.21	8.65	262.56		115.30		115.30	4.25
	Total	11706.78	432.02	11274.76	865.55	3266.44	15.08	4147.07	3.54

Summary of cost of power purchase from CGS for the control period

Table : 5.31

Summary of cost of power purchase from CGS for the Control period by KSEB Ltd

Year	Ex- bus Energy (MU)	External loss (MU)	Net Energy (MU)	Fixed Cost (Rs Cr)	Variable cost (Rs. Crore)	Incentives (Rs. Crore)	Total cost (Rs. Crore)	Avg.Rate (Rs/Unit)
2018-19	10,675.96		10,255.41	880.86	2,775.64		3,656.50	3.42
2019-20	11,672.88	430.94	11,241.94	891.99	3,125.75	15.08	4,032.82	3.45
2020-21	11,706.78	432.01	11,274.76	874.15	3,202.39	15.08	4,091.62	3.50
2021-22	11,706.78	432.02	11,274.76	865.55	3,266.44	15.08	4,147.07	3.54

Comments of Stakeholders

- 5.73 The HT-EHT Association has made a comment that the incentive for generation is to be considered at the truing up only. Further, the Association pointed out that the variable charges for the CGS of Tamil Nadu and Karnataka is lower than the charges projected by KSEB Ltd. Hence, they requested that the Commission should approve the value only after prudence check.
- 5.74 In the case of transmission charges, the Association has used the PoC charges applicable to Kerala for the period April to July as per the orders of CERC dated 5-6-2018 and 3-8-2018. These values are lower than the values used by KSEB Ltd. The Association also requested the Commission to examine the actual power purchase bills, blending ratio of domestic and imported coal before allowing the variable cost. Regarding incentive, the Association stated that the same is to be allowed only during the truing up process. Accordingly, the objector reworked the estimation of power purchase cost which is about Rs.15 crore lower than the estimate of KSEB Ltd as shown below:

Table : 5.32
Power purchase cost and Quantum as estimated
by the Objector for CGS

FY	Ex bus Energy (MU)		Fixed Cost (Rs Cr)		Variable Cost (Rs Cr)		Incentive to the paid by KSEBL to CSGS generator(RsCr)		Total Cost (Rs Cr)		Difference (Obj-Pet)
	KSEBL	Objector	KSEBL	Objector	KSEBL	Objector	KSEBL	Objector	KSEBL – (1)	Objector –(2)	
FY 19	10675.96	10675.96	880.86	880.86	2775.64	2775.63	-	-	3656.50	3656.49	-
FY 20	11672.88	11672.88	891.99	891.99	3125.75	3125.74	15.08	-	4032.82	4017.73	(15.08)
FY 21	11706.78	11706.78	874.15	874.15	3202.39	3202.39	15.08	-	4091.62	4076.54	(15.08)
FY 22	11706.77	11706.77	865.55	865.55	3266.44	3266.44	15.08	-	4147.07	4131.99	(15.08)

- 5.75 In reply to the objection of the Association regarding the cost of power purchase, KSEB Ltd stated that the actual power purchase cost for the first half of 2018-19 has been furnished to the Commission. Regarding PoC charges, KSEB Ltd stated that an inadvertent mistake occurred while taking the PoC charges for the months of April to June and furnished the revised charges as per the CERC order dated 5-6-2018, 30-8-2018 and 19-9-2018.

Analysis and decision of the Commission

- 5.76 The Commission has examined the projections of energy availability from CGS. KSEB Ltd has estimated the availability from CGS based on the actual PLF achieved by the stations and accordingly, for many stations, the expected PLF for the control period is taken at higher than the target PLF. Since the expected PLF is higher than target PLF, the incentive for higher production is also considered by KSEB Ltd. The differences in energy availability in 2018-19 is mainly on account of lower off take during the first 6 months. In rest of the years, energy availability differs mainly on account of new stations. The Association argued that incentive shall be allowed only during the truing up process and also requested to examine the power purchase bills, blending ratio etc., However, such examination can be done only during the truing up exercise. Since higher PLF than target PLF is taken, incentive can be allowed. After examining the details of the energy availability from CGS, the Commission is inclined to accept the projections of KSEB Ltd for the control period.
- 5.77 The Commission notes that for the new CGS, the power allocation to the respective States is being done by Ministry of Power, Government of India. However, no rate as such is mentioned in the allocation and often the cost per unit of power from such station is fixed after actually availing of power by the beneficiaries. It is increasingly seen that in the case of new nuclear power stations, the capital cost has been rising exorbitantly leading to very high tariff. It is also to be seen that the final tariff of Koodamkulam (1&2 combined) is yet to be finalised and the cost per unit of Bhavini is yet to be determined. The Commission hereby directs KSEB Ltd to be cautious while availing this power from new nuclear power stations. ***If the procurement of power from these nuclear power stations are at a higher rate than the figures projected in Table 5.34 , KSEB shall approach the Commission with a separate petition before a final decision to purchase such power is arrived at and PPA signed.***
- 5.78 For estimating the fixed cost of power purchase, KSEB Ltd has considered 2% reduction from the figures in 2018-19 for the rest of the

years in the control period. The reduction in power purchase cost is expected to be on account of reduction in the interest component of the station. The fixed cost for the year 2018-19 was estimated based on the CERC orders for the respective plants. In view of this, the Commission approves the projection of KSEB Ltd towards fixed cost of CGS.

5.79 In the case of variable costs, KSEB Ltd has considered the average variable cost for 2017-18. The Commission has examined the power purchase cost for the first 6 months of 2018-19. The details are given below:

Table : 5.33
Variable cost of CGS April to September 2018

CGS	Petition (2018-19)	Apr-18	May-18	Jun-18	Jul-18	Aug-18	Sep-18	Average (Apr- Sept,2018)
	Rs./kWh	Rs./kWh	Rs./kWh	Rs./kWh	Rs./kWh	Rs./kWh	Rs./kWh	Rs./kWh
RSTPS-Stage I	2.36	2.40	2.35	2.47	2.48	2.43	2.54	2.45
RSTPS-Stage III	2.31	2.36	2.31	2.41	2.43	2.38	2.49	2.40
NTPC Talcher-II	1.56	1.63	1.72	1.74	1.90	1.63	1.59	1.70
NTPC Simhadri	2.84	2.90	2.80	2.76	2.73	2.80	3.00	2.83
NLC TPS II Stage I	2.96	2.81	2.53	2.54	2.54	2.55	2.55	2.59
NLC TPS II Stage II	2.97	2.81	2.53	2.54	2.54	2.55	2.55	2.59
NLC TPS-I Expansion	2.73	2.59	2.35	2.35	2.35	2.36	2.35	2.39
NLC TPS-II Expansion	2.73	2.59	2.35	2.36	2.35	2.36	2.36	2.40
MAPS*	2.79	2.73	2.74	2.74	2.74	2.73	2.68	2.73
KAIGA*	3.63	3.64	3.64	3.64	3.64	3.64	3.61	3.64
Kudamkulam*	4.09	4.09	4.10	4.11	4.11		4.13	4.11
NTECL	2.89	3.26	2.98	3.07	2.95	2.93	3.24	3.07
NTPL	3.10	3.15	3.27	3.26	3.04	3.12	3.07	3.15
NTPC Kudgil,II&III	3.50	3.72	3.64	3.98	3.90		3.91	3.83

*for Atomic Energy stations, single part tariff is applicable

5.80 In their petition, KSEB Ltd has stated that the average variable cost for the year 2017-18 was used for estimating the power purchase cost. However, the Commission notes that there were increases in the variable cost in the first 6 months of 2018-19, mainly on account of increase in coal prices and also due to blending of coal. Since the latest figures reflect a more realistic situation, the Commission has used the

average variable cost of first 6 months of 2018-19 for estimating the fuel charges.

5.81 KSEB Ltd assumed 2% increase in variable cost in the last two years of the control period, while keeping the variable cost constant for 2019-20. The Commission is of the view that it is not correct to assume constant coal prices for the next year. Hence, the Commission decided to use 2% escalation in the variable cost of 2018-19, for the rest of the years in the control period. Based on the above, variable cost and fixed charges for the control period is as shown below:

Table : 5.34

Average variable cost and fixed cost approved for the control period

	Average Variable cost (Rs./Unit)				Fixed cost (Rs. Cr)			
	2018-19	2019-20	2020-21	2021-22	2018-19	2019-20	2020-21	2021-22
RSPTS Stage I & II	2.45	2.49	2.54	2.60	123.85	121.37	118.95	116.57
RSTPS Stage III	2.40	2.45	2.49	2.54	33.00	32.34	31.69	31.06
TALCHER - Stage II	1.70	1.73	1.77	1.80	215.04	210.74	206.52	202.39
Simhadri Exp	2.83	2.89	2.95	3.01	89.01	87.23	85.49	83.78
NLC-II- Stage-1	2.59	2.64	2.69	2.75	29.90	29.30	28.72	28.14
NLC-II- Stage-2	2.59	2.64	2.69	2.74	44.25	43.37	42.50	41.65
NLC- Exp- Stage-1	2.39	2.44	2.49	2.54	44.00	43.12	42.26	41.41
NLC - II Exp	2.40	2.44	2.49	2.54	73.24	71.78	70.34	68.93
MAPS	2.73	2.78	2.84	2.89	-	-	-	-
KAIGA Stg I	3.64	3.71	3.78	3.86	-	-	-	-
KAIGA Stg II	3.64	3.71	3.78	3.86	-	-	-	-
Kudamkulam Unit I	4.11	4.19	4.27	4.36	-	-	-	-
Kudamkulam unit II	4.11	4.19	4.27	4.36	-	-	-	-
Vallur JV	3.07	3.13	3.20	3.26	61.53	60.30	59.09	57.91
NTPL(Tuticorin JV)	3.15	3.21	3.28	3.34	79.04	77.46	75.91	74.39
Kudgi Unit I	3.83	3.91	3.98	4.06	-	-	-	-
Kudgi Unit II	3.83	3.91	3.98	4.06	-	-	-	-
Kudgi Unit III	3.83	3.91	3.98	4.06	88.02	115.01	112.71	110.46
Bhavni	4.11	4.19	4.27	4.36				
Total					880.88	892.01	874.17	856.69

**Though these stations are nuclear power stations with single part tariff, for the purpose of estimating the power purchase cost, 2% escalation year on year is allowed.*

5.82 Based on the above, the Commission approves the power purchase cost for the CGS as shown below:

Table : 5.35

Cost of Generation from Central stations for the control period

Station	Total cost(RS. Crore)			
	2018-19	2019-20	2020-21	2021-22
RSPTS Stage I & II	555.18	577.42	584.02	590.84
RSTPS Stage III	135.16	144.45	146.02	147.65
TALCHER - Stage II	743.31	770.00	776.79	783.89
Simhadri Exp	244.85	256.16	257.79	259.53
NLC-II- Stage-1	132.69	134.14	135.66	137.22
NLC-II- Stage-2	188.45	193.02	195.14	197.35
NLC- Exp- Stage-1	146.59	147.76	148.99	150.28
NLC - II Exp	140.95	140.88	140.83	140.83
MAPS	23.26	34.37	35.06	35.76
KAIGA Stg I & II	176.96	180.50	184.11	187.79
Kudamkulam Unit I&II	527.94	644.28	657.17	670.31
Vallur JV with	168.02	169.03	170.00	171.03
NTPL(Tuticorin JV)	232.35	238.77	240.44	242.22
Kudgi Unit I,II,III	268.82	404.88	408.38	412.03
Bhavini	96.97	99.39	115.86	118.17
Total	3,684.51	4,135.05	4,196.25	4,244.91

5.83 The Summary of power purchase cost approved for the control period is as shown below:

Table : 5.36

Summary of power purchase cost from CGS for the control period

Year	Allocation (MW)	Ex-bus Energy (MU)	ISTS losses (MU)	Net Energy (MU)	Fixed Cost (Rs. Crore)	Variable cost (Rs. Crore)	Incentives (Rs. Crore)	Total cost (Rs. Crore)	Avg.Rate (Rs/Unit)
	As per petition								
2018-19	1,713.95	10,675.96	421.69	10,255.41	880.86	2,775.64	-	3,656.50	3.42
2019-20	1,756.95	11,672.88	430.94	11,241.94	891.99	3,125.75	15.08	4,032.82	3.45
2020-21	1,756.95	11,706.78	432.01	11,274.76	874.15	3,202.39	15.08	4,091.62	3.50
2021-22	1,756.95	11,706.78	432.01	11,274.76	865.55	3,266.44	15.08	4,147.07	3.54
	Approved by the Commission								
2018-19	1,713.95	10,675.96	421.69	10,255.41	880.88	2,803.63	-	3,684.51	3.45
2019-20	1,756.95	11,672.89	430.94	11,241.96	892.01	3,227.96	15.08	4,135.05	3.54
2020-21	1,756.95	11,706.79	432.02	11,274.77	874.17	3,307.00	15.08	4,196.25	3.58
2021-22	1,756.95	11,706.79	432.02	11,274.77	856.69	3,373.14	15.08	4,244.91	3.63

Purchase through Long Term Agreements

5.84 In their petition, KSEB Ltd has stated that contracts have been entered into with power producers for meeting the power requirements for the next 25 years for 450 MW on MOU at CERC approved rates with the approved rates with the approval of the Commission and another 865MW on DBFOO basis. Out of the 865MW, 100MW from M/s East Cost Energy Limited has not materialised.

Energy availability from long term agreements

5.85 KSEB Ltd in the petition has informed that in 2018-19, the targeted capacity from these projects could not be utilised because of demand crash during August due to incessant rains and consequent floods and reduction in the availability of power due to shortage of coal. Thus, for 2018-19, the availability is estimated based on the actual availability from April to September 2018 and expected availability for the balance 6 months. For the rest of the years in the control period, the energy availability is based on the targeted PLF. The details of energy availability proposed by KSEB Ltd in the petition is given below:

Table : 5.37

Energy from availability from Long Term Contracts

Trader/Source	contracted capacity (MW)	Aux. consumption (%)	PLF	2018-19		2019-20 to 2021-22	
				Ex-bus Energy (MU)	Energy at KSEB periphery (MU)	Ex-bus Energy (MU)	Energy at KSEB periphery (MU)
Maithon power limited	150	6.5	90%	991.63	960.83	1,105.73	1,070.92
Maithon power limited	150	6.5	90%	991.63	960.83	1,105.73	1,070.92
DVC-Mejia TPS	100	5.25	85%	686.96	666.03	705.50	683.99
DVC-Reghunathpur TPS	50	6.5	85%	244.94	237.45	348.10	337.49
Jindal Power Limited	200	5	90%	1,486.29	1,420.67	1,497.96	1,431.81
Jindal Power Limited	150	5	90%	1,117.19	1,067.86	1,123.47	1,073.86
Jindal India Thermal Ltd	100	5	90%	695.25	669.93	748.98	721.90
Jhabua Power Limited	115	5	90%	733.26	700.19	861.33	822.57
Jhabua Power Limited	100	5	90%	625.27	597.06	748.98	715.28
BALCO	100	5	90%	748.98	718.46	748.98	718.32
TOTAL	1215			8,321.40	7,999.32	8,994.76	8,647.06

Power purchase cost for LTA

5.86 Variable cost for the LTA is proposed by KSEB Ltd in their petition is based on the actual average variable cost for 2017-18. In the case of fixed charges for other Central stations such as DVC and Maithon, a 2% reduction in annual fixed charges is considered.

5.87 In the case of DBFOO contracts, fixed charges are as per bid terms and the transmission charges and the transmission loss at the time of bidding is encapsulated in the bid rate and the difference between the actual transmission charges and losses and the rates at the time bidding are shown as other charges.

5.88 Regarding fixed charges, KSEB Ltd in its letter dated 7-12-2018 stated that *“The Fixed charge is determined as per the clause 21.2,1.3 and 21.4 of power supply agreement entered as per DBFOO contracts. As per the agreement the fixed charge quoted is the base fixed charge for Accounting year in which COD occurs. The initial fixed charge shall be increased by 1.5% for 1% improvement in Station heat rate and shall be decreased by 2% for 1% increase in station heat rate. The base fixed charge of subsequent years is determined by decreasing the Base Fixed Charges for the immediately preceding accounting year by 2%.The Indexed fixed charge for each accounting year is revised annually so as to reflect 30 % of the variation in WPI occurring between January 31st immediately preceding the bid date and January 31st of immediately preceding the Accounting Year for which tariff is taken.*

The improvement/decrease in station heat rate is assumed as zero for control period and WPI of January 31st 2017 is taken as WPI of January of immediately preceding the Accounting year throughout the control period.”

5.89 Regarding the clarifications sought by the Commission on other charges, KSEB Ltd in the letter dated 7-12-2018, stated that *“the tariff of power contracted through DBFOO basis is arrived at by multiplying units in western region by tariff at Kerala periphery. The tariff quoted includes the losses and transmission charges at the time of bidding. The variation*

in transmission charges and losses are to be borne by the utility. Other charges are arrived by taking the variation in transmission charges and the cost of loss units. As the cost of loss units depends on fixed charges and variable charges, the other charges vary accordingly.”

5.90 Based on the above, KSEB Ltd has estimated the power purchase cost for Long Term Agreements as shown below for each year of the control period:

Table : 5.38
Power purchase cost for 2018-19 for LTA

No	Trader/Source	Energy at exbus	Energy at Kerala periphery	Fixed Charges	Variable Charges per unit	Total Fixed Charges	Total variable charges	Other Charges	Total
		MU	MU	Rs/unit	Rs/unit	Rs Cr	Rs Cr	Rs Cr	RsCr
1	Maithon power	991.63	960.83		1.90	155.10	188.41		343.51
2	Maithon power	991.63	960.83		1.90	155.10	188.41		343.51
3	DVC-Mejia TPS	686.96	666.03		2.21	101.92	151.76		253.68
4	DVC-R'nathpur	244.94	237.45		2.36	58.15	57.88		116.03
5	Jindal Power-Bid I	1,486.29	1,420.67	2.62	1.15	392.47	170.51	-22.03	540.95
6	Jindal Power-Bid II	1,117.19	1,067.86	3.34	1.19	375.24	133.43	-19.48	489.20
7	Jindal India Ltd	695.25	669.93	3.45	1.03	258.40	71.53	-12.09	317.84
8	Jhabua Power-Bid I	733.26	700.19	2.1	1.80	180.88	131.95	-11.44	301.39
9	Jhabua Power-Bid II	625.27	597.06	2.89	1.73	216.46	108.28	-11.32	313.41
10	BALCO	748.98	718.46	3.17	1.09	237.43	81.27	-12.34	306.36
	TOTAL	8,321.40	7,999.32			2131.12	1283.44	-88.69	3325.87

Table : 5.39
Power purchase cost for 2019-20 for LTA

No	Trader/Source	Ex-bus Energy	Energy at Kerala periphery	Fixed Charges		Variable Charges per unit	Total Fixed Charges	Total variable charges	Other Charges	Total
		MU	MU	Rs Cr	Rs/unit	Rs/unit	Rs.Cr.	Rs.Cr.	Rs.Cr.	Rs.Cr.
1	Maithon power	1,105.73	1,070.92	151.99		1.90	151.99	210.09		362.08
2	Maithon power	1,105.73	1,070.92	151.99		1.90	151.99	210.09		362.08
3	DVC-Mejia TPS	705.50	683.99	99.88		2.21	99.88	155.85		255.74
4	DVC-R'pur	348.10	337.49	56.98		2.36	56.98	82.26		139.25
5	Jindal Power-Bid I	1,497.96	1,431.81		2.56	1.15	383.48	171.85	-21.87	533.45
6	Jindal Power-B-II	1,123.47	1,073.86		3.28	1.19	368.50	134.18	-24.87	477.81
7	Jindal Thermal	748.98	721.90		3.38	1.03	253.16	77.06	-13.69	316.53
8	Jhabua Power-BI	861.33	822.57		2.06	1.80	177.43	154.99	-9.09	323.34
9	Jhabua Power-BII	748.98	715.28		2.84	1.73	212.71	129.70	-11.47	330.94
10	BALCO	748.98	718.32		3.10	1.09	232.18	81.27	-11.28	302.18
	TOTAL	8,994.76	8,647.06	460.86	17.22	16.36	2,088.31	1,407.36	-92.27	3,403.40

Table : 5.40

Power purchase cost for 2020-21 for LTA

No	Trader/Source	Energy at	Energy at	Fixed Charges		Variable	Total FC	Total VC	Other	Total
		exbus	Kerala	Rs Cr	Rs/unit	Charges				
		MU	periphery			per unit	Rs Cr	Rs Cr	Rs Cr	Rs Cr
1	Maithon power	1,105.73	1,070.92	148.95		1.90	148.95	214.29		363.25
2	Maithon power	1,105.73	1,070.92	148.95		1.90	148.95	214.29		363.25
3	DVC-Mejia	705.50	683.99	97.88		2.21	97.88	158.97		256.86
4	DVC-R'pur	348.10	337.49	55.85		2.36	55.85	83.91		139.75
5	Jindal Power -BI	1,497.96	1,431.81		2.51	1.15	375.99	175.28	-21.73	529.54
6	Jindal Power -BII	1,123.47	1,073.86		3.21	1.19	360.63	136.87	-24.64	472.86
7	Jindal Thermal	748.98	721.90		3.31	1.03	247.91	78.60	-13.55	312.96
8	Jhabua -Bid I	861.33	822.57		2.02	1.80	173.99	158.09	-9.08	323.00
9	Jhabua - Bid II	748.98	715.28		2.78	1.73	208.22	132.29	-11.40	329.11
10	BALCO	748.98	718.32		3.04	1.09	227.69	82.90	-11.16	299.43
	TOTAL	8,994.76	8,647.06	451.64		17.18	2,046.07	1435.50	-91.55	3390.02

Table : 5.41

Power purchase cost for 2021-22 for LTA

No	Trader/Source	Exbus	Energy at	Fixed Charges		Variable	Total FC	Total VC	Other	Total
		Energy	periphery	Rs.crore	Rs./kWh	Charges				
		(MU)	(MU)			(Rs/ Unit)	Rs.crore	Rs.crore	Rs.crore	Rs.crore
1	Maithon power	1,105.73	1,070.92	145.98		1.90	145.98	210.09		356.06
2	Maithon power	1,105.73	1,070.92	145.98		1.90	145.98	210.09		356.06
3	DVC-Mejia TPS	705.51	684.00	95.93		2.21	95.93	155.85		251.78
4	DVC-R'pur	348.1	337.49	54.73		2.36	54.73	82.26		136.99
5	Jindal - Bid I	1,497.96	1,431.81		2.5	1.15	374.49	171.85	-21.57	524.77
6	Jindal - Bid II	1,123.47	1,073.86		3.15	1.19	353.89	134.18	-24.21	463.86
7	Jindal Thermal	748.98	721.90		3.25	1.03	243.42	77.06	-13.33	307.15
8	Jhabua -Bid I	861.33	822.57		1.98	1.80	170.54	154.99	-8.86	316.68
9	Jhabua -Bid II	748.98	715.28		2.78	1.73	208.22	129.70	-11.29	326.62
10	BALCO	748.98	718.32		2.98	1.09	223.20	81.27	-10.90	293.57
	TOTAL	8,994.77	8,647.07	442.61			2,016.36	1407.36	-90.15	3333.56

Comments from Stakeholders

5.91 Regarding the power purchase through long term agreements, the Association stated that the rate of power purchase from these sources are comparatively higher than the average power purchase cost for every year. Further, it is estimated that the ratio of fixed charges to variable charges for the power purchased through long term contracts is very high as compared to the power procured through CGS, due to which the petitioner has proposed high fixed charges in the revised tariff

schedule. According to the Association, in the case of CGS, the percentage of fixed charges to overall cost is about 24% in 2018-19, whereas in the case of Long term sources, it is 62%. Hence the Commission may redetermine the charges for the long term power. The Association also pointed out that the long term agreement with Jabhua power by Madhya Pradesh Distribution company, the fixed cost is about 46%, whereas in Kerala it is 65% of the total cost.

5.92 KSEB Ltd in its reply dated 20-12-2018 stated that the comparison of fixed costs cannot be done as proposed by the Association. According to KSEB Ltd, the overall rate as well as the fixed cost of power contracted through long term contracts is lower than the rate of new CGS.

5.93 Cost of power from CGS is at the generator ex-bus, whereas long term DBFOO contract rate is for delivery of power at the Kerala periphery. Most of the CGS is at the pit head like Ramagundam and Thalcher. Thus it is irrational to compare the fixed charges. The fixed charge of DBFOO is inclusive of transmission charges and cost of transmission loss for entire energy upto Kerala periphery. Therefore these two fixed cost components are not comparable with each other.

Analysis and decision of the Commission

5.94 The Commission has carefully examined the proposal of KSEB Ltd. The Commission has noted that KSEB Ltd has contracted 1215 MW of power under Long Term Agreements. Of this, 450 MW is from projects which are regulated by CERC and 765MW is under Design, Build, Finance, Own and Operate (DBFOO) The Commission analysed these agreements accordingly as given below:

Power purchase from projects for which tariff is determined by CERC

5.95 The Commission has examined the details furnished by KSEB Ltd. The details of projects for which tariff is determined by CERC is as shown in the table below. The Commission notes that there are some discrepancies noted in the figures given in the petition regarding the energy availability and fixed and variable charges. Except for 2018-19, the energy availability from these stations are estimated by KSEB Ltd based on the target PLF and for 2018-19, energy availability is based on the actual drawal for the first 6 months.

Table : 5.42

Energy drawal from under LTA for central projects

Trader/Source	contracted capacity	Aux. consumption	PLF	2018-19		2019-20 to 2021-22	
				Ex-bus Energy	Energy at KSEB periphery	Ex-bus Energy	Energy at KSEB periphery
	MW	%	(%)	MU	MU	MU	MU
Maithon power limited	150	6.5	90%	991.63	960.83	1,105.73	1,070.92
Maithon power limited	150	6.5	90%	991.63	960.83	1,105.73	1,070.92
DVC-Mejia TPS	100	5.25	85%	686.96	666.03	705.50	683.99
DVC-Reghunathpur TPS	50	6.5	85%	244.94	237.45	348.10	337.49
Total	450			2,915.16	2,825.14	3,265.06	3,163.32

5.96 After examining the details furnished, the Commission approves the energy availability from the above projects as proposed by KSEB Ltd.

5.97 KSEB Ltd has estimated fixed charges by allowing a 2% reduction every year, though the same is not seen uniformly applied, whereas the energy charges are based on the average variable charges for 2017-18. The energy charges for these plants are linked to the coal prices. The Commission notes that there is considerable increase in the variable cost in the first half of 2018-19. The actual variable charges for the first 6 months of 2018-19 is as shown below:

Table : 5.43

Comparison of Variable charges for power purchase for central projects

	Petition	April 2018	May 2018	June 2018	July 2018	Aug 2018	Sept 2018	Average (Apr-Sept,2018)
	Rs./kWh	Rs./kWh	Rs./kWh	Rs./kWh	Rs./kWh	Rs./kWh	Rs./kWh	Rs./kWh
Maithon Power Ltd-I	1.90	2.09	2.19	2.24	2.53	26.21	2.64	2.34
Maithon Power Ltd-II	1.90	2.09	2.19	2.24	2.53	26.19	2.64	2.34
DVC Mejia	2.21	2.48	2.58	2.32	2.32	23.43	2.35	2.41
DVC RTPS	2.36	2.51	2.06	2.17	2.16	23.52	2.35	2.25

5.98 Considering the above, the Commission has decided to use the average variable cost for the first 6 months of 2018-19 as the variable cost for the power purchase for the first year of the control period. Further, as decided in the case of CGS, an increase of 2% is allowed for the rest of

the years of the control period for accounting the increase in fuel cost. The other charges are approved as estimated by KSEB Ltd.

Table : 5.44

Power purchase cost for 2018-19 and 2019-20 for central projects

Trader/Source	2018-19				2019-20			
	Total Fixed Charges	Total variable charges	Other Charges	Total	Total Fixed Charges	Total variable charges	Other Charges	Total
	Rs Cr	Rs Cr	Rs Cr	RsCr	Rs.Cr.	Rs.Cr.	Rs.Cr.	Rs.Cr.
Maithon power limited	155.10	231.93		387.03	152.00	263.79		415.79
Maithon power limited	155.10	231.93		387.03	152.00	263.79		415.79
DVC-Mejia TPS	101.92	165.52		267.44	99.88	173.38		273.27
DVC-Reghunathpur TPS	58.15	55.14		113.29	56.99	79.93		136.92
Total	470.27	684.52		1,154.79	460.87	780.89	-	1,241.77

Table : 5.45

Power purchase cost for 2020-21 and 2021-22 for central projects

Trader/Source	2020-21				2021-22			
	Total Fixed Charges	Total variable charges	Other Charges	Total	Total Fixed Charges	Total variable charges	Other Charges	Total
	Rs.Cr.	Rs.Cr.	Rs.Cr.	Rs.Cr.	Rs.Cr.	Rs.Cr.	Rs.Cr.	Rs.Cr.
Maithon power limited	148.96	269.07		418.03	145.98	274.45		420.43
Maithon power limited	148.96	269.07		418.03	145.98	274.45		420.43
DVC-Mejia TPS	97.88	176.85		274.74	95.93	180.39		276.32
DVC-Reghunathpur TPS	55.85	81.53		137.38	54.73	83.16		137.89
Total	451.65	796.52	-	1,248.18	442.62	812.45	-	1,255.07

Purchase of power from projects under DBFOO

5.99 KSEB Ltd has in their petition included purchase of 765MW of power under Design, Build, Finance, Own and Operate (DBFOO). KSEB Ltd had invited two separate bids, on DBFOO basis for procuring 450MW power from December-2016 onwards for 25 years, and for procuring 400MW power from October-2017 onwards for 25years. Accordingly, the first bid was invited on 05.03.2014 (referred to as Bid 1) and the second bid was invited on 25.04.2014 (referred to as Bid 2). Bid 1 was opened on 31.10.2014 and Bid 2 was opened on 14.11.2014.

5.100 KSEB Ltd sought approval of the Commission for the purchase of 865 MW of power under Section 63 of the Act as per petition No. OP 13 of 2015 dated 21-4-2015. The Commission vide order dated 31-8-2016 gave

approval for purchase of 200 MW of power from M/s Jindal Power Ltd at the rate of Rs.3.60 / kWh being L1 of Bid -1 only.

5.101 Thereafter the Commission also approved the purchase of 100 MW of power by KSEB Ltd from M/s Bharat Aluminium Company Ltd, Chhattisgarh at the rate of Rs.4.29/ kWh being the L1 of the Bid -2 dated 25.04.2014. The extract of the Order is given below:

“40. In view of the facts, circumstances and legal provisions explained above the Commission hereby issues the following orders,-

(1) The purchase of 200 MW of power by KSEB Ltd from M/s Jindal Power Ltd, New Delhi at the rate of Rs.3.60 / kWh as per the Bid -1 dated 05.03.2014 which was opened on 31.10.2014, is approved.

(2) The purchase of 100 MW of power by KSEB Ltd from M/s Bharat Aluminium Company Ltd, Chhattisgarh at the rate of Rs.4.29/ kWh as per the Bid -2 dated 25.05.2014 which was opened on 14.11.2014, is approved.

(3) The approval of the following purchases of power by KSEB Ltd from the bidders other than the lowest bidder (L1) will be considered on getting the approval from Government of India for the deviations from the guidelines and on getting the views from Government of Kerala on the issues raised in paragraphs 34 and 38 of this order.

(a) The purchase of 115 MW of power by KSEB Ltd from M/s Jhabua Power Ltd, Gurgaon at the rate of Rs.4.15/ kWh as per the Bid -1 dated 05.03.2014 which was opened on 31.10.2014.

(b) The purchase of 100 MW of power at the rate of Rs.4.29/ kWh by KSEB Ltd from M/s Jindal India Thermal Power Ltd, New Delhi (L2) as per the Bid -2 dated 25.05.2014 which was opened on 14.11.2014.

(c) The purchase of 100 MW of power at the rate of Rs.4.29/ kWh by KSEB Ltd from M/s Jhabua Power Limited, Gurgaon (L3) as per the Bid -2 dated 25.05.2014 which was opened on 14.11.2014.

(d) The purchase of 150 MW of power at the rate of Rs.4.29/ kWh by KSEB Ltd from M/s Jindal Power Limited, New Delhi (L4) as per the Bid -2 dated 25.05.2014 which was opened on 14.11.2014.

(e) The purchase of 100 MW of power at the rate of Rs.4.29/ kWh by KSEB Ltd from M/s East Coast Energy Private Limited, Andhra Pradesh (L5) as per the Bid -2 dated 25.05.2014 which was opened on 14.11.2014.

(4) A copy of this order will be submitted to Government of Kerala with request to communicate their views after duly considering the relevant facts and legal provisions in view of the Government Order GO (MS) No. 45/2014/PD dated 20.12.2014 sanctioning the purchase of 865 MW of power by KSEB Ltd on DBFOO basis.

(5) KSEB Ltd is directed to follow up the matter in Government of India and in Government of Kerala and to submit the results to the Commission as early as possible, considering the fact that the power purchases as per Bid-1 will have to commence with effect from December, 2016.

5.102 Further to this, KSEB Ltd in its letter 15.11.2016, requested the Commission to take appropriate decision relating to the purchase of 115 MW of power from M/s Jhabua Power Ltd and the Commission in the order dated 22-12-2016, had provisionally approved the purchase of 115MW of power from Jabhua Power Ltd, L2 of Bid 1, in view of the facts, circumstances and urgency explained by KSEB Ltd and in view of the decision of Government of Kerala in GO (Rt) No.238/2016/PD dated 31.11.2016. Relevant portion of the Order is given below:

“In view of the facts, circumstances and urgency explained by KSEB Ltd and in view of the decision of Government of Kerala in GO (Rt) No.238/2016/PD dated 31.11.2016, the Commission hereby approves provisionally the purchase of 115 MW of power by KSEB Ltd from M/s Jhabua Power Ltd at the rate of Rs.4.15 /kWh as per the power purchase agreement dated 31.12.2014, subject to the clearance from Government of India and subject to the final decision of the Hon’ble High Court in Writ Petition No. WP (C) 33100/2014.”

5.103 Though KSEB Ltd has approached the Government of India for approval of deviations from the guidelines, it has so far not furnished this clearance to the Commission. Subsequently, as per the request of KSEB Ltd and in view of the Government Order G.O.(Ms) No.22/2017/PD dated 21-10-2017, the Commission as per the letter dated 22-12-2017, allowed KSEB Ltd to schedule the contracted power of 350MW from 1-10-2017 from three projects of bid 2, ie., 100 MW of power from M/s Jindal India Thermal Power Ltd, New Delhi, 100 MW of power from M/s Jhabua Power Limited and 150 MW of power M/s Jindal Power Limited. In the said letter, the Commission has made it clear that since the G.O dated

21-10-2017 is only an interim measure and final orders are yet to be issued, the Commission may approve the power purchase proposal including the rate for the pending approvals under DBFOO only after State Government accords final approval for the entire power purchase under DBFOO.

5.104 Hence the Commission has considered scheduling power from the three projects of Bid-2, ie., 100 MW of power from M/s Jindal India Thermal Power Ltd, New Delhi, 100 MW of power from M/s Jhabua Power Limited and 150 MW of power M/s Jindal Power Limited for the limited purpose of estimating the ARR&ERC for the control period. Since the required approvals from Gol and State Government is still awaited, the Commission is constrained to use the rate equivalent to the cost of power from Balco, which is the L1 of Bid 2. The Commission emphasises that this consideration is only for the purposes of estimating the cost of power provisionally in the ARR and shall not be construed as an approval of the power purchase, rate or of the PPA itself as per Section 63 of the Act which can be considered only after the fulfilment of conditions specified by the Commission in its order dated 31-8-2016. It is relevant here to note that the Commission in their Order on *suomotu* determination of Tariff dated 17-4-2017 had approved Rs.4.00 per unit for the purchase of additional quantity of power for meeting the deficit from traders and exchanges.

5.105 While estimating the cost of power purchase the Commission has noted that the energy at KSEB periphery for 2018-19 is estimated at 5174.17 MU as against 5483.74 MU estimated as per norms, as shown in the Table 5.46 below. In their petition, KSEB Ltd stated that except for 2018-19, the energy availability from these stations were estimated based on the target PLF and for 2018-19, energy availability is based on the actual drawal for the first 6 months.

5.106 After examining the details furnished, the Commission approves the energy availability from DBFOO as follows:

Table : 5.46
Energy drawl from DBFOO as per petition

Trader/Source	contracted capacity	Aux. consumption	PLF	2018-19		2019-20 to 2021-22	
				Ex-bus Energy	Energy at KSEB periphery	Ex-bus Energy	Energy at KSEB periphery
	MW	%	(%)	MU	MU	MU	MU
Approved PPAs							
Jindal Power Limited	200	5	90%	1,486.29	1,420.67	1,497.96	1,431.81
Jhabua Power Limited	115	5	90%	733.26	700.19	861.33	822.57
BALCO	100	5	90%	748.98	718.46	748.98	718.32
SubTotal	415			2,968.53	2,839.32	3,108.27	2,972.70

Trader/Source	contracted capacity	Aux. consumption	PLF	2018-19		2019-20 to 2021-22	
				Ex-bus Energy	Energy at KSEB periphery	Ex-bus Energy	Energy at KSEB periphery
	MW	%	(%)	MU	MU	MU	MU
Allowed scheduling as per L1 of Bid-2							
Jindal Power Limited	150	5	90%	1,117.19	1,067.86	1,123.47	1,073.86
Jindal India Thermal Ltd	100	5	90%	695.25	669.93	748.98	721.90
Jhabua Power Limited	100	5	90%	625.27	597.06	748.98	715.28
Sub Total	350			2,437.71	2,334.85	2,621.43	2,511.04
Grand total	765			5406.24	5174.17	5729.70	5483.74

5.107 KSEB Ltd has estimated the fixed charges in the petition by allowing 2% reduction every year, though the same is not seen applied uniformly, whereas the energy charges are based on the average variable charges for 2017-18. The energy charges for these plants are linked to the coal prices announced by Coal India limited. The Commission notes that there is considerable increase in the variable cost in the first half of 2018-19. A comparison of the variable charges as per petition and the variable charges estimated for the first 6 months of 2018-19 based on the details furnished by KSEB Ltd as per the letter dated 7-12-2018 is as shown below:

Table : 5.47

Comparison of Variable charges for power purchase

	Petition	April 2018	May 2018	June 2018	July 2018	Aug 2018	Sept 2018	Average (Apl- Sept,2018)
	Rs./kWh	Rs./kWh	Rs./kWh	Rs./kWh	Rs./kWh	Rs./kWh	Rs./kWh	Rs./kWh
Jindal Power Ltd -Bid I	1.15	1.26	1.26	1.26	1.26	1.26	1.26	1.26
Jhabua Power Ltd-Bid I	1.80	1.87	1.87	1.87	1.87	1.87	1.87	1.87
BALCO	1.09	1.17	1.17	1.17	1.17	1.17	1.17	1.17

5.108 The Commission notes that there is wide variation in the average variable cost computed above. The admissibility as well as reasonableness for this wide variation will be assessed by the Commission while examining the fuel price variation of these suppliers. However, in order to facilitate the computation of power purchase cost the Commission has decided to use the average variable cost for the first 6 months of 2018-19 as the variable cost for the power purchase for the first year of the control period. Further, as decided in the case of CGS, an increase of 2% is allowed for the rest of the years of the control period for accounting the increase in fuel cost.

Table 5.48

Fixed and Variable cost for approved projects considered by the Commission

	Variable cost (Rs./unit)				Fixed Charges (Rs./unit)			
	2018- 19	2019- 20	2020- 21	2021- 22	2018- 19	2019- 20	2020- 21	2021- 22
Jindal Power Limited	1.26	1.29	1.31	1.34	2.62	2.57	2.52	2.47
Jhabua Power Limited	1.87	1.91	1.95	1.98	2.10	2.06	2.02	1.98
BALCO	1.17	1.19	1.22	1.24	3.17	3.11	3.04	2.98

5.109 The power purchase cost estimated for the projects under DBFOO is as shown below:

Table : 5.49

Power purchase cost for 2018-19 and 2021-22 for Commission approved PPAs under DBFOO

	2018-19				2019-20			
Trader/Source	Fixed charges	Variable charges	Other charges	Total	Fixed charges	Variable charges	Other charges	Total
	Rs Cr	Rs Cr	Rs Cr	RsCr	Rs.Cr.	Rs.Cr.	Rs.Cr.	Rs.Cr.
Approved PPAs								
Jindal Power Limited	389.41	187.29	-22.03	554.67	384.62	192.53	-21.87	555.28
Jhabua Power Limited	153.98	137.12	-11.44	279.67	177.26	164.29	-9.09	332.47
Balco	237.43	87.63	-12.34	312.72	232.68	89.38	-11.28	310.78
Subtotal	780.82	412.04	-45.81	1,147.05	794.56	446.21	-42.24	1,198.52
	2020-21				2021-22			
Trader/Source	Fixed charges	Variable charges	Other charges	Total	Fixed charges	Variable charges	Other charges	Total
	Rs.Cr.	Rs.Cr.	Rs Cr	Rs.Cr.		Rs.Cr.	Rs.Cr.	Rs.Cr.
Approved PPAs								
Jindal Power Limited	376.92	196.38	-21.73	551.58	369.39	200.31	-21.57	548.13
Jhabua Power Limited	173.72	167.58	-9.08	332.22	170.24	170.93	-8.86	332.31
BALCO	228.02	91.17	-11.16	308.03	223.46	92.99	-10.90	305.56
Subtotal	778.66	455.13	-41.97	1,191.83	763.09	464.24	-41.33	1,186.00

5.110 KSEB Ltd is required to ensure that all transmission gains as per CERC norms will have to be deducted from the cost of power purchased at the Kerala periphery, as all transmission losses are required to be borne by KSEB Ltd.

Table : 5.50

Power purchase cost for 2018-19 and 2021-22 for projects allowed scheduling

	2018-19	2019-20	2020-21	2021-22
Allowed scheduling as per L1 of Bid-2	RsCr	RsCr	RsCr	RsCr
Jindal Power Limited	466.45	466.17	462.05	458.33
Jindal India Thermal Ltd	290.28	310.78	308.03	305.56
Jhabua Power Limited	261.06	310.78	308.03	305.56
Total	1,017.80	1,087.73	1,078.12	1,069.45

Summary of power purchase from LTA

5.111 The summary of the power purchase cost from LTA is as shown below:

Table : 5.51

Summary of power purchase cost from LTA (Central projects & DBFOO)

AS PER KSEB Ltd Petition				
Trader/Source	Capacity	Ex-bus energy	Energy at periphery	Total charges
	MW	MU	MU	Rs. Crore
2018-19	1,215.00	8,321.40	7,999.32	3,325.87
2019-20	1,215.00	8,994.76	8,647.06	3,403.40
2020-21	1,215.00	8,994.76	8,647.06	3,390.02
2021-22	1,215.00	8,994.76	8,647.07	3,333.56
As per the Estimate of Commission				
2018-19	1,215.00	8,321.40	7,999.31	3,319.64
2019-20	1,215.00	8,994.76	8,647.06	3,528.02
2020-21	1,215.00	8,994.76	8,647.06	3,518.11
2021-22	1,215.00	8,994.76	8,647.07	3,510.51

Purchase of Energy from RGCCPP

5.112 KSEB Ltd in their petition has proposed that the due to high fuel cost, no power is being proposed to be purchased from this plant. This plant will be used only during the exigencies and there will be fixed charge commitment of Rs.200 crore per year. In the petition, KSEB Ltd has proposed Rs.200 crore per year for all the years of the control period.

Comments of the Stakeholders

5.113 The HT-EHT Association stated that, KSEB Ltd is able to meet the peak demand through purchase from various sources and also is able to procure power through short term sources. Hence sourcing power from high cost power stations would unnecessarily burden the consumers. Considering the order of the Commission in suomotu order dated 17-4-2017, in which fixed cost of RGCCPP was disallowed, same should be made applicable to the control period also, in the interest of consumers.

5.114 KSEB Ltd in its reply stated that, the Commission has already approved the fixed cost for RGCCPP in the truing up order for 2016-17 taking into consideration the downward settlement of FC taken at the Government

level. Since the matter has already been decided by the Commission no review is necessary.

- 5.115 Travancore Cochin Chemicals stated that KSEB Ltd be directed to reduce and to renegotiate the fixed charges to RGCCPP. In reply, KSEB Ltd has mentioned that since the reduction in fixed cost has already been approved by KSEB Ltd there is no necessary to review that matter.

Analysis and decision of the Commission

- 5.116 The Commission has been consistently insisting that the fixed cost commitments from this plant has to be reduced. The Commission had approved the fixed cost of Rs.200 crore as part of the truing up of accounts for 2015-16 and 2016-17, as NTPC and KSEB Ltd has renegotiated the fixed cost as per the directions of the Commission. Based on the negotiations the fixed cost has been reduced to Rs.200 crore per year with ***a provision in the agreement for reviewing this cost in 2018-19.*** Accordingly, the Government Kerala also consented to this and in its letter no..185/B1/17/PD dated 10-5-2018 has conveyed to KSEB Ltd that:

“However, the CMD, NTPC agreed to settle AFC payable by KSEBL to NTPC for Kayamkulam plant for entire control period 2014-19 at Rs.200 crore per annum with the liberty to review in 2018-19.NTPC has consented to provide Rs.207.13-Rs.200 crore =7.13 crore directly in the adjustment of this current year payment or reimburse the amount by way of CSR funding to KSEBL

Hence I am to request you to take necessary steps to get the excess amount paid to NTPC in prior years reimbursed rather than taking CSR funding”

- 5.117 The provision for review of fixed charge available in the Agreement was required to be done in 2018-19. However KSEB Ltd is yet to inform the Commission on efforts made to renegotiate the Agreement. Therefore the Commission hereby directs KSEB Ltd to take up the matter on priority with NTPC and renegotiate this AFC. This is further justified by the fact that KSEB Ltd themselves has mentioned in the petition that no power is proposed to be drawn from this plant and it shall be used only during extreme exigencies. Hence the Commission hereby approves the

fixed cost commitment of Rs.200 crore for 2018-19 only. No amount is approved for the rest of years in the control period till such time KSEB Ltd renegotiates the Agreement and submits its results for the Commission's consideration.

Inter state transmission charges

5.118 Transmission charges are applicable for the Inter State Transmission System for transmission of energy to the state, and is governed by the tariff determined by CERC. In their petition, KSEB Ltd has stated that Point of Connection charges (PoC) applicable for the period April to September 2018 approved by CERC as per the order dated 5-6-2018, 30-8-2018 and 19-9-2018 is used for estimating the inter state transmission charges. Accordingly, the transmission charges used in the petition is as shown below:

Table : 5.52

Inter State Transmission charges applicable for the control period as per the petition

Point of Connection charges	Rs./MW	176395
Reliability support charges	Rs./MW	28506
HVDC Charges	Rs./MW	18355
Total	Rs./MW	223256

5.119 Based on the above, the interstate transmission charges estimated by KSEB Ltd for the control period is as shown below:

Table : 5.53

Interstate transmission charges as proposed by KSEB Ltd

Source	Allocated capacity	PoC Charges	Reliability support charges	HVDC Charges	Total Transmission charges			
					2018-19	20219-20	2020-21	2021-22
					(Rs Cr)	(Rs Cr)	(Rs Cr)	(Rs Cr)
	(MW)	(Rs/ MW)	(Rs/ MW)	(Rs/ MW)				
RSPTS Stage I & II	245.07	176395	28506	18355	65.66	65.66	65.66	65.66
RSTPS Stage III	61.00	176395	28506	18355	16.34	16.34	16.34	16.34
TALCHER - Stage II	427.00	176395	28506	18355	114.40	114.40	114.40	114.40
Simhadri Exp	82.90	176395	28506	18355	22.21	22.21	22.21	22.21
NLC-II- Stage-1	63.00	176395	28506	18355	16.88	16.88	16.88	16.88
NLC-II- Stage-2	89.96	176395	28506	18355	24.10	24.10	24.10	24.10
NLC- Exp- Stage-1	66.91	176395	28506	18355	17.92	17.92	17.92	17.92
NLC - II Exp	79.65	176395	28506	18355	21.34	21.34	21.34	21.34

Source	Allocated capacity	PoC Charges	Reliability support charges	HVDC Charges	Total Transmission charges			
					2018-19	20219-20	2020-21	2021-22
MAPS	23.01	176395	28506	18355	6.17	6.17	6.17	6.17
KAIGA Stg I	38.02	176395	28506	18355	10.18	10.18	10.18	10.18
KAIGA Stg II	35.02	176395	28506	18355	9.38	9.38	9.38	9.38
Kudamkulam Unit I	139.10	176395	28506	18355	37.27	37.27	37.27	37.27
Kudamkulam unit II	133.00	176395	28506	18355	35.63	35.63	35.63	35.63
Vallur JV with	49.95	176395	28506	18355	13.38	13.38	13.38	13.38
NTPL(Tuticorin JV)	72.50	176395	28506	18355	19.42	19.42	19.42	19.42
Kudgi Unit I	35.92	176395	28506	18355	9.62	9.62	9.62	9.62
Kudgi Unit II	35.92	176395	28506	18355	9.62	9.62	9.62	9.62
Kudgi Unit III	35.92	176395	28506	18355	2.41	9.62	9.62	9.62
Bhavini	43.00					9.60	11.52	11.52
Total					451.93	468.75	470.66	470.66
LTA								
Maithon power Ltd	150.00	176395	28506	18355	40.19	40.19	40.19	40.19
Maithon power Ltd	150.00	176395	28506	18355	40.19	40.19	40.19	40.19
DVC-Mejia TPS	100.00	176395	28506	18355	26.79	26.79	26.79	26.79
DVC-Reghunathpur	50.00	176395	28506	18355	13.40	13.40	13.40	13.40
Total					120.56	120.56	120.56	120.56

Comments of the stakeholders

5.120 The HT-EHT Association has raised the comment that the estimation of inter state transmission charges by KSEB Ltd is not correct and furnished their alternate estimation.

Table : 5.54

PoC Charges (in Rs/MW/month) as considered by the Objector

Particulars	PoC charges (Rs/MW/Month)	Reliability support charges (Rs/MW/Month)	HVDC charges (Rs/MW/Month)
CERC Order (Jul-sep) dated 30/08/2018	147224	29171	19093
CERC Order (Apr-Jun) dated 05/06/2018	176876	26946	14857
Charges as computed by the Objector	162050	28058.5	16975
Charges as considered by the Petitioner	176395	28506	18355

Table : 5.55

PoC Charges for CGS (in Rs Cr) as estimated by the Objector

FY	Transmission charges (in Rs Cr)		Difference (in Rs Cr)
	KSEBL –(1)	Objector –(2)	(Obj-Pet)
FY 19	451.93	425.89	(26.04)
FY 20	468.75	436.58	(32.17)
FY 21	470.67	436.58	(34.09)
FY 22	470.67	436.58	(34.09)

5.121 In reply to the Comments of HT-EHT Association, KSEB Ltd in their letter dated 20-12-2018 has stated that though the transmission charges were prepared based on the charges approved by CERC for the period July to September 2018, there was an inadvertent mistake occurred while taking the POC charges for the months of April to June. Instead of taking the charges for April to June 2018, KSEB Ltd has taken the charges for April to June 2017. KSEB Ltd also commented that the charges taken by the objector is also not correct as the corrigendum order of CERC dated 19-9-2018 was not considered. Accordingly, KSEB Ltd furnished the revised rates approved by CERC for the period April to September 2018 as shown below:

Table : 5.56

POC Rates approved for Kerala

		As per CERC Order dated 5-6-2018	As per CERC order dated 30-8-2018 and 19-9-2018	Average
Point of Connection charges	Rs./MW	176876	147660	162268
Reliability support charges	Rs./MW	26946	29248	28097
HVDC Charges	Rs./MW	14857	19093	16975

Analysis and decision of the Commission

5.122 KSEB Ltd in its reply to the comments dated 20-12-2018 had furnished the revised PoC charges notified by CERC and also pointed out that the inadvertent error in computation of PoC charges. As pointed by HT-EHT Association the rates have been revised by CERC. The Commission has noted the changes in the revised rates published by CERC. Accordingly, the transmission charges are worked out based on the CERC approved rates as per its orders dated 05.06.2018 and 19.09.2018, as given below.

Table : 5.57

Inter State Transmission charges approved for the control period

Source	Allocated capacity (MW)	PoC Charges (RS./MW)	Reliability support charges (Rs/MW)	HVDC charges (Rs/MW)	2018-19	2019-20	2020-21	2021-22
RSPTS Stage I & II	245.07	162268	28097	16975	60.98	60.98	60.98	60.98
RSTPS Stage III	61.00	162268	28097	16975	15.18	15.18	15.18	15.18
TALCHER - Stage II	427.00	162268	28097	16975	106.24	106.24	106.24	106.24
Simhadri Exp	82.90	162268	28097	16975	20.63	20.63	20.63	20.63
NLC-II- Stage-1	63.00	162268	28097	16975	15.67	15.67	15.67	15.67
NLC-II- Stage-2	89.96	162268	28097	16975	22.38	22.38	22.38	22.38
NLC- Exp- Stage-1	66.91	162268	28097	16975	16.65	16.65	16.65	16.65
NLC - II Exp	79.65	162268	28097	16975	19.82	19.82	19.82	19.82
MAPS	23.01	162268	28097	16975	5.73	5.73	5.73	5.73
KAIGA Stg I	38.02	162268	28097	16975	9.46	9.46	9.46	9.46
KAIGA Stg II	35.02	162268	28097	16975	8.71	8.71	8.71	8.71
Kudamkulam Unit I	139.10	162268	28097	16975	34.61	34.61	34.61	34.61
Kudamkulam unit II	133.00	162268	28097	16975	33.09	33.09	33.09	33.09
Vallur JV with	49.95	162268	28097	16975	12.43	12.43	12.43	12.43
NTPL(Tuticorin JV)	72.50	162268	28097	16975	18.04	18.04	18.04	18.04
Kudgi Unit I	35.92	162268	28097	16975	8.94	8.94	8.94	8.94
Kudgi Unit II	35.92	162268	28097	16975	8.94	8.94	8.94	8.94
Kudgi Unit III	35.92	162268	28097	16975	2.23	8.94	8.94	8.94
Bhavini	43.00	162268	28097	16975		8.92	10.70	10.70
Total	1,756.85				419.72	435.34	437.12	437.12
Long Term Agreements								
Maithon power	150	162268	28097	16975	37.32	37.32	37.32	37.32
Maithon power	150	162268	28097	16975	37.32	37.32	37.32	37.32
DVC-Mejia TPS	100	162268	28097	16975	24.88	24.88	24.88	24.88
DVC-R'pur	50	162268	28097	16975	12.44	12.44	12.44	12.44
Total					111.96	111.96	111.96	111.96

5.123 The total transmission charges payable is as shown below:

Table : 5.58

Total transmission charges payable for the control period

Source	As per Petition				As approved			
	2018-19	2019-20	2020-21	2021-22	2018-19	2019-20	2020-21	2021-22
	Rs. crore	Rs. Crore	Rs. Crore	Rs. Crore	Rs. crore	Rs. Crore	Rs. Crore	Rs. Crore
CGS	451.93	468.75	470.67	470.67	419.72	435.34	437.12	437.12
LTA	120.56	120.56	120.56	120.56	111.96	111.96	111.96	111.96
RGCCPP	8.16	8.16	8.16	8.16	8.16	8.16	8.16	8.16
Total	580.65	597.47	599.39	599.39	539.84	555.46	557.24	557.24

5.124 5.119 The transmission charges for RGCCPP is payable to PGCIL even though the plant is not scheduled, since the lines are used within the state as an interconnection to Inter State lines as well as to the grid of KSEB Ltd. ***The Commission however hereby directs KSEB Ltd to take up the issue with PGCIL for reduction / waiver of transmission charges for this line in view of its non-utilisation by RGCCPP.***

Purchase of power from IPPs

5.125 In their petition, KSEB Ltd proposed to purchase energy from the existing IPPs of small hydel, wind and solar energy projects as shown below:

Table : 5.59

Purchase of energy from IPPs for the control period

No	Small Hydel	Capacity (MW)	Annual Energy availability (MU)	Per unit cost (Rs/unit)	Total cost (Rs.Cr.)
1	Ullumkal	7	17.79	2.44	4.34
2	Iruttukanam I & II	3+1.5	24.69	2.70	6.67
3	Karikkayam	10.5	37.56	4.16	15.62
4	Meenvallom	3	8.44	4.88	4.12
5	Pathamkayam	8	11.09	5.47	6.06
6	Pambumkayam	0.11	0.09	4.88	0.04
7	Kallar	0.05	0.08	5.47	0.04
	SHP Total	33.16	99.74	3.70	36.90
1	Agali	13.8	29.72	3.14	9.33
2	Koundikkal	4.8	12.56	3.14	3.94
3	Ramakalmedu	14.25	27.87	3.14	8.75
4	Ahalya	8.4	20.98	5.23	10.97
5	INOX	16	16.33	4.09	6.68
	Wind Total	57.25	107.47	3.69	39.67
1	Kasargod solar Park	50	70.08	3.69	25.86
2	Anert, Kuzhalmannam	2	2.80	3.14	0.88
	Sub Total	52	72.88	3.67	26.74
	Grand Total	142.41	280.09	3.69	103.31

5.126 KSEB Ltd in the petition stated that a formal PPA with ANERT has not been signed but the agency has agreed to the rate of the average pooled power purchase cost approved for 2016-17 and the same rate has been used for the purchase.

Analysis and decision of the Commission

5.127 The Commission has examined the details furnished by KSEB Ltd on the purchase of energy from IPPs for all the four years of the control period, KSEB Ltd has used the same level of energy and cost for the purchase from IPPs. However, the Commission notes that the PPA for Pathamkayam and the ANERT has not been approved by the Commission. Hence the same is not taken into consideration. Further, in the case of Inox, the WEG is falling in the wind zone 2 and the PLF is 22%, hence the Commission has estimated the energy from Inox accordingly. In the case of Kasaragod Solar Park provisional tariff was approved at Rs.3.90/kWh, the same is used for estimating the power purchase cost. Accordingly, the purchase from IPPs is approved as shown below:

Table : 5.60

Purchase of power from IPPs approved for the Control period

Small Hydel	Capacity (MW)	Annual Energy availability (MU)	Per unit cost (Rs/unit)	Total cost (Rs.Cr.)
Ullumkal	7	17.79	2.44	4.34
Iruttukanam I & II	4.5	24.69	2.70	6.67
Karikkayam	10.5	37.56	4.16	15.62
Meenvallom	3	8.44	4.88	4.12
Pambumkayam	0.11	0.09	4.88	0.04
Kallar	0.05	0.08	5.47	0.04
SHP Total	25.16	88.65	3.48	30.84
Agali	13.8	29.72	3.14	9.33
Koundikkal	4.8	12.56	3.14	3.94
Ramakkalmedu	14.25	27.87	3.14	8.75
Ahalya	8.4	20.98	5.23	10.97
INOX	16	30.84	4.09	12.61
Wind Total	57.25	121.97	3.74	45.61
Kasargod solar Park	50	70.08	3.90	27.33
Sub Total	50	70.08	3.90	27.33
Grand Total	132.41	280.70	3.70	103.78

RPO obligation

5.128 KSEB Ltd in their petition has stated that their renewable purchase obligation as per the KSERC (Renewable Energy) Regulations 2017 as below:

Table : 5.61
RPO targets for the control period

Particulars	Quantum in MU			
	2018-19	2019-20	2020-21	2021-22
Energy sales excl bulk licensees(1)	21054.25	22336.68	23294.98	24298.35
Hydro(2)	7886.44	6998.42	6564.44	6471.77
Small hydro(3)	665.36	725.61	824.8	863.28
Net Energy sales(1)-(2)+(3)	13833.17	16063.86	17555.34	18689.85
Non Solar RPO Targets	968.32	1285.11	1579.98	1915.71
	7.00%	8.00%	9.00%	10.25%
Solar RPO Targets as per RE regulations	380.41	642.55	921.66	1261.57
	2.75%	4.00%	5.25%	6.75%

5.129 In addition to the generation from existing renewable sources of energy KSEB Ltd is planning to purchase energy from other sources to meet the obligation. KSEB Ltd stated that the RPO targets from 2019-20 will be met through additional purchases. Accordingly efforts are being taken to enter into contracts with generators /traders for procuring the remaining solar power as well as non-solar power to meet the obligation. NTPC has offered wind power @ Rs 2.90 per unit and solar power ground mounted and floating @ Rs 3 and 3.5 respectively. NHPC has offered floating solar power @ Rs 3.75 per unit.

5.130 In addition to this KSEBL is planning to procure renewable power through reverse bid process at an upper ceiling rate of Rs 3.5 per unit. SECI has offered solar power from outside the State @ Rs 3 per unit and solar power (floating) from inside Kerala @ Rs 4 per unit. Hence KSEB Ltd in their petition stated they are planning to procure wind power at an expected rate of Rs 2.90 per unit and solar power at an expected rate of Rs 4.00 per unit for meeting the additional RPO requirement.

Table : 5.62

RPO targets and purchase of renewable energy for 2019-20 to 2021-22

Source	2019-20			2020-21			2021-22		
	Annual energy	Unit Cost	Total amount	Annual energy	Unit Cost	Total amount	Annual energy	Unit Cost	Total amount
	MU	Rs/unit	Rs Cr.	MU	Rs/unit	Rs Cr.	MU	Rs/unit	Rs Cr.
SHP Total(Existing)	99.74	3.70	36.90	99.74	3.70	36.90	99.74	3.70	36.90
Wind Total(Existing)	107.47	3.69	39.67	107.47	3.69	39.67	107.47	3.69	39.67
Solar Total(Existing)	72.88	3.67	26.74	72.88	3.67	26.74	72.88	3.67	26.74
Additional wind power (procurement)	449.99	2.90	130.50	645.63	2.90	187.23	854.39	2.90	247.77
Additional solar power (procurement)	488.80	3.25	158.86						
NTPC Solar Floating				13.31	4.00	4.66	26.98	3.50	9.44
NTPC Solar ground mount				9.07	3.00	2.72	18.40	3.00	5.52
NTPC Solar ground mount							16.64	3.00	4.99
NHPC solar							60.48	3.75	22.68
Other purchases expected for meeting RPO through Saura, bidding etc				740.54	3.25	240.67	922.05	3.00	276.62
Sub Total	1,218.88		392.68	1,688.64		539.28	2,179.04		670.34

5.131 In the letter dated 7-12-2018, KSEB Ltd has revised the estimation of RPO as shown below:

Table : 5.63

Revised requirement of RPO as furnished by KSEB Ltd

Non Solar	Quantum in MU			
	2018-19	2019-20	2020-21	2021-22
Own small hydel Stations	499.83	560.07	659.26	697.74
Power procurement	99.74	99.74	99.74	99.74
Through Banking arrangement	65.80	65.80	65.80	65.80
Sub Total SHP	665.37	725.61	824.80	863.28
Wind				
Own Generation	1.25	2.04	2.08	2.08
Power procurement(existing)	107.47	107.47	107.47	107.47
Additional power expected from various sources				
NHPC,Palakkad		15.42	15.42	15.42
Ramakkalmedu (Pvt)		3.85	3.85	3.85
Anert (Ramakkalmedu)		5.78	5.78	5.78
Malayalamanorama		19.27	19.27	19.27
Poovar		1.93	1.93	1.93
Ramakkalmedu(Anert)		23.13	23.13	23.13

	Quantum in MU			
	2018-19	2019-20	2020-21	2021-22
Non Solar				
Aban group		19.27	19.27	19.27
Power procurement through reverse bidding(SECI)		96.36	96.36	96.36
Power procurement through reverse bidding(KSEB)		96.36	96.36	96.36
Power expected to procure for meeting RPO		168.62	364.26	661.51
Sub Total wind	108.72	559.50	755.18	1052.43
Total non-solar achievement	774.09	1285.11	1579.98	1915.71
Target	968.32	1285.11	1579.98	1915.71
Solar				
Own generation	14.49	42.61	47.60	47.60
Banking arrangements & GBI	38.26	38.26	38.26	38.26
Solar Park	70.08	70.08	70.08	70.08
Anert	2.80	2.80	2.80	2.80
Roof top		13.47	17.46	17.46
Reverse bid		30.24	61.32	61.32
Soura		60.48	122.64	122.64
Soura			60.48	122.64
NTPC Solar Float			13.31	26.98
NTPC Solar ground mount			9.07	18.40
NHPC Solar				16.64
NTPC Solar ground mount				60.48
Other purchases for meeting RPO		384.62	478.64	656.26
Total solar achievement	125.63	642.55	921.66	1261.57
Target	380.41	642.55	921.66	1261.57

Comments of the Stakeholders

5.132 The Association stated that KSEB Ltd has made many computational errors with respect to RPO compliance. In the petition, KSEB Ltd has stated that RPO compliance will be met through additional purchases from NTPC, NHPC etc., however, no relevant documentation has been presented in support of the claims for the purchase of power from additional RPO sources. Further, the rates proposed by the petitioner from various sources also hold no rationale. The high rate of procurement of energy of Rs.4/kWh would result in front loading of costs leading to heavy burden on consumers. The Association has

furnished the rates discovered in recent solar bidding during the first half of 2018-19 as shown below:

Table : 5.64
Tariff discovered in Solar bidding during H-1 of FY 19

State	Agency	Capacity (MW)	Month-Year	lowest tariff discovered (Rs/kWh)
PAN India	NTPC	2000	August 2018	2.59
Odisha	GRIDCO	200	July 2018	3.04
Andhra Pradesh	SECI	750	July 2018	2.70
PAN India	SECI	2000	July 2018	2.50
Karnataka	SECI	200	May 2018	2.82
Maharashtra	MSEDCL	1000	May 2018	2.72
Andhra Pradesh	NTPC	750	May 2018	2.73
Weighted average				2.63

5.133 According to the Association, the Commission should consider an average tariff of Rs.3/kWh for any purchase above the existing solar capacity for the purpose of projections to meet RPO and Rs.2.90 in the case of wind. The variations if any may be considered during the truing up process. The Association also requested to issue direction to comply with RPO as the same has not been met by the petitioner till 2018-19.

5.134 Shri. DijoKappen stated that KSEB Ltd is not following government policy and orders of the Commission regarding RPO. The benefit of the surplus rains are not passed on to the consumers. Sri. Sivakumar, KREEPA mentioned that RPO targets to be insisted.

5.135 In reply to the comment of the Association, KSEB Ltd stated that action is being taken for purchase of adequate renewable energy to meet the RPO including from their own projects. The rates for the purchase is proposed after analysing the offers from various generators. KSEB Ltd cannot expect renewable power at rates in States like Rajasthan or Gujarat as the land cost in Kerala is very high and solar irradiation level is lower.

- 5.136 The Kerala Renewable Energy Entrepreneurs and Promoters' Association stated that KSEB Ltd shall minimise purchase of REC from open market and reallocate the amount to other capital investments. Further, RPO obligation targets may be fixed on large commercial and industrial consumers in the State.
- 5.137 Democratic Human Rights and Environmental Protection Forum stated that non conventional energy to be purchased is 5% as fixed by the Commission, but KSEB Ltd has not complied with it and the renewable energy generation is only 0.3%
- 5.138 KSEB Engineers Association stated that aggressive solar penetration is not good for the grid. Sri. Mata Amruthanandamayi Matt state that in order to meet RPO, participation of HT and EHT consumers be used and BOOT model PPA be entered into with the consumers. Thrissur Corporation Stated that KSEB Ltd is not pursuing their RPO properly. In this regard, KSEB Ltd stated that they have made best efforts to meet the RPO and plans are ongoing to meet the RPO through competitive bidding route for RE sources. Tenders for 200MW solar power from IPPs and another 200 MW from roof top plants are being prepared. Tender for 200MW wind power is also being prepared. Chalakudipuzha Samrakshana Samithi stated that more renewable energy plants should be promoted.
- 5.139 In reply KSEB Ltd stated that already different projects and tenders for purchase of Renewable power has been initiated.

Analysis and decision of the Commission

- 5.140 In their petition, KSEB Ltd has stated that the RPO obligation from 2019-20 will be met through additional purchase from other sources. They have also given details of the sources from which power is proposed to be sourced for the control period. However, the Commission notes that there are discrepancies in the figures furnished by KSEB Ltd. While furnishing the revised figures corresponding changes in the power purchase cost was not made by KSEB Ltd. Further, KSEB Ltd has mentioned several sources from which power is to be sourced for which no approval of the Commission has been sought.

5.141 As per the provisions of the Tariff Policy, the additional requirement for meeting the RPO especially wind and solar energy sources has to be met through the bidding process as per the guidelines issued by Government of India. It is however seen that KSEB Ltd proposal includes power purchase from renewable power generation on negotiated basis. Since this is in variance with the Government of India guidelines, the Commission hereby directs KSEB Ltd to strictly follow the guidelines and any deviation shall not be allowed in the ARR unless such deviations are specifically got approved as required from the concerned authority. Hence, the Commission is not in a position to approve the energy from the sources proposed by KSEB Ltd.

5.142 Based on the existing approved sources, the Commission has arrived at the additional amount of energy required to be purchased through the bidding process as shown below:

Table : 5.65
RPO Targets and additional Renewable energy required

	2018-19	2019-20	2020-21	2021-22
Sales Excluding Bulk supply (MU)	21054.25	22336.68	23294.98	24298.35
Net Hydro excluding SHP (MU)	7,458.23	6,435.76	6,229.25	6,214.47
Energy for RPO (MU)	13,596	15,901	17,066	18,084
Non-Solar Obligation (%)	7.00%	8.00%	9.00%	10.25%
Non-Solar Obligation (MU)	951.72	1,272.07	1,535.91	1,853.60
Existing banking arrangement (MU)	65.80	65.80	65.80	65.80
Net internal Small Hydro (MU)	349.20	490.30	566.40	787.41
IPPs-SHP Total (Existing) (MU)	88.65	88.65	88.65	88.65
Wind (internal) (MU)	1.77	2.02	2.06	2.06
Wind IPPs (Existing) (MU)	121.97	121.97	121.97	121.97
Total Non-Solar available (MU)	627.38	768.73	844.87	1,065.88
Balance requirement of Non-Solar energy (MU)	324.34	503.35	691.04	787.71
Solar Obligation (%)	2.75%	4.00%	5.25%	6.75%
Solar Obligation (MU)	373.89	636.03	895.96	1,220.67
Solar (internal) (MU)	14.81	42.18	47.12	47.12
Banking arrangement & GBI (MU)	38.26	38.26	38.26	38.26
Solar (Existing IPPs) (MU)	70.08	70.08	70.08	70.08
Total Solar Energy available (MU)	123.15	150.52	155.46	155.46
Balance Requirement Solar Energy (MU)	250.74	485.51	740.50	1,065.21

5.143 As shown above, the Commission has arrived at the deficit in meeting the solar and non-solar RPO as per the target fixed for the control period. In this context it is to be noted that KSEB Ltd has shown 65.80MU from banking arrangements under non-solar obligation and 38.26MU under solar obligations for which the specific sources has not been mentioned. The Commission has provisionally adopted the figures furnished by KSEB Ltd in this regard, for which KSEB Ltd is required to furnish the source wise details during the truing up process for evaluation before the same is finally allowed by the Commission.

5.144 Since KSEB Ltd has stated that the RPO targets will be met from renewable energy purchases from 2019-20, the Commission hereby accepts KSEB Ltd proposal for 2019-20 onwards. However, KSEB Ltd is required to meet the RPO as per the provisions of the Regulations, for the year 2018-19 onwards.

5.145 In order to estimate the cost of additional solar and non-solar renewable power, the Commission has used Rs.3.00 and Rs.2.90 per unit respectively. The actual tariff shall however be based on the bidding process only. Based on the above, power purchase cost including purchases for meeting the RPO is as shown below:

Table : 5.66
Cost of power from IPPs and additional RE purchase

Source	2018-19			2019-20			2020-21			2021-22		
	Annual energy MU	Avg. Unit Cost Rs/unit	Total amount Rs Cr.	Annual energy MU	Avg. Unit Cost Rs/unit	Total amount Rs Cr.	Annual energy availability MU	AvgUnit Cost Rs/unit	Total amount Rs Cr.	Annual energy availability MU	Avg. Unit Cost Rs/unit	Total amount Rs Cr.
SHP Total (Existing)	88.65	3.48	30.84	88.65	3.48	30.84	88.65	3.48	30.84	88.65	3.48	30.84
Wind Total (Existing)	121.97	3.74	45.61	121.97	3.74	45.61	121.97	3.74	45.61	121.97	3.74	45.61
Solar Total (Existing)	70.08	3.90	27.33	70.08	3.90	27.33	70.08	3.90	27.33	70.08	3.90	27.33
Additional Non-solar power (procurement)				503.35	2.90	145.97	691.04	2.90	200.40	787.71	2.90	228.44
Additional solar power (procurement)				485.51	3.00	145.65	740.50	3.00	222.15	1,065.21	3.00	319.56
Total	280.70	3.70	103.78	1,269.55	3.11	395.40	1,688.64	3.12	526.33	2,179.04	2.99	651.78

Purchase of additional short term power

5.146 In their petition, KSEB Ltd has proposed to purchase power from short term market to meet the peak deficit anticipated in the summer months. According to KSEB Ltd, 157.39 MU has been purchased during the first half of the financial year upto September 2018 at a total cost of Rs 39.58 Crore. KSEB Ltd expects that in view of the up coming general elections combined with extreme summer conditions, an abnormal hike in demand may occur as it happened in during April 2016, when the peak demand increased from 3517 MW to 4000 MW and such demand persists around the same figure without hike for two years. Hence there is a possibility of an additional demand by 400 MW this year also leading to a will be a total deficit of 300 MW peak during the next half of the financial year.

5.147 KSEB Ltd is planning to meet this demand through purchases from the short term market or the day-ahead-markets. KSEB Ltd, vide letter dated 05.10.2018, has brought this matter before the Commission and sought an in-principle approval for 150 MW peak power procurement on short term basis for the period from 15.10.2018 to 31.05.2019 through DEEP portal totalling to 72.15 MU, and the Commission granted approval for the same vide its approval dated 05.11.2018. Anticipating an average power purchase cost of Rs 5 per unit the total power purchase cost through short term market for the remaining part of the financial year is estimated at Rs 36.08 Crore. Accordingly, KSEB proposes to purchase a total 229.54 MU in 2018-19. Similarly for the rest of the control period ie., for 2019-20, 2020-21 and 2021-22 also KSEB Ltd has proposed to purchase an additional 150MW to meet the peak deficit at an average rate of Rs.5/kWh. The total short term purchase of energy proposed by KSEB Ltd is as shown below:

Table : 5.67

Purchase of energy to meet peak load for the control period

Year		MU	Rs./kWh	Rs. Crore
2018-19	April-Sept	157.39	2.51	39.58
	Nov-March	72.15	5.00	36.08
2019-20		91.80	5.00	45.90
2020-21		128.40	5.00	64.20
2021-22		219.00	5.00	109.50

Surplus Energy Sale

5.148 KSEB Ltd in their petition stated that there will be surplus energy available during certain months especially during the non peak hours. It is mentioned in the petition that KSEBLtd has been taking earnest efforts to sell this excess power whenever opportunity is available at optimum rates. KSEBL has entered into sale agreement with BSHPCL through DEEP portal for sale of 50 MW in June 2018 and 100MW from August 2018 to October 2018 during peak periods and 100 MW during June to October 2018 during off peak period at an average rate of Rs 6.16 per unit. KSEBLtd had also made arrangements with CSPDCL for sale of 200 MW of power from 00.00 hours to 7.00 hours during October 2018 @ Rs 4.09 per unit. KSEBLtd has also made arrangements with CSPDCL for selling 200 MW of power from 6.00 hours to 10.00 hours @ Rs 5.16 per unit and 149 MW of power from 10.00 hrs to 13.00 hrs @ Rs 4.37 per unit during November 2018. In addition to the above, KSEBLtd has been selling energy at optimum rates through day ahead markets. KSEBLtd is also planning to sell the surplus energy available for the remaining part of the financial year at an average expected rate of Rs 5 per unit.

5.149 For the year 2019-20, as per the petition the surplus energy will be 1925.58 MU and the additional revenue expected is Rs.962.74 crore. Similarly, for the rest of two years of the control period, KSEB Ltd expects surplus of 1036.37MU in 2020-21 and 624.75MU in 2021-22. The revenue expected at a rate of Rs.5/unit is Rs.518.17 crore and Rs.312.38 crore respectively. The details of energy sale as given by KSEB Ltd in their petition is as shown below:

Table : 5.68

Estimate of KSEB Ltd on Sale of surplus energy for the year 2018-19

Period	MU	Amount (Rs Cr)
April to September (Actuals)	623.53	225.42
October to March (Incl Sh. Term Purchase)	975.10	487.55
Total for 2018-19	1598.63	712.96
2019-20	1925.58	962.74
2020-21	1036.37	518.17
2021-22	624.75	312.38

5.150 Further to this, however, KSEB Ltd in their letter dated 7-12-2018 had furnished details of surplus energy and external sales as shown below:

Table 5.69
Surplus energy sale as proposed by KSEB Ltd

FY	Demand	Availability	Difference	Short Term Purchase for meeting deficit	Surplus sale
	MU	MU	MU	MU	MU
	A	B	C=A-B	D	E=C+D
2018-19 (Apr-Sept)(Actual)					623.53
2018-19 (Oct-Mar)	12814.70	13717.64	902.94	72.15	975.10
2019-20	26243.43	28077.11	1833.68	91.80	1925.48
2020-21	27247.53	28155.50	907.97	128.40	1036.37
2021-22	28295.30	28701.05	405.75	219.00	624.75

Analysis and decision of the Commission

5.151 KSEB Ltd in the petition has proposed that in order to meet the peak deficit of 150 MW of power to purchase it at a proposed rate of Rs.5/kWh. Similarly, KSEB Ltd also expected to sell the surplus energy during the control period at Rs.5/kWh. In such cases, there will not be any financial impact but the impact will only be the difference in energy purchase/sale only.

5.152 The Commission has examined the proposal furnished by KSEB Ltd. In the control period there will be overall energy surplus though there may be deficit in some months due to increase in peak demand or changes in climatic conditions or reasons such as general elections as mentioned by KSEB Ltd. Since such situations are difficult to predict and KSEB Ltd has proposed the same rate for the purchase and sale, the Commission for the purpose of approving the ARR & ERC has considered the net surplus energy sale only in all the years of the control period. The surplus energy available as per the estimate of the Commission is as shown below:

Table : 5.70

Surplus energy for the control period as estimated by the Commission

	As per Petition				As approved by the Commission			
	2018-19	2019-20	2020-21	2021-22	2018-19	2019-20	2020-21	2021-22
	MU	MU	MU	MU	MU	MU	MU	MU
Net internal Hydro Generation	7,803.99	6,925.75	6,496.58	6,404.97	7,807.42	6,926.06	6,795.65	7,001.88
Net internal Wind and Solar	16.75	44.40	49.39	49.39	16.58	44.20	49.18	49.18
Total internal generation	7,820.74	6,970.15	6,545.97	6,454.36	7,824.01	6,970.26	6,844.83	7,051.05
CGS (Net)	10,255.41	11,241.94	11,274.76	11,274.75	10,255.41	11,241.96	11,274.77	11,274.77
LTA (Net)	7,999.32	8,647.06	8,647.06	8,647.06	7,999.31	8,647.06	8,647.06	8,647.07
IPPs	280.09	280.09	280.09	280.09	280.70	280.70	280.70	280.70
Additional RPO purchase - Non Solar		488.80	762.92	1,044.55	-	503.35	691.04	787.71
Additional RPO purchase - Solar		449.99	645.63	854.39	-	485.51	740.50	1,065.21
RGCCPP								
Short Term purchase	229.54	91.80	128.40	219.00				
Total	26,585.10	28,169.83	28,284.83	28,774.20	26,359.42	28,128.83	28,478.89	29,106.51
Energy requirement	24,846.15	26,243.46	27,247.53	28,295.30	24,846.15	26,243.43	27,247.53	28,295.30
Surplus/Deficit Energy	1738.95	1926.37	1037.37	478.90	1,513.27	1,885.40	1,231.36	811.21

**The energy availability and surplus has been since been revised*

Summary of power purchase cost

5.153 The Commission has estimated and approved the power purchase cost as shown below:

Table : 5.71

Summary of energy balance and approved power purchase cost

	ENERGY (MU)				COST (Rs.Crore)			
	2018-19	2019-20	2020-21	2021-22	2018-19	2019-20	2020-21	2021-22
Internal Hydro Generation	7,889.48	6,998.42	6,866.40	7,074.51				
Auxiliary Consumption	82.05	72.36	70.75	72.64				
Balance	7,807.42	6,926.06	6,795.65	7,001.88				
Wind and Solar	16.58	44.20	49.18	49.18				
Total internal generation	7,824.01	6,970.26	6,844.83	7,051.05				
CGS	10,255.41	11,241.96	11,274.77	11,274.77	3,684.51	4,135.05	4,196.25	4,244.91
LTA	7,999.31	8,647.06	8,647.06	8,647.07	3,319.64	3,528.02	3,518.11	3,510.51
IPPs	280.70	280.70	280.70	280.70	103.78	103.78	103.78	103.78
Additional RPO purchase - Non Solar	-	503.35	691.04	787.71	-	145.97	200.40	228.44
Additional RPO purchase - Solar	-	485.51	740.50	1,065.21	-	145.65	222.15	319.56

	ENERGY (MU)				COST (Rs.Crore)			
	2018-19	2019-20	2020-21	2021-22	2018-19	2019-20	2020-21	2021-22
RGCCPP					200.00			
Transmission charges								
CGS					419.72	435.34	437.12	437.12
LTA					111.96	111.96	111.96	111.96
RGCCPP					8.16	8.16	8.16	8.16
Total	26,359.42	28,128.83	28,478.89	29,106.51	7,847.77	8,613.94	8,797.94	8,964.44
Energy requirement	24,846.15	26,243.43	27,247.53	28,295.30				
Surplus/Deficit Energy	1,513.27	1,885.40	1,231.36	811.21				

NLDC/RLDC charges

5.154 KSEB Ltd in their petition has proposed Rs.3.00 crore as the NLDC/RLDC charges separately. The Commission notes that so far such claims has not been raised and the same might have been included in the transmission charges. Since KSEB Ltd has claimed the same separately, the Commission provisionally approves the same on the condition that in the truing up complete details with bills will have to be furnished before the same is finally approved.

O&M expenses

5.155 KSEB Ltd in the petition has stated that the recovery of employee cost and A&G expenses claimed are as per the Regulation KSEB Ltd in their petition has estimated the O&M expenses as shown below:

Table : 5.72

Employee cost and A&G expenses proposed by KSEB for the control period

No	Parameters	2018-19	2019-20	2020-21	2021-22
1	No.ofconsumers (Rs. L/1000)	4.80	5.03	5.27	5.53
2	Dist Transformers (Rs. L/DTr)	0.64	0.67	0.70	0.73
3	Length of HT line (Rs. L/km)	0.79	0.83	0.87	0.91
4	Energy sales (Rs/unit)	0.19	0.20	0.21	0.22
5	No. of consumers	12611100	12957080	13314526	13683932
6	No. of Dist Transformers (Nos)	80064	81537	82897	83950
7	HT Line (Ckt-Km)	66225	69686	72654	74729
8	Energy sales in MU	21647.29	22969.67	23957.26	24991.44
9	Employee, A&G Cost (Rs Cr)	1979.53	2153.38	2342.23	2529.65

5.156 KSEB Ltd has estimated the R&M expenses at 3 % of opening GFA along with pro rata allowance for the assets added during the year. As per the petition, R&M expenses for the opening level of GFA for the control period is furnished below:

Table : 5.73

O&M expenses based on Opening GFA as per the petition

No	Item	2018-19	2019-20	2020-21	2021-22
1	Opening GFA (Rs. Crore)	8390.00	11010.25	12531.99	13894.96
2	R&M expenses @ 3% (Rs. Crore)	251.70	330.31	375.96	416.85

5.157 As per the provisions of the Regulations, KSEB Ltd also claimed pro-rata R&M expenses in proportion to progress in assets additions. For this, the pro-rata R&M expenses for the asset addition during the control period is worked out on the basis of the actual assets addition during the year 2017-18. Thus the pro rata monthly addition to GFA and the corresponding R&M expenses is computed by KSEB Ltd as shown below:

Table : 5.74

R&M expenses for Asset Addition during the year proposed by KSEB Ltd

Month	Pro rata addition	GFA Addition				Months	Pro rata R&M expenses			
		FY19	FY 20	FY-21	FY-22		FY19	FY 20	FY-21	FY-22
	%									
April	4.1	41.38	61.64	55.11	40.77	11	1.14	1.70	1.52	1.12
May	9.19	92.64	138.01	123.38	91.28	10	2.32	3.45	3.08	2.28
June	7.53	75.97	113.19	101.19	74.86	9	1.71	2.55	2.28	1.68
July	3.39	34.16	50.9	45.5	33.67	8	0.68	1.02	0.91	0.67
August	5.59	56.36	83.97	75.06	55.54	7	0.99	1.47	1.31	0.97
September	4.56	45.98	68.5	61.23	45.3	6	0.69	1.03	0.92	0.68
October	3.99	40.23	59.94	53.58	39.64	5	0.50	0.75	0.67	0.50
November	4.27	43.08	64.18	57.38	42.45	4	0.43	0.64	0.57	0.42
December	6.29	63.45	94.52	84.5	62.52	3	0.48	0.71	0.63	0.47
January	12.64	127.47	189.91	169.78	125.61	2	0.64	0.95	0.85	0.63
February	22.41	225.98	336.67	300.98	222.68	1	0.56	0.84	0.75	0.56
March	16.03	1773.55	260.31	235.28	435.92	0	0.00	0.00	0.00	0.00
Total	100	2620.25	1521.74	1362.97	1270.24		10.13	15.10	13.50	9.99

5.158 The total R&M expenses proposed for the control period are as follows:

Table : 5.75

Total R&M expenses proposed by KSEB Ltd for the control period

No	Item	2018-19	2019-20	2020-21	2021-22
		Rs.crore	Rs.crore	Rs.crore	Rs.crore
1	On opening GFA	251.70	330.31	375.96	416.85
2	On addition during the year	10.13	15.10	13.50	9.99
3	Total	261.83	345.41	389.46	426.84

5.159 Based on the above, KSEB Ltd has proposed the normative O& M expenses for next control period as given below:

Table : 5.76

Total O&M expenses proposed by KSEB Ltd for SBU-D

No	Item	2018-19	2019-20	2020-21	2021-22
		Rs. crore	Rs. Crore	Rs. crore	Rs. Crore
1	Employee & A&G costs	1979.53	2153.38	2342.23	2529.65
2	R&M expenses	261.83	345.41	389.46	426.84
3	Normative O&M expenses	2241.36	2498.79	2731.69	2956.49

Comments of Stakeholders

5.160 The HT-EHT Association stated that the employee expenses and A&G expenses are to be estimated based on the estimate of sales by the Association Further, pro-rata O&M expenses claimed by KSEB Ltd shall only be allowed during the truing up process.

5.161 In their reply, KSEB Ltd stated that the sales projections made by the Association is based on arbitrary assumptions and the same underestimates future expenses and deprives the utility from recovering reasonable expenses in a timely manner. Further KSEB Ltd is entitled to claim the pro-rata R&M expenses for the assets added in each year as per Regulations.

5.162 KSEB Pensioners association stated that O&M works be given its rightful importance and priority especially in the context of recent floods. The O&M expenses may be determined based on statutory requirements and industry standards.

- 5.163 Apollo tyres Ltd stated that though there is a study by IIM Kozhikode on the HR management of KSEB Ltd the same has not been implemented.
- 5.164 Shri. K.R Radhakrishnan stated that the employee cost and A&G costs are increasing exorbitantly. Sri Lorance K.M. stated that the staff strength in KSEB Ltd is very high and the salary disbursements be computerised and the establishment section in the office be removed. Shri.Shoufar Navas has stated that employee cost of KSEB Ltd is very high.
- 5.165 Shri. P.P Antony stated that effective utilisation of manpower is required and excess employees are to be redeployed and the vehicle expenditure is also high.
- 5.166 In reply, KSEB Ltd stated that they are in final stages of employee redeployment and restructuring. In the Tariff Regulations, O&M expenses are capped by norms. At present KSEB does not allow salary and benefits of about 5000 employees. Business growth and consequent man power requirement are not considered for years.
- 5.167 M/s Nita Gelatin India Limited stated that pay revision proposed by KSEB Ltd should be reworked for the smooth working of the industry.
- 5.168 Sri. Jose Paul Koratty stated that no new appointments be made till KSEB is profitable. At present number of employees are in excess. KSEB Ltd stated that several steps are being taken to control employee costs and the report given by IIMK is being finalised.

Provisions in the Regulations

“79. Operation and maintenance expenses.– (1) The distribution business of KSEB Limited shall be allowed to recover operation and maintenance expenses as per the norms specified in Annexure-IX to these Regulations for each financial year of the Control Period:

Provided that the distribution business of KSEB Limited shall be allowed to recover the annual pension contribution paid to the Master Trust, based on actuarial valuation, in respect of the personnel allocated to the distribution business of KSEB Limited, in addition to the above specified normative operation and maintenance expenses:”

Annexure-IX

O&M norms for the distribution business/licensees

Table 1 (a) : O&M norms (Employee expenses and Administration & General expenses) for distribution business of KSEB Limited

	<i>Control period</i>			
	2018-19	2019-20	2020-21	2021-22
<i>No. of consumers (Rs. Lakh/'000 consumers)</i>	4.80	5.03	5.27	5.53
<i>No. of Distribution transformers (Rs.lakh/Distribution transformer)</i>	0.64	0.67	0.70	0.73
<i>Length of HT line (Rs.lakh/km of HT line)</i>	0.79	0.83	0.87	0.91
<i>Energy sales (Rs.per unit)</i>	0.19	0.20	0.21	0.22

Explanation: The O&M expenses (Employee expenses and Administration & General expenses) for any year of the Control Period shall be allowed by multiplying the norms for that year with the actual number of consumers, distribution transformers, km of HT line and sales for the previous year, i.e., the O&M expenses (excluding R&M expenses) for FY 2018-19 shall be allowed by multiplying the norms for FY 2018-19 with the actual number of consumers, distribution transformers, km of HT line and sales for FY 2017-18.

(b) Repair and Maintenance expenses of distribution business of KSEB Ltd:

(i) 3% of Opening GFA (excluding value of land and land under lease) of distribution business of each year of the control period.

(ii) Repair and Maintenance expenses for assets added during the year of the control period shall be allowed after prudence check by the Commission on a pro-rata basis subject to production of details of the assets.

Analysis and decision of the Commission

5.169 The Commission has carefully considered the KSEB Ltd claim in their petition, the comments of the stakeholders and reply of KSEB Ltd thereof. As per the provisions of the Regulations, O&M expenses for SBU-D is allowed based on the parameters i.e., no. of consumers, no. of distribution transformers, length of HT lines, sales and opening GFA (excluding land).

5.170 The Commission has given a provisional approval to the capital expenditure plan of KSEB Ltd as shown in Table 5.12 pending its detailed examination. Accordingly the parameters used for approval of O&M expenses is as shown below:

Table : 5.77
Parameters used for allowing O&M expenses

	Basis	As per petition				Approved for the control period			
		2018-19	2019-20	2020-21	2021-22	2018-19	2019-20	2020-21	2021-22
No. of consumers	Opening level	12276321	12611100	12957080	13314526	12276321	12611100	12957080	13314526
No. of Distribution Transformers	Opening level	77724	80064	81537	82897	77724	79674	81097	82502
HT Line (Ckt-Km)	Opening level	62835	66225	69686	72654	62835	65236	67058	68613
Energy sales in MU	Previous year	20880.7	21647.29	22969.67	23957.26	20880.7	21647.29	22969.67	23957.26
GFA	Opening level	8390.00	11010.25	12531.99	13894.96	8,020.12	9,788.82	11,010.99	11,822.68

5.171 Based on the above, O&M expenses are estimated as shown below:

Table : 5.78
Employee cost and A&G expense for the control period

Parameters		2018-19	2019-20	2020-21	2021-22
No. of consumers	Rs. Lakh/'000	4.80	5.03	5.27	5.53
No. of Dist Transformers	Rs.Lakh	0.64	0.67	0.70	0.73
Length of HT line	Rs. Lakh/km	0.79	0.83	0.87	0.91
Energy sales	Rs/unit	0.19	0.20	0.21	0.22
No. of consumers	Nos.	12276321	12611100	12957080	13314526
No. of Dist Transformers	Nos	77724	79674	81097	82502
HT Line	Ckm	62835	65236	67058	68613
Energy sales	MU	20880.7	21647.29	22969.67	23957.26
Employee, A&G Cost	Rs. Crore	1,979.83	2,142.56	2,316.28	2,490.00

Table : 5.79
R&M expenses for the control period

Item	Unit	2018-19	2019-20	2020-21	2021-22
Opening GFA	Rs.crore	8,020.12	9,788.82	11,010.99	11,822.68
Less land (2.8%)	Rs.crore	224.56	274.09	308.31	331.04
Balance	Rs.crore	7,795.55	9,514.73	10,702.68	11,491.65
R&M expenses @ 3%	Rs.crore	233.87	285.44	321.08	344.75
R&M for Asset Addition	Rs.crore	12.39	30.95	21.38	14.20
Total R&M Expenses	Rs.crore	246.25	316.39	342.46	358.95

Table : 5.80
Total R&M expenses approved for SBU-D

Item	As per Petition				As approved			
	2018-19	2019-20	2020-21	2021-22	2018-19	2019-20	2020-21	2021-22
	Rs. Crore	Rs. Crore	Rs. crore	Rs. Crore	Rs.crore	Rs.crore	Rs.crore	Rs.crore
Employee & A&G costs	1,979.53	2,153.38	2,342.23	2,529.65	1,979.83	2,142.56	2,316.28	2,490.00
R&M expenses	261.83	345.41	389.46	426.84	246.25	316.39	342.46	358.95
Normative O&M expenses	2,241.36	2,498.79	2,731.69	2,956.49	2,226.08	2,458.95	2,658.75	2,848.95

One time expenses and Pay revision expenses

5.172 In addition to the above, KSEB Ltd has proposed that as per the provisions of the Regulations 79(10), one time expenses on account of losses suffered due to flooding. It was stated that electricity supply from 16158 Distribution Transformers was affected. More than 10,000 Distribution substations had to be switched off to mitigate accidents. Service to 25.60 Lakhs consumers was affected and around 1735 transformers were affected. The financial cost incurred by SBU-D for rectification works was around Rs. 242.55 Crore as submitted below.

Table : 5.81
Loss suffered by SBU-D as mentioned in the petition

No.	Description	Quantum	Amount Crore
1	No. of transformers damaged(Nos)	1735	17.35
2	No. of transformers damaged(Nos)	103255	41.30
3	Conductor damaged(km)	5275.80	26.38
2	RMU damaged(Nos)	106	7.42
3	Electrification of households (No. in lakhs)	3	150
	TOTAL		242.25

5.173 KSEB Ltd requested that the damages that occurred in various SBUs of KSEBL due to natural calamity may kindly be treated as 'Force Majeure' event and allowed at the time of truing up for 2018-19, over and above the normative expenses.

5.174 Further during the flood as per the direction of Government, KSEBL has contributed Rs 35 Crore towards flood relief fund. Share of SBU-D

towards this fund is Rs. 29.24Crore. KSEB Ltd requested to pass this amount through the ARR.

Analysis and decision of the Commission

5.175 The Commissions decision in this regard is specified in paragraph 4.66 and 4.67 of this order and hence not admitted.

Pay Revision Expenses

5.176 The pay revision expenses relating to SBU-D is reproduced below:

Table : 5.82

Proposed pay revision expenses as per petition

Business Unit	Employee cost ratio	2018-19	2019-20	2020-21	2021-22
		Rs. Crore	Rs. Crore	Rs. Crore	Rs. crore
SBU-D	83.56	152.28	219.84	237.58	256.28

5.177 KSEB Ltd requested the Commission to true up the actual expenses, after prudence check, at the time of implementation of revision of pay.

Analysis and decision of the Commission

5.178 As per the existing provisions of the Tariff Regulations,2018, the Commission is not in a position to consider the one time expenses claimed by KSEB Ltd on account of the losses suffered due to flooding.

5.179 Since KSEB Ltd has not claimed the pay revision expense in the ARR, the Commission is not considering the same at present.

Depreciation

5.180 KSEB Ltd has estimated the depreciation for SBU-D based on the Truing up order for 2015-16. The depreciation approved for 2015-16 roughly works out to the following percentages on the opening GFA.

Table : 5.83

Depreciation approved for 2015-16

Particulars	SBU G	SBU T	SBU D
Average rate of depreciation % (gross)	2.77	3.24	3.86
Less: Claw back	0.00	0.00	2.55
Average rate of depreciation % (net)	2.77	3.24	1.31

5.181 As shown above, the depreciation for SBU-D, after clawing back of depreciation for assets created out of consumer contribution and grants is 1.31%. This depreciation in line with Regulation 27 of the Tariff Regulations, 2018 for the control period as per the estimate of KSEB Ltd is given below:

Table : 5.84
Depreciation proposed for SBU-D

Item	2018-19	2019-20	2020-21	2021-22
	Rs.crore	Rs.crore	Rs.crore	Rs.crore
Opening GFA (excl revaluation)	8390.00	11010.25	12531.99	13894.96
Addition during the year	2620.25	1521.74	1362.97	1270.24
Total	11010.25	12531.99	13894.96	15165.20
Depreciation for the year	323.94	425.10	483.86	536.48
Less: Claw back depreciation	214.22	281.12	319.97	354.77
Net depreciation allowable	109.72	143.99	163.89	181.71

Analysis and decision of the Commission

5.182 The Commission has examined the details furnished by KSEB Ltd. In the petition, KSEB Ltd has taken the average rate of depreciation of 2015-16 for estimating the depreciation for the control period. As mentioned in Chapter 3, there are many limitations to the methodology proposed by KSEB Ltd. After considering these limitations, KSEB Ltd in their letter dated 21-12-2018 has furnished a revised estimation of depreciation for the control period. In the said estimation, KSEB Ltd has considered depreciation at a rate of 1.48% for assets having life more than 12 years and 5.28% for assets having life of 12 years or less. Assets having life above 30 years which are written down to their salvage values was excluded from the estimation of depreciation. The average value of land in the total GFA is about 2.8% and, depreciation for this value of land at 2.8% of GFA is also excluded. The comparison of depreciation as per the petition and revised as per letter dated 21-12-2018 is shown below:

Table : 5.85
Depreciation estimated by KSEB Ltd

Year	As per petition		Revised as per letter dated 21-12-2018	
	SBU-D Rs. Crore	KSEB Ltd Rs. Crore	SBU-D Rs. Crore	KSEB Ltd Rs. Crore
2018-19	109.72	404.30	182.90	555.67
2019-20	143.99	468.58	205.36	673.27
2020-21	163.89	588.60	250.78	890.33
2021-22	181.71	694.53	288.16	964.19

5.183 The table above indicates that KSEB Ltd has also increased their depreciation claim substantially in the revised submissions. Though there are limitations in KSEB Ltd proposal, the Commission is inclined to use the methodology for estimating depreciation with certain modifications. As mentioned in Chapter 3, the depreciation for the control period has been estimated by the Commission based on the asset additions provisionally approved and after making adjustments for assets that have been in use for more than 31 years.

5.184 The Asset addition provisionally approved by the Commission is as shown below:

Table : 5.86
Asset addition provisionally approved for SBU-D

Particulars	2018-19	2019-20	2020-21	2021-22	Total
Normal woks -Dhyuthi 2021	302.23	651.67	567.98	393.37	1915.25
Continued Electrification	5.00	20.00	20.00	5.00	50.00
Sub total	307.23	671.67	587.98	398.37	1965.25
Estimated & other funded Works	199.70	201.69	203.71	205.74	810.84
System strengthening & IT works	1243.77	329.31			1573.08
IT related works (CAP)				258.14	258.14
Safety	18.00	19.50	20.00	18.50	76.00
Total Asset additions approved	1768.70	1222.17	811.69	880.75	4683.31
Grants for RAPDRP, IPDS etc	707.24	197.59			904.82
Estimated & other funded works	199.70	201.69	203.71	205.74	810.84
Sub total grants and contributions	906.94	399.28	203.71	205.74	1715.66
Net GFA excluding grants	861.76	822.90	607.98	675.01	2967.65

5.185 Based on the methodology mentioned in chapter 3, the depreciation for SBU-D estimated by the Commission is as shown below:

Table : 5.87
Depreciation approved by the Commission

SBU-D			
Year	Total Depreciation for KSEB Ltd	% share in GFA of SBU-D in total GFA eligible for depreciation	Depreciation for SBU-D
	Rs.crore		Rs.crore
2017-18*	319.25	16.0%	50.92
2018-19	348.84	20.7%	72.24
2019-20	408.32	22.9%	93.47
2020-21	518.81	23.4%	121.53
2021-22	612.25	25.3%	154.91

*Estimate only

Table 5.88
Depreciation as per the petition and as approved for the control period

Year	As per petition		Revised as per letter dated 21-12-2018		As approved	
	SBU-D	KSEB Ltd	SBU-D	KSEB Ltd	SBU-D	KSEB Ltd
	Rs. Crore	Rs. Crore	Rs. Crore	Rs. Crore	Rs. Crore	Rs. Crore
2018-19	109.72	404.30	182.90	555.67	72.24	348.84
2019-20	143.99	468.58	205.36	673.27	93.47	408.32
2020-21	163.89	588.60	250.78	890.33	121.53	518.81
2021-22	181.71	694.53	288.16	964.19	154.91	612.25

Interest and financing charges

5.186 In their petition, KSEB Ltd has claimed interest on capital liabilities, interest on working capital, interest on GPF, interest on security deposits and interest on Master Trust under interest and financing charges. Each of the item is examined below:

Interest on capital liabilities:

5.187 As per the petition, the Interest on normative loan is determined after considering asset addition excluding consumer contribution/ grant anticipated, allowable depreciation etc for each year of the control period. The normative interest thus computed for SBU-D for the control period is furnished in the table below.

Table : 5.89
Interest normative loan proposed by KSEB Ltd

No	Item	2018-19	2019-20	2020-21	2021-22
		Rs.crore	Rs.crore	Rs.crore	Rs.crore
1	Opening loan	2142.78	4275.39	5451.45	6446.82
2	GFA addition	2620.25	1521.74	1362.97	1270.24
3	Less: Consumer contribution & Grants	377.92	201.69	203.71	205.74
4	Less: Allowable depreciation	109.72	143.99	163.89	181.71
5	Normative loan during the year	2132.61	1176.06	995.37	882.79
6	Closing normative loan	4275.39	5451.45	6446.82	7329.61
7	Average normative loan	3209.08	4863.42	5949.14	6888.21
8	Interest for the year*	304.86	486.34	594.91	688.82

** @ 9.50% for 2018-19 and @10% thereafter.*

5.188 KSEB Ltd in their petition interest charges estimated based on interest rate of 9.5% for the first year of the control period and 10% for rest of the control period.

Comments of stakeholders

5.189 The Association stated that in the past KSEB Ltd had made significantly lower capital additions than the projections for the control period. The HT-EHT Association has relied on alternate estimation of normative loan considering a lower asset additions and contribution for the control period. The Association has not made any comments on the opening level of loans or applicable interest charges. According the Association, the interest on normative loan will be Rs.239.41 crore in 2018-19 and Rs.449.56 crore in 2021-22.

Table : 5.90

Interest on normative loan worked out by HT-EHT Association for SBU-D

S No	Particulars	FY 2018-19	FY 2019-20	FY 2020-21	FY 2021-22
As per Objector					
1	Opening loan	2142.78	2897.38	3714.61	4302.92
2	GFA addition	996.78	1010.78	795.82	603.98
3	Less: Consumer contribution & Grants	132.27	70.59	71.30	72.01
4	Less: Allowable depreciation	109.91	122.97	136.21	146.63
5	Normative loan during the year	754.60	817.22	588.31	385.33
6	Closing normative loan	2897.38	3714.61	4302.92	4688.25
7	Average normative loan	2520.08	3305.99	4008.76	4495.59
8	Interest rate for the year	9.50%	10%	10%	10%
9	Interest for the year	239.41	330.60	400.88	449.56
	Difference (Obj-Pet)	(65.45)	(155.74)	(194.03)	(239.26)

5.190 To this, KSEB Ltd has stated that dedicated teams were assigned with specific responsibilities for the progress of capital additions. Hence stated that the past level of performance may not be a realistic yardstick to measure the proposed capital additions.

Provisions in the Regulations

5.191 Regulation 29 provides for the estimation of normative loan and interest charges thereof.

Analysis and decision of the Commission

5.192 The Commission sought clarifications on the estimation of normative loans vide letter dated 16-11-2018. KSEB Ltd furnished the reply vide letter dated 7-12-2018 in which the figures for the normative loans for the control period were revised. The revised figures furnished by KSEB Ltd are as shown below:

Table : 5.91

Revised opening levels of normative loans furnished by KSEB Ltd

No	Item	SBU G	SBU T	SBU D	Total
		Rs. crore	Rs. crore	Rs. crore	Rs. crore
1	GFA as on 01.04.2018	16861.56	5178.65	8067.32	30107.53
2	Less: revalued	11988.98			11988.98
3	Balance GFA as on 01.04.2018	4872.58	5178.65	8067.32	18118.55
4	Less: Approved depreciation till 01.04.2018				6539.59
5	Net Fixed Assets				11578.96
6	Less: Equity				3499.05
7	Less: pro rata Contribution & grants				3993.37
8	Normative loan 01.04.2018				4086.54
9	Normative loan balance (A)				4086.54
10	Normative loan as on 31.03.2018				4086.54
11	GFA ratio				
12	GFA as on 01.04.2018	16861.56	5178.65	8067.32	30107.53
13	Less: revalued	11988.98			11988.98
14	Balance GFA as on 01.04.2018	4872.58	5178.65	8067.32	18118.55
15	Ratio	26.89	28.58	44.53	
16	SBU wise Loan balance	1098.98	1168.02	1819.54	4086.54

5.193 The Commission has examined the details furnished by KSEB Ltd. KSEB Ltd has arrived at the opening level of normative loans for the control period i.e., as on 1-4-2018 based on the asset additions for the year 2016-17 and 2017-18 as per their accounts. However, the Commission while truing up the accounts for 2016-17 did not approve the asset additions for that year for want of details. Though the details were called for, KSEB Ltd is yet to furnish the details as directed. Accordingly, the Commission did not approve the asset additions for the year 2016-17 as per the provisions of the Regulations.

5.194 As mentioned in Chapter 3, as per the truing up of accounts for 2016-17, the Commission has arrived at the normative loan of Rs.2321.38 crore as on 1-4-2016 for KSEB Ltd. While arriving at the above level of normative loan, the Commission has not considered the asset additions for 2016-17 for want of sufficient details. However, in order to arrive at the normative loan for the control period, certain additions made by KSEB Ltd to their GFA at the time of Ind AS recasting of accounts to the tune of Rs.282.73 crore for the year 2015-16 are to be considered.

5.195 Considering these aspects, the opening level of normative loan as on 1-4-2016 is arrived at as Rs.2604.12 crore (Rs.2321.38 cr+282.73cr) for

KSEB Ltd. Correspondingly, the opening level of normative loan for SBU-D was Rs.1219.49 crore as on 1-4-2016.

5.196 As noted, the Commission could not approve the entire capital additions for 2016-17 for want of sufficient details. However, in order to arrive at the normative loans for the control period, asset additions during 2016-17 and 2017-18 are to be considered. The Commission is of the view that pending receipt of details from KSEB Ltd, in order to present a relatively true picture of the normative loan for the control period, the asset additions during this period are to be considered on a provisional basis. The Commission after due deliberations decided to consider 50% of the net asset additions (ie., Asset Addition for the year less contribution and grants) for the said purpose for 2016-17. For 2017-18, asset addition as per annual accounts is provisionally taken, pending detailed scrutiny and approval of asset additions for 2016-17 and 2017-18. Accordingly the asset additions provisionally considered for the year 2016-17 and 2017-18 is as shown below:

Table : 5.92

Provisionally approved asset additions for 2016-17 and 2017-18

	SBU-G	SBU-T	SBU-D	KSEB Ltd
	Rs.crore	Rs.crore	Rs.crore	Rs.crore
Asset Additions 2016-17	313.56	236.07	516.82	1,066.45
Asset Additions 2017-18	183.15	499.47	707.95	1,390.57
Addition to Contributions and Grants 2016-17	23.67	23.34	599.93	646.94
Addition to Contributions and Grants 2016-18	20.98	20.69	531.78	573.45
Asset additions excluding contributions and Grants -2016-17	289.89	212.73	-83.11	419.51
Asset additions excluding contributions and Grants -2017-18	162.17	478.78	176.17	817.12

5.197 As shown above, the asset additions excluding grants and contributions for the year 2016-17 is provisionally taken as Rs.419.51 crore and that of 2017-18 is provisionally Rs.817.12 crore, as against the actual net asset addition of Rs.838.98 crore and Rs.817.12 crore respectively for 2016-17 and 2017-18. The Commission would like to place on record that the asset addition for 2016-17 and 2017-18 are only provisional and based on the availability of details from KSEB Ltd for 2016-17 and truing up of 2017-18 the level of asset additions may undergo changes. The

Commission estimates that in the in the case of SBU-D, the net Asset additions would be Rs.-83.11 crore and Rs.176.17 crore respectively during the above periods.

5.198 Based on the above, the value of provisional normative loan as on 1-4-2018 is arrived at Rs. 3151.64 crore for KSEB Ltd and Rs.1164.06 crore for SBU-D as shown below:

Table : 5.93
Provisional normative loan as on 1-4-2018

		SBU-D	KSEB Ltd
1	Opening levels of normative Loan (as on 1-4-2016)	1,219.49	2,604.12
2	Provisional Asset Addition Excluding grants for 2016-17	-83.11	419.51
3	Repayment for the year 2016-17 (Depreciation)	97.57	369.87
4=2-3	Net Addition to Normative loan 2016-17	-180.68	49.64
5=1+4	Opening level of normative loans (1-4-2017)	1,038.81	2,653.77
6	Addition to normative loan 2017-18	176.17	817.12
7	Repayment for 2017-18 (Depreciation)	50.92	319.25
8=6-7	Net Addition to Normative loan 2017-18	125.25	497.87
9=5+8	Opening levels of Normative Loan (as on 1-4-2018)	1,164.06	3,151.64

5.199 As shown above, the opening level of normative loan for SBU-D is Rs.1164.06 crore.

Rate of interest for normative loan

5.200 In their petition, KSEB Ltd has estimated the interest charges for the normative loan for the control period at the rate of 9.5% for the first year and 10% for the rest of the control period. As per the provisions of Regulations, average interest rate for the existing loan portfolio is to be used for allowing interest charges for the normative loan. KSEB Ltd has furnished the actual loan portfolio for SBU-D based on the allocation of existing loans for the year 2017-18 as per the clarification dated 7-12-2018. Based on the details furnished by KSEB Ltd, the weighted average interest rate is estimated as shown below:

Table : 5.94

Details of the loan portfolio for SBU-D for 2017-18 as furnished by KSEB Ltd

NAME OF THE FINANCIAL INSTITUTION	Net loan-Opening (01/04/17)	Add: Drawals during the Year	Less: Repayment (s) during the year	Net loan Closing (31/03/18)	Average loan	Weightage	Interest on loan	Weighted average rate
	Rs. crore	Rs. Crore	Rs. Crore	Rs. crore	Rs. crore	%	Rs. crore	%
(A) SECURED LOANS								
Loan from L I C	1.85	-	0.93	0.93	1.39	0.0%	0.11	0.00%
Loan from REC-Distribution - 23 Circle Scheme	580.03	78.62	1.23	657.42	618.73	17.5%	63.92	1.81%
Loan from REC- Distribution - Meter Scheme	72.19	-	14.94	57.25	64.72	1.8%	7.08	0.20%
Loan from REC on Various Schemes	17.43	-	14.06	3.37	10.40	0.3%	1.54	0.04%
Special Loan Assistance from REC	579.54	46.36	-	625.90	602.72	17.0%	57.53	1.63%
Loan from R E C - RGGVY	17.68	-	1.21	16.48	17.08	0.5%	1.88	0.05%
Loan from REC R-APDRP PART-B	460.99	165.79	21.60	605.18	533.09	15.1%	57.43	1.62%
Loan from REC for the DDG Scheme	0.14	-	-	0.14	0.14	0.0%	0.01	0.00%
Special Loan Assistance from PFC	579.54	59.85	-	639.39	609.47	17.2%	57.64	1.63%
Loan from PFC R-APDRP	129.52	36.63	-	166.15	147.83	4.2%	29.37	0.83%
Loan from PFC R-APDRP Part B	161.34	-	1.49	159.85	160.60	4.5%	1.85	0.05%
TOTAL	2,600.26	387.25	55.44	2,932.07	2,766.16	78.1%	278.39	7.86%
(B) Unsecured Loan								
Union Bank of India (UBI) Short Term Loan	-	186.13	186.13	-	-	0.0%	-	-
REC : Short Term Loan	-	231.82	-	231.82	115.91	3.3%	2.34	0.07%
SBI : Short Term Loan	231.82	463.63	347.72	347.72	289.77	8.2%	26.28	0.74%
Vijaya Bank Short term loan	92.73	185.45	278.18	-	46.36	1.3%	6.72	0.19%
Canara Bank Short Term Loan	-	231.82	231.82	-	-	0.0%	-	-
South Indian Bank Short Term Loan	92.73	139.09	231.82	-	46.36	1.3%	6.24	0.18%
Bank of India (BOI) Short Term Loan	179.66	631.70	718.66	92.69	136.18	3.8%	11.60	0.33%
Andhra Bank Short Term Loan	278.18	139.09	417.27	-	139.09	3.9%	8.83	0.25%
TOTAL	875.11	2,208.73	2,411.61	672.24	773.67	21.9%	62.02	1.75%
GRAND TOTAL	3,475.36	2,595.99	2,467.05	3,604.30	3,539.83	100.0%	340.41	9.62%

5.201 The weighted average rate of interest for the existing loans of SBU-D, as per the details furnished by KSEB Ltd for the year 2017-18 is 9.62%. In the petition, KSEB Ltd had proposed interest rate of 9.5% for the year 2018-19 and a higher rate of 10% for the rest of the control period.

5.202 The Commission has examined the proposal of the KSEB Ltd. It can be seen that there is an increasing trend of interest rate in the recent past as the repo rate have increased by 25 basis points, after decreasing during last three years. Hence there is a possibility for higher rate of interest in future, though the same is not certain.

5.203 The Commission has also examined the interest rate of existing loans. As per the details furnished by KSEB Ltd the opening level of loans for KSEB Ltd as a whole as on 1-4-2017 is Rs.6423.73 crore and closing loans is

Rs.6479.35 crore with an average rate of interest for the entire loans is 9.47%. Of the total loan balance, about 73% of the loans are below 9.08% and 27% of the loans have interest rate more than 9.92%. It is also to be noted that the latest loans have comparatively lower rate of interest and the high cost loans have relatively less period for maturity. Hence, even if there is an increase in the rate of interest for the future loans, the average rate of interest may not increase appreciably considering the mix of loans. Hence, the Commission has decided to keep the rate of interest for the control period constant. Thus the rate of interest applicable for the control period will be the average rate applicable for the SBUs based on the loan portfolio for 2017-18 furnished by KSEB Ltd. Accordingly, the rate of interest for SBU-D is 9.62%.

Asset addition for the control period

5.204 As mentioned above, the Commission has provisionally approved the asset additions for the control period. Based on the above, interest and financing charges for SBU-D is worked out for the control period.

Table : 5.95

Normative loan and interest charges provisionally approved for SBU-D the control period

SBU-D	As per Petition				As approved			
	2018-19	2019-20	2020-21	2021-22	2018-19	2019-20	2020-21	2021-22
	Rs.crore	Rs.crore	Rs.crore	Rs.crore	Rs.crore	Rs.crore	Rs.crore	Rs.crore
Opening level of Normative loan (as of 1st April)	2,142.78	4,275.39	5,451.45	6,446.82	1,164.06	1,953.58	2,683.01	3,169.46
Provisional Asset Additions for the year	2,620.25	1,521.74	1,362.97	1,270.24	1,768.70	1,222.17	811.69	880.75
Contributions and Grants for the year	377.92	201.69	203.71	205.74	906.94	399.28	203.71	205.74
Net Addition to normative loan for the year	2,242.33	1,320.05	1,159.26	1,064.50	861.76	822.90	607.98	675.01
Repayment for the year (Depreciation)	109.72	143.99	163.89	181.71	72.24	93.47	121.53	154.91
Closing provisional Normative loan (as on 31st March)	4,275.39	5,451.45	6,446.82	7,329.61	1,953.58	2,683.01	3,169.46	3,689.56
Average loan	3,209.08	4,863.42	5,949.14	6,888.21	1,558.82	2,318.29	2,926.23	3,429.51
Rate of interest	9.5%	10%	10%	10%	9.62%	9.62%	9.62%	9.62%
Interest Charges	304.86	486.34	594.91	688.82	149.90	222.94	281.40	329.80

5.205 As shown above, for the control period, interest charges provisionally applicable for SBU-D is Rs.149.90crore for 2018-19 and Rs.329.80crore for 2021-22.

Interest on security deposit

5.206 The security deposit as on 31st March 2018 has been Rs 2836.96 crore. Considering an addition of Rs 300 Cr per annum and at an interest of 6.75%, the interest on security deposit for next control period proposed by KSEB Ltd is given in table below.

Table :5.96

Interest on Security Deposits for the control period

No	Particulars	2017-18	2018-19	2019-20	2020-21	2021-22
		Rs.crore	Rs.crore	Rs.crore	Rs.crore	Rs.crore
1	Opening: SD as on 1 st April	2597.51	2836.96	3086.96	3386.96	3686.96
2	Addition during the FY	239.45	250.00	300.00	300.00	300.00
3	Closing SD as on 31 st March	2836.96	3086.96	3386.96	3686.96	3986.96
4	Average SD during the FY	2717.235	2961.96	3236.96	3536.96	3836.96
5	Average interest rate (%)	6.75	6.75	6.75	6.75	6.75
6	Interest Charges	175.33	199.93	218.49	238.74	258.99

Comments of stakeholders

5.207 The Association stated that it is not clear how the opening balance of the security deposits are arrived at.

Analysis and decision of the Commission

5.208 KSEB Ltd has estimated the interest on security deposit based on the actual level of security deposit as per the accounts at the end of 2017-18. The addition to Security deposit is proposed as Rs.250 crore for 2018-19 and Rs. 300 crore for the rest of the years of the control period. The increase in addition to security deposit is proposed based on the expected tariff revision and increase in sales for the future years. The rate of interest applicable for the interest is the bank rate applicable for the respective period.

5.209 In this context it is to be noted that the Commission allows the interest charges for each year based on the actual disbursements. Interest

charges accrued in the previous year is disbursed in the current year. Accordingly the interest on security deposit is approved as shown below:

Table: 5.97

Interest on security deposits approved for the control period

No	Particulars	2017-18	2018-19	2019-20	2020-21	2021-22
		Rs. Crore	Rs. crore	Rs. crore	Rs. crore	Rs. crore
1	Opening: SD as on 1 st April	2,597.51	2836.96	3086.96	3386.96	3686.96
2	Addition during the FY	239.45	250	300	300	300
3	Closing SD as on 31 st March	2,836.96	3086.96	3386.96	3686.96	3986.96
4	Average SD during the FY	2,717.24	2961.96	3236.96	3536.96	3836.96
5	Average interest rate (%)	6.45%	6.75%	6.75%	6.75%	6.75%
6	Interest Charges for the year	175.33	199.93	218.49	238.74	258.99
7	Actual Disbursements allowed into ARR		175.33	199.93	218.49	238.74

Interest on GPF

5.210 The interest on GPF is estimated based on total balance of GFP for KSEB Ltd and the interest charges thereon is apportioned among three SBUs based on ratio of employees. KSEB Ltd has proposed the interest on GPF for SBU-D as shown in the table below.

Table :5.98

Interest on GPF applicable to SBU-D for the control period

Item	2018-19	2019-20	2021-21	2021-22
	Rs. Crore	Rs. Crore	Rs. Crore	Rs. Crore
Opening: Provident Fund as on 1 st April	2,207.33	2,357.33	2,507.33	2,657.33
Addition (net)during the Financial Year	150.00	150.00	150.00	150.00
Closing: Provident Fund as on 31 st March	2,357.33	2,507.33	2,657.33	2,807.33
Average PF during the Financial Year	2,282.33	2,432.33	2,582.33	2,732.33
Average interest rate (%)	8.00%	8.00%	8.00%	8.00%
Interest Charges	182.59	194.59	206.59	218.59

SBU	Employee cost ratio (2017-18)	2018-19	2019-20	2020-21	2021-22
SBU D	83.56%	160.19	170.72	181.24	191.77

5.211 As per the estimates of KSEB Ltd, the closing balance of Provident Fund is Rs.2207.33 crore as on 31-3-2018 and KSEB Ltd has assumed Rs.150

crore per year net additions to GPF balance. In order to estimate the interest charges, 8.4% of interest is assumed.

Analysis and decision of the Commission

5.212 As per the details furnished, the average interest rate for GPF for the year 2017-18 was 7.38%. The interest rate applicable for the GPF accumulations for July-Sept quarter of 2018-19 was 7.6% as per the Government of India notifications, which is applicable for KSEB Ltd as well. The rate has increased by 0.4% for the period October to December 2018 and the rate stands now at 8%. In view of the fluctuation in GPF interest rates, the Commission has adopted the interest rate for GPF for the control period as 8%. The interest charges for the concerned SBUs has been allocated as per the methodology used by KSEB Ltd ie., 83.55% for SBU-D. Interest charges applicable to SBU-D is as shown below:

Table : 5.99
Interest charges for GPF approved for SBU-D

SBU	Emp Cost (2017-18)	2018-19	2019-20	2020-21	2021-22
		Rs.crore	Rs.crore	Rs.crore	Rs.crore
Interest Charges for KSEB Ltd	156.26	182.59	194.59	206.59	218.59
SBU D	83.55%	152.55	162.58	172.60	182.63

Interest on bonds issued to Master Trust

5.213 Regulations 30 allows the interest on the bonds issued to Master Trust to be included in the ARR. KSEB Ltd has accordingly claimed interest on bond value of Rs.8144 crore having maturity of 20 years at the rate of 10% with the operational date of the Master Trust from 1-4-2017. The interest rate allowable for the same is Rs.773.63 crore for the year 2018-19, which is the second year of operation of Master Trust. Similarly considering the repayment each year, the interest charges for the existing bonds for 2019-20 is Rs.732.96 crore, for 2020-21 Rs.692.64 crore and that of 2021-22 is Rs.651.52 crore. The share of SBU-D for the interest charges on existing bonds based on the employee cost ratio used by KSEB Ltd is Rs.646.45 crore for 2018-19.

- 5.214 In addition to the above, KSEB Ltd has claimed an amount of Rs.372.90 crore per year as the interest cost of additional bonds to be issued to Master Trust on account of increase in the liability. According to KSEB Ltd, actuarial valuation as on 31-3-2017 on the unfunded pension liability, gratuity liability and leave surrender liability was made and the liability was estimated at Rs.16147.70 crore which shows that the fund size has increased by Rs.3728.98 crore during the period from 1-11-2013 to 31-3-2017 for which additional funding is required. KSEB Ltd claimed that additional bonds for 20 year period will be issued for an amount of Rs.3728.98 crore at a coupon rate of 10%. Accordingly interest liability of Rs.372.29 crore is claimed. The share of SBU-D is also accordingly apportioned based on employee cost ratio.
- 5.215 As part of the clarifications, KSEB Ltd has also furnished the copies of the actuarial valuation reports. In the letter dated 26-12-2018, KSEB Ltd has furnished some details on the actuarial valuation. KSEB Ltd claimed that the valuation done as on 31-3-2017 resulted in a liability of Rs.16148 crore showing an increase of Rs.3729 crore and the same was incorporated in annual accounts for the year 2016-17. The audited accounts for the year 2016-17 was adopted on 8-11-2018. The actuarial valuation done as on 31-3-2018 indicated an increase in liability by Rs.1584.87 crore, which was incorporated in the annual accounts.
- 5.216 As per the details furnished by KSEB Ltd, the actuarial liability of gratuity and leave encashment is applicable for all employees including the staff recruited after 1-4-2013 though the pension liability of such employees are not covered in the valuation. The details and explanations furnished by the Actuary was included in the reply furnished by KSEB Ltd, which did not contain the entire details sought by the Commission.
- 5.217 KSEB Ltd has apportioned the Interest on the Master Trust based on the employee cost ratio for SBU-D. In addition, the additional contribution to master trust is also included based on the actuarial valuation as mentioned in Chapter 3. Thus the total interest charges on Master Trust claimed in the petition is as shown below:

Table : 5.100
Interest on Master Trust Bonds for SBU-D as per petition

SBU-D	Employee cost ratio	2018-19	2019-20	2020-21	2021-22
	%	Rs.crore	Rs.crore	Rs.crore	Rs.crore
Interest on Master Trust	83.56	646.45	612.43	578.40	544.38
Addition to Master Trust	83.56	311.58	311.58	311.58	311.58
Total interest charges		958.03	924.01	889.98	855.96

Comments of stakeholders

- 5.218 The KSEB Pensioners Association stated that in 2015, State Government created a Master Trust for meeting the unfunded liability of pension in KSEB. However the same is not operational even now. Hence KSEB Ltd may be directed to make this fund fully operational without further delay.
- 5.219 Travancore Cochin Chemicals requested to disallow Rs.372.9 crore additional interest for unfunded master trust. Further liabilities prior to 31-10-2013 is to be rejected.
- 5.220 In reply KSEB Ltd stated that additional liability on the Master Trust is as per the actuarial valuation report. The liability prior to 31-10-2013 has not been taken over by any agency.

Analysis and decision of the Commission

- 5.221 The Commission has examined the proposal and noted many shortcomings in KSEB Ltd reply. Accordingly, as detailed in chapter 3, the Commission has concluded that the present operation of the Trust is not in line with the scheme. Considering these limitations, the Commission is of the view that there is a requirement for the Commission to intimate separate proceeding on the functioning of the Master Trust. Till such time, the Commission provisionally allows interest charges for the existing bonds as envisaged in the scheme and Rs.200 crore as an additional funding for the Master Trust instead of Rs.372.90 crore claimed by KSEB Ltd. Accordingly, for SBU-D based on the employee cost ratio as suggested by KSEB Ltd, the interest charges are allowed as shown below:

Table : 5.101

Interest on Master Trust Bonds approved for the control period for SBU-D

SBU-D	Employee cost ratio	As per Petition				As approved			
		2018-19	2019-20	2020-21	2021-22	2018-19	2019-20	2020-21	2021-22
	%	(Rs.Cr)	(Rs.Cr)	(Rs.Cr)	(Rs.Cr)	(Rs.Cr)	(Rs.Cr)	(Rs.Cr)	(Rs.Cr)
Interest on Master Trust	83.56	646.45	612.43	578.4	544.38	646.45	612.43	578.4	544.38
Charges on proposed Addition to Master Trust	83.56	311.58	311.58	311.58	311.58	167.1	167.1	167.1	167.1
Total interest charges		958.03	924.01	889.98	855.96	813.55	779.53	745.5	711.48

5.222 As shown above, the contribution for the Master Trust for SBU-D will be Rs. 813.55 crore for 2018-19 and Rs.711.48 crore in 2021-22. The Commission however reiterates that the Master Trust being the bearer of an onerous responsibility towards retiring and retired KSEB Ltd employees, its whole functioning shall be holistically examined to see if the purpose for which it was established i.e., discharge of retired employees pension etc is being achieved .

Interest on working capital

5.223 The Normative Working Capital for SBU-D, as per Regulation 32, includes O&M Cost for one month, cost of maintenance spares as one twelfth of average of the book value of stores for that financial year, receivables for two months excluding security deposits. KSEB Ltd has computed the Interest on Working Capital in their petition at a rate of 10.70% (8.70% as on 1-4-2018 + 2%) as per Regulation 32(2). The parameters adopted by KSEB Ltd for computation of Interest on Working capital for the control period are furnished below.

Table : 5.102

Parameters for estimation of interest on working capital as per petition

Item	2018-19	2019-20	2020-21	2021-22
	Rs.crore	Rs.crore	Rs.crore	Rs.crore
Opening GFA	8390.00	11010.25	12531.99	13894.96
Inventory	485.90	614.98	710.81	801.76
O&M Cost	2241.36	2487.63	2725.56	2958.09
Expected Revenue	12433.68	13143.48	13758.18	14402.37

5.224 As per the estimation of KSEB Ltd, the Interest on Working Capital for the control period 2018-19 to 2021-22 for SBU-D is as shown below:

Table : 5.103
Interest on working capital proposed by KSEB Ltd

No	Item	2018-19	2019-20	2020-21	2021-22
		Rs.crore	Rs.crore	Rs.crore	Rs.crore
1	O&M expenses	186.78	207.30	227.13	246.51
2	Cost of Mace spares	4.86	6.15	7.11	8.02
3	Receivables for two months	2072.28	2190.58	2293.03	2400.395
4	Total Working Capital	2263.92	2404.03	2527.27	2654.92
4	Less: Security Deposits	2836.96	3086.96	3386.96	3686.96
5	Net Working Capital	-573.04	-682.93	-859.69	-1032.04

5.225 Since the Working Capital requirement is less than the security deposit held at the beginning of the year, KSEB Ltd has not claimed any interest on working capital for the next control period.

Analysis and decision of the Commission

5.226 As mentioned in the petition, since SBU-D is holding substantial security deposits much above the norms. Hence, interest on working capital is not allowable for SBU-D. However, the estimation of working capital for SBU-D is as shown below:

Table :5.104
Estimation of normative Working capital requirements for SBU-D

SBU-D	2018-19	2019-20	2021-21	2021-22
	Rs.crore	Rs.crore	Rs.crore	Rs.crore
O&M Expenses for one month	185.51	204.91	221.56	237.41
Cost of spares	4.86	6.15	7.11	8.02
Receivables for two months	2,074.97	2,209.11	2,312.36	2,420.56
Total working capital	2,265.34	2,420.17	2,541.03	2,665.99
Less Security Deposits	2,836.96	3,086.96	3,386.96	3,686.96
Net Working capital	-571.62	-666.79	-845.93	-1,020.97

5.227 As shown above, normative working capital requirement for SBU-D is negative, hence no interest on working capital on normative basis is allowed. Though KSEB Ltd has claimed raising Working Capital

borrowings during the previous periods, the Commission is of the view that, in view of the substantial security deposit held for which interest is being separately allowed, no interest will be allowed on this account. The Commission also hereby directs KSEB Ltd to take urgent and effective steps to recover the massive outstandings, so as to tide over its financial shortages

Summary of Interest and financing charges

5.228 The summary of interest and finance charges approved for SBU-D for the control period as per the petition is given below:

Table : 5.105
Summary of Interest & Finance Charges for SBU-D

SBU-D	2018-19	2019-20	2020-21	2021-22
Item	Rs.crore	Rs.crore	Rs.crore	Rs.crore
Interest on capital liabilities	149.90	222.94	281.40	329.80
Interest on GPF	152.55	162.58	172.60	182.63
Interest on Master Trust	813.55	779.53	745.50	711.48
Interest on working capital	-	-	-	-
Interest on security deposits	175.33	199.93	218.49	238.74
Total Interest & Finance Charges	1,291.34	1,364.98	1,418.00	1,462.65

5.229 Thus as shown above, the Commission hereby approves Rs.1291.34 crore for 2018-19 and Rs.1462.65 crore towards 2021-22 respectively for the control period for interest and financing charges.

Amortisation of Past Revenue gaps

5.230 As per the Commission's estimate, the unbridged revenue gap as on 31-03-2017 was Rs 5693.25crores. Amortisation of this unbridged gap within a specified time frame is very important to safeguard the financial viability of KSEB Ltd. As a first step, the Commission has allowed carrying cost for the unbridged revenue gap during the truing up for the years 2015-16 and 2016-17.

5.231 KSEB Ltd in their petition stated that:

(i) In the order dated 17.04.2017, the Commission decided to allow recovery of the entire revenue gap determined till then over a period

of 5 years. Accordingly, a sum of Rs.1040.92 Cr was allowed to recovered through tariff as per order dated 17.04.2017.

(ii) However, the un-bridged gap grew thereafter as per various orders detailed below:

Table 5.106
Approved Revenue gap as shown in the Petition

No	Item	(Rs. Cr)	(Rs. Cr)
1	Total un bridged revenue gap as on 31-03-2011 (as per Table 1.3 of the order dated 14-8-2014 in OP No. 9/2014)	424.11	
2	Revenue gap as per the orders on truing up for the year 2011-12	1386.97	
3	Revenue gap as per the orders on truing up for the year 2012-13	3132.97	
4	Total	4944.05	
5	Less: Recovery permitted for 2017-18	1040.92	3903.13
6	Add: Remand order dtd 09.05.17-for 2009-10trueup asper APTEL Orders		107.90
7	Add: Remand order dtd 19.05.17 for 2010-11trueup asper APTEL Orders		204.70
8	True up order 2013-14 dated 20.06.2017		195.50
9	True up order 2015-16 dated 21.08.2018		202.97
10	True up order 2016-17 dated 14.09.2018		1031.06
	Total		5645.26

(iii) Paragraph 8.2.2 of the National Tariff Policy, 2016 as extracted below, stipulates that the unbridged revenue gap of earlier years are to be bridged in 7 years :

“8.2.2 The facility of a regulatory asset has been adopted by some Regulatory Commissions in the past to limit tariff impact in a particular year. This should be done only as a very rare exception in case of natural calamity or force majeure conditions and subject to the following:

a. Under business as usual conditions, no creation of Regulatory Assets shall be allowed;

b. Recovery of outstanding Regulatory Assets along with carrying cost of Regulatory Assets should be time bound and within a period not exceeding seven years. The State Commission may specify the trajectory for the same.”

5.232 Accordingly KSEBLtd proposed annual recovery of Rs.806.47 Cr (Rs.5645.26 Cr/7years) from 2018-19 onwards so that the existing approved revenue gap can be wiped off over the next 7 years. The

amount of past approved gap sought to be amortized during the control period is as furnished below:

Table 5.107
Amortisation of Revenue gap proposed by KSEB Ltd

	2018-19	2019-20	2020-21	2021-22
	Rs. Crore	Rs. crore	Rs. crore	Rs. crore
Revenue gap Amortized	806.47	806.47	806.47	806.47

Carrying cost for Revenue gap

5.233 KSEB Ltd has also requested for allowing carrying cost considering the cost of funds actually incurred by the entity for funding the approved revenue gap. The carrying cost for next control period proposed by KSEB Ltd is given in Table below:

Table : 5.108
Carrying cost for the past revenue gaps proposed by KSEB Ltd

No	Particulars	2018-19	2019-20	2020-21	2021-22
		Rs. crore	Rs. crore	Rs. crore	Rs. crore
1	Opening revenue gap (approved)	5645.26	4838.79	4032.33	3225.86
2	Recovery proposed to be amortized	806.47	806.47	806.47	806.47
3	Balance gap	4838.79	4032.33	3225.86	2419.40
4	Av revenue gap	5242.03	4435.56	3629.10	2822.63
5	Av GPF balance for the year	2282.33	2432.33	2582.33	2732.33
6	Balance	2959.70	2003.23	1046.77	90.30
7	Interest rate	9.50	10.00	10.00	10.00
8	Carrying cost	281.17	200.32	104.68	9.03

Comments of stakeholders

5.234 The HT-EHT Association stated that as per the decision of the Commission in the *suomotu* order, carrying cost for any year is not needed as KSEB Ltd has failed to file petition within the timelines set by the Commission. The Association also pointed out the Government Order dated No. G.O.(Ms).No.17/2015 dated 13-5-2015 in which net dues as on 31-12-2014 to be paid to the government was netted off. KSEB Ltd had anticipated receivables from government on account of subsidies and pension liabilities. In return KSEB Ltd was expected to pay

electricity duty collected to the Government. Since the Commission has already allowed KSEB Ltd to recover the pension liabilities through ARR process, the electricity duty collected till 31-12-2014 amounting to Rs.3056.32 crore has been retained by KSEB Ltd for meeting the pension liabilities. Thus, KSEB Ltd is double accounting the money as it has collected the pension liabilities from its consumers and also retained the electricity duty. Hence the Association stated that the Commission should disallow the revenue gap to an extent of Rs.3056.32 crore to balance out the electricity duty collected in the past and not paid to the government.

5.235 KSEB Ltd in its reply stated that the Commission has allowed carrying cost as per truing up orders for 2015-16 and 2016-17. Regarding the electricity duty collected and retained, KSEB Ltd stated that the Association is trying to mislead the Commission by misrepresenting the facts contained in the G.O dated 13-5-2018. According to KSEB Ltd the G.O is relating to netting off of dues between KSEB Ltd and the Government as on 31-10-2013 till the date of vesting and provisional netting off for the period from 1-11-2013 till 31-3-2015. Out of the duty collected till 31-10-2013, subsidy to the tune of Rs.438.21 crore was netted off, allowed Rs.1522.53 crore to be retained by KSEB Ltd and Rs.435.62 crore has been the net duty payable to the Government on the date of re-vesting. (ie., Rs.1958.15 crore). This amount become available with KSEB Ltd since the government allowed retaining duty collected from 1-4-2008 to 31-3-2012 as government's contribution for funding the terminal liabilities. The objector mistook this as for paying pension during the FY 2009 to 2012 which the government never mentioned or ordered.

5.236 In terms of para (vii) of the order, KSEB Ltd is holding Rs.1958.15 crore by way of electricity duty collected and due to GoK and the government has used a part of this surplus electricity duty held by KSEB to enhance its equity to Rs.1946 crore. Subsequently it was decided that the enhanced return on equity due to this enhancement in equity contribution by Government would be utilised for paying the principal portion of bonds to the master trust created for discharging the terminal

liabilities. Thus the amount allowed to be retained by KSEB Ltd was converted by the Government as its equity, the return on which is being utilised to payout the liabilities towards bonds issued to discharge the terminal liabilities. Therefore, no amount is available with KSEB Ltd for appropriation as put forth by the Objector and hence the argument is not correct. Based on this argument, KSEB Ltd requested to reject the arguments of the Association. KSEB Ltd again vide letter dated 28-12-2018 furnished further point wise reply to the objection of the Association. While denying the allegation that electricity duty amounting to Rs.3056.32 crore is retained by KSEB Ltd, it is pointed out that the said amount is the duty collected till 31-12-2014 (Rs.2396.36 cr+659.96cr) and the same can be netted off against purpose duly approved by the Government. Further, the amount indicated in the said GO is estimated collection and not the actual collection. The repayment of bonds to tune of Rs.8144 crore, which is being serviced by KSEB Ltd is not addressed, the same was addressed in the G.O dated 13-5-2015. In short, the Government order dated 28-1-2015 had permitted KSEB Ltd to retain electricity duty collected from 1-4-2008 to 31-3-2012 (Rs.1522 crore) as contribution to funding terminal liability. Government later as per G.O dated 13-5-2015 had ordered that duty amounting to Rs.1946 crore which includes Rs.1522 crore, stands converted to equity. According to KSEB Ltd, the Government has two objectives such as to enable repayment of bonds and to participate in the equity capital in future years. KSEB Ltd further stated that retention of duty does not automatically become available for meeting pension liabilities, the contention of the objector is not sustainable. KSEB Ltd also furnished a letter dated 28-12-2018 which proposed to the government the final netting off of electricity duty and amount receivable by KSEB Ltd from Government based on the audited figures upto 31-3-2015, in compliance of clause 13(ix) and 13(xii) of the G.O dated 13-5-2015.

Analysis and decision of the Commission

5.237 The Commission has considered the proposal of KSEB Ltd in their petition and the objection raised by the stakeholders. Regarding the objection of HT-EHT Association, KSEB Ltd stated that government while executing the transfer scheme, has allowed to retain the electricity duty

amount with KSEB Ltd and the same is converted as equity and the return on this equity is used to redeem the bonds issued to Master Trust. Hence no amount is available to pay off the pension liabilities as mentioned by the Association.

5.238 The Commission has allowed carrying cost for the unbridged revenue gaps in the truing up of accounts for 2015-16 and 2016-17. As per the orders of the Commission, the accumulated revenue gap is Rs.5645.26 crore based on the truing up of accounts for 2016-17.

5.239 In the mean time, KSEB Ltd had submitted petitions for review of truing up orders for 2015-16 and 2016-17. After considering the matters, the Commission has allowed the claim of interest on GPF to the tune of Rs.14.26 crore and interest and financing charges of Rs.33.73 crore on account of adjustments made as part of the transition to Ind AS and fair value adjustments. Thus, the revenue gap as per truing up for 2016-17 had increased by Rs.47.99 crore from Rs.1031.06 crore to Rs. 1079.05 crore. **Thus, the total accumulated revenue gap till 2016-17 is Rs.5693.25 crore (Rs.5645.26 crore+Rs.47.99 crore).**

5.240 The Commission is also approving the interest on GPF for KSEB Ltd, which is one source for meeting the borrowings for the revenue gap. Hence, the carrying cost allowable for the revenue gap would be excluding the GPF amount available with KSEB Ltd. KSEB Ltd has proposed a rate of interest of 9.5% for the first year and 10% for the subsequent years of the Control period. However, the Commission has approved the average interest charges for KSEB Ltd, based on the actual loan portfolio as 9.47%.

5.241 The Commission has amortised an amount of Rs.1040.92 crore in the *suomotu* order on determination of tariff dated 17-4-2017. KSEB Ltd in their petition proposed that the accumulated revenue gap is to be amortised over a period of 7 years and proposed Rs.806.47 crore for each year of the control period. However, after an analysis of the aggregate revenue requirements and the amount of additional revenue expected during the tariff revision, the Commission has decided to amortise the accumulated revenue gap as shown below:

Table : 5.109

Carrying cost on the accumulated revenue gap and its amortisation

	2018-19	2019-20	2020-21	2021-22
	Rs.crore	Rs.crore	Rs.crore	Rs.crore
Opening balance of Revenue Gap	5,693.25	5,293.25	4,293.25	3,443.25
Amortisation amount	400.00	1,000.00	850.00	850.00
Balance amount of Revenue gap	5,293.25	4,293.25	3,443.25	2,593.25
Average Revenue gap for the year	5,493.25	4,793.25	3,868.25	3,018.25
Average GPF amount available for the year	2,282.33	2,432.33	2,582.33	2,732.33
Amount of Revenue gap for which carrying cost is to be provided	3,210.92	2,360.92	1,285.92	285.92
Rate of Carrying cost	9.47%	9.47%	9.47%	9.47%
Amount of Carrying Cost allowed for the year	304.08	223.59	121.78	27.08

Bad debts write off

5.242 KSEB Ltd had included a provision of Rs 15 Crore for write off of bad debts for the next control period. Since the proper details for the same is not furnished. The Commission shall examine its admissibility during the truing up process provided complete details are made available by KSEB Ltd.

Return on Equity

5.243 The ROE for SBU-D proposed at rate of 14% is Rs. 253.50 Cr each year during the Control Period.

Comments of the stakeholders

5.244 The Association has pointed out that in the Order dated 18-11-2015 in Appeal No. 247 of 2014 in Kerala HT EHT Industrial Consumers Association Vs. KSEBL & KSERC, Hon. APTEL had directed the Commission to determine the RoE as per the recommendation of the consultant and as per the report of the consultant, the Commission may allow RoE either on the equity capital allowed earlier by the Commission (Rs.1553 crore) or on the reduced equity capital of Rs. 283.91 crore (Rs. 1553 crore - Rs. 1269 crore). Hence, the Association stated that as per the terms of Tariff Regulations 2018, the Commission may allow 14% return on equity of Rs.283.91 crore i.e. Rs.39.75 crore only.

5.245 In this regard, KSEB Ltd has pointed out that Regulation 34(b) provides that equity of the Government of Kerala as per the transfer scheme

published under Section 131 of the Act will be considered for computation of return on equity. According to KSEB Ltd, the argument of the Association is against the provisions of the Regulations.

Provisions in the Regulation

5.246 As per Regulation 28 (1), RoE is to be allowed at a rate of 14% of the equity capital computed as per Regulation 26 in rupee terms. As per Regulation 34(b), equity as per the transfer scheme is to be considered for providing return on equity.

Analysis and decision of the Commission

5.247 As per the provisions of the Regulation 34, the Commission has accepted the amount of equity as per the provisions of the Transfer Scheme and RoE of 14% is permissible on this amount of equity. Accordingly the share of profit for SBU-D at the rate of 14% is allowed to be included in the ARR. Accordingly Rs.253.50 crore is included in the ARR for each year of the control period.

Table : 5.110

RoE approved for SBU-D for the control period

SBU	Share of Equity Rs.crore	% of Equity Rs.crore	RoE Rs.crore
SBU-D	1810.73	51.75	253.50
KSEB Ltd	3,49,9.05	100.00	489.87

Summary of Gross ARR

5.248 As per the petition, the total Aggregate Revenue Requirement of SBU-D for the control period 2018-19 to 2021-22 is given below:

Table : 5.112

ARR of SBU-D projected by KSEB Ltd for the control period

No	Particulars	2018-19 Rs.crore	2019-20 Rs.crore	2020-21 Rs.crore	2021-22 Rs.crore
1	Cost of Generation	522.94	560.87	657.72	792.44
2	Cost of Power Purchase	7942.01	8672.27	8884.51	9184.58
3	Cost of Intra State Transmission	951.47	1106.58	1394.65	1637.52
4	NLDC /RLDC charges	3	3	3	3
5	O&M Expenses	2241.36	2499.00	2731.69	2956.49
6	I&F charges on long-term loans	304.86	486.34	594.91	688.82
7	Interest on Master Trust Bonds	646.45	612.43	578.40	544.38

No	Particulars	2018-19	2019-20	2020-21	2021-22
		Rs.crore	Rs.crore	Rs.crore	Rs.crore
8	Interest on additional bonds	311.58	311.58	311.58	311.58
9	Interest on Provident Fund	160.19	170.72	181.24	191.77
10	Interest on Security Deposit	199.93	218.49	238.74	258.99
11	Interest on WC and deposits	0.00	0.00	0.00	0.00
12	Carrying Cost on Gap	281.17	200.32	104.68	9.03
13	Depreciation	109.72	143.99	163.89	181.71
14	One Time expenses	29.24			
15	Bad debts written off	15	15	15	15
16	Recovery of previous gap	806.47	806.47	806.47	806.47
17	Total Revenue Expenditure	14525.39	15807.05	16666.49	17581.79
18	Return on Equity	253.50	253.50	253.50	253.50
19	Tax on RoE	0	0	0	0
20	Aggregate Revenue Requirement	14778.89	16060.35	16919.99	17835.29

5.249 Based on the discussions in earlier sections, the approved ARR is as shown below:

Table : 5.113
Approved Gross ARR approved for the control period

	2018-19	2019-20	2020-21	2021-22
	Rs. Crore	Rs. crore	Rs. crore	Rs. Crore
Cost of Generation	481.41	505.93	586.34	639.86
Cost of Power Purchase	7,847.77	8,613.94	8,797.94	8,964.44
Cost of Intra State Transmission	874.60	983.69	1,162.47	1,283.53
NLDC /RLDC charges	3.00	3.00	3.00	3.00
O&M Expenses	2,226.08	2,458.95	2,658.75	2,848.95
Interest on long-term loans	149.90	222.94	281.40	329.80
Interest on Master Trust Bonds	646.45	612.43	578.40	544.38
GPF Interest	152.55	162.58	172.60	182.63
Interest on WC	-	-	-	-
Charges for proposed addition to Master Trust	167.10	167.10	167.10	167.10
Interest on Security Deposit	175.33	199.93	218.49	238.74
Carrying Cost on Gap	304.08	223.59	121.78	27.08
Depreciation	72.24	93.47	121.53	154.91
One Time Expenses CMDRF	-	-	-	-
Bad debts written off	-	-	-	-
Recovery of previous gap	400.00	1,000.00	850.00	850.00
Total Revenue Expenditure	13,500.52	15,247.53	15,719.81	16,234.41
Return on Equity	253.50	253.50	253.50	253.50
Tax on RoE	-	-	-	-
Aggregate Revenue Requirement	13,754.02	15,501.03	15,973.31	16,487.91

REVENUE FROM TARIFF AND NON TARIFF INCOME

(a) Revenue from sale of power

5.250 The revenue from sale of power was estimated by KSEB Ltd based on the latest tariff order of the Commission dated 17-4-2018 and the recategorization effected as per the order. The actual revenue from sale of power for the year 2017-18 as per the accounts is as shown below:

Table : 5.114
Revenue from sale of power for 2017-18

Category	Consumer Strength (31-3-18)		Energy sale (17-18)		Revenue (17-18)	
	(Nos)	%	(MU)	%	(Rs. Cr)	% total
Domestic	9562253	77.89	10574.84	50.64	4316.98	35.96
Commercial	2081567	16.96	3063.48	14.67	2876.69	23.96
Industrial	136964	1.12	1112.33	5.33	809.19	6.74
Agriculture	462763	3.77	346.03	1.66	63.29	0.53
Public Lighting	27131	0.22	373.48	1.79	169.85	1.41
HT & EHT	5620	0.05	4535.98	21.72	3225.37	26.86
Railway Traction	12	0.00	265.80	1.27	160.01	1.33
Bulk Supply	11	0.00	608.77	2.92	384.59	3.20
Total	12276321	100	20880.70	100.00	12005.97	100.00
Misc expenses					0.91	
Sale outside State			117.51		51.18	
Total	12276321		20998.21		12058.06	

Revenue from sale of power at existing tariff for the control period

5.251 The estimate of the revenue from sale of power for the control period has been arrived at by taking into consideration the re-categorization approved by the Commission vide tariff order dated 17.04.2017.

5.252 The revenue from sale of power estimated for the control period by KSEB Ltd is as shown below:

Table :5.115
Revenue from sale of power

	2018-19		2019-20		2020-21		2021-22	
	Sales	Revenue	Sales	Revenue	Sales	Revenue	Sales	Revenue
Domestic	10,861.42	4,485.19	11,444.92	4,747.70	11,906.40	4,951.42	12,386.48	5,163.65
Commercial	3,168.22	2,931.98	3,448.95	3,178.93	3,660.72	3,374.03	3,885.50	3,579.36
Industrial	1,100.98	784.29	1,134.69	804.74	1,146.03	812.76	1,157.49	820.93
Agriculture	350.01	83.86	368.64	88.06	377.80	90.31	387.18	92.60
Public lighting	382.85	177.06	406.48	187.93	422.93	195.51	440.06	203.38
HT-EHT	4,917.25	3,448.96	5,239.93	3,673.61	5,473.40	3,849.30	5,718.56	4,034.25
Railway traction	273.51	167.89	293.05	179.27	307.70	188.24	323.09	197.65
Bulk Supply	593.03	370.59	632.99	394.43	662.29	412.60	693.10	431.52
Total	21,647.27	12,449.82	22,969.65	13,254.67	23,957.27	13,874.17	24,991.46	14,523.34

Analysis and decision of the Commission

5.253 The Commission has examined the revenue projections of KSEB Ltd. The revenue for the control period is increasing by about 5.3% over the control period. The average realisation from different consumer categories is as shown below:

Table : 5.116
Average realisation projected for the control period

	2017-18	2018-19	2019-20	2020-21	2021-22
	Rs./kWh	Rs./kWh	Rs./kWh	Rs./kWh	Rs./kWh
Domestic	4.08	4.13	4.15	4.16	4.17
Commercial	9.39	9.25	9.22	9.22	9.21
Industrial	7.27	7.12	7.09	7.09	7.09
Agriculture	1.83	2.40	2.39	2.39	2.39
Public lighting	4.55	4.62	4.62	4.62	4.62
HT-EHT	7.11	7.01	7.01	7.03	7.05
Railway traction	6.02	6.14	6.12	6.12	6.12
Bulk Supply	6.32	6.25	6.23	6.23	6.23
Total	5.75	5.75	5.77	5.79	5.81

5.254 The Commission notes that there is increase in the average realisation over the control period. KSEB Ltd has furnished the slabwise consumption for different consumer categories and the revenue is estimated based on slabwise consumption and existing tariff. Accordingly, the Commission approves the revenue projection at the existing tariff for the control period as furnished by KSEB Ltd.

Reduction in revenue from sale of power estimated due to providing Power factor incentive

5.255 KSEB Ltd in their petition stated that the power factor incentive for the year 2017-18 was Rs 90.21 Croreas against Rs 41.72 Crore for 2016-17. Till 2016-17, the power factor incentive is accounted in the revenue from Tariff itself. From 2017-18 onward the power factor incentive is accounted in Administration and General Expenses. Hence the total revenue from Tariff is the net of total revenue calculated in table above and power factor incentive. KSEB Ltd has projected the power factor incentive based on the revenue realised from HT-EHT consumers. In 2017-18, the sales to HT-EHT except railways was 4535.98MU and power factor incentive was 90.21 crore or Rs.0.1989/kWh. Accordingly the power factor incentive was projected by KSEB Ltd as given below:

Table 5.117

Power factor incentive projected by KSEB Ltd

Energy sales to HT & EHT category except bulk licensees(MU)	Per unit rate for 2017-18 (Rs/unit)	Total PFI estimated for next control period(Rs.Cr.)
4917.26	0.1983	97.79
5239.94	0.1983	104.21
5473.39	0.1983	108.85
5718.55	0.1983	113.73

5.256 As shown above, the power factor incentive is about 20 paise per unit for HT-EHT consumers. The power factor incentive for the next financial year based on previous year trend and the net revenue for the next control period is estimated as follows:

Table : 5.118

Revenue from sale of power net of incentive for power factor

Item	2018-19	2019-20	2010-21	2021-22
	Rs.crore	Rs.crore	Rs.crore	Rs.crore
Revenue	12449.82	13254.67	13874.14	14523.36
Power factor incentive	97.79	104.21	108.85	113.73
Net Revenue from Tariff	12352.03	13150.46	13765.29	14409.63

Analysis and decision of the Commission

5.257 The Commission notes the estimation of power factor incentive by KSEB Ltd. As per the incentive given in 2017-18, the average incentive is works out to 20 paise per unit. KSEB Ltd has deducted the same from the revenue from sale of power.

5.258 Generally power factor incentive and penalties are included as part of the non-tariff income and net amount is included in the non-Tariff income. KSEB Ltd has proposed to include the same under A&G expenses, which is not acceptable to the Commission. The Commission after examining the details and considering the regulations, have refixed the power factor incentive. Accordingly, the incentive on power factor as shown below:

Table : 5.119

Revenue from sale of power net of incentive for power factor approved

Item	2018-19	2019-20	2010-21	2021-22
	Rs.crore	Rs.crore	Rs.crore	Rs.crore
Revenue	12,449.82	13,254.67	13,874.14	14,523.36
Power factor incentive	97.79	44.99	32.50	33.95
Net Revenue from Tariff	12,352.03	13,209.68	13,841.64	14,489.41

5.259 As mentioned above, the Commission has re-estimated as the incentive for power factor at Rs.97.79 crore for 2018-19. Since the revised rate would be effective only in 2019-20, the PF incentive for 2018-19 would be as estimated by KSEB Ltd at the old rates ie., Rs. 97.79 crore. Since in 2019-20, new rate will be applicable for only part of the year, the amount of incentive estimated for 2019-20 is Rs.44.99 crore.

Additional income by way of Fuel price Adjustment Charges approved by the Commission

5.260 The Commission vide order dated 13.08.2018 has allowed an amount of Rs 81.65 Crore as fuel surcharge @ 15 paise per unit from all consumers except domestic consumers with connected load of and below 500 W and monthly consumption of and below 20 units. Thus an amount of Rs 81.65 Crore as fuel surcharge during the year 2018-19 is accounted as revenue for the year 2018-19.

Revenue from external sales

5.261 As per the petition, there will be surplus power during the control period after meeting the internal demand. According to KSEB Ltd, already agreements have been entered in to for this year so far, i.e., sale agreement with BSHPCCL through DEEP portal for sale of 50 MW in June 2018 at Rs. 5.95 per unit and 100MW from August 2018 to September 2018 during peak periods at Rs. 6.00 per unit and 100 MW during October 2018 at Rs. 6.5 per unit during off peak period. Further, arrangements are made with CSPDCL for sale of power of 200 MW of power from 00.00 hours to 7.00 hours during October @ Rs 4.09 per unit and 200 MW of power from 6.00 hours to 10.00 hours @ Rs 5.16 per unit and 149 MW of power from 10.00 hrs to 13.00 hrs @ Rs 4.37 per unit during November 2018. In addition, power sales through day ahead markets are also proposed. The energy sale already made and expected during the control period is as shown below:

Table : 5.120
Revenue from External sales as per the petition

No	Financial Year	Sale (MU)	Unit Rate (Rs)	Revenue (Rs Cr)
1	2018-19 April-September (Actual)	623.53	3.615	225.42
2	2018-19 October-March (Estimate)	975.1	5.00	487.548
3	2019-20	1925.48	5.00	962.74
4	2020-21	1036.37	5.00	518.19
5	2021-22	624.75	5.00	312.38

Analysis and decision of the Commission

5.262 As seen from KSEB Ltd estimation of the energy availability, there is surplus energy with KSEB Ltd which is proposed to be sold at Rs.5/kWh. As mentioned in the previous sections, surplus energy as per the estimates of the Commission and the revenue expected at the rate of Rs.5/kWh is as shown below:

Table : 5.121
Revenue from external sales approved

	Unit	2018-19	2019-20	2020-21	2021-22
Surplus energy for external sales	MU	1,513.27	1,885.40	1,231.36	811.21
Rate	Rs./kWh	5.00	5.00	5.00	5.00
Total Revenue expected	Rs.Crore	756.64	942.70	615.68	405.61

Total estimate of revenue from sale of power during the Control period

5.263 The total net revenue estimated for the next control period is given in the table below

Table : 5.122
Revenue from sale of power approved for the control period

Item	As per Petition				As per the Commission			
	2018-19	2019-20	2010-21	2021-22	2018-19	2019-20	2010-21	2021-22
	Rs.Crore	Rs.Crore	Rs.Crore	Rs.Crore	Rs.Crore	Rs.Crore	Rs.Crore	Rs.Crore
Net Revenue from Sale of power	12,352.03	13,150.46	13,765.29	14,409.63	12,352.03	13,209.68	13,841.64	14,489.41
Fuel Surcharge	81.65				81.65			
Revenue from external sales	712.96	962.74	518.19	312.38	756.64	942.70	615.68	405.61
Total revenue	13,146.64	14,113.20	14,283.48	14,722.01	13,190.32	14,152.38	14,457.33	14,895.02

Other income and Non-Tariff income

Non-Tariff Income

5.264 The non tariff income of regulated business includes income other than those obtained from tariff such as income from wheeling, receipts on

account of cross-subsidy surcharge and additional surcharge on charges of wheeling, reactive energy charges, meter rent, rental from electric plants or lines, testing fee, late payment surcharge, prompt payment incentives, recovery from theft and pilferage of energy or such other charges.

Table : 5.123

Non-Tariff Income projected by KSEB Ltd for the control period

No	Particulars	2018-19	2019-20	2020-21	2021-22
		Rs. Crore	Rs. crore	Rs. crore	Rs. crore
1	Income from wheeling	0.10	0.10	0.10	0.10
2	Reactive energy charges	50.00	50.00	50.00	50.00
3	Receipts : cross-subsidy surcharge				
4	Receipts on additional surcharge				
5	Meter Rent	94.77	96.37	97.97	99.57
6	Rental from Electrical plants etc				
7	Testing Fee				
8	Late payment from surcharge				
9	Prompt payment incentives				
10	Recovery on Theft and Pilferage	6.20	6.36	6.47	6.58
11	Power factor Penalty	22.68	23.28	23.69	24.08
	Total Non Tariff Income (Rs Cr)	173.75	176.11	178.23	180.33

Analysis of the Commission

5.265 The Commission has analysed the projections of KSEB Ltd on the non-tariff income. The Commission also obtained the details of Other income/ non-tariff income for the year 2017-18. The comparison with the same is given below:

Table : 5.124

Non-Tariff income for previous years

Non-Tariff income	2017-18	2018-19	2019-20	2020-21	2021-22
	Rs. Crore	Rs. crore	Rs. Crore	Rs. crore	Rs. crore
Income from wheeling	0.10	0.10	0.10	0.10	0.10
Reactive energy charges	55.43	50.00	50.00	50.00	50.00
Receipts : cross-subsidy surcharge					
Receipts on additional surcharge					
Meter Rent	93.17	94.77	96.37	97.97	99.57
Rental from Electrical plants etc					
Testing Fee					
Late payment from surcharge					

Non-Tariff income	2017-18	2018-19	2019-20	2020-21	2021-22
	Rs. Crore	Rs. crore	Rs. Crore	Rs. crore	Rs. crore
Prompt payment incentives					
Recovery on Theft and Pilferage	6.05	6.20	6.36	6.47	6.58
Power factor Penalty	22.15	22.68	23.28	23.69	24.08
Total Non Tariff Income	176.90	173.75	176.11	178.23	180.33
Change over previous years		-3.15	2.36	2.12	2.10
Percentage change		-1.8%	1.4%	1.2%	1.2%

5.266 As can be seen from the above, table, the average increase projected for the control period is about 1.3%, which is reasonable considering the previous year values. The reduction over the previous year ie., 2017-18 is mainly on account lesser projections relating to reactive energy charges, which is assumed to be at Rs.50 crore for the control period. The Commission notes that the projections on major items such as meter rent, power factor penalty are reasonable. The Commission also notes that, income from cross subsidy surcharge/open access charges etc., have not been included in the projections. These will be appreciably at the time of truing up for the respective years of the control period. With these comments, the Commission approves the projections for non-tariff income for the control period.

Other income

5.267 The other income of SBU-D includes income from sale of scrap, interest on advances made to contractors, interest on staff loans and advances, rent from buildings etc. The projection of KSEB Ltd on other income of SBU-D for the control period 2018-19 to 2021-22 as per the petition is given below:

Table : 5.125
Other income for the control period

No	Other Income	2018-19	2019-20	2020-21	2021-22
		Rs. Crore	Rs. crore	Rs. crore	Rs. crore
1	Interest on staff loans etc	0.12	0.10	0.09	0.07
2	Income from statutory investments				
3	Income from rent of land etc	3.53	4.06	4.59	5.12
4	Income from sale of scrap	26.82	22.00	24.75	27.51
5	Income from staff welfare activities				
6	Rental from staff quarters	0.23	0.25	0.28	0.31

No	Other Income	2018-19	2019-20	2020-21	2021-22
		Rs. Crore	Rs. crore	Rs. crore	Rs. crore
7	Excess found on physical verification	0.02	0.02	0.02	0.03
8	Interest on investments Etc	2.78	2.78	2.78	2.78
9	Interest on advances suppliers etc	13.67	14.52	15.38	16.23
10	Income from hire charges	0.00	0.00	0.00	0.00
11	Income by ROW for FO Cables etc	37.44	43.05	48.65	54.24
12	Income from advertisements, etc.	0.00	0.00	0.00	0.00
13	Miscellaneous receipts	110.39	118.66	126.33	134.03
14	Commission (Ele duty collection)	8.29	9.54	10.78	12.02
15	Interest on belated payment on bills	19.51	20.01	20.35	20.69
16	Rebate from CGS	135.00	137.00	139.00	141.00
	Total Other Income	357.80	371.99	393.00	414.03

Analysis and decision of the Commission

5.268 The average rate of growth of other income for the control period is about 5%. The major items include, rebate from CGS, miscellaneous receipts, interest on advance to suppliers, income from belated payment of bills, and income from sale of scrap. KSEB Ltd has also included a new item viz, income from right of way for fibre optical cables, which is Rs.37.44 crore for the year 2018-19 and is expected to increase by about 13% during the control period. KSEB Ltd has not furnished details on this item.

5.269 Since the overall increase of about 5%, is comparable to that of the previous years, the Commission accepts the projections of KSEB Ltd, ie., Rs. 357.80 crore in 2018-19 and Rs.414.03 crore in 2021-22 on other income for the control period.

Net Aggregate revenue requirements

5.270 As per the petition, the Aggregate Revenue Requirements for the control period projected by KSEB Ltd is as shown below:

Table : 5.126

Net ARR for the control period projected by KSEB Ltd

No	Particulars	2018-19	2019-20	2020-21	2021-22
		Rs.crore	Rs.crore	Rs.crore	Rs.crore
1	Gross ARR	14778.89	16060.35	16919.99	17835.29
2	Less Other Income	357.80	371.99	393.00	414.03
3	Less Non Tariff Income	173.75	176.11	178.23	180.33
4	Net ARR	14247.34	15512.25	16348.76	17240.93

5.271 The net Revenue Requirements approved by the Commission, to be pass on the consumers through tariff, for the control period is as shown below:

Table : 5.127
Net Revenue Requirements approved for the control period

	2018-19	2019-20	2020-21	2021-22
	Rs.crore	Rs.crore	Rs.crore	Rs.crore
Aggregate Revenue Requirement	13,754.02	15,501.03	15,973.31	16,487.91
Less Other/Non Tariff Income	531.55	548.10	571.23	594.36
Net ARR	13,222.47	14,952.93	15,402.08	15,893.55

Revenue gap for the control period

5.272 Based on the above, the revenue gap for the control period is arrived at as given below:

Table : 5.128
Estimated Revenue gap approve for the control period

Particulars	As per Petition				As approved			
	2018-19	2019-20	2020-21	2021-22	2018-19	2019-20	2020-21	2021-22
	(Rs.Cr)	(Rs.Cr)	(Rs.Cr)	(Rs.Cr)	(Rs.Cr)	(Rs.Cr)	(Rs.Cr)	(Rs.Cr)
Total ARR	14,778.89	16,006.35	16,919.99	17,835.29	13,754.02	15,501.03	15,973.31	16,487.91
Total Revenue								
(a) Revenue from sale of Power	12,449.82	13,254.67	13,874.19	14,523.34	12,449.82	13,254.67	13,874.17	14,523.34
(b) Fuel surcharge	81.65				81.65			
(c) Revenue from surplus sales	712.96	962.74	518.19	312.38	756.64	942.70	615.68	405.61
(d) Non tariff Income	173.75	176.11	178.23	180.33	173.75	176.11	178.23	180.33
(e) Other Income	357.80	371.99	393.00	414.03	357.80	371.99	393.00	414.03
(f) Less Power factor Incentive	-97.79	-104.21	-108.85	-113.73	-97.79	-44.99	-32.50	-33.95
Total Reveue	13,678.19	14,661.30	14,854.76	15,316.35	13,721.87	14,700.48	15,028.58	15,489.36
Revenue gap	-1,100.70	-1,345.05	-2,065.23	-2,518.94	-32.15	-800.55	-944.73	-998.55

Summary of the Approved ARR&ERC for the Control period

5.273 As narrated in the previous sections, the approved summary of the ARR&ERC for the Control period is as shown below:

Table : 5.129
Summary of Approved ARR&ERC for the control period

Item	2018-19	2019-20	2020-21	2021-22
	Rs. Crore	Rs. Crore	Rs. Crore	Rs. Crore
Cost of Generation	481.41	505.93	586.34	639.86
Cost of Power Purchase	7,847.77	8,613.94	8,797.94	8,964.44
Cost of Intra State Transmission	874.60	983.69	1,162.47	1,283.53
NLDC /RLDC charges	3.00	3.00	3.00	3.00
O&M Expenses	2,226.08	2,458.95	2,658.75	2,848.95
Interest on long-term loans	149.90	222.94	281.40	329.80
Interest on Master Trust Bonds	646.45	612.43	578.40	544.38
Interest on GPF	152.55	162.58	172.60	182.63
Interest on Working capital	-	-	-	-
Interest on Additional Bond to Trust	167.10	167.10	167.10	167.10
Interest on Security Deposit	175.33	199.93	218.49	238.74
Carrying Cost on Revenue Gap	304.08	223.59	121.78	27.08
Depreciation	72.24	93.47	121.53	154.91
Recovery of previous revenue gap	400.00	1,000.00	850.00	850.00
Return on Equity	253.50	253.50	253.50	253.50
Gross Aggregate Revenue Requirement	13,754.02	15,501.03	15,973.31	16,487.91
Less Non Tariff/Other Income	531.55	548.10	571.23	594.36
Net Aggregate Revenue Requirement	13,222.47	14,952.93	15,402.08	15,893.55
Revenue	12,449.82	13,254.67	13,874.14	14,523.36
Less Power factor incentive	97.79	44.99	32.50	33.95
Net Revenue from Tariff	12,352.03	13,209.68	13,841.64	14,489.41
Fuel Surcharge	81.65	-	-	-
Revenue from external sales	756.64	942.70	615.68	405.61
Total revenue	13,190.32	14,152.38	14,457.33	14,895.02
Revenue Gap	-32.15	-800.56	-944.75	-998.53

Average cost of supply to be realised from Tariff

5.274 The net ARR is the amount to be realised from tariff. However, there is external sales expected in the control period as there will surplus energy. Thus the amount of net ARR after accounting the revenue from external sales is the amount to be realised from tariff for sale to the consumers. Considering the sale approved for the control period, the average cost of supply on which tariff is to be determined is as shown below:

Table : 5.130

Average Cost of supply to be realised from consumers

Average cost of Supply	Unit	2018-19	2019-20	2020-21	2021-22
Net ARR excluding revenue from external sales, non tariff income & Other income	Rs.crore	12,465.83	14,010.23	14,786.40	15,487.94
Energy sales	MU	21,647.29	22,969.67	23,957.26	24,991.44
Average Cost of Supply to be realised	Rs/kWh	5.76	6.10	6.17	6.20
Revenue gap/unit	Rs./kWh	-0.01	-0.35	-0.39	-0.40

CHAPTER - 6

TARIFF ORDER FOR THE YEARS 2018-19 TO 2021-22

6.1 On 31.10.2018, Kerala State Electricity Board Limited (KSEB Ltd), had submitted the petition for Approval of Aggregate Revenue Requirement (ARR) along with the proposal for revision of retail tariff for supplying electricity to the consumers, transmission charges, wheeling charges, cross subsidy surcharge applicable to open access consumers, power factor incentive and low voltage surcharge for the four year MYT period from 2018-19 to 2021-22. The summary of the tariff revision proposed by KSEB Ltd is given below.

Tariff Revision Proposals of KSEB Ltd:

(1) LT I Domestic :

Slab (units)	Energy Charge (Rs/unit)			Fixed charges (Rs/consumer/month)					
	Present Tariff	Proposed Tariff		Present Tariff	Single Phase		Present Tariff	Three Phase	
		2018-19	2020-21		2018-19	2020-21		2018-19	2020-21
NPG	-	-	-	-	-	-	-	-	-
0 to 40 (BPL)	1.50	1.50	1.50	-	-	-	-	-	-
0 to 50	2.90	3.50	3.45	30	35	50	80	90	120
51-100	3.40	4.20	4.70	30	35	50	80	90	120
101-150	4.50	5.20	5.45	30	35	50	80	90	120
151-200	6.10	5.80	5.85	30	75	100	80	130	160
201-250	7.30	6.50	6.50	30	75	100	80	130	160
0-300	5.50	5.95	6.10	30	75	100	80	130	160
0-350	6.20	6.30	6.35	30	75	100	80	130	160
0-400	6.50	6.45	6.45	30	75	100	80	130	160
0-500	6.70	6.65	6.70	30	75	100	80	130	160
>500	7.50	6.90	6.90	30	75	100	80	130	160

(2) LT II Colonies

Energy charge (Rs/unit)			Fixed charge (Rs/consumer/month)					
Present Tariff	KSEB proposal		Present Tariff	KSEB proposal		Present Tariff	KSEB proposal	
	2018-19	2020-21		2018-19	2020-21		2018-19	2020-21
				Single Phase			Three Phase	
**	No change		30	70	90	30	120	140
** As applicable to the respective industry or plantation or organization which maintains the colony								

(3) LT III A Temporary Connections

Higher of (a) OR (b)			
	Present	2018-19	2020-21
(a)	Energy charge(Rs/unit)		
	14	15	15
(b)	Daily minimum applicable rate (Rs/kW or part)		
	140	175	175

(4) LT III (B) Temporary extensions –No revision proposed

(5) LT IV A & B Industry

Category	Slab	Existing Tariff		(2018-19)		(2020-21)	
		Energy Charge Rs/kWh	Fixed charge Rs/kW or kVA	Energy Charge Rs/kWh	Fixed charge Rs/kW or kVA	Energy Charge Rs/kWh	Fixed charge Rs/kW or kVA
LT IV A	<10 kW	5.5	Rs 100/ consumer/ month	4.9	Rs 200/ consumer/ month	4.4	Rs 250/ consumer/ month
	10 - 20 kW	5.5	75	4.9	100	4.4	120
	>20 kW	5.5	150	4.9	250	4.4	290
LT IV B	<10 kW	6	Rs 100/ consumer/ month	5.5	Rs 200/ consumer/ month	4.9	Rs 250/ consumer/ month
	10 - 20 kW	6	60	5.5	140	4.9	200
	>20 kW	6	125	5.5	280	4.9	340

(6) LT V (A) & V (B) Agriculture

Category	Slab	Existing Tariff		(2018-19)		(2020-21)	
		Energy Charge Rs/kWh	Fixed charge Rs/kW or kVA	Energy Charge Rs/kWh	Fixed charge Rs/kW or kVA	Energy Charge Rs/kWh	Fixed charge Rs/kW or kVA
LT V A		2.00	8.00	2.40	10.00	2.40	15.00
LT V B		2.50	8.00	2.70	10.00	2.70	15.00

(7) LT- VI(A) to LT- VI (E) General

Category	Slab	Existing Tariff		2018-19		2020-21	
		Energy Charge Rs/kWh	Fixed charge Rs/kW or kVA	Energy Charge Rs/kWh	Fixed charge Rs/kW or kVA	Energy Charge Rs/kWh	Fixed charge Rs/kW or kVA
LT VI A	< 500 units	5.50	50	4.75	110	4.60	135
	> 500	6.30	50	5.35	110	5.00	135
LT VI B	< 500 units	6.30	70	5.15	140	4.90	160

Category	Slab	Existing Tariff		2018-19		2020-21		
		Energy Charge Rs/kWh	Fixed charge Rs/kW or kVA	Energy Charge Rs/kWh	Fixed charge Rs/kW or kVA	Energy Charge Rs/kWh	Fixed charge Rs/kW or kVA	
	> 500	7.00	70	5.75	140	5.50	160	
LT VI C	< 500 units	7.00	180	5.80	310	5.80	310	
	> 500	8.50	180	6.40	310	6.40	310	
LT VI D	< 500 units	1.80	0	2.00	0	2.10	0	
LT VI E	Energy charge							
	1 to 50	3.10		3.10		3.10		
	51 to 100	4.10		4.70		4.70		
	101 to 200	4.80		4.90		4.90		
	Above 200	6.50		6.50		6.50		
	Fixed charges							
	Single Phase			30		35		40
	Three Phase			80		90		100

(8) LT VI F & G General

		Present		2018-19	2020-21
LT VI F & G	Connected load slab	Fixed charge, Rs/ kW or part /month			
	0 to 5 kW	LT VI (F)	LT VI (G)	100	110
	5 to 10 kW	Single Phase: Rs.60/kW/ Month	Single Phase: Rs.60/kW/ Month	180	210
	10 to 20 kW	Three Phase: Rs.120/kW/ Month	Three Phase: Rs.180/kW/ Month	430	440
	Above 20 kW			600	610
	Consumption Slab	Energy Charge (Rs/kWh)			
	(Per month)				
LT VI F	0 to 100	5.80		4.00	3.80
	0 to 200	6.50		4.70	4.60
	0 to 300	7.20		5.45	5.00
	0 to 500	7.80		6.35	5.80
	> 500	9.00		6.70	6.60
LT VI G	0 to 500	5.50		2.80	2.50
	0 to 1000	6.50		3.20	3.10
	0 to 2000	7.50		3.70	3.60
	>2000	8.50		4.30	4.20

(9) LT VII A, B, C Commercial

		Present	2018-19	2020-21
	Connected load slab	Fixed charge, Rs/ kW or part /month		
LT VII A, B, C	0 to 5 kW	LTVII A Single phase : Rs.60/kW/month	100	110
	5 to 10 kW	Three phase : Rs.120/kW/month	180	210
	10 to 20 kW	LT VII B : Rs.40/kW/month	430	440
	Above 20 kW	LTVII C : Rs.90/kW/month	600	610
	Monthly consumption slab	Energy Charge (Rs/kWh)		
LT VII A	0 to 100	6.00	4.00	3.75
	0 to 200	6.70	4.80	4.50
	0 to 300	7.40	5.30	4.90
	0 to 500	8.00	5.70	5.55
	> 500	9.30	6.65	6.50
LT VII B	0 to 100	5.00	3.20	3.10
	0 to 200	5.70	4.60	4.30
	0 to 300	6.30	5.00	4.80
LT VII C	0 to 1000	5.90	2.10	1.90
	above 1000	7.30	2.10	1.90

(10) (a) LT VIII (A) Un-metered Street Lights

Type of lamp	Watts	Existing Tariff			2018-19			2020-21		
		Rs/lamp/month			Rs/lamp/month			Rs/lamp/month		
		Burning hours per day			Burning hours per day			Burning hours per day		
		4	6	12	4	6	12	4	6	12
Ordinary	40	22	33	66	25	38	76	53	79	159
Ordinary	60	33	50	102	39	59	117	84	126	252
Ordinary	100	55	84	167	64	96	192	135	203	406
Fluo tube	40	22	33	66	25	38	76	53	79	159
Fluo tube	80	44	66	134	51	77	154	109	163	326
Floodlight	1000	559	838	1677	643	964	1929	1364	2046	4092
MV lamp	80	51	70	143	55	82	164	124	185	371
MV lamp	125	75	112	222	85	128	255	191	286	573
MV lamp	160	96	143	286	110	164	329	248	372	744
MV lamp	250	149	222	447	171	257	514	388	581	1163
MV lamp	400	239	356	714	274	411	821	618	927	1854
SV lamp	70	42	64	125	48	72	144	108	163	325
SV lamp	80	48	70	143	55	82	164	124	185	371
SV lamp	100	59	89	178	68	102	205	154	231	462
SV lamp	125	75	112	222	85	128	255	191	286	573
SV lamp	150	89	134	267	102	154	307	230	346	691
SV lamp	250	149	222	447	171	257	514	388	581	1163
CFL	11	5	8	16	6	9	18	11	17	33

CFL	15	7	11	22	8	13	25	15	23	46
CFL	18	9	13	26	10	15	30	18	27	55
CFL	22	11	16	32	12	18	37	23	34	68
CFL	30	15	22	44	17	25	51	32	47	95
CFL	36	17	26	53	20	30	61	38	57	114
CFL	44	21	32	64	25	37	74	45	68	136
CFL	72	35	53	105	40	60	121	74	112	223
CFL	144	70	105	210	81	121	242	149	223	446
LED	12	3	4	9	5	7	14	6	9	17
LED	18	4	7	14	7	11	21	9	13	27
LED	20	5	7	15	8	11	23	9	14	28
LED	24	6	9	20	10	15	30	14	21	41
LED	30	7	11	25	13	19	38	17	26	52
LED	40	10	15	30	15	23	45	19	28	56
LED	45	11	16	35	18	26	53	23	34	68
MV lamp *	1200			2160			2808	2409	3614	7228
SV lamp *	250			450			585	502	753	1506
<i>*On Semi High Mast burnt for only 12 hours per day</i>										

(b) LT VIII B Metered Street lights:

LT VIII B Metered street lights		Present Tariff	2018-19	2019-20
	Energy charge (Rs./kWh)	3.90	4.50	4.90
	Fixed charge (Rs./meter/month)	40	60	80

(11) LT IX Display lightings and hoardings: No revision proposed

(12) HT Category

	Item	Present tariff	(2018-19	2020-21
HT-I (A)	Demand Charge (Rs/kVA)	300	600	750
	Energy Charge(Rs/unit)	5.50	4.80	4.80
HT -I (B)	Demand Charge (Rs/kVA)	300	450	550
	Energy Charge(Rs/unit)	5.80	5.00	4.75
HT II(A)	Demand Charge (Rs/kVA)	350	800	850
	Energy Charge(Rs/unit)	5.40	4.20	4.20
HT II(B)	Demand Charge (Rs/kVA)	400	800	800
	Energy Charge(Rs/unit)			
	upto 30000 units	6.20	4.80	4.80
	above 30000 units	7.20	5.90	5.90
HT III(A)	Demand Charge (Rs/kVA)	170	180	200
	Energy Charge(Rs/unit)	2.80	2.90	3.10
HT III (B)	Demand Charge (Rs/kVA)	170	180	200
	Energy Charge(Rs/unit)	3.30	3.40	3.60
HT IV	Demand Charge (Rs/kVA)	400	745	745
	Energy Charge(Rs/unit)			
	upto 30000 units	6.30	5.00	5.00
	above 30000 units	7.30	5.50	5.50
HT-V	Demand Charge (Rs/kVA))	350	475	500
	Energy Charge(Rs/unit)	5.50	4.40	4.50

(13) EHT Category

	Item	Present tariff	Proposed Tariff (2018-19)	Proposed Tariff (2020-21)
EHT 66 kV	Demand Charge (Rs/kVA)	300	850	1000
	Energy Charge(Rs/unit)	5.20	4.50	4.50
EHT 110 kV	Demand Charge (Rs/kVA)	290	825	950
	Energy Charge(Rs/unit)	5.10	4.40	4.40
EHT 220kV	Demand Charge (Rs/kVA)	280	700	850
	Energy Charge(Rs/unit)	4.70	3.80	3.80
EHT Commercial	Demand Charge (Rs/kVA)	400	850	850
	Energy Charge(Rs/unit)			
	Upto 60,000 units	6.10	4.60	4.60
	above 60,000 units	7.10	4.90	4.90
EHT General-A	Demand Charge (Rs/kVA)	300	850	950
	Energy Charge(Rs/unit)	5.00	4.70	4.50
EHT General-B	Demand Charge (Rs/kVA)	370	850	950
	Energy Charge(Rs/unit)			
	Upto 60,000 units	5.80	4.30	4.30
	above 60000 units	6.80	4.80	4.45
Railway 110 kV	Demand Charge (Rs/kVA)	250	650	750
	Energy Charge (Rs/unit)	5.10	4.30	4.30
KMRL 110 kV	Demand Charge (Rs/kVA)	250	650	750
	Energy Charge (Rs/unit)	4.80	3.80	3.80

(14) Bulk Supply Tariff to other licensees

Licensee	Existing tariff		Proposed tariff (2018-19)		Proposed tariff (2020-21)	
	Energy charges (Rs/Unit)	Demand Charges (Rs./kVA)	Energy charges (Rs/Unit)	Demand Charges (Rs./kVA)	Energy charges (Rs/Unit)	Demand Charges (Rs./kVA)
KPUPL	5.60	300	5.10	800	5.10	900
CSEZ	5.40	300	5.00	800	5.00	900
RPL	4.55	300	3.90	800	3.90	900
Technopark	5.20	300	4.80	800	4.80	900
CPT	6.00	300	5.60	800	5.60	900
TSR Corp	5.85	300	5.10	800	5.10	900
Info Park	5.50	300	4.90	800	4.90	900
KDHPCL	4.60	300	4.00	850	4.00	950
MES	5.60	350	5.00	850	5.00	950
Smartcity	5.50	300	4.30	850	4.30	950
Karnataka	5.60	350	4.50	850	4.50	950

(15) Transmission/SLDC/Wheeling charges

Item	2018-19	2020-21
Transmission Charges (Rs./unit)	0.40	0.53
-do - STOA (Rs/MW/day)	8958	12102
-do- (Rs/MW/month) - LTA and MTOA	272471	368095
SLDC charges for LTA (Rs/MW/month)	5111	5791
-do- STOA (Rs/MW/day)	168	190
Wheeling charges (Rs/unit)	0.45	0.49

(16) Proposed Cross Subsidy Surcharge (Rs/Unit)

Category	(2018-19)	(2020-21)	category	(2018-19)	(2020-21)
HT-I(A)	1.43	1.54	HT-V	1.54	1.62
HT-I(B)	1.52	1.64	EHT 66 kV	0.89	1.42
HT-II(A)	1.50	1.57	EHT 110kV	1.24	1.30
HT-II (B)	1.69	1.69	EHT 220 kV	1.20	1.46
HT-III(A)	1.13	1.22	EHT-General A	1.35	1.35
HT-III(B)	0.19	0.25	EHT-General B	1.65	1.64
HT-IV	1.85	1.84			

(17) Low Voltage Supply Surcharge (Rs/kVA/month)

Category	2018-19	2020-21	Category	2018-19	2020-21
LT IVA	400	545	LT VI C	490	490
LT IVB	250	280	LT VI F	475	460
LT VI A	690	715	LT VII A	415	400
LT VI B	660	690	LT VII C	415	400

(18) Proposed Power Factor incentive and penalty

Power Factor Range	Incentive (2018-19)	Incentive (2020-21)
0.95 and 1.00	0.25% of Energy charges for each 0.01 unit increase in power factor from 0.95	0.12% energy charges for each 0.01 unit increase in power factor from 0.95
Power Factor Range	Disincentive	Disincentive
Below 0.95	1.25% energy charges for each 0.01 unit fall in power factor from 0.95	1.5 % of Energy charges for each 0.01 unit fall in power factor from 0.95

(19) Expected increase in Revenue due to Tariff Revision for the years 2018-19 & 2020-21

No	Category	2018-19 (Full Year Basis)			2020-21		
		Revenue at Present tariff (Rs Cr)	Revenue at proposed tariff (Rs Cr)	Tariff Increase (Rs Cr)	Revenue at proposed tariff in 2018-19 (Rs Cr)	Revenue at proposed tariff in 2020-21 (Rs Cr)	Tariff Increase (Rs Cr)
1	LT-I Domestic	4,481.52	5,218.10	736.58	5,738.12	6,135.41	397.30
2	LT-IV (A) Industrial	777.73	820.54	42.81	893.81	901.08	7.27
3	LT-IV(B) Industrial	6.56	7.12	0.55	7.72	7.76	0.04
4	LT-VA Agriculture	71.41	86.23	14.82	92.82	99.99	7.16
5	LT VB Agriculture	12.45	13.56	1.11	14.63	15.09	0.46
6	LT VIA General	145.97	156.45	10.48	179.11	190.12	11.01
7	LT VIB General	98.58	98.46	-0.12	112.86	114.07	1.21
8	LT VI C General	259.68	258.88	-0.80	295.89	295.89	-
9	LT VI D General	4.00	4.44	0.44	5.13	5.39	0.26
10	LT VI E General	1.65	1.73	0.08	1.99	2.05	0.06

11	LT VI F General	860.48	859.92	-0.56	984.79	984.63	-0.17
12	LT VI G General	72.43	71.61	-0.83	86.04	85.93	-0.12
13	LT-VII(A) Commercial	1,327.17	1,326.98	-0.20	1,588.00	1,587.42	-0.58
14	LT-VII(B) Commercial	133.59	143.12	9.53	162.70	166.74	4.04
15	LT-VII(C) Commercial	15.60	15.56	-0.04	19.03	18.92	-0.11
16	LT-VIII A Streetlights	141.19	152.62	11.43	149.57	189.96	40.39
17	LT VIII B Streetlights	33.14	38.67	5.54	42.63	46.91	4.28
18	HT1 (A) Industry	1,406.88	1,516.24	109.35	1,686.32	1,827.69	141.38
19	HT-1(B) Industry	9.73	9.68	-0.06	10.77	11.27	0.50
20	HT-II A General	127.38	137.01	9.63	156.25	164.95	8.70
21	HT II B General	519.99	519.69	-0.29	600.09	600.09	-
22	HT-III(A) Agriculture	4.08	4.27	0.19	4.56	4.97	0.41
23	HT-III(B) Agriculture	0.95	0.99	0.04	1.06	1.14	0.08
24	HT-IV Commercial	623.11	622.51	-0.60	709.45	709.45	-
25	HT-V Domestic	12.34	11.90	-0.44	13.57	14.05	0.48
26	EHT 66 kV Industrial	205.23	236.04	30.81	251.19	267.19	16.00
27	EHT-110 kV Industrial	419.58	464.74	45.16	492.55	516.26	23.70
28	EHT- 220 kV Industrial	55.26	63.96	8.69	71.03	77.66	6.64
29	EHT- General A	7.11	8.34	1.23	8.86	8.90	0.04
30	EHT - General B	47.93	47.89	-0.04	50.73	51.05	0.32
31	Railway traction	167.89	191.45	23.56	213.72	226.24	12.52
32	KMRL	9.39	10.71	1.32	11.94	12.74	0.80
33	Bulk Supply to Licensees	370.59	412.91	42.33	457.34	473.71	16.37
	Total	12,430.59	13,532.30	1,101.72	15,114.25	15,814.69	700.44

6.2 In their petition, KSEB Ltd had proposed two tariff revisions in the years 2018-19 and in 2020-21 of the MYT period. The additional annual revenue expected through the proposed tariff revision in 2018-19 is Rs 1101.72 crore and further additional revenue of Rs 700.44 crore expected from 2020-21.

6.3 As per procedure, the Commission conducted public hearings on the petition at four places across the State. The dates and venues of the hearings are given in Chapter-1. The Commission had received objections, comments and suggestions on the various issues raised by KSEB Ltd in their petitions. The summary of the issues raised during the public hearings on the tariff petitions are given in Chapter-2 of this Order.

Revenue gap and average cost of supply approved by the Commission.

6.4 As detailed in the Chapter-5, the ARR, ERC and Revenue gap estimated by KSEB Ltd as per the petition dated 30.10.2018 and the same approved by the Commission for the years 2018-19 to 2021-12 of the MYT period is given below.

Table 6.1
ARR, ERC and Revenue estimated by KSEB Ltd and approved by the Commission

Year	ARR		ERC		Revenue gap	
	KSEBL proposal	Approved by Commission	KSEBL proposal	Approved by Commission	KSEBL proposal	Approved by Commission
	(Rs. Cr)	(Rs. Cr)	(Rs. Cr)	(Rs. Cr)	(Rs. Cr)	(Rs. Cr)
2018-19	13533.99	12465.83	12433.68	12433.68	1100.31	32.15
2019-20	14549.51	14010.23	13150.46	13209.68	1399.05	800.55
2020-21	15830.17	14786.39	13765.29	13841.64	2064.88	944.75
2021-12	16928.15	15487.94	14409.63	14489.41	2518.52	998.53

Further, the average cost of supply, as per the above approved ARR, ERC and energy sales for the MYT period is given below.

Table 6.2
Average cost of supply approved for the MYT period

Particulars	2018-19	2019-20	2020-21	2021-22
Net ARR (Rs. Cr)	12465.83	14010.23	14786.40	15487.94
Energy sales (MU)	21647.29	22969.67	23957.26	24991.44
Average cost of supply (Rs/kWh)	5.76	6.10	6.17	6.20

A comparison of the revenue gap and the average cost of supply proposed by KSEB Ltd and the figures approved by the Commission for the MYT period is given below.

Table 6.3
Comparison of the 'revenue gap' and 'average cost of supply' proposed by KSEB Ltd and approved by KSERC

Year	Revenue gap (Rs. Cr)		Average cost of supply	
	Proposed by KSEB Ltd	Approved by the Commission	Proposed by KSEBLtd	Approved by the Commission
2018-19	1100.70	32.15	6.25	5.76
2019-20	1399.05	800.55	6.28	6.10
2020-21	2065.28	944.76	6.62	6.17
2021-22	2518.92	998.53	6.62	6.20

6.5 The Commission has carefully examined the ARR and the revenue gap proposed by KSEB Ltd. The Commission approved the ARR, ERC, Average Cost of Supply and revenue gap for the control period starting from 2018-19 to 2021-22, is indicated in Table 6.1 and 6.2. As discussed earlier, KSEB Ltd had proposed two tariff revisions, the first one in 2018-19 for mobilising an additional revenue of about Rs 1100.00 crore and the second revision in 2020-21, for mobilising a further additional revenue of Rs 700.00 crore over and above the tariff revision proposed in 2018-19, for bridging the revenue gap proposed by the licensee.

However, as discussed in the Chapter 3, 4 and 5, the ARR and revenue gap provisionally approved by the Commission is smaller than the figures proposed by KSEB Ltd for the control period. Since the financial year 2018-19 is already over, the Commission decided to enhance the tariff in 2019-20 for mobilising an additional revenue of about Rs 902.00 crore per year. This would bridge a substantial portion of the revenue gap during the control period itself.

6.6 The Commission also noted that, as per the sub Regulation (f) of the Regulation 8 and sub Regulation (2) of Regulation 10 of the KSERC (Terms and Conditions of Tariff) Regulations, 2018 (herein after referred as Tariff Regulations 2018), KSEB Ltd is required to file the Mid-term Performance Review by 30th November 2019. The mid-term review includes the truing up of the first year of the control period 2018-19, midyear performance of 2019-20 and the revised forecast for the year 2020-21 and 2021-22 on account of unexpected variations, if any, on controllable and uncontrollable parameters. Hence, based on KSEB Ltd filing applicable petition for the determination of tariff from the FY 2020-21 onwards, with supporting documents along with the petition on midterm annual performance review, the Commission, may as deemed appropriate determine the tariff, after completing all the procedural formalities as prescribed in the Electricity Act, 2003 and also as per Commission's Regulations for determination of tariff.

6.7 As discussed in the preceding paragraphs, as against the two tariff revisions proposed by KSEB Ltd in 2018-19 and 2020-21, the Commission has decided to determine the tariff for the year 2019-20, and which shall continue till 31st March 2020. The Commission may determine/ decide on the tariff applicable from 1st April-2020 to 31st March-2022 of the control period based on the tariff petition, if any, filed by KSEB Ltd along with the annual performance review to be filed on or before 30th November 2019.

6.8 The average cost of supply approved by the Commission for the year 2019-20 is Rs 6.10/unit, as against the average cost of supply of Rs 5.53/unit, determined by the Commission in the last tariff revision order dated 17.04.2017. Thus the average cost of supply has increased by about 10.30% over the last tariff revision. The Commission has also considered the inflation since the last revision on 17.04.2017. The Commission has also duly considered the provisions in the Electricity Act, 2003, Tariff Policy 2016 notified by the Central Government in compliance of the Section-3 of the EA-2003, various Regulations notified by the Commission for tariff determination and other related issues, various judgments of the Hon'ble Appellate Tribunal for Electricity and Hon'ble Supreme Court. The process and procedure adopted by the Commission for tariff determination is discussed in the following paragraphs.

Principles adopted for Tariff determination

6.9 As per the Section 61(g) of the EA-2003, while specifying the Terms and Conditions for determination tariff, the State Commission shall be guided by the objective that the tariff progressively reflect the cost of supply of electricity and reduces the cross subsidies in the manner specified by the Commission.

Section 62(3) of the Electricity Act, 2003 empower the State Commission to differentiate the retail tariff of the consumers of the distribution licensee according to the consumer's load factor, power factor, voltage, time at which the supply is required, the geographical position of the area, the nature of supply and the purpose for which the supply is required. The relevant section of the EA-2003 is extracted below.

“ 62(3) The Appropriate Commission shall not, while determining the tariff under this Act, show undue preference to any consumer of electricity but may differentiate according to the consumer's load factor, power factor, voltage, total consumption of electricity during any specified period or the time at which the supply is required or the geographical position of any area, the nature of supply and the purpose for which the supply is required.”

As per Section 86 of the Electricity Act, 2003, determination of the retail electricity tariff of the distribution licensee for providing electricity to the consumers, is one of the statutory functions of the State Electricity Regulatory Commission. Further, as per the Section 86(4) of the

Electricity Act, 2003, while discharging its functions, the State Commission shall be guided by National Electricity Policy, National Electricity Plan and Tariff Policy notified by the Central Government under Section-3 of the Electricity Act, 2003. The relevant section is extracted below for ready reference.

86. (1) The State Commission shall discharge the following functions, namely:

(a) determine the tariff for generation, supply, transmission and wheeling of electricity, wholesale, bulk or retail, as the case may be, within the State:

.....

“86 (4) In discharge of its functions the State Commission shall be guided by the National Electricity Policy, National Electricity Plan and tariff policy published under section 3.”

6.10 In compliance of the Section-3 of the Electricity Act, 2003, the Central Government, notified the revised ‘Tariff Policy 2016’ on 28th January 2016. Paragraph 8.3 of the Tariff Policy 2016, deals with ‘tariff design’, which specify the following:

- (i) The State Commission shall be guided by the objective that the tariff progressively reflect the efficient and prudent cost of supply of electricity.
- (ii) The retail tariff are brought within +_20% of the average cost of supply.
- (iii) The Commission would notify a road map for the reduction in the cross subsidy.
- (iv) The tariff of the BPL category shall at least be 50 percent of the average cost of supply.

6.11 The Commission had, vide Notification dated 20.11.2012 published the KSERC (Principles for Determination of Roadmap for Cross Subsidy Reduction for Distribution Licensees) Regulations, 2012. The term cross subsidy has been defined in the said Regulations as follows,-

“Cross subsidy” in the context of this regulation means the difference between the applicable average tariff of that consumer category / sub category and the average Cost of Supply as approved by the Commission for that year ‘.

The relevant portions of the KSERC (Principles for Determination of Roadmap for Cross Subsidy Reduction for Distribution Licensees) Regulations, 2012 regarding the average cost of supply and the reduction of cross subsidy are extracted below.

'3. General principles for cross subsidy reduction.-The general principle for cross subsidy reduction shall be as follows:-

(1). The average tariff of a consumer category/sub-category for the purpose of computing cross subsidy shall be determined by dividing total tariff amount billed by the sales to that consumer category/sub-category. The billed tariff shall include fixed charges, energy charge and all applicable rebates and penalties as per the tariff schedule approved by the Commission for that consumer category/sub-category.

(2). Cost of Supply for a financial year shall be the average cost of supply computed by dividing the Aggregate Revenue Requirement of the distribution licensee approved by the Commission for recovery through retail tariffs by the total energy sales forecast for that year. This methodology of determining cost of supply shall be applicable for a period of sixty months or such extended time as decided by the Commission. Thereafter the Cost of Supply shall be differentiated for various consumer categories as per the guidelines to be notified by the Commission. Finalization of the cost of supply methodology and its subsequent determination by all the distribution licensees shall be done as per the provisions of these regulations and shall be used for the determination of retail tariffs.

(3). Cross subsidy based on average cost of supply.- The cost of supply computed as explained in clause (2) above shall be used for assessing the cross subsidy levels of different category of consumers. For each consumer category, ratio of the average tariff of that category to the average cost of supply shall be increased / decreased based on whether that consumer category is subsidizing consumer category or subsidized consumer category. The rate of increase / decrease of the ratio shall be decided by the Commission taking into consideration various factors including the target cross subsidy level fixed by the Commission.

(4)The rate of increase / decrease in the ratio shall be determined by the Commission and shall remain fixed for each year of the ARR/ERC or for a period decided by the Commission. The ratio for the subsidised consumer categories, shall be determined considering tariff shock to affected consumers, future increases in distribution and retail costs, changes in consumer mix, cost of alternate supplies, and shall be increased till the ratio is equal to the target value decided by the Commission. The ratio for the subsidizing consumer categories shall be reduced till the ratio is equal to the value decided by the Commission.

According to the above provisions in the KSERC (Principles for Determination of Roadmap for Cross Subsidy Reduction for Distribution Licensees) Regulations, 2012, the Commission shall determine the retail tariff applicable to the consumers on the basis of the average cost of supply, during the period of applicability of the said Regulations.

Based on the above, the Commission has revised the electricity tariff in the State in the year 2012-13, 2013-14, 2014-15 and 2017-18. The cost coverage of different categories of consumers as per the Tariff orders approved by the Commission during the recent past is given below.

Table 6.4
Cost coverage as per the previous tariff orders issued by the Commission

Tariff category	Cost coverage					
	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18
Domestic	60.5%	61.2%	71.0%	71.0%	71.0%	73.6%
Agriculture	38.0%	37.0%	45.0%	45.0%	45.0%	43.2%
Street Light	59.0%	60.0%	68.0%	68.0%	68.0%	73.2%
LT Commercial	171.0%	166.7%	161.0%	161.0%	161.0%	153.7%
HT Commercial	169.2%	166.3%	160.8%	160.8%	160.8%	153.5%
HT Industry	112.0%	113.0%	117.0%	117.0%	117.0%	117.0%
EHT- Industry 66kV	107.0%	106.0%	112.0%	112.0%	112.0%	111.9%
EHT-Industry-110 kV	101.0%	102.0%	106.0%	106.0%	106.0%	104.7%

As detailed above, in the case of subsidised consumers such as domestic, agriculture, street lights etc, the Commission has been gradually moving towards 80% of the average cost of supply through tariff. Further, in the case of the cross subsidising consumers such as LT commercial and HT commercial, the Commission has been gradually

reducing the cross subsidy level and targeted to bring down the cost coverage to 120% of the average cost of supply.

The Commission, by invoking the powers conferred on it under Regulation 3(2) of the 'Cross subsidy reduction road map Regulations, 2012', vide its order No. 1669/CE/2017/KSERC dated 19.12.2017 had extended the validity of the 'Kerala State Electricity Regulatory Commission (Principles for determination of roadmap for cross-subsidy reduction for Distribution Licensees) Regulations, 2012' for a further period of forty eight (48) months from 20.11.2017. Accordingly, provisions of the said Regulations is applicable till 20.11.2021.

- 6.12 The Commission, by invoking the statutory powers conferred on it under Section 181 (zd) of the Electricity Act, 2003 along with the Section 61 of the Electricity Act, 2003 had notified the KSERC (Terms and Conditions for Determination of Tariff) Regulations, 2018. Regulation 84 of the said Regulations deals with 'determination of tariff', which is extracted below for ready reference.

"84. Determination of tariff.– (1)The bulk supply tariff, retail supply tariff and wheeling charges of the distribution licensee shall be determined by the Commission on the basis of a petition for determination of tariff made by the distribution licensee in accordance with chapter IV of these Regulations.

(2) The retail supply tariff shall be uniform for the same category of consumers of all distribution business/licensees in the State of Kerala and shall be same as the retail supply tariff determined by the Commission for the distribution business of KSEB Limited.

(3) The bulk supply tariff for supply of electricity by KSEB Limited to other distribution licensees in the State of Kerala shall be determined by the Commission in accordance with principles laid down from time to time in the orders of the Commission with regard to such distribution licensees.

(4) The Commission may categorize consumers on the basis of their load factor, power factor, voltage, total consumption of electricity during any specified period or the time at which the supply is required or the geographical position of any area, the nature of supply and the purpose for which the supply is required.

(5) The retail supply tariff for different consumer categories shall be determined on the basis of the average cost of supply. The average cost of supply shall be computed as the ratio of the aggregate revenue requirements of the distribution business/licensee for each financial year calculated in accordance with Regulation 75 to the total sale of the distribution business/licensee for the respective financial year.

(6) The Commission shall endeavour to reduce gradually the cross-subsidy among consumer categories with respect to the average cost of supply in accordance with the provisions of the Act and the provisions of the Kerala State Electricity Regulatory Commission (Principles for Determination of Roadmap for Cross-subsidy Reduction for Distribution Licensees) Regulations, 2012.

(7) The wheeling charges may be denominated in terms of Rupees/kWh or Rupees/kW/month, or any such basis, for the purpose of recovery from the user of distribution system, as stipulated by the Commission from time to time.

(8) Any revenue subsidy/grant received from the State Government other than the subsidy under Section 65 of the Act shall be treated in the manner as indicated by the State Government: Provided that if no such manner is indicated, the subsidy/grant shall be used to reduce the overall gap between the Aggregate Revenue Requirement and actual revenue of the distribution business/licensee. (9) While determining the tariff the Commission may also keep in view the cost of supply at different voltage levels and the need to minimise tariff shock to any category of consumers.”

- 6.13 As discussed in the preceding paragraphs , as per the provisions of the KSERC (Principles for determination of road map for cross-subsidy reduction for Distribution Licensees) Regulations, 2012, and also as per the KSERC (Terms and Conditions for Determination of Tariff) Regulations, 2018, the ‘retail tariff for different consumer categories during the current MYT period from 2018-19 to 2021-22, has to be determined on the basis of the average cost of supply’.

Assessment of the average cost of supply at different voltage levels

- 6.14 The Hon’ble APTEL has, vide judgment dated 31.05.2013 in Appeal No. 179/2012 (filed by Kerala HT and EHT Industrial Electricity Consumers Association against the tariff order dated 25.07.2012 for the year 2012-13), directed the Commission to determine the voltage wise cost of supply for various categories of consumers within six months of passing

of the order and to determine the cross subsidy and tariff in future as per the direction laid down by the Hon'ble APTEL. In the above judgment, Hon'ble APTEL has stated that it had, vide its judgment dated 30.05.2011 in Appeal petition No. 102 of 2010 (Tata Steel case and related batch of cases), given a formulation for determination of voltage-wise cost of supply in the absence of availability of detailed data. The relevant portions of the judgment are extracted below.

“31. We appreciate that the determination of cost of supply to different categories of consumers is a difficult exercise in view of non-availability of metering data and segregation of the network costs. However, it will not be prudent to wait indefinitely for availability of the entire data and it would be advisable to initiate a simple formulation which could take into account the major cost element to a great extent reflect the cost of supply. There is no need to make distinction between the distribution charges of identical consumers connected at different nodes in the distribution network. It would be adequate to determine the voltage-wise cost of supply taking into account the major cost element which would be applicable to all the categories of consumers connected to the same voltage level at different locations in the distribution system. Since the State Commission has expressed difficulties in determining voltage wise cost of supply, we would like to give necessary directions in this regard.

32. Ideally, the network costs can be split into the partial costs of the different voltage level and the cost of supply at a particular voltage level is the cost at that voltage level and upstream network. However, in the absence of segregated network costs, it would be prudent to work out the voltage – wise cost of supply taking into account the distribution losses at different voltage levels as a first major step in the right direction. As power purchase cost is a major component of the Tariff, apportioning the power purchase cost at different voltage levels taking into account the distribution losses at the relevant voltage level and the upstream system will facilitate determination of voltage wise cost of supply, though not very accurate, but, a simple and practical method to reflect the actual cost of supply.

33. *The technical distribution system losses in the distribution network can be assessed by carrying out system studies based on the available load data. Some difficulty might be faced in reflecting the entire distribution system at 11 KV and 0.4 KV due to vastness of data. This could be simplified by carrying out field studies with representative feeders of the various consumer mix prevailing in the distribution system. However, the actual distribution losses allowed in the Annual Revenue Requirement which include the commercial losses will be more than the technical losses determined by the system studies. Therefore, the difference between the losses allowed in the Annual Revenue Requirement and that determined by the system studies may have to be apportioned to different voltage levels in proportion to the annual gross energy consumption at the respective voltage level. The annual gross energy consumption at a voltage level will be the sum of energy consumption of all consumer categories connected at that voltage plus the technical distribution losses corresponding to that voltage level as worked out by system studies. In this manner, the total losses allowed in the ARR can be apportioned to different voltage levels including the EHT consumers directly connected to the transmission system of GRIDCO. The cost of supply of the Appellant's category who are connected to the 220/132 KV voltage may have zero technical losses but, will have a component of apportioned distribution losses due to difference between the loss level allowed in Annual Revenue Requirement (which includes commercial losses) and the technical losses determined by the system studies, which they have to bear as consumers of the distribution licensee.*

34. *Thus, Power Purchase Cost which is the major component of Tariff can be segregated for different voltage levels taking into account the transmission and distribution losses, both commercial and technical, for the relevant voltage level and upstream system. As segregated network costs are not available, all the other costs such as Return on Equity, Interest on Loan, depreciation, interest on working capital and O&M costs can be pooled and apportioned equitably, on pro-rata basis, to all the voltage levels*

including the Appellant's category to determine the cost of supply Segregating Power Purchase cost taking into account voltage-wise transmission and distribution losses will be a major step in the right direction for determining the actual cost of supply to various consumer categories. All consumer categories connected to the same voltage will have the same cost of supply. Further, refinements in formulation for cost of supply can be done gradually when more data is available".

6.15 Thus, as per the directions issued by the Hon APTEL, the Commission is required to determine the cost of supply at different voltage levels based on the ARR approved by the Commission as per the provisions of the Tariff Regulations, 2018. In order to arrive at the cost of supply at different voltage levels, the following details have to be estimated based on the Commission approved norms.

- (i) Total energy input into the SBU-D of the KSEB Ltd
- (ii) Total cost of energy input into SBU-D of KSEB Ltd., comprising of the cost of generation by SBU-G, the cost of power purchase and the transmission charges payable to SBU-T.
- (iii) Total distribution cost of the SBU-D of the KSEB Ltd.
- (iv) Details of energy sale at different voltage level (EHT, HT and LT levels) by SBU-D of the KSEB Ltd.
- (v) Allocation of distribution loss among EHT, HT and LT levels.

6.16 The energy input into the SBU-D of the KSEB Ltd includes the following,-

- (i) Generation from hydel and thermal plants owned and operated by SBU-G of KSEB Ltd.,
- (ii) Power purchase from various sources including CGS, power purchase from IPPs within the State, power purchase through traders/generators from outside the state, power purchase from short-term market including power exchanges, less
- (iii) The transmission losses in the transmission network of SBU-T of KSEB Ltd.

6.17 Based on the approved ARR of SBU-G, SBU-T and SBU-D, as detailed in Chapter-3, 4 and 5 of this Order, the various input parameters adopted for determining the cost at different voltage levels is given below.

Table 6.5
Parameters adopted for determining the cost at different voltage level based on the approved ARR

Sl No	Particulars	2019-20	2020-21	2021-22	Remarks
1	Energy sales (MU)				Table 5.6 in Chapter-5
	(a) LT	16803.69	17513.88	18256.7	
	(b) HT	4035.42	4244.53	4464.82	
	(c) EHT	2130.57	2198.85	2269.92	
	Total	22969.68	23957.26	24991.44	
2	T&D loss (%)				Table 5.14 in Chapter-5
	(a) Loss in HT System	5.15	5.00	4.85	
	(b) Loss in LT system	5.79	5.53	5.27	
3	Cost of Generation and Power purchase (excluding the revenue from surplus sale) (Rs. Crore)	9163.86	9934.07	10485.22	Table 5.122 in Chapter-5
4	Distribution Ccost (Rs. Crore)	4846.39	4852.32	5002.71	Table 5.122 in Chapter-5

6.18 Based on the above formulation given by the Hon'ble APTEL in the judgment dated 30th May 2011 in Appeal Petition No. 102 of 2010 (Tata Steel case and batch of others), this Commission has estimated the cost of supply at different voltage levels for the years 2019-20 to 2021-22, as given in the Tables below.

Table 6.6
Cost of supply different voltage level for the FY 2019-20

	Particulars		EHT	HT	LT	Total
1	Energy sale at different voltage level	(MU)	2130.57	4035.42	16803.69	22969.68
2	T&D loss associated with energy sale at different voltage level	(%)	0.00	5.15	10.64	
		MU	0.00	219.11	2001.67	2220.78
3	Energy input for the sale at different voltage level = (1)+(2)	(MU)	2130.57	4254.53	18805.36	25190.46
4	Cost of gen& PP (including intra-state transmission charges, excluding surplus sale(apportioned in the ratio of energy input)	Rs. Cr	775.07	1547.73	6841.07	9163.86
5	Distribution cost (apportioned in the ratio of energy input)	Rs. Cr	409.90	818.53	3617.96	4846.39
6	Total cost = (4)+ (5)	Rs. Cr	1184.97	2366.25	10459.03	14010.25
7	Cost per unit	Rs/ kWh	5.56	5.86	6.22	6.10

Table 6.7
Cost of supply different voltage level for the FY 2020-21

1	Energy sale at different voltage level	(MU)	2198.85	4244.53	17513.88	23957.26
2	T&D loss associated with energy sale at different voltage level	(%)	0.00	5.00	10.25	
		MU	0.00	223.40	2000.66	2224.06
3	Energy input for the sale at different voltage level = (1)+(2)	(MU)	2198.85	4467.93	19514.54	26181.32
4	Cost of gen& PP (including intra-state transmission charges, excluding surplus sale(apportioned in the ratio of energy input)	Rs. Cr	834.32	1695.28	7404.47	9934.07
5	Distribution cost (apportioned in the ratio of energy input)	Rs. Cr	407.52	828.06	3616.73	4852.32
6	Total cost = (4)+ (5)	Rs. Cr	1241.84	2523.35	11021.20	14786.39
7	Cost per unit	Rs/ kWh	5.65	5.94	6.29	6.17

Table 6.8
Cost at voltage level for the year 2021-22

	Particulars		EHT	HT	LT	Total
1	Energy sale at different voltage level	(MU)	2269.92	4464.82	18256.70	24991.44
2	T&D loss associated with energy sale at different voltage level	(%)	0.00	4.85	9.86	
		MU	0.00	227.58	1997.16	2224.74
3	Energy input for the sale at different voltage level = (1)+(2)	(MU)	2269.92	4692.40	20253.86	27216.18
4	Cost of gen& PP (including intra-state transmission charges, excluding surplus sale(apportioned in the ratio of energy input)	Rs. Cr	874.50	1807.78	7802.94	10485.22
5	Distribution cost (apportioned in the ratio of energy input)	Rs. Cr	417.24	862.53	3722.95	5002.73
6	Total cost = (4)+ (5)	Rs. Cr	1291.75	2670.31	11525.89	15487.95
7	Cost per unit	Rs/ kWh	5.69	5.98	6.31	6.20

The Commission has duly considered the cost at different voltage levels as above, while determining the retail tariff of different categories of consumers.

Determination of Retail Tariff

6.19 As per the last tariff order dated 17.04.2017, the average cost of supply including the part of the past unbridged revenue gap approved was Rs 5.53/unit. As against the same, the average cost approved by the Commission for the year 2019-20 is Rs 6.10/unit. Thus, since the last tariff revision on 17.04.2017, the cost of supply of electricity has increased by about 10.30%. The Commission has attempted to revise the tariff for each categories of consumers, in proportion to the increase in the approved average cost of supply (ACoS), so that, the tariff of maximum categories of consumers are close to or within +-20% of the average cost of supply. However, the Commission is also required to ensure that, the increase in tariff of the subsidised consumers shall not result in 'tariff shock' to them.

6.20 The Commission has examined in detail, the approved revenue gap in the MYT period from 2018-19 to 2021-22, the prevailing tariff of the various categories of consumers and also the cost coverage at the prevailing tariff. As per the provisions of the Electricity Act, 2003, Tariff Policy 2016, the Tariff Regulations 2018 and also as per the various judgements of the Hon'ble APTEL, the Commission has to ensure the following while determining the retail tariff.

- (i) The tariff of the subsidised categories such as domestic categories, agriculture and public lighting etc has to be increased so as to bring it at least to the level of +80% of the average cost of supply, while avoiding tariff shock.
- (ii) The cross subsidy level of the subsidising categories such as commercial categories is to be gradually reduced.
- (iii) The tariff of the industrial consumers are already within +_ 20% of the average cost of supply. The Commission may increase the tariff for the industrial categories in proportion to the increase in average cost of supply compared to the previous revision, such that, the cross subsidy levels of industrial consumers continue to be within the +_ 20% band.

- (iv) Commission has also taken care to ensure that, the cross subsidy levels of consumers with cross subsidy above 120% has not increased, as far as possible.

6.21 The Commission notes that KSEB Ltd, in their petition has proposed increase in fixed charges substantially ranging from 50% to 400% over the current rates. Fixed Cost by its very definition are “Sunk Cost” which are independent of the level of goods or services produced or delivered by the company. Hence fixed cost should ideally remain largely unchanged during the control period in contrast to variable cost which frequently or periodically increases or decreases. The Commission has carefully considered the ARR of KSEB Ltd, for the control period and notes that there is no sufficient justification for the excessive increases in fixed cost as proposed by KSEB Ltd. Under such circumstances, the Commission has done a thorough examination of the ARR of KSEB Ltd. in a comprehensive manner before arriving at a decision regarding the fixed costs to be charged for each category of consumers.

KSEB Ltd submitted in their petition that the substantial increase in fixed charge/demand charge for all consumer categories is proposed in line with the recommendations of a committee constituted by the Ministry of Power, Government of India on rationalisation of electricity tariffs. The Commission has examined the proposals. The Committee has suggested to reduce the number of slabs in domestic category to three, enhance the tariff of BPL category at 50% of the cost of supply, reduce the number of tariff categories. Out of the many suggestions of the committee, KSEB Ltd has considered the only the suggestions for rationalising the fixed charges. The suggestions of the Committee are only of recommendatory nature; and the same is not mandatory on the Commission. Though KSEB Ltd has attempted to reduce the energy charges to offset the increase in fixed charges proposed by them, the Commission notes that, this abnormal increase in fixed/ demand charge may result in tariff shock to most of the consumers. Further, the abnormal increase in fixed/demand charge may also restrict the open access transactions in the State. During the public hearings most of the

consumers raised serious apprehensions on the abnormal increase in fixed charge / demand charges proposed by KSEB Ltd. Considering these reasons, the Commission rationalised the proposals of the KSEB Ltd for the abnormal increase in fixed/ demand charges of the various consumers of the State. The Commission after due consideration decided to enhance the overall tariff, (fixed/ demand charge and energy charge) so as to bridge the approved revenue gap.

6.22 Based on the above considerations, the Commission hereby approves the following tariff for each consumer categories as shown in the following paragraphs.

Low Tension – I - DOMESTIC (LT-1)

6.23 The existing tariff and the tariff proposed by KSEB Ltd for domestic category are given below.

Table 6.9
Existing tariff and the tariff proposed by KSEB Ltd for domestic category

Monthly consumption slab	Fixed Charge			Energy Charge			
	<u>Existing rate</u>	<u>Proposed by KSEB Ltd</u>		<u>Existing rate</u>	<u>Proposed by KSEB Ltd</u>		
		<u>2018-19</u>	<u>2020-21</u>		<u>2018-19</u>	<u>2020-21</u>	
	<u>(Rs. Consumer /month)</u>	<u>(Rs. Consumer/ month)</u>	<u>(Rs. Consumer/ month)</u>	<u>(Rs/kWh)</u>	<u>(Rs/kWh)</u>	<u>(Rs/kWh)</u>	
(i) BPL Consumers with connected load upto 1000 watts and consumption upto 40 units							
0-40	Nil	Nil	Nil	1.50	1.50	1.50	
(ii) Telescopic tariff for consumption upto 250 units							
0-50	Rs.30/- for single phase & Rs 80.00/month for three phase	Rs 35/- for single phase and Rs 90/- for three phase	Rs 50/- for single phase and Rs 120/- for three phase	2.90	3.50	3.45	
51-100				3.40	4.20	4.70	
101-150				4.50	5.20	5.45	
151-200			Rs 75/- for single phase and Rs 130/- for three phase	Rs 100/- for single phase and Rs 160/- for three phase	6.10	5.80	5.85
201-250					7.30	6.50	6.50
(iii) Non-telescopic tariff for consumption above 250 units							
0-300	Rs 80.00/month for three phase	Rs 75/- for single phase and Rs 130/- for three phase	Rs 100/- for single phase and Rs 160/- for three phase	5.50	5.95	6.10	
0-350				6.20	6.30	6.35	
0-400				6.50	6.45	6.45	
0-500				6.70	6.65	6.70	
Above 500				7.50	6.90	6.90	

The Commission has examined in detail the tariff proposed by KSEB Ltd. It is noted that, more than 80% of the consumers in the State belong to domestic category and this category accounts for about 50% of the energy consumption of the State.

It is also noted that, in the domestic category, more than 80% of the consumers have a monthly consumption of less than 150 unit and more than 64% of the domestic consumption is being consumed by these groups.

The Commission notes that the cost coverage of the domestic category of consumers has steadily increased and it stood at 73.6% during 2017-18. Based on the comments received during the public hearings as well as with the written representations and after careful considerations of the present level of cost coverage, the Commission has decided the fixed charge and energy charge for monthly consumptions/slabs of the domestic category as explained hereafter.

Fixed charge

- 6.24 At present, fixed charge for the domestic category is Rs 30 per consumer per month for single-phase connection and, Rs 80 per consumer per month for three-phase connection. The fixed charge at present of the domestic category is not linked to the connected load or consumption of the domestic consumers. As seen from the above, KSEB Ltd has proposed 150% and 63% increase in the fixed charge for single phase and three phase category, for consumers with monthly consumption above 150 units.

The Commission has examined the proposal of KSEB Ltd. The basic philosophy behind the fixed charge in two part tariff is to recover a part of the permanent cost of the distribution licensees through fixed charge/demand charge. It is a fact that, the fixed cost to be levied from a domestic consumer having more connected load and high consumption need to be more than that from a consumer with less connected load and consumption. However, in the prevailing tariff, the fixed charge is not linked with connected load or consumption. Though KSEB Ltd has proposed enhancement of the fixed charge for the domestic consumers with monthly consumption above 150 units, the fixed charge proposed by KSEB Ltd is not linked with connected load and consumption.

Since, at present the fixed charge of the domestic consumers are not linked to the connected load, it is not mandatory for the consumers to disclose the enhancement in connected load, once they had availed supply from the licensee. Hence, if the fixed charge is approved on the basis of connected load, it may create disputes between the licensee and the consumers. The Commission therefore proposes to introduce the fixed charges for the domestic category linked to monthly consumption, instead of connected load, similar to the slabwise energy charges based on slab wise consumption.

The existing fixed charge, fixed charge proposed by KSEB Ltd and that approved by the Commission is given below.

Table 6.10

Fixed charge- existing, proposed by KSEB Ltd and approved by the Commission

Monthly consumption slab	Existing rate	Proposed by KSEB Ltd		Approved by the Commission	
		2018-19	2020-21	(Rs. Consumer/ month)	
	(Rs. Consumer /month)	(Rs. Consumer/ month)	(Rs. Consumer/ month)	Single phase	Three phase
(i) BPL consumers with connected load upto 1000 watts and consumption upto 40 units					
0-40	Nil	Nil	Nil	Nil	
(i) Telescopic tariff for consumers with monthly consumption upto 250 units					
0-50	Rs.30/- for single phase & Rs 80.00/month for three phase	Rs 35/- for 1-phase and Rs 90/- for 3-phase	Rs 50/- for 1-phase and Rs 120/- for 3-phase	35	90
51-100				45	90
101-150				55	100
151-200				70	100
201-250			Rs 75/- for 1-phase and Rs 130/- for 3-phase	Rs 100/- for 1-phase and Rs 160/- for 3-phase	80
(iii) Non-telescopic tariff for consumers with monthly consumption above 250 units					
0-300	Rs 80.00/month for three phase	Rs 75/- for 1-phase and Rs 130/- for 3-phase	Rs 100/- for 1-phase and Rs 160/- for 3-phase	100	110
0-350				110	110
0-400				120	120
0-500				130	130
Above 500				150	150

Energy charge

6.25 The Commission has examined the proposal of KSEB Ltd to increase the energy charge of the domestic consumers. It is noted that, the licensee has proposed an increase of Rs 0.60/unit in the monthly consumption slab of 0 to 50 units, and an increase of Rs 0.80/unit in the monthly consumption slab of 51 to 100 units, and Rs 0.70/unit in the monthly consumption slab of 101 to 150 units. Thereafter, it has proposed to

reduce the energy charge in the monthly consumption slab from 151 to 200 units and 201 to 250 units. KSEB Ltd has also proposed considerable reduction in the energy charge for the domestic consumers having monthly consumption above 500 units.

This proposal of KSEB Ltd has attracted wide spread criticism during the public consultation process, especially for the steep increase in the energy charge in the lower consumption slabs and reduction in energy charge in the higher consumption slabs. Further, the proposal of KSEB Ltd if approved, may results in “tariff shock” to the domestic consumers having monthly consumption upto 150 units. Duly considering all these factors, the energy charge approved by the Commission for the domestic category is given in the Table 6.10 below.

Table 6.11
Energy charge- existing, proposed by KSEB Ltd and approved by the Commission

Monthly consumption slab	Existing rate (Rs/kWh)	Proposed by KSEB Ltd		Approved by the Commission (Rs/kWh)
		2018-19 (Rs/kWh)	2020-21 (Rs/kWh)	
BPL Consumers with connected load upto 1000 Watts consumption upto 40 units / month				
0-40	1.50	1.50	1.50	1.50
Telescopic tariff for monthly consumption upto 250 units				
0-50	2.90	3.50	3.45	3.15
51-100	3.40	4.20	4.70	3.70
101-150	4.50	5.20	5.45	4.80
151-200	6.10	5.80	5.85	6.40
201-250	7.30	6.50	6.50	7.60
Non-telescopic tariff for monthly consumption above 250 units				
0-300	5.50	5.95	6.10	5.80
0-350	6.20	6.30	6.35	6.60
0-400	6.50	6.45	6.45	6.90
0-500	6.70	6.65	6.70	7.10
Above 500	7.50	6.90	6.90	7.90

The Commission has decided to continue the concessional tariff, approved to the families of the victims of endosulfan tragedy in Hosdurg and Kasargod Taluks of Kasargod districts, as per the last tariff order dated 17.04.2017, as follows.

‘The tariff for domestic consumption by the families of the victims of endosulfan tragedy in Hosdurg and Kasaragod Taluks of Kasaragod

District shall be Rs.1.50 / unit for a monthly consumption up to 150 units. If the consumption of the consumer, who is eligible for the above concession exceeds 150 units per month, the consumption in excess of 150 units will be charged at the rates specified for the slabs 151-200 units or 201-250 units as the case may be. This concession will not be available for the consumers with monthly consumption above 250 units'.

The Commission has also decided to allow the *BPL family having cancer patients or permanently disabled persons as family members due to polio or accidents, and consume upto 100 units per month to be billed @Rs 1.50/unit, provided their connected load is of and below 1000 watts.*

The Commission has also decided to continue the domestic tariff to the following water supply schemes, approved by the Government, subject to the billing system as explained in the Schedule of tariff and terms of supply approved as part of this Order.

- (i) water supply schemes under Jananidhi, Jaladhara or Swajaladhara Projects;
- (ii) water supply schemes coming under water supply societies or under beneficiary committees;
- (iii) water supply schemes for Scheduled Caste (SC) and / or Scheduled Tribe (ST) colonies;
- (iv) water supply schemes for Laksham Veedu Settlements taken over and managed by Local Self Government Institutions;
- (v) social drinking water supply schemes established using local area development funds of Members of Legislative Assembly (MLA) and / or Members of Parliament (MP);
- (vi) social drinking water supply schemes established using funds of Local Self Government Institutions;
- (vii) social drinking water supply schemes under Peoples Participatory Schemes (PPS);
- (viii) Rajeev Gandhi Drinking Water Schemes managed by beneficiary groups.

Low Tension- II Colonies (LT-II)

- 6.26 LT- II Tariff is for supply of power to colonies of major industries, universities, and other institutions, where the electricity is mainly used for domestic use.

LT-II Tariff is applicable to,-

- (i) the colonies of HT and EHT consumers,
- (ii) the colonies of universities,
- (iii) the colonies of State / Central Government Departments and of public institutions like companies / boards / corporations under State /Central Government,
- (iv) the colonies of hospitals,
- (v) the colonies of Railways, Bharat Sanchar Nigam Limited (BSNL), All India Radio (AIR) and Doordarshan and
- (vi) the private colonies,

where resale of energy is not involved and where supply at a single point is given at LT by Kerala State Electricity Board Limited or by any other licensee for domestic use, for street lighting and for pumping water for domestic use.

The existing and proposed tariff for LT-II Colonies is given below.

Table 6.12
Existing tariff and the tariff proposed by KSEB Ltd for LT-II colonies

Particulars	Existing tariff	Proposed by KSEB Ltd	
		2018-19	2020-21
Fixed charge	Rs 30/ month/ connection	Single phase - Rs 70/ month/ connection	Single phase - Rs 90/ month/ connection
		Three phase- Rs 120/month/ connection	Three phase- Rs 140/month/ connection
Energy charge	EC applicable to the respective industry or plantations or organisations which maintain the colony	EC applicable to the respective industry or plantations or organisations which maintain the colony	

The Commission has noted that, KSEB Ltd has proposed an increase of upto 300% in fixed charge per connection for LT-II colonies. In the last Tariff Order dated 17.04.2017, the Commission ordered that, the energy charge applicable to the colony supply shall be the 'EC applicable to the respective industry, plantations or organisations which maintain the colony. KSEB Ltd has not proposed any revision on the EC of the LT-II colonies. The Commission does not agree with the proposal of KSEB Ltd for the excessive increase in fixed charge. The tariff proposed by KSEB Ltd and that approved by the Commission for LT-II colonies is given below.

Table 6.13

Existing tariff, proposed tariff and approved tariff for LT-II colonies

Particulars	Existing tariff	Proposed by KSEB Ltd		Approved by the Commission
		2018-19	2020-21	
Fixed charge	Rs 30/ month/ connection	Single phase - Rs 70/ month/ connection	Single phase - Rs 90/ month/ connection	Single phase Rs 50/ month/ connection and three phase Rs 100/connection
		Three phase- Rs 120/month/ connection	Three phase- Rs 140/month/ connection	
Energy charge	EC applicable to the respective industry or plantations or organisations which maintain the colony	EC applicable to the respective industry or plantations or organisations which maintain the colony		EC applicable to the respective industry or plantations or organisations which maintain the colony

Low Tension- III (A) Temporary connections [LT III(A)]

6.27 The LT-III (A) tariff is applicable for single or three phase temporary connections for the purposes such as illumination, exhibition, festivals, public meeting and fairs. The existing tariff and the tariff proposed by KSEB Ltd for LT-III (A), is given below.

Table 6.14
Existing tariff and the tariff proposed by KSEB Ltd

Present tariff	Proposed by KSEB Ltd
Energy charge @Rs 14.00/unit OR Daily minimum Rs 140/ kW or part thereof of the connected load, which ever is higher	Energy charge @Rs 15/unit OR Daily minimum Rs 175/ kW or part thereof of the connected load, which ever is higher

The Commission, after careful consideration of the issue, approves the increase proposed by KSEB Ltd, with the minor modification that, the daily minimum charge is approved at Rs 150/kW instead of Rs 175/kW as proposed by KSEB Ltd. The existing, proposed and approved tariff for LT-III(A) Temporary connections is given below.

Table 6.15
Existing, Proposed and Approved tariff for LT-III (A)

Present tariff	Proposed by KSEB Ltd	Approved by the Commission
Energy charge @Rs 14.00/unit OR Daily minimum Rs 140/ kW or part thereof of the connected load, which ever is higher	Energy charge @Rs 15/unit OR Daily minimum Rs 175/ kW or part thereof of the connected load, which ever is higher	Energy charge @Rs 15.00 /unit OR Daily minimum Rs 150/ kW or part thereof of the connected load, which ever is higher

Low Tension – III(B)- Temporary Extensions [LT- III(B)]

6.28 The existing tariff applicable to temporary extension taken from the premise of existing consumers is given below.

Table 6.16
Existing Tariff for LT-III (B) Temporary extensions

Present tariff	Proposed by KSEB Ltd	Approved tariff
Fixed charge per day - Rs 65/kW or part thereof of the temporarily connected load plus the application fee, test fee etc. Energy charges shall be recovered from the consumer wherefrom extension is availed, at the tariff applicable to him.	No change proposed	Fixed charge per day - Rs 65/kW or part thereof , the temporarily connected load plus the application fee, test fee etc. Energy charges shall be recovered from the consumer wherefrom extension is availed, at the tariff applicable to him. Existing tariff allowed to continue

KSEB Ltd has not proposed to revise the existing tariff applicable to LT-III (B) Temporary Extensions. Hence, the Commission approves to continue the existing tariff applicable to LT-III (B) category as indicated in Table above.

LT-IV (A) Industry

6.29 As per the prevailing tariff order, the LT-IV (A) Industrial tariff is applicable for the general purpose industrial loads (single or three phase) which include

- (i) manufacturing units,
- (ii) grinding mills, flour mills, oil mills, rice mills,
- (iii) saw mills, units using electric hydraulic axe machine to break down logs into small pieces.
- (iv) ice factories,
- (v) rubber smoke houses, tyre vulcanizing/re-treading units, manufacturing rubber sheets from latex,
- (vi) workshops using power mainly for production and/or repair,
- (vii) public waterworks, drinking water pumping for public by Kerala Water Authority, corporations, municipalities and panchayats, telemetry stations of KWA, pumping water for non- agricultural purposes, sewage pumping units,
- (viii) power laundries,
- (ix) screen printing of glass ware or ceramic, SSI units engaged in computerized colour printing, except photo studio/ colour lab..
- (x) audio/video cassette/CD manufacturing units,

- (xi) printing presses including presses engaged in printing dailies,
- (xii) bakeries (where manufacturing process and sales are carried out in the same premises)
- (xiii) diamond- cutting units, stone crushing units,
- (xiv) book binding units with allied activities,
- (xv) garment making units,
- (xvi) seafood processing units, prawn peeling and processing units, granite cutting units (where large granite blocks are cut into sheets in the same premises),
- (xvii) plantations of cash crops, tea factories, cardamom drying and curing units,
- (xviii) units carrying out extraction of oil in addition to the filtering and packing activities carrying out in the same premise under the same service connection,
- (xix) dairy, processing of milk by pasteurization and its storage and packing,
- (xx) soda and drinking water manufacturing units,
- (xxi) electric crematoria.

6.30 The existing tariff and the tariff proposed by KSEB Ltd for LT-IV (A) Industries is given in Table below.

Table 6.17

Existing Tariff and the Tariff proposed by KSEB Ltd for LT-IV (A) Category

SINo	Particulars	Existing Tariff	Proposed by KSEB Ltd	
			2018-19	2020-21
1	Fixed charges			
	<10 KW (Rs/consumer	100	200	250
	10-20 kW (Rs/kW/month)	75	100	120
	>20 kW (Rs/kVA/month)	150	250	290
2	Energy charge (Rs/ kWh)			
	<10 KW	5.50	4.90	4.40
	10-20 kW	5.50	4.90	4.40
	>20 kW	5.50	4.90	4.40

As given above, KSEB Ltd has proposed an excessive increase in the fixed charge for LT-IV (A) Industries compared to the existing tariff, while proposing reduction in energy charges. During the public hearings on the tariff petitions, many stakeholders including Small Scale Industries Associations, Rice and Flour mills owners associations etc raised serious

concern on the viability of these units if the excessive increase in the fixed charges proposed by KSEB Ltd is agreed to. Many of them represented to the Commission that, in most cases their operation was limited to day time only.

The Commission has carefully examined the proposals of KSEB Ltd and the objections raised by the stakeholders. The Commission has noted that, the load factor of LT-IV Industrial consumers is very low, is in the range of 10 to 15% only, mainly due to the limited period of their operation during day time. Hence if the fixed charge is increased as proposed by KSEB Ltd, it may result in excessive increase in tariff, especially for the consumers with very low load factor. Hence the Commission did not agree with the proposal of KSEB Ltd to increase the fixed charge as such. However, considering the increase in average cost of supply by about 10.10% in the current MYT period compared to the previous tariff order dated 17.04.2017, the Commission approves to enhance the fixed charge of LT IV (A) Industrial consumers from Rs 100/connection per month to Rs 120/connection/month. No increase in fixed charge is approved for LT-IV (A) Industrial consumers with connected load above 10 kW and upto 20 kW. The fixed charges for the consumers with connected load above 20kW is increased from the existing rate Rs.150/-kVA/month to Rs.170/- per kVA/ month. As seen from the ARR filed by KSEB Ltd, the average cost of power purchase is increasing during the control period. Under such scenario, the Commission did not agree with proposal of KSEB Ltd to reduce the tariff for all categories of LT IV (A) consumers. The Commission therefore approves the LT VI (A) Industrial Consumers tariff as indicated in the Table 6.17 below.

Table 6.18
Existing, Proposed and Approved tariff for LT-IV (A)

SINo	Particulars	Existing Tariff	Proposed by KSEB Ltd		Approved by the Commission
			2018-19	2020-21	
1	Fixed charges				
	Connected load of and below 10 KW (Rs/consumer)	100	200	250	120
	Connected load above 10kW and upto 20 kW (Rs/kW/month)	75	100	120	75
	Connected load above 20 kW (Rs/kVA/month)	150	250	290	170
2	Energy charge (Rs/ kWh)				
	<=10 KW	5.50	4.90	4.40	5.65
	10> and upto 20 kW	5.50	4.90	4.40	5.65
	>20 kW	5.50	4.90	4.40	5.75

During the proceedings of this subject petition, KSEB Ltd vide the letter dated 14.12.2018 submitted that, at present there is no separate tariff for 'coconut drying units' and requested to categorise them under LT-IV (A) Industrial tariff. The Commission, after duly considering the proposal of KSEB Ltd, included the 'coconut drying units' also under LT-IV (A) Industrial tariff.

Low Tension- IV (B)- IT and IT Enabled Services [LT- IV (B)]

6.31 The LT IV -B tariff is applicable to Information Technology (IT) and IT enabled services including Akshaya-e-centres, computer consultancy services units, call centres, software services, data processing activities, desktop publishing (DTP), software development units and such other IT enabled services.

The existing and the tariff proposed by KSEB Ltd for LT-IV (B) category is given below.

Table 6-19
Existing Tariff and the Tariff proposed by KSEB Ltd for LT-IV (B) Category

Sl No	Particulars	Existing Tariff	Proposed by KSEB Ltd	
			2018-19	2020-21
1	Fixed charges			
	<10 KW (Rs/consumer	100	200	250
	10-20 kW (Rs/kW/month)	60	140	200
	>20 kW (Rs/kVA/month)	125	280	340
2	Energy charge (Rs/ kWh)			
	<10 KW	6.00	5.50	4.90
	10-20 kW	6.00	5.50	4.90
	>20 kW	6.00	5.50	4.90

As in the case of LT-IV (A) category, KSEB Ltd had proposed excessive increase in fixed charge ranging from 100% to 233% for the LT-IV (B) category also. The Commission after due consideration has decided that, such unjustified increase in fixed charge cannot be accepted. Hence after, considering the increase in average cost of supply during the current MYT period when compared to the previous tariff period, the Commission approves the tariff as given below.

Table 6.20
Existing, Proposed and Approved tariff for LT-IV (B)

Sl No	Particulars	Existing Tariff	Proposed by KSEB Ltd		Approved by the Commission
			2018-19	2020-21	
1	Fixed charges				
	Connected load of and below 10 KW (Rs/consumer)	100	200	250	150
	Connected load above 10kW and upto20 kW (Rs/kW/month)	60	140	200	100
	Connected load above 20 kW (Rs/kVA/month)	125	280	340	170
2	Energy charge (Rs/ kWh)				
	<=10 KW	6.00	5.50	4.90	6.20
	10> and upto 20 kW	6.00	5.50	4.90	6.20
	>20 kW	6.00	5.50	4.90	6.25

LT-V- Agriculture (A)- [LT – V(A)]

6.32 The tariff in this category is applicable for the use of electricity for water pumping, dewatering and lift irrigation for cultivation of food crops, fruits and vegetables.

The tariff for agriculture category in the State is highly subsidised in view of its acute socio-economic profile, labour intensiveness with high costs and non availability of sufficient land for farming purposes due to the high population density among other problems faced by the agriculture sector. The cost coverage of this category at the prevailing tariff is only about 36% of the average cost of supply.

The existing tariff and the tariff proposed by KSEB Ltd for LT-V(A) category is given below.

Table 6.21
Existing tariff and the tariff proposed by KSEB Ltd

Sl No	Particulars	Existing Tariff	Proposed by KSEB Ltd	
			2018-19	2020-21
1	Fixed charges (Rs/ kW / month)	8	10	15
2	Energy charge (Rs/ kWh)	2.00	2.40	2.40

The Commission examined the tariff rate proposed by KSEB Ltd and approve the same with minor modifications. The existing tariff, the tariff proposed by KSEB Ltd and the tariff approved by the Commission for LT-V(A) Agriculture category is given below.

Table 6.22
Existing, Proposed and Approved tariff for LT-V (A)

SINo	Particulars	Existing Tariff	Proposed by KSEB Ltd		Approved by the Commission
			2018-19	2020-21	
1	Fixed charges (Rs/ kW / month)	8	10	15	10
2	Energy charge (Rs/ kWh)	2.00	2.40	2.40	2.30

LT-V – Agriculture (B) [LT- V (B)]

6.33 The LT- V (B) tariff is applicable to the supply of electricity for the use of the activities such as,-

- (i) livestock farms, combination of livestock farms with dairy, poultry farms, rabbit farms, piggery farms, hatcheries,
- (ii) silk worm breeding units, sericulture,
- (iii) floriculture, tissue culture, agricultural and floricultural nurseries, mushroom culture,
- (iv) aquaculture, fish farms including ornamental fish farms, prawn farms, other aqua farms, aquarium run by the Agency for Development of Aquaculture, Kerala, and
- (v) cheenavala without fish farming and egger nurseries,

As in the case of LT-V(A), the LT- V(B) tariff is also highly subsidised in the State due to socio-economic and other factors prevailing in the State.

The existing tariff and the tariff proposed by KSEB Ltd for LT-V(B) Agriculture is given below.

Table 6.23
Existing tariff and the tariff proposed by KSEB Ltd

SINo	Particulars	Existing Tariff	Proposed by KSEB Ltd	
			2018-19	2020-21
1	Fixed charges (Rs/ kW / month)	8	10	15
2	Energy charge (Rs/ kWh)	2.50	2.70	2.70

The Commission approve the tariff, with minor modifications on the rates proposed by KSEB Ltd. The details are given below.

Table 6.24
Existing tariff, proposed tariff and approved tariff for LT-V (B) category

SINo	Particulars	Existing Tariff	Proposed by KSEB Ltd		Approved by the Commission
			2018-19	2020-21	
1	Fixed charges (Rs/ kW / month)	8	10	15	10
2	Energy charge (Rs/ kWh)	2.50	2.70	2.70	2.80

Low Tension –VI-General (A) [LT-VI(A)]

6.34 The tariff under LT-VI (A) category is applicable to

- (i) Government or aided educational institutions; libraries and reading rooms of Government or Government aided educational institutions.
- (ii) Government hospitals; X-Ray units, laboratories, blood banks, mortuaries and such other units attached to the government hospitals; blood banks of IMA or of local self-government institutions; poly clinics under Ex-servicemen Contributory Health Scheme (ECHS).
- (iii) Centres for religious worship such as temples, mosques and churches; institutions imparting religious education, monasteries and convents;

Table 6.25
Existing and Tariff proposed by KSEB Ltd

SINo	Particulars	Existing Tariff	Proposed by KSEB Ltd	
			2018-19	2020-21
1	Fixed charges (Rs/ kW / month)	50	110	135
2	Energy charge (Rs/ kWh) (Non telescopic)			
	Up to 500 units	5.50	4.75	4.60
	Above 500 units	6.30	5.35	5.00

In the case of LT-VI (A) categories also, KSEB Ltd has proposed disproportionate increase in fixed cost compared to the prevailing tariff. Though there is a reduction in energy charges proposed by KSEB Ltd, there will be an excessive increase in overall tariff and especially of those consumers having low load factor. Considering these factors, the Commission has approved the LT-VI (A) category tariff as detailed below.

Table 6.26
Existing tariff, proposed tariff and approved tariff for LT-VI(A) category

Particulars	Existing Tariff	Proposed by KSEB Ltd		Approved by the Commission
		2018-19	2020-21	
Fixed charges (Rs/ kW / month)	50	110	135	65
Energy charge (Rs/ kWh) (Non telescopic)				
Up to 500 units	5.50	4.75	4.60	5.70
Above 500 units	6.30	5.35	5.00	6.50

In the meantime, on 08.04.2019, the Manager, Sabari Charitable Trust, filed a Writ Petition WP(c) No. 12204 Of 2019, before the Hon'ble High Court of Kerala to direct the Kerala State Electricity Commission to consider the petition filed before it for revision of the existing electricity tariff and provide to various schools belongs to the petitioner. Hon. High Court of Kerala, vide the judgment dated 12.04.2019 in W.P.(C) No.12204/2019 has ordered as follows,-

"4. Taking note of the afore submission, I order this writ petition and direct the 1st respondent to take up Exhibit P8 and dispose it of in terms of law, after affording an opportunity of being heard to the petitioner, as expeditiously as is possible but not later than 3 months from the date of receipt of a copy of this judgment.

I make it clear that I have not considered the entitlement of the petitioner to any of the relief sought for in the exhibit P 8 and that I leave it to the regulatory commission to decide it appropriately in terms of law as they deem fit.

This writ petition is thus ordered."

The Commission conducted hearing on the Exhibit P8 petition filed before it on 17.06.2019. Adv. Jose J Matheikal, presented the matter before the Commission during the hearing. The summary of the issues raised by the petitioner is given below.

- (i) The petitioner is the manager of Sabari Charitable Trust which is found in 1997 and running upper primary high schools and nursery schools at various locations in Palakkad District. These schools are aided schools, and hence the State Government is paying salaries and allowances of teaching and other non-teaching staff.

- (ii) At present the electricity tariff applicable to these schools is the LT VI(A) tariff, applicable to educational institutions owned by the State Government.
- (iii) As per Section 9(3) of Kerala Educational Act, Government is bound to pay maintenance grant to the manager of the school at such rate as prescribed. As per the Rule 3 (X) of Chapter XXVIII Kerala Educational Rules, electricity charges are liable to be paid by the Government.
- (iv) As per rule 4 of Chapter XXVII, Kerala Educational Rules, an amount of Rs. 3.25 per annum per pupil in LP and UP Section and Rs.5 per annum per people in High school classes is prescribed. This meagre amount fixed forty years back is even now paid by the Government to the Managers which are not sufficient to meet the expenses including electricity charges.
- (v) As per the Right to Education Act, 2009 as well as the constitutional amendment to article 21 A, every child between age of 6 to 14 are entitled to give free and compulsory education. The Government is therefore bound to provide necessary infrastructure for enabling their education.
- (vi) All the State machineries including State Government, KSERC and KSEB are legally bound to respect and obey the Constitution of India whose Article 21A says State shall provide free and compulsory education to all Children of the age six to fourteen.
- (vii) In the above circumstances, the petitioner requests before the Commission to favorably consider the grievances highlighted by the petitioner and allow the petition by reducing the electricity tariff to educational institution from the existing rate in the next tariff revision order.

The Commission has examined the issues raised by the petitioner as per the provisions of the Electricity Act, 2003, the Tariff Policy 2006 notified by the Central Government, and the KSERC (Terms and Conditions for Determination of Tariff) Regulations, 2018, and decided as follows.

- (i) At present, the LT-VI (A) tariff applicable to aided educational institutions is same as that applicable for 'educational institutions run by Government'.

- (ii) The Section 62(3) of the Electricity Act 2003, empowers the Commissions to differentiate consumer according to the Load Factor, Power Factor, voltage, total consumption of electricity, geographical area, nature of supply and **the purpose for which electricity is being used**. The Commission determines the retail supply tariff of electricity, based on the approved aggregate revenue requirement of the incumbent distribution licensee, KSEBL. The Commission has to ensure that the approved aggregate revenue requirement has to be recovered from the consumer thorough electricity tariff as per the provisions of the electricity act 2003 and Regulations notified by the Commission.
- (iii) The issues raised by the petitioner in the Exhibit P8 are the issues to be taken up with the State Government regarding the inadequacy of the grants provided by the State Government for maintenance of the aided educational institutions.
- (iv) Since the educational institutions of the petitioner are aided educational institutions, the electricity tariff applicable to the educational institutions run by the petitioner is same as the tariff determined for the educational institutions run by the Government. As per the provisions of the Electricity Act, 2003 and the Regulations notified by the Commission under Section 181 of the Electricity Act-2003, the Commission cannot grant further relief to the petitioner in this regard.

Considering all these, the Commission ordered to levy electricity charges of the aided educational institutions in the State at LT-VI (A) Tariff, the tariff applicable to Government owned educational institutions.

Low Tension- VI – General (B) – [LT – VI (B)]

6.35 LT- VI (B) tariff is applicable to,-

- (i) offices and institutions under the State or Central Governments or under the Local Self Government Institutions, except those which are included in the category LT-VI General (C); village offices; Government Treasuries.
- (ii) offices of the Corporations, Boards and other Public Sector Undertakings under State or Central Governments;

- (iii) offices of the Kerala Water Authority (KWA), Kerala State Road Transport Corporation (KSRTC) and Kerala State Water Transport Corporation (KSWTC);
- (iv) museum and / or zoo;
- (v) hostels of educational institutions affiliated to Universities, hostels under the control of the Director of Technical Education or the Director of Medical Education or the Director of Public Instruction or such other institutions of government,
- (vi) hostels run by the State or Central Government, hostels run by State Social Welfare Board,
- (vii) hostels run by institutions registered under the Travancore - Cochin Literary, Scientific and Charitable Societies Registration Act, 1955 (12 of 1955) or under the Societies Registration Act, 1860 (21 of 1860) or under Indian Trust Act, 1882, the donations to which are exempted from payment of Income Tax;
- (viii) Working women hostels operating under the scheme approved by the Ministry of Women and Child Development, Government of India, hostels under the supervision and monitoring of Department of Social Welfare, Government of Kerala;
- (ix) Pay wards and institutions of Kerala Health Research and Welfare Society (KHRWS);
- (x) travellers bungalows, rest houses and guest houses under government; Police Clubs,
- (xi) type writing institutes;
- (xii) offices of advocates or chartered accountants or company secretary or consulting engineers or tax consultants or architects or cost accountants or of management consultants;
- (xiii) offices of social service organizations, offices of service pensioners' associations.
- (xiv) offices of political parties not approved by the Election Commission of India;
- (xv) collection centres of 'FRIENDS'; single window service centres under Department of Information Technology;
- (xvi) offices of Department of Posts, all post offices including extra departmental (ED) post offices;
- (xvii) micro financing institutions registered and functioning as per the guidelines issued by Reserve Bank of India;
- (xviii) cameras at traffic signal points, surveillance cameras installed by the Local Self Government Institutions.
- (xix) offices of KMRL

- (xx) Religious organisations.
- (xxi) Old age homes which charge the inmates for boarding and lodging.

Table 6.27

The existing and proposed tariff for LT-VI (B) category is given below.

SINo	Particulars	Existing Tariff	Proposed by KSEB Ltd	
			2018-19	2020-21
1	Fixed charges (Rs/ kW / month)	70	140	160
2	Energy charge (Rs/ kWh) (Non telescopic)			
	Up to 500 units	6.30	5.15	4.90
	Above 500 units	7.00	5.75	5.50

The Commission has examined the proposals of KSEB Ltd. It is noticed that, in this category also, KSEB Ltd has proposed over a 100% increase in fixed charge over the prevailing rates. The Commission has also noted that, LT-VI (B) is a subsidising category and its cost coverage at the existing tariff is above 120%. Considering all these factors, the Commission has approved only an increase in fixed charge with no increase in energy charge.

The existing tariff, proposed tariff and the tariff approved for LT-VI(B) category is given below.

Table 6.28

Existing tariff and proposed tariff and approved tariff for LT-VI(B) category

SINo	Particulars	Existing Tariff	Proposed by KSEB Ltd		Approved by the Commission
			2018-19	2020-21	
1	Fixed charges (Rs/ kW / month)	70	140	160	80
2	Energy charge (Rs/ kWh) (Non telescopic)				
	Up to 500 units	6.30	5.15	4.90	6.30
	Above 500 units (all units)	7.00	5.75	5.50	7.00

During the public hearing at Thiruvananthapuram on 10.12.2018, M/s BSNL had requested the Commission to classify them under the Industrial tariff category. During the deliberations, M/s BSNL submitted that, along with the installations of cellular mobile communications and telephone exchanges, the administrative offices/ buildings of the BSNL

also charged under LT-VI (F) tariff. The Commission has examined the matter in detail and decided to include the administrative buildings of BSNL under LT-VI(B) tariff. There is, however no change in the tariff applicable to installations of cellular mobile communications, exchanges of telecom companies etc, and it will be continued to charge under LT-VI(F) category under LT and HT-II(B) category under HT.

Low Tension –VI-General (C) [LT-VI(C)]

6.36 The tariff under this category is applicable to

- (i) offices or institutions under Income Tax or Central Excise and Customs Departments,
- (ii) offices under Motor Vehicles Department or Sales Tax department or Excise Department; Sub-Registry offices; and such other tax earning departments under State or Central Government (other than Local Self Government Institutions);
- (iii) light houses;
- (iv) banking and / or financing institutions (excluding micro financing institutions registered and functioning as per the guidelines issued by Reserve Bank of India);
- (v) ATM counters;
- (vi) offices of Railways including railway stations;
- (vii) offices of Airport Authority of India except airport;
- (viii) Insurance companies,
- (ix) any other LT categories not included in this schedule.

The existing tariff and the tariff proposed by KSEB Ltd for this category is given below.

Table 6.29
Existing tariff and the tariff proposed by KSEB Ltd

SlNo	Particulars	Existing Tariff	Proposed by KSEB Ltd	
			2018-19	2020-21
1	Fixed charges (Rs/ kW / month)	180	310	310
2	Energy charge (Rs/ kWh) (Non telescopic)			
	Up to 500 units	7.00	5.80	5.80
	Above 500 units	8.50	6.40	6.40

The Commission has examined the existing tariff and the tariff proposed by KSEB Ltd for LT-VI(C) category, As discussed earlier, the Commission is not agreeable to the unjustified excessive increase in fixed charges as

proposed by KSEB Ltd. Further, LT-VI(C) is also one of the subsidising category with cost coverage more than 120% and the cost coverage of this category at the present tariff is about 150%. Considering all these factors, the Commission decided not to increase the tariff of this category. The existing tariff, proposed tariff and the tariff approved for LT-VI (C) category is given below.

Table 6.30
Existing tariff and proposed tariff and approved tariff for LT-VI(C) category

SINo	Particulars	Existing Tariff	Proposed by KSEB Ltd		Approved by the Commission
			2018-19	2020-21	
1	Fixed charges (Rs/ kW / month)	180	310	310	180
2	Energy charge (Rs/ kWh) Non telescopic				
	Up to 500 units	7.00	5.80	5.80	7.00
	Above 500 units	8.50	6.40	6.40	8.50

This will bring down the cost coverage of this category to 174% and move towards the achievement of the Tariff Policy guidelines +_20% of the average cost of supply.

Low Tension –VI-General (D) [LT-VI(D)]

6.37 The tariff under LT-VI (D) category is applicable to

- (i) orphanages;
- (ii) anganwadis; schools and hostels for differently abled or physically challenged persons (including mentally retarded students, deaf/dumb/blind persons),
- (iii) old age homes where no charges are levied for the boarding and lodging of inmates,
- (iv) Cheshire homes; polio homes; SoS Childrens' Villages,
- (v) charitable centres for cancer care, pain and palliative care and HIV rehabilitation,
- (vi) charitable hospital guidance centres registered under the Travancore - Cochin Literary, Scientific and Charitable Societies Registration Act, 1955 (12 of 1955) or under the Societies Registration Act, 1860 (21 of 1860) or under Indian Trust Act, 1882, donations to which are exempted from payment of Income Tax,
- (vii) charitable institutions recognized by the Government for the care and maintenance of the destitute and differently abled or

- physically challenged persons including mentally retarded persons and deaf/dumb/blind persons,
- (viii) shelters exclusively for orphaned animals and birds run by charitable institutions registered under the Travancore - Cochin Literary, Scientific and Charitable Societies Registration Act, 1955 (12 of 1955) or under the Societies Registration Act, 1860 (21 of 1860) or under Indian Trust Act, 1882;
 - (ix) libraries and reading rooms with connected load of and below 2000 watts and monthly consumption of and below 100 units.
 - (x) e-toilet and public comfort stations, where no charges are levied for the use.

The existing tariff and the tariff proposed by KSEB Ltd for LT-VI (D) category is given below.

Table 6.31
Existing tariff and the tariff proposed by KSEB Ltd

SINo	Particulars	Existing Tariff	Proposed by KSEB Ltd	
			2018-19	2020-21
1	Fixed charges (Rs/ kW / month)	Nil	Nil	Nil
2	Energy charge (Rs/ kWh)	1.80	2.00	2.10

Commission has examined the tariff revision proposed by KSEB Ltd. Considering the social sensitivity requirement and the need to promote such institutions run for the care and maintenance of the destitute, deprived, differently abled and such other persons, the tariff of the LT-VI (D) category is highly subsidised. However the total energy consumed by the LT-VI (D) is only about 0.10% of the total energy consumption of the State. Considering the highly subsidised tariff of the LT-VI(D), and keeping in view of the Tariff Policy, 2016, the Commission has decided to increase the energy charge from Rs 2.00/unit to Rs 2.10 /unit, and also proposed to introduce a fixed charge @ Rs 35.00 per consumer per month. The existing tariff, proposed tariff and approved tariff of LT-VI (D) category is given below.

Table 6.32
Existing tariff, proposed tariff and approved tariff for LT- VI (D) category

Particulars	Existing tariff	Tariff proposed by KSEB Ltd		Approved tariff
		2018-19	2020-21	
Fixed charge	Nil	Nil	Nil	Rs 35.00/ consumer/ month
Energy charge	1.80	2.00	2.10	2.10

Low Tension –VI-General (E) [LT-VI(E)]

6.38 The tariff under LT-VI(E) category is applicable to

- (i) sports and / or arts clubs (with connected load not exceeding 2000 W);
- (ii) sailing and / or swimming clubs (with connected load not exceeding 2000 W);
- (iii) gymnasium (with connected load not exceeding 2000 W);
- (iv) libraries and reading rooms excluding those which are included in LT VI-A and LT VI-D categories,
- (v) press clubs;
- (vi) offices of political parties approved by Election Commission of India;
- (vii) e-toilet and public comfort stations, where charges are levied for the use.

6.39 The existing tariff and the tariff proposed by KSEB Ltd and the tariff approved for LT-VI (E) category is given below.

Table 6.33
Existing tariff, proposed tariff and approved tariff for LT-VI(E) category

Sl No	Particulars	Existing tariff	KSEB proposal		Approved by the Commission
			2018-19	2020-21	
1	Fixed charge (Rs/consumer/month)				
	(a) Single phase	30	35	40	40
	(b) Three phase	80	90	100	100
2	Energy charge (Rs/ kWh) (Non telescopic)				
	Upto 50 units	3.10	3.10	3.10	3.40
	Upto 100 units	4.10	4.70	4.70	4.40
	Upto 200 units	4.80	4.90	4.90	5.10
	Above 200 units (all units)	6.50	6.50	6.50	6.80

As above, the Commission approve an increase in fixed charge of Rs 10.00/consumer/month for single phase connection and Rs

20/consumer / connection for three phase connection. Further the Commission approve an increase of Rs 0.30/unit for energy charge.

Low Tension –VI-General (F) [LT-VI(F)]

6.40 The tariff under LT- VI (F) is applicable to:

- (i) computer training institutes, private coaching or tuition centres, self-financing educational institutions including the hostels run by them,
- (ii) cinema studios, audio/video cassette recording/duplication units, CD recording units, cinema dubbing and animation studios,
- (iii) all construction works,
- (iv) installations of cellular mobile communications, satellite communications, offices and / or exchanges of telecom companies,
- (v) offices or institutions of All India Radio (AIR), Doordarshan and other television broadcasting companies, cable TV networks, radio stations,
- (vi) hall marking centres.

The existing and proposed tariff for LT-VI (F) category is given below.

Table 6.34
Existing tariff and the tariff proposed by KSEB Ltd

SI No	Particulars	Existing tariff	Proposed by KSEB Ltd		
			Connected load	2018-19	2020-21
1	Fixed charge (Rs/kW/month)	60	0 to 5 kW	100	110
	Single phase		5 to 10 kW	180	210
	Three phase	120	10 to 20 kW	430	440
			> 20 kW	600	610
2	Energy charge (Rs/kWh) (Non telescopic)	Existing tariff	Proposed by KSEB Ltd		
	Monthly consumption slab		2018-19	2020-21	
	0 to 100		4.00	3.80	
	0 to 200		4.70	4.60	
	0 to 300		5.45	5.00	
	0 to 500		6.35	5.80	
	>500		6.70	6.60	

6.41 The Commission has examined the proposal of KSEB Ltd in detail. It is noticed that, KSEB Ltd has proposed excessive increase in fixed charge,

especially for consumers with connected load above 5 kW. Though KSEB Ltd has proposed a marginal reduction in energy charge, there will be substantial increase in overall tariff payable by the consumers with connected load above 10 kW with the proposed tariff.

Further, LT- VI (F) category is subsidising category with cost coverage of 171%. Keeping in view of the Tariff Policy guidelines of bringing down the tariff at +_20% of the average cost of supply, the cross subsidy level cannot be increased any further. Instead, it has to be brought down stage wise so as to achieve the 120% of the average cost of supply. However, considering the overall increase in average cost of supply from previous tariff order dated 17.04.2017, the Commission has proposed a meagre increase in fixed charge by Rs 10/ kW/month for single phase and Rs 20/kW/month for three phase. However, the Commission has not approved any increase in energy charge for the LT-VI(F) category.

The existing tariff, proposed tariff and approved tariff for LT-VI (F) category is given below.

Table 6.35
Existing tariff, proposed tariff and approved tariff for LT-VI(F) category

Sl No	Fixed charge (Rs/kW/month)	Existing tariff	Proposed by KSEB Ltd			Approved tariff		
			Connected load	2018-19	2020-21			
1	Single phase	60	0 to 5 kW	100	110	Single phase	70	
			5 to 10 kW	180	210			
	Three phase	120	10 to 20 kW	430	440	Three phase	140	
			> 20 kW	600	610			
2	Energy charge (Rs/kWh) (Non telescopic)	Existing tariff	Proposed by KSEB Ltd		Approved tariff			
	Monthly consumption slab		2018-19	2020-21				
	0 to 100		5.80	4.00		3.80	5.80	
	0 to 200		6.50	4.70		4.60	6.50	
	0 to 300		7.20	5.45		5.00	7.20	
	0 to 500		7.80	6.35		5.80	7.80	
	>500		9.00	6.70		6.60	9.00	

LT-VI- GENERAL (G)

6.42 The tariff under this category is applicable to all the private hospitals, private clinics, private clinical laboratories, private X-ray units, private

mortuaries, private blood banks and private scanning centres and such other private institutions in health care sector.

6.43 The existing tariff and the proposed tariff for LT-VI (G) category is given below.

Table 6.36
Existing tariff and the tariff proposed by KSEB Ltd

1	Particulars	Existing tariff	Proposed by KSEB Ltd		
	Fixed charge (Rs/kW/month)		Connected load	2018-19	2020-21
	Single phase	60	0 to 5 kW	100	110
	Three phase	180	5 to 10 kW	180	210
			10 to 20 kW	430	440
			> 20 kW	600	610
2	Energy charge (Rs/kWh) (Non telescopic)	Existing tariff	Proposed by KSEB Ltd		
Monthly consumption slab	2018-19		2020-21		
0 to 500	5.50		2.80	2.50	
0 to 1000	6.50		3.20	3.10	
0 to 2000	7.50		3.70	3.60	
>2000	8.50		4.30	4.20	

6.44 The Commission had examined the proposal of KSEB Ltd in detail. KSEB Ltd has proposed a substantial increase in fixed cost from consumers, while effecting a reduction in energy charge. However, the Commission cannot approve such an abnormal increase in fixed charge, without any justifiable reason.

6.45 In the last suo-motu order dated 17.04.2017, the Commission has introduced the LT-VI (G) category for the private hospitals and such other private sector institutions in the health care sector. While introducing the new tariff category, the Commission has decided the tariff in such a way that, it would give considerable relief especially to the small private hospitals and clinics with consumption of and below 500 units, by equating the energy charge with that applicable to Government hospitals with monthly consumption of and below 500 units.

6.46 The LT-VI (G) category is also a subsidising tariff category with cost coverage more than 120%. Considering this, the Commission has proposed a reduction in fixed charge for three phase consumers from the present rate of Rs 180/kW/month to Rs 140/kW/month. No revision of energy charge is proposed for LT-VI (G) consumers having monthly consumption above 500 units. The existing tariff, proposed tariff and approved tariff for LT-VI(G) category is given below.

Table 6.37
Existing tariff, proposed tariff and approved tariff for LT-VI(G) category

1	Particulars Fixed charge (Rs/kW/month)	Existing tariff	Proposed by KSEB Ltd			Approved tariff	
			Connected load	2018-19	2020-21		
	Single phase	60	0 to 5 kW	100	110	Single phase	70
	Three phase	180	5 to 10 kW	180	210	Three phase	140
			10 to 20 kW	430	440		
			> 20 kW	600	610		
2	Energy charge (Rs/kWh) (Non telescopic)	Existing tariff	Proposed by KSEB Ltd		Approved tariff		
	Monthly consumption slab		2018-19	2020-21			
	0 to 500	5.50	2.80	2.50	5.70		
	0 to 1000	6.50	3.20	3.10	6.50		
	0 to 2000	7.50	3.70	3.60	7.50		
	>2000	8.50	4.30	4.20	8.50		

LOW TENSION - VII – COMMERCIAL (A) [LT- VII (A)]

6.47 The tariff under LT-VII (A) category is applicable to commercial and trading establishment such as,

- (i) shops, showrooms, display outlets, business houses,
- (ii) hotels and restaurants (having connected load exceeding 1000 W), house boats
- (iii) private lodges, private hostels, private guest houses, private rest houses, private travellers bungalows,
- (iv) freezing plants, cold storages, milk chilling plants,
- (v) shops selling confectioneries, sweetmeat, breads and such other eatables without manufacturing process,
- (vi) petrol/diesel/ LPG /CNG bunks, LPG bottling plants,
- (vii) automobile service stations, computerized wheel alignment centres,
- (viii) marble and granite cutting units,
- (ix) units carrying out filtering, packing and other associated activities of oil brought from outside,
- (x) share broking firms, stock broking firms, marketing firms.

KSEB Ltd vide the letter dated 14.12.2018 has requested before the Commission that, at present godowns of Kerala State Beverages Corporation (KSBC) and Kerala State Warehousing Corporations under categorised under LT-VI (B) tariff applicable to offices of Central and State Government offices. KSEB Ltd further submitted that, the godowns

of the KSBC are the wholesale outlets of liquor to private shops as well as to their own outlets, hence their activities are commercial nature. Similarly, the godowns of the Kerala State Warehousing Corporation stock the food grains on chargeable basis, hence KSEB Ltd request to categorise the godowns of warehousing corporation also under LT-VII (A) commercial category. The Commission examined the proposal and approve to include the godowns of KSBC under LT-VII (A) commercial category.

There is no clarity in the present tariff schedule regarding the tariff applicable to 'photo studios/ colour labs'. Considering the commercial nature of their activity, the Commission decided to categorise all the photo studios/ colour labs under LT-VII (A) tariff.

- 6.48 The existing tariff and the tariff proposed by KSEB Ltd for LT-VII (A) category is given below.

Table 6.38
Existing tariff and the tariff proposed by KSEB Ltd

Fixed charge (Rs/kW/month)	Existing tariff	Proposed by KSEB Ltd		
		Connected load	2018-19	2020-21
Single phase	60	0 to 5 kW	100	110
Three phase	120	5 to 10 kW	180	210
		10 to 20 kW	430	440
		> 20 kW	600	610
Energy charge (Rs/kWh)	Existing tariff	Proposed by KSEB Ltd		
Monthly consumption slab		2018-19	2020-21	
0 to 100		6.00	4.00	3.75
0 to 200		6.70	4.80	4.50
0 to 300		7.40	5.30	4.90
0 to 500		8.00	5.70	5.55
>500		9.30	6.65	6.50

- 6.49 The Commission has examined the tariff proposed by KSEB Ltd for LT-VII(A) category. KSEB Ltd has proposed excessive increase in fixed charge and also proposed to reduce the energy charge to offset the increase in fixed charge. The LT- VII (A) category is subsidising category, and hence its cross subsidy level cannot be increased from the cross subsidy level approved in the last revision. However, considering the overall increase in average cost of supply from the date of the previous tariff order dated 17.04.2017, the Commission has proposed an increase in fixed charge by Rs 10/ kW/month for single phase and Rs 20/kW/month for three phase.

However, the Commission has not approved any increase in energy charge for the LT-VII(A) category.

6.50 The existing tariff, proposed tariff and approved tariff for LT-VII (A) category is given below.

Table 6.39
Existing tariff, proposed tariff and approved tariff for LT-VII (A) Category

1	Fixed charge (Rs/kW/month)	Existing tariff	Proposed by KSEB Ltd			Approved tariff	
			Connected load	2018-19	2020-21		
	Single phase	60	0 to 5 kW	100	110	Single phase	70
			5 to 10 kW	180	210		
	Three phase	120	10 to 20 kW	430	440	Three phase	140
			> 20 kW	600	610		
2	Energy charge (Rs/kWh)	Existing tariff	Proposed by KSEB Ltd		Approved tariff		
Monthly consumption slab	2018-19		2020-21				
	0 to 100	6.00	4.00	3.75	6.00		
	0 to 200	6.70	4.80	4.50	6.70		
	0 to 300	7.40	5.30	4.90	7.40		
	0 to 500	8.00	5.70	5.55	8.00		
	>500	9.30	6.65	6.50	9.30		

LT- VII – Commercial (B) [LT – VII – (B)]

6.51 LT-VII (B) Tariff is applicable to commercial and trading establishments such as,-

- (i) shops, bunks, hotels, restaurants, having connected load of and below 1000 Watts
- (ii) telephone / fax / e-mail / photocopy booths and internet cafes having connected load of and below 1000 Watts.

When connected load of the above mentioned consumers exceeds 1000 Watts, such consumers shall be charged under LT -VII (A) tariff. If monthly consumption of LT- VII (B) consumers having connected load of and below 1000 Watts, exceeds 300 units, the energy charges shall be realized at the rate of energy charges applicable to LT -VII (A) consumers.

6.52 The existing tariff, proposed tariff and approved tariff for LT-VII(B) category is given below.

Table 6.40

Existing tariff, proposed tariff and approved tariff for LT-VII (B) category

Sl No	Particulars	Existing tariff	Proposed by KSEB Ltd		Approved tariff
			2018-19	2020-21	
1	(a) Fixed charge (Rs/ kW per month)	40	100	110	50
2	(b) Energy Charge (paise per unit)				
	Upto 100 Units	5.00	3.20	3.10	5.20
	Upto 200 Units	5.70	4.60	4.30	6.00
	Upto 300 Units	6.30	5.00	4.80	6.60

LT- VII COMMERCIAL (C) [LT VII (C)]

6.53 The tariff under LT VII (C) is applicable to,-

- (i) cinema theatres;
- (ii) circus;
- (iii) sports and arts clubs, sailing or swimming clubs and gymnasium having connected load exceeding 2000W.

6.54 The existing tariff and the tariff proposed by KSEB Ltd for LT-VII (C) Category is given below.

Table 6.41

Existing tariff and the tariff proposed by KSEB Ltd

1	Particulars	Existing tariff	Proposed by KSEB Ltd		
			Connected load	2018-19	2020-21
	Fixed charge (Rs/kW/month)	90	0 to 5 kW	100	110
	Single phase & three phase		5 to 10 kW	180	210
			10 to 20 kW	430	440
			> 20 kW	600	610
2	Energy charge (Rs/kWh) (Non telescopic)	Existing tariff	Proposed by KSEB Ltd		
	Monthly consumption slab		2018-19	2020-21	
	0 to 1000		2.10	1.90	
	above 1000		2.10	1.90	

6.55 The Commission has noted that, KSEB Ltd has proposed an excessive increase in fixed charge from Rs 90/kW/month to Rs 600/kW/month. The Commission cannot approve such an increase proposed by KSEB Ltd. Further, the LT VII (C) category is also a subsidising category with cost coverage 148% at the existing tariff. Considering the increase in average cost of supply since the last revision order dated 17.04.2017, and the present level of cross subsidy of the LT-VII (C) category, the tariff approved by the Commission for this category is given below/

Table 6.42

Existing tariff, proposed tariff and approved tariff for LT-VII(C) category

1	Particulars	Existing tariff	Proposed by KSEB Ltd			Approved tariff	
	Fixed charge (Rs/kW/month)		Connected load	2018-19	2020-21		
	Single phase & three phase	90	0 to 5 kW	100	110	100	
			5 to 10 kW	180	210		
			10 to 20 kW	430	440		
			> 20 kW	600	610		
2	Energy charge (Rs/kWh) (Non telescopic)	Existing tariff	Proposed by KSEB Ltd		Approved tariff		
	Monthly consumption slab		2018-19	2020-21			
	0 to 1000		5.90	2.10		1.90	6.00
	above 1000		7.30	2.10		1.90	7.40

LT- VIII (A) Unmetered street lights [LT – VIII (A)]

6.56 LT- VIII(A) tariff is applicable to un metered street lights/ public lighting system managed by Local Self Government Institutions in the State.

The existing and proposed tariff for unmetered street lights is given below.

Table 6.43

Existing tariff and the tariff proposed by KSEB Ltd

No.	Type of lamp	Watts	KSEB Proposal								
			Existing Tariff			2018-19			2020-21		
			Rs/lamp/month			Rs/lamp/month			Rs/lamp/month		
			Burning hours per day			Burning hours per day			Burning hours per day		
4	6	12	4	6	12	4	6	12			
1	Ordinary	40	22	33	66	25	38	76	53	79	159
2	Ordinary	60	33	50	102	39	59	117	84	126	252
3	Ordinary	100	55	84	167	64	96	192	135	203	406
4	Fluo tube	40	22	33	66	25	38	76	53	79	159
5	Fluo tube	80	44	66	134	51	77	154	109	163	326

No.	Type of lamp	Watts	KSEB Proposal								
			Existing Tariff			2018-19			2020-21		
			Rs/lamp/month			Rs/lamp/month			Rs/lamp/month		
			Burning hours per day			Burning hours per day			Burning hours per day		
4	6	12	4	6	12	4	6	12			
6	Floodlight	1000	559	838	1677	643	964	1929	1364	2046	4092
7	MV lamp	80	51	70	143	55	82	164	124	185	371
8	MV lamp	125	75	112	222	85	128	255	191	286	573
9	MV lamp	160	96	143	286	110	164	329	248	372	744
10	MV lamp	250	149	222	447	171	257	514	388	581	1163
11	MV lamp	400	239	356	714	274	411	821	618	927	1854
12	SV lamp	70	42	64	125	48	72	144	108	163	325
13	SV lamp	80	48	70	143	55	82	164	124	185	371
14	SV lamp	100	59	89	178	68	102	205	154	231	462
15	SV lamp	125	75	112	222	85	128	255	191	286	573
16	SV lamp	150	89	134	267	102	154	307	230	346	691
17	SV lamp	250	149	222	447	171	257	514	388	581	1163
18	CFL	11	5	8	16	6	9	18	11	17	33
19	CFL	15	7	11	22	8	13	25	15	23	46
20	CFL	18	9	13	26	10	15	30	18	27	55
21	CFL	22	11	16	32	12	18	37	23	34	68
22	CFL	30	15	22	44	17	25	51	32	47	95
23	CFL	36	17	26	53	20	30	61	38	57	114
24	CFL	44	21	32	64	25	37	74	45	68	136
25	CFL	72	35	53	105	40	60	121	74	112	223
26	CFL	144	70	105	210	81	121	242	149	223	446
27	LED	12	3	4	9	5	7	14	6	9	17
28	LED	18	4	7	14	7	11	21	9	13	27
29	LED	20	5	7	15	8	11	23	9	14	28
30	LED	24	6	9	20	10	15	30	14	21	41
31	LED	30	7	11	25	13	19	38	17	26	52
32	LED	40	10	15	30	15	23	45	19	28	56
33	LED	45	11	16	35	18	26	53	23	34	68
34	MV lamp*	1200			2160			2808	2409	3614	7228
35	SV lamp*	250			450			585	502	753	1506

6.57 The average tariff of the LT-VIII(A) unmetered street light is about Rs 4.72/unit and its cost recovery is only about 76% of the average cost only. Considering the overall increase in average cost of supply compared to the previous tariff order dated 17.04.2017 and present level of cost coverage, the Commission proposes an average increase of

about 10% on the existing composite tariff of unmetered street lights. The composite tariff approved for unmetered street lights is given below.

Table 6.44
Existing tariff and approved tariff for LT-VIII(A) Unmetered street lights

No.	Type of lamp	Watts	Existing Tariff			Approved tariff		
			Rs/lamp/month			Rs/lamp/month		
			Burning hours per day			Burning hours per day		
			4	6	12	4	6	12
1	Ordinary	40	22	33	66	24	36	73
2	Ordinary	60	33	50	102	36	55	112
3	Ordinary	100	55	84	167	61	92	184
4	Fluo tube	40	22	33	66	24	36	73
5	Fluo tube	80	44	66	134	48	73	147
6	Floodlight	1000	559	838	1677	615	922	1845
7	MV lamp	80	51	70	143	56	77	157
8	MV lamp	125	75	112	222	83	123	244
9	MV lamp	160	96	143	286	106	157	315
10	MV lamp	250	149	222	447	164	244	492
11	MV lamp	400	239	356	714	263	392	785
12	SV lamp	70	42	64	125	46	70	138
13	SV lamp	80	48	70	143	53	77	157
14	SV lamp	100	59	89	178	65	98	196
15	SV lamp	125	75	112	222	83	123	244
16	SV lamp	150	89	134	267	98	147	294
17	SV lamp	250	149	222	447	164	244	492
18	CFL	11	5	8	16	6	9	18
19	CFL	15	7	11	22	8	12	24
20	CFL	18	9	13	26	10	14	29
21	CFL	22	11	16	32	12	18	35
22	CFL	30	15	22	44	17	24	48
23	CFL	36	17	26	53	19	29	58
24	CFL	44	21	32	64	23	35	70
25	CFL	72	35	53	105	39	58	116
26	CFL	144	70	105	210	77	116	231
27	LED	12	3	4	9	3	4	10
28	LED	18	4	7	14	4	8	15
29	LED	20	5	7	15	6	8	17
30	LED	24	6	9	20	7	10	22
31	LED	30	7	11	25	8	12	28
32	LED	40	10	15	30	11	17	33
33	LED	45	11	16	35	12	18	39

No.	Type of lamp	Watts	Existing Tariff			Approved tariff		
			Rs/lamp/month			Rs/lamp/month		
			Burning hours per day			Burning hours per day		
			4	6	12	4	6	12
34	MV lamp*	1200			2160	0	0	2376
35	SV lamp*	250			450	0	0	495

LT- VIII (B) Metered Street Lights and Traffic Signal Lights [LT- VIII (B)]

6.58 The existing tariff, tariff proposed by KSEB Ltd and the tariff approved for metered street lights is given below.

Table 6.45
Existing tariff, proposed tariff and approved tariff for LT-VIII (B) category

Particulars	Existing tariff	Proposed by KSEB Ltd		Approved tariff
		2018-19	2020-21	
Fixed charge (Rs/meter/month)	40.0	60.0	80.0	50.0
Energy Charge (Rs/ kWh)	3.90	4.50	4.9	4.30

LT IX : DISPLAY LIGHTINGS AND HOARDINGS

6.59 The tariff under this category is applicable to display lightings, hoardings, external illumination of buildings for publicity and sales- promotion purposes.

KSEB Ltd has not proposed tariff revision on this category. The Commission has decided to provide a small increase in fixed charges and to continue the existing energy charges for this category. The existing tariff and the approved tariff for LT-IX category are given below.

Table- 6.46

Existing tariff and approved tariff for Display Board and Hoardings

Particulars	Existing tariff	Approved tariff
(a) Fixed Charge (Rs. per Connection per month)	500	550
(b) Energy Charge (Rs per unit)	12.50	12.50

LT X- Electric Vehicle Charging stations

6.60 During the deliberations of the Tariff petition, KSEB Ltd and also KSRTC requested before the Commission to determine the electricity tariff for

Electric Vehicle charging stations. During the deliberations it is also submitted that, the State Government is for promoting e-vehicles to encourage e-mobility. KSEB Ltd also proposes ToD tariff for LT connections having connected load above 20 kW.

The tariff proposed by KSEB Ltd for charging stations for Electric Vehicles and the tariff approved by the Commission is given below.

Table- 6.47
Tariff approved for charging stations of Electric Vehicles under LT

Particulars	Proposed by KSEB Ltd				Approved by the Commission	
	Monthly fixed charge/ demand charge		Energy charge (Rs/ kWh)		Monthly Fixed charge/ demand charge	Energy Charge (Rs/ kWh)
	2018-19	2020-21	2018-19	2020-21		
Connected load of and below 10 KW	Rs 100/ consumer	Rs 200/ consumer	5.00	4.50	Rs 75/kW	5.00
Connected load above 10 KW and upto 20 KW	Rs 150/ KW	Rs 200 / KW	5.00	4.50		
Connected load above 20 kW	Rs 300/ kVA	Rs 500/ kVA	5.00	4.50		

High Tension I - Industrial (A)[HT-I(A)]

6.61 Tariff applicable to general purpose industrial load of all classes of consumers listed in LT-IV (A) category availing supply of electricity at high tension. The existing tariff and the tariff proposed by KSEB Ltd is given below.

Table 6.48
Existing tariff and the tariff proposed by KSEB Ltd

Particulars	Existing tariff	Proposed by KSEB Ltd	
		2018-19	2020-21
Demand charge (Rs/ kVA/ month)	300	600	750
Energy charges (Ruling) (Rs/ kWh)	5.50	4.80	4.80

The Commission has carefully examined the tariff proposed by KSEB Ltd for HT-1 (A) Industrial category. KSEB Ltd has proposed a 100% increase in the demand charges and 12.7% reduction in energy charges for HT-I A category. The overall increase in tariff proposed by KSEB Ltd is about 8% over the prevailing tariff.

During the public hearing on the tariff proposals, the HT&EHT Electricity Industrial Consumers Association and other stake holders has raised serious concern on the excessive increase in demand charges proposed by KSEB Ltd. The Commission after considering the view of the stakeholders and the views of KSEB Ltd has concluded that, there is merit in the concern raised by the stakeholders and that, the increase in demand charge proposed cannot be approved as such.

Over the years, the Commission has brought down the average tariff for HT Industrial category well below the 120% of the average cost of supply. Duly considering the increase in average cost of supply over what was approved in the order dated 17.04.2017, the Commission has proposed an overall increase of about 4.5% increase on HT-1 (A) category.

6.62 The existing tariff, proposed tariff and approved tariff for HT-1 (A) category is given below.

Table 6.49

Existing tariff, proposed tariff and approved tariff for HT-1(A) Category

Particulars	Existing tariff	Proposed by KSEB Ltd		Approved tariff
		2018-19	2020-21	
Demand charge (Rs/ kVA/ month)	300	600	750	340
Energy charges (Ruling) (Rs/ kWh)	5.50	4.80	4.80	5.75

High Tension - I Industrial (B) - IT and IT enabled services [HT- I (B)]

6.63 The tariff under this category is applicable to all classes of consumers listed in LT-IV (B) category availing supply of electricity at high tension. The existing tariff and the tariff proposed by KSEB Ltd for HT-1 (B) is given below.

Table 6.50

Existing tariff and the tariff proposed by KSEB Ltd

Particulars	Existing tariff	Proposed by KSEB Ltd	
		2018-19	2020-21
Demand charge (Rs/ kVA/ month)	300	450	550
Energy charges (Ruling) (Rs/ kWh)	5.80	5.00	4.75

The Commission has examine the proposals of KSEB Ltd. Duly considering the increase in average cost of supply over the same approved in the order dated 17.04.2017, and also the cost coverage of this category, the Commission has approved an increase in tariff of this category. The existing tariff, proposed tariff and approved tariff of this category is given below.

Table 6.51
Existing tariff, proposed tariff and approved tariff for HT-1(B) Category

Particulars	Existing tariff	Proposed by KSEB Ltd		Approved tariff
		2018-19	2020-21	
Demand charge (Rs/ kVA/ month)	300	450	550	340
Energy charges (Ruling) (Rs/ kWh)	5.80	5.00	4.75	6.05

High Tension – II- General (A) [HT-II (A)]

6.64 The tariff under this category is applicable to all classes of consumers listed in LT-VI (A), LT-VI (B), LT-VI(D) and LT-VI (E) categories availing supply of electricity at high tension.

KSEB Ltd has proposed an increase in demand charge of 128% in the year 2018-19 and 143% in the year 2019-20, and reduction in energy charge by 22%. The Commission cannot accept such an excessive increase in demand charge as proposed by KSEB Ltd. The cross subsidy level of this category at the prevailing tariff was about 126%. Hence the Commission has approved a moderate increase in fixed charge and energy charge in proportion to the increase in Average Cost of Supply without any increase in cost coverage and cross subsidy level.

The existing tariff, the tariff proposed by KSEB Ltd and the approved tariff of this category is given below.

Table- 6.52
Existing tariff, proposed tariff and approved tariff for HT-II(A) category

Particulars	Existing tariff	Proposed by KSEB Ltd		Approved tariff
		2018-19	2020-21	
Demand charge (Rs/ kVA/ month)	350	800	850	370
Energy charges (Ruling) (Rs/ kWh)	5.40	4.20	4.20	5.60

High Tension – II- General (B) [HT-II (B)]

6.65 The tariff under this category is applicable to all classes of consumers listed in LT-VI (C), LT-VI (F) and LT-VI (G) categories availing supply of electricity at high tension. The existing tariff, the tariff proposed by KSEB Ltd for HT-II (B) category is given below.

Table 6.53
Existing tariff and tariff proposed by KSEB Ltd for HT-II (B) category

Particulars	Existing tariff	Proposed by KSEB Ltd	
		2018-19	2020-21
Demand charge (Rs/ kVA/ month)	400	800	800
Energy charges (Ruling) (Rs/ kWh)			
(a) Monthly consumption upto 30000 units	6.20	4.80	4.80
(b) Monthly consumption above 30000 units	7.20	5.90	5.90

KSEB Ltd has proposed to increase the demand charge for HT-II (B) category by 100% and to reduce the energy charge by about 18%. Further, HT-II (B) category is subsidising category and its cost coverage was above 120% of the average cost of supply. Hence the Commission cannot increase the cross subsidy level of this category further. Considering all these factors, the Commission proposes an increase in fixed charge of this category by Rs 40/kVA month. However, no increase is proposed on the energy charge. The existing tariff, proposed tariff and the approved tariff of HT-II(B) category is given below.

Table- 6.54
Existing tariff, proposed tariff and approved tariff for HT-II(B) category

Particulars	Existing tariff	Proposed by KSEB Ltd		Approved tariff
		2018-19	2020-21	
Demand charge (Rs/ kVA/ month)	400	800	800	440
Energy charges (Ruling) (Rs/ kWh)				
(a) Monthly consumption upto 30000 units	6.20	4.80	4.80	6.20
(b) Monthly consumption above 30000 units	7.20	5.90	5.90	7.20

High Tension – III- Agriculture (A) [HT-III (A)]

6.66 The tariff under this category is applicable to the classes of agricultural consumers listed in LT-V (A) category, availing supply of electricity at high

tension. The existing tariff, proposed tariff and approved tariff for HT-III (A) category is given below.

Table- 6.55
Existing tariff, proposed tariff and approved tariff for HT-III(A) category

Particulars	Existing tariff	Proposed by KSEB Ltd		Approved tariff
		2018-19	2020-21	
Demand charge (Rs/ kVA/ month)	170	180	200	190
Energy charges (Ruling) (Rs/ kWh)	2.80	2.90	3.10	3.10

High Tension – III- Agriculture (B) [HT-III (B)]

6.67 The tariff under this category is applicable to classes of agricultural consumers listed in LT-V (B) category, availing supply of electricity at high tension. The existing tariff, tariff proposed by KSEB Ltd and the tariff approved by the Commission is given below.

Table-6.56
Existing tariff and approved tariff for HT-III(B) category

Particulars	Existing tariff	Proposed by KSEB Ltd		Approved tariff
		2018-19	2020-21	
Demand charge (Rs/ kVA/ month)	170	180	200	200
Energy charges (Ruling) (Rs/ kWh)	3.30	3.40	3.60	3.60

High Tension –IV (A) – Commercial [HT-IV (A)]

6.68 The tariff under this category is applicable to all classes of commercial consumers listed in LT-VII (A) and LT-VII (C) categories (excluding those who included under HT-IV- (B) category), availing supply of electricity at high tension. The existing tariff, and proposed tariff of HT-IV (A) categories is given below.

Table 6.57
Existing tariff and the tariff proposed by KSEB Ltd

Particulars	Existing tariff	Proposed by KSEB Ltd	
		2018-19	2020-21
Demand charge (Rs/ kVA/ month)	400	745	745
Energy charges (Ruling) (Rs/ kWh)			
(a) Monthly consumption upto 30000 units	6.30	5.00	5.00
(b) Monthly consumption above 30000 units	7.30	5.50	5.50

As above, KSEB Ltd has proposed substantial increase in demand charge of HT-IV category. At the prevailing tariff, HT-IV category is a subsidising category and its cost coverage was above 120% of the average cost of supply. Hence the Commission cannot increase the cross subsidy level of this category. Considering all these factors, the Commission proposes an increase in fixed charge of this category by Rs 30/kVA month. However, no increase is proposed on the energy charge. The existing tariff, proposed tariff and the approved tariff of HT-IV (A) category is given below.

Table-6.58

Existing tariff and approved tariff for HT-IV (A) category

Particulars	Existing tariff	Proposed by KSEB Ltd		Approved tariff
		2018-19	2020-21	
Demand charge (Rs/ kVA/ month)	400	745	745	440
Energy charges (Ruling) (Rs/ kWh)				
(a) Monthly consumption upto 30000 units	6.30	5.00	5.00	6.30
(b) Monthly consumption above 30000 units	7.30	5.50	5.50	7.30

High Tension –IV (B) – Commercial [HT-IV (B)]

6.69 The Commission propose to group the consumers under commercial category, including Hotels, marriage halls, convention centres, shopping malls, multiplexes etc in to a separate tariff category under HT. The overall increase in tariff proposed for these category also less than the increase in average cost of supply of 10.10% over the same approved in the Tariff order dated 17.04.2017. While fixing separate tariff for this group, the Commission has also ensured that, there is no increase in cross subsidy over the previous tariff revision and also there is no tariff shock to these categories of consumers. The existing tariff, proposed tariff and approved tariff for this category is given below.

Table-6.59

Existing tariff and approved tariff for HT-IV (B) category

Particulars	Existing tariff	Proposed by KSEB Ltd		Approved tariff
		2018-19	2020-21	
Demand charge (Rs/ kVA/ month)	400	745	745	440
Energy charges (Ruling) (Rs/ kWh)				
(a) Monthly consumption upto 30000 units	6.30	5.00	5.00	6.60
(b) Monthly consumption above 30000 units	7.30	5.50	5.50	7.60

High Tension-V- Domestic (HT-V)

6.70 The tariff under this category is applicable to the domestic consumers in LT I and the colonies in LT II, availing supply of electricity at high tension. The existing tariff, the tariff proposed by KSEB Ltd and the tariff approved by the Commission for this category is given below.

Table 6.60
Existing tariff, proposed tariff and approved tariff for HT-V category

Particulars	Existing tariff	Proposed by KSEB Ltd		Approved tariff
		2018-19	2020-21	
Demand charge (Rs/ kVA/ month)	350	475	500	390
Energy charges (Ruling) (Rs/ kWh)	5.50	4.40	4.50	5.80

The Commission also orders that, ToD tariff, at the rate applicable to LT domestic consumers having monthly consumption above 500 units is also applicable to HT Domestic consumers.

HT- VI Tariff applicable to charging stations for Electric Vehicles

6.71 During the deliberations of the Tariff petition, KSEB Ltd and KSRTC requested before the Commission to determine the electricity tariff for Electric Vehicle charging stations. During the deliberations it is also submitted that, the State Government is promoting e-vehicles to encourage e-mobility.

The tariff proposed by KSEB Ltd for charging stations for Electric Vehicles and the same approved by the Commission is given below.

Table 6.61
Proposed tariff and approved tariff for charging stations of Electric Vehicles

Particulars	Proposed by KSEB Ltd		Approved tariff
	2018-19	2020-21	
Demand charge (Rs/ kVA/ month)	290	315	250
Energy charges (Ruling) (Rs/ kWh)	5.00	5.00	5.00

The existing ToD tariff applicable to HT&EHT consumers also applicable to charging stations of Electric Vehicles

HT-VII Temporary Connections at HT

6.72 KSEB Ltd, submitted before the Commission that, as per the Regulations 88 of the Kerala Electricity Supply Code, 2014, the licensee has to provide temporary connections at LT and HT for bona fide purposes in places where the distributing mains of the licensee are in existence. However, in the prevailing tariff order dated 17.04.2017, the Commission had not approved the tariff for temporary connections at HT.

6.73 KSEB Ltd further submitted that, the temporary connections are required for purposes such as large exhibitions and shows of commercial nature. The per unit fuel cost alone for diesel generator set is around Rs 22.00. KSEB Ltd proposed the following tariff for HT temporary connections.

Table 6.62
HT-VII Temporary connections- tariff proposed by KSEB Ltd

Particulars	Proposed by KSEB Ltd
<i>Energy charge</i>	<i>Rs 12.00 per unit</i>
OR	
<i>Daily minimum Rs/kW or part thereof of connected load whichever is higher</i>	<i>Rs 120/kW</i>

The Commission examined the proposal of KSEB Ltd. In the previous tariff order dated 17.04.2017, the Commission has not specified the tariff for availing temporary connections at HT. The Commission hereby approve the following tariff for availing temporary connections at HT after duly considering the perunit cost of electricity generation from diesel generator set, prevailing tariff for temporary connections at LT, and the average cost of supply of KSEB Ltd.

Table 6.63
Tariff approved for HT-VII Temporary Connections

Particulars	Proposed by KSEB Ltd	Approved by the Commission
<i>Energy charge</i>	<i>Rs 12.00 per unit</i>	<i>Rs 11.00 per unit</i>
OR		
<i>Daily minimum Rs/kW or part thereof of connected load whichever is higher</i>	<i>Rs 120/kW</i>	<i>Rs 110.00/KW</i>

Extra High Tension (EHT) Industrial – 66 kV tariff

6.74 The tariff under this category is applicable to the general purpose industrial loads at 66kV. The existing tariff and the tariff proposed by KSEB Ltd for this category is given below.

Table 6.64
Existing tariff and the tariff proposed by KSEB Ltd

Particulars	Existing tariff	Proposed by KSEB Ltd	
		2018-19	2020-21
Demand charge (Rs/ kVA/ month)	300	850	1000
Energy charges (Ruling) (Rs/ kWh)	5.20	4.50	4.50

The Commission has carefully examined the tariff proposed by KSEB Ltd for EHT 66 kV Industrial category. The licensee has proposed a 180% increase in demand charges and 13.50% reduction in energy charges for this category.

During the public hearing on the tariff proposals, the HT&EHT Electricity Industrial Consumers Association and other stake holders has raised serious concern on the excessive increase in demand charges proposed by KSEB Ltd. The stakeholders also raised the issue that the proposed exorbitant increase proposed in demand charge may impose restriction on them to avail power under open access as and when power is available in the short-term market at rate less than the tariff of KSEB Ltd.

The Commission notes that, there is merit on the concern raised by the industrial consumers. Hence the Commission after due consideration has decided that, the increase in demand charge proposed without sufficient justification cannot be approved and may lead to tariff shock to the consumers. It may also adversely impact the industrial sectors in the State making it unviable and eventually closure with disastrous social consequences. The Commission also notes the fact that, overall the increase in industrial consumption is much less than the average increase in electricity consumption of other categories of consumers. Duly considering all these factors, the tariff approved by the Commission is given below.

Table 6.65

Existing tariff, proposed tariff and approved tariff for EHT 66 kV

Particulars	Existing tariff	Proposed by KSEB Ltd		Approved tariff
		2018-19	2020-21	
Demand charge (Rs/ kVA/ month)	300	850	1000	340
Energy charges (Ruling) (Rs/ kWh)	5.20	4.50	4.50	5.50

Extra High Tension (EHT) Industrial – 110 kV tariff

6.75 The tariff under this category is applicable to the general purpose industrial loads at 110kV. The existing tariff and the tariff proposed by KSEB Ltd for EHT-110kV category are given below.

Table 6.66

Existing tariff and the tariff proposed by KSEB Ltd

Particulars	Existing tariff	Proposed by KSEB Ltd	
		2018-19	2020-21
Demand charge (Rs/ kVA/ month)	290	825	950
Energy charges (Ruling) (Rs/ kWh)	5.10	4.40	4.40

As shown above, KSEB Ltd has proposed an exorbitant increase in demand charge for EHT 110 kV category without any valid justification. During the public hearings held by the Commission, the EHT consumers availing supply at 110 kV has vehemently objected to the tariff proposed by KSEB Ltd.

The existing tariff for the EHT 110 kV tariff is well within the 120% of the average cost of supply. However, as in the case of EHT 66 kV, the annual increase in energy consumption of EHT 110 kV is much less than the overall increase in electricity demand of the State. Considering the importance of promoting industrial consumption, maintaining the system stability, employment generation, the Commission does not approve the excessive increase in electricity tariff proposed by KSEB Ltd.

After due deliberations and after carefully considering the increase in average cost of supply since the last tariff revision order, the Commission hereby approves an increase in the demand charge by Rs 40.00/kVA/month and the energy charge by Rs 0.30/unit. The existing tariff, the tariff proposed by KSEB Ltd and the approved tariff is given below.

Table 6.67
Existing tariff, proposed tariff and approved tariff for EHT 110 kV

Particulars	Existing tariff	Proposed by KSEB Ltd		Approved tariff
		2018-19	2020-21	
Demand charge (Rs/ kVA/ month)	290	825	950	330
Energy charges (Ruling) (Rs/ kWh)	5.10	4.40	4.40	5.40

Extra High Tension (EHT) Industrial – 220 kV tariff

6.76 The tariff under this category is applicable to the general purpose industrial loads at 220kV.

KSEB Ltd has proposed an increase in fixed charge by 150% in 2018-19 and 203% in 2020-21, and a reduction in energy by 19% during the MYT period. The Commission cannot accept such an unjustifiable excessive increase in demand charge proposed by KSEB Ltd. After due deliberations and carefully considering the increase in average cost of supply approved since last tariff revision, the Commission approved an increase in demand charge by Rs 40/kVA/month and energy charge by Rs 0.30/unit.

The existing tariff, the tariff proposed by KSEB Ltd and the tariff approved for EHT 220 kV is given below.

Table 6.68
Existing tariff, proposed tariff and approved tariff for EHT 220 kV

Particulars	Existing tariff	Proposed by KSEB Ltd		Approved tariff
		2018-19	2020-21	
Demand charge (Rs/ kVA/ month)	280	700	850	320
Energy charges (Ruling) (Rs/ kWh)	4.70	3.80	3.80	5.00

Extra High Tension (EHT) Commercial – (66 kV, 110kV, 220 kV)

6.77 The tariff under this category is applicable to the general purpose EHT commercial at **66 kV, 110kV, 220 kV**. At present no consumer is availing supply at EHT commercial tariff.

KSEB Ltd has proposed an increase in fixed charge by 113%, and a reduction in energy by 25% during the MYT period. The Commission cannot accept such an unjustifiable excessive increase in demand charge proposed by KSEB Ltd. The cost coverage of this category also more than 150%.

After due deliberations and carefully considering the increase in average cost of supply approved since last tariff revision, the Commission approved an increase in demand charge by Rs 40/kVA/month. The Commission not approved increase in energy charge for EHT Commercial category.

The existing tariff, the tariff proposed by KSEB Ltd and the tariff approved for EHT Commercial is given below.

Table 6.69
Existing tariff, proposed tariff and approved tariff for EHT Commercial

Particulars	Existing tariff	Proposed by KSEB Ltd		Approved tariff
		2018-19	2020-21	
Demand charge (Rs/ kVA/ month)	400	850	850	440
Energy charges (Ruling) (Rs/ kWh)				
(a) Monthly consumption upto 60000 units	6.10	4.60	4.60	6.10
(b) Monthly consumption above 60000 units	7.10	4.90	4.90	7.10

Extra High Tension –General A (EHT-General-A) (66 kV, 110kV, 220 kV)

6.78 This tariff is applicable to the consumers enumerated under LT-VI(A) category, availing supply at EHT level.

KSEB Ltd has proposed an increase in fixed charge by 183% in 2018-19 and 217% in 2020-21, and a reduction in energy by 6.0% in 2018-19 and 10% in 2020-21. EHT General Category is applicable to the Government Hospitals and educational institutions availing supply at EHT. The Commission cannot accept such an unjustifiable excessive increase in demand charge proposed by KSEB Ltd for this category. After due deliberations and carefully considering the increase in average cost of supply approved since last tariff revision, the Commission approved an increase in demand charge by Rs 40/kVA/month and energy charge by Rs 0.30/unit.

The existing tariff, proposed tariff and approved tariff for this category is given below.

Table 6.70
Existing tariff, proposed tariff and approved tariff for EHT General A

Particulars	Existing tariff	Proposed by KSEB Ltd		Approved tariff
		2018-19	2020-21	
Demand charge (Rs/ kVA/ month)	300	850	950	340
Energy charges (Ruling) (Rs/ kWh)	5.00	4.70	4.50	5.30

Extra High Tension –General – B (EHT-General-B) (66 kV, 110kV, 220 kV)

6.79 The tariff under this category is applicable to Indian Space Research Organisation (ISRO), utility services such as Airport, Self-Financing Educational Institutions and any other EHT consumers not included elsewhere.

KSEB Ltd has proposed an increase in fixed charge by 130% in 2018-19 and 157% in 2020-21. KSEB Ltd has also proposed reduction in energy charge by 26% for those consumers having monthly consumption upto 60000 units and 29% for the consumers having monthly consumption above 60000 units. The Commission cannot accept such an unjustifiable excessive increase in demand charge proposed by KSEB Ltd. The cost coverage of this category at the present tariff is 148%, and hence the Commission cannot increase the cost coverage further.

After due deliberations and carefully considering the increase in average cost of supply approved since last tariff revision, the Commission approved an increase in demand charge by Rs 40/kVA/month. The Commission not approved increase in energy charge for EHT General B category.

The existing tariff, proposed tariff and approved tariff for EHT- General B is given below.

Table 6.71
Existing tariff, proposed tariff and approved tariff for EHT General B

Particulars	Existing tariff	Proposed by KSEB Ltd		Approved tariff
		2018-19	2020-21	
Demand charge (Rs/ kVA/ month)	370	850	950	410
Energy charges (Ruling) (Rs/ kWh)				
(a) Monthly consumption upto 60000 units	5.80	4.30	4.30	5.80
(b) Monthly consumption above 60000 units	6.80	4.80	4.45	6.80

Railway traction 110 kV

6.80 The tariff under this category is applicable to the electricity for traction availed by Railways at 110 kV level.

Railway is an important national facility and a resource. Apart from mass transportation of people, it is a very critical instrument for movement of goods from outside and within the State. Any substantial increase in electricity tariff to this national infrastructure will lead to railway tariff

increase resulting in price rise and inflation. Further increase in electricity price in Kerala may set the tone for such increase in other States and in a consumption based economy such as Kerala will have disastrous consequences.

KSEB Ltd has proposed an increase in fixed charge by 160% in 2018-19 and 200% in 2020-21, and a reduction in energy by 16% during the MYT period. The Commission cannot accept such an unjustifiable excessive increase in demand charge proposed by KSEB Ltd.

The cost coverage of the Railway Traction tariff is within +_20% of the average cost of supply.

After due deliberations and carefully considering the increase in average cost of supply approved since last tariff revision, the Commission approved an increase in demand charge by Rs 50/kVA/month. The Commission not approved increase in energy charge for Railway Traction.

The existing tariff, proposed tariff and the approved tariff for Railway traction is given below.

Table 6.72
Existing tariff, proposed tariff and approved tariff for Railway Traction

Particulars	Existing tariff	Proposed by KSEB Ltd		Approved tariff
		2018-19	2020-21	
Demand charge (Rs/ kVA/ month)	250	650	750	300
Energy charges (Ruling) (Rs/ kWh)	5.10	4.30	4.30	5.10

Kochi Metro Rail Corporation Ltd (KMRL)

6.81 This tariff is applicable for traction for Kochi Metro Rail Corporation Ltd (KMRL). KMRL is a new infrastructural mass rapid transport facility. Such a facility has been setup to ease the difficulties of the travelling public and with a social obligation to society at large. Steep tariff increase will drive the new venture to bankruptcy. Hence, the Commission is of the view that, a reasonable tariff has to be approved for KMRL even if it involves subsidy to certain extent.

KSEB Ltd has proposed an increase in fixed charge by 160% in 2018-19 and 200% in 2020-21, and a reduction in energy by 20% during the MYT period. The Commission cannot accept such an unjustifiable excessive increase in demand charge proposed by KSEB Ltd.

The cost coverage of the KMRL is within +_20% of the average cost of supply.

After due deliberations and carefully considering the increase in average cost of supply approved since last tariff revision, the Commission approved an increase in demand charge by Rs 25/kVA/month. The Commission not approved increase in energy charge for KMRL.

The existing tariff, proposed tariff and the approved tariff for KMRL is given below.

Table 6.73
Existing tariff, proposed tariff and approved tariff for KMRL

Particulars	Existing tariff	Proposed by KSEB Ltd		Approved tariff
		2018-19	2020-21	
Demand charge (Rs/ kVA/ month)	250	650	750	275
Energy charges (Ruling) (Rs/ kWh)	4.80	3.80	3.80	4.80

REVISION OF BULK SUPPLY TARIFF

6.82 The details of contract demand and annual consumption of licensees procuring power from KSEB Ltd and distributing it within their area of jurisdiction are given below.

Table- 6.74
Details of the bulk licensees/ license holders

Licensee	2018-19		2020-21	
	Contract Demand	Annual consumption	Contract Demand	Annual consumption
	(MVA)	(MU)	(MVA)	(MU)
KPUPL	17.47	86.37	19.79	100.68
CSEZ	10.76	55.72	11.20	59.15
RPL	6.24	31.16	6.95	35.23
Technopark	20.13	89.44	20.94	102.18
CPT	7.85	35.33	8.47	39.25
Thrissur Corporation	32.30	158.31	35.20	176.17
Infopark	2.69	7.64	2.96	8.60
KDHPCL	9.46	52.06	9.84	54.60
Smart city	1.14	2.81	1.26	3.16
Total	108.04	518.84	116.61	579.02

6.83 In addition, KSEB Ltd has been supplying power to Military Engineer Services (MES) and Chamundeswari Electricity Supply Corporation, Karnataka (CESCK) to supply electricity in the nearby borders of Kerala,

at the bulk supply tariff approved by the Commission from time to time. The contract demand and annual consumption of MES and CESEK estimated by KSEB Ltd is given below.

Table 6.75
Existing tariff and the tariff proposed by KSEB Ltd

Bulk consumer	2018-19		2020-21	
	Contract Demand	Annual consumption	Contract Demand	Annual consumption
	(MVA)	(MU)	(MVA)	(MU)
MES	17.59	73.37	19.50	82.32
Karnataka	0.27	0.81	0.31	0.95
Total	17.86	74.18	19.81	83.27

6.84 The Commission has been adopting uniform retail supply tariff (RST) and differential bulk supply tariff (BST) for the other licensees in the State, such as Thrissur Municipal Corporation; KDHPCL, Munnar; Cochin Port Trust; Technopark; Infopark; CSEZA; KPUPL and RPIL, who procure power from KSEB Ltd for distributing within their areas of distribution. Further, the Commission fixes the BST rates payable by the said licensees to KSEB Ltd, in such a way that, the excess of revenue collected from their consumers after meeting their approved distribution cost and RoE is allowed to be passed on to KSEB Ltd by way of differential BST.

6.85 The existing BST and the BST proposed by KSEB Ltd for these licensees are given below.

Table 6.76
Existing tariff and tariff proposed by KSEB Ltd for Bulk Supply

Sl No	Licensee	Existing tariff		Proposed by KSEB Ltd			
		Demand charge	Energy charge	2018-19		2020-21	
				(Rs/ kVA/ month)	(Rs/ kWh)	(Rs/ kVA/ month)	(Rs/ kWh)
1	KPUPL	300	5.60	800	5.10	900	5.10
2	CSEZ	300	5.40	800	5.00	900	5.00
3	RPL	300	4.55	800	3.90	900	3.90
4	Technopark	300	5.20	800	4.80	900	4.80
5	CPT	300	6.00	800	5.60	900	5.60
6	Thrissur	300	5.85	800	5.10	900	5.10
7	Infopark	300	5.50	800	4.90	900	4.90
8	KDHPCL	300	4.60	850	4.00	950	4.00
9	Smart city	300	5.50	850	4.30	950	4.30

It is seen from the above Table 6.75 that, the demand charge proposal of KSEB Ltd is exorbitant, unjustified and cannot be accepted by the Commission. It is an accepted fact that all public utilities have to strive for welfare and betterment of their customers and society at large. Further all claims for increases have to be fully justified with verifiable data before such claims can be accepted.

Based on the above principle, the Commission has duly considered the proposal of KSEB Ltd and is of the view that the proposed tariff cannot be agreed to. Hence the Commission, as per this order, has decided to revise the retail supply tariff (RST) of these licensees in like with those applicable to various categories of consumers such as domestic, LT-IV A Industry, LT-IV (B) IT and IT enabled services, HT-I(A) Industry, HT-I(B) Industry, HT-II(A) General and public lighting of KSEB Ltd. This will result in additional revenue inflows by way of the revision of the RST of the above categories. The additional revenue expected to the licensees due to revision of their RST for the year 2018-19 is given below.

Table 6.77
Additional revenue expected to the small licensees by way of
revising the RST for the year 2018-19

Sl No	Licensee	Additional revenue expected through tariff revision annually (Rs. Cr)
1	KPUPL	3.74
2	CSEZA	2.19
3	RPL	1.16
4	Technopark	4.30
5	CPT	0.89
6	TCED	4.94
7	KDHPCL	1.58
8	Infopark	0.43

6.86 After duly considering the revenue requirements of these licenses including the additional revenue anticipated due to revision of RST of their consumers as detailed under Table above, the Commission hereby approves the BST applicable to these licensees as follows.

Table 6.78
BST approved

Sl No	Licensee	Existing tariff		Proposed by KSEB Ltd				Approved tariff	
		Demand charge (Rs/ kVA/ month)	Energy charge (Rs/ kWh)	2018-19		2020-21		Demand charge (Rs/ kVA/ month)	Energy charge (Rs/ kWh)
				Demand charge (Rs/ kVA/ month)	Energy charge (Rs/ kWh)	Demand charge (Rs/ kVA/ month)	Energy charge (Rs/ kWh)		
1	KPUPL	300	5.60	800	5.10	900	5.10	340	5.85
2	CSEZ	300	5.40	800	5.00	900	5.00	340	5.60
3	RPL	300	4.55	800	3.90	900	3.90	340	4.75
4	Technopark	300	5.20	800	4.80	900	4.80	340	5.50
5	CPT	300	6.00	800	5.60	900	5.60	340	6.10
6	TCED	300	5.85	800	5.10	900	5.10	340	6.05
7	Infopark	300	5.50	800	4.90	900	4.90	340	5.65
8	KDHPCL	300	4.60	850	4.00	950	4.00	340	4.80
9	Smart city	300	5.50	850	4.30	950	4.30	340	5.65

6.87 The Existing BST and the KSEB Ltd proposal and the BST approved by the Commission for bulk consumers availing power from KSEB Ltd is given below.

Table 6.79
Existing tariff and KSEB Ltd proposal and approved tariff for MES and Karnataka

Licensee/ Bulk consumers	Existing tariff		Proposed by KSEB Ltd				Approved tariff	
	Demand charge (Rs/ kVA/ month)	Energy charge (Rs/ kWh)	2018-19		2020-21		Demand charge (Rs/ kVA/ month)	Energy charge (Rs/ kWh)
			Demand charge (Rs/ kVA/ month)	Energy charge (Rs/ kWh)	Demand charge (Rs/ kVA/ month)	Energy charge (Rs/ kWh)		
MES	350	5.60	850.00		950.00	5.00	390.00	5.85
Karnataka	350	5.60	850.00		950.00	4.50	390.00	5.85

Summary of the Tariff Revision

6.88 Based on the approved tariff as above, the average tariff increase and additional revenue realisation on yearly basis is given below.

Table 6.80
Revenue at existing tariff and Approved tariff

Tariff Category	Revenue expected for the FY 2019-20 at existing tariff	Revenue expected for 2019-20 at tariff proposed by KSEB Ltd for the FY 2018-19		Approved tariff	
		Amount	Increase (annual)	Amount	Increase (annual)
	(Rs. Cr)	(Rs. Cr)	(Rs. Cr)	(Rs. Cr)	(Rs. Cr)
LT categories					
LT-I Domestic	4744.32	5511.29	766.97	5283.27	538.95
LT Industries	804.75	847.11	42.36	851.01	46.27
LT-V Agriculture	88.05	101.81	13.76	101.90	13.84
LT-VI General	1565.63	1645.00	79.37	1594.64	29.01
LT-VII Commercial	1613.30	1669.53	56.23	1665.84	52.54
LT-VIII Public	183.92	197.85	13.93	202.59	18.67
LT hoardings	4.01	4.01	0.00	4.14	0.14
HT Categories					
HT-1 Industry	1507.51	1620.10	112.59	1600.14	92.63
HT-II	699.91	709.88	9.97	716.17	16.26
HT-III	5.23	5.47	0.24	5.82	0.59
HT-IV	672.57	668.44	-4.13	686.87	14.29
HT-V	13.27	12.82	-0.45	14.23	0.96
EHT category					
EHT-66 kV	213.10	245.08	31.98	227.73	14.63
EHT-110 kV	435.74	481.76	46.02	465.63	29.89
EHT 220 kV	58.89	67.91	9.02	63.60	4.72
EHT Gen	57.37	58.26	0.89	58.88	1.51
Railways	179.27	203.54	24.27	185.34	6.06
KMRL	10.01	11.34	1.33	10.20	0.19
Licensees & Bulk	394.43	437.53	43.10	416.22	21.80
Addl revenue			1247.44		902.94

6.89 The cost coverage and the increase in tariff at the approved rate is given below.

Table 6.81
Cost coverage at approved tariff and increase in tariff

Tariff category	Cost coverage		Average tariff (Rs/ kWh)		Increase in tariff over previous revision
	At the tariff and ACoS as per the order dated 17.04.2017	Cost coverage at the approved tariff for 2019-20	At the tariff and ACoS as per the order dated 17.04.2017	At the approved tariff for 2019-20	
LT categories					
LT-I Domestic	75.0%	75.7%	4.15	4.62	11.4%
LT Industries	128.3%	123.0%	7.09	7.50	5.7%
LT-V Agriculture	43.2%	45.3%	2.39	2.76	15.7%
LT-VI General	164.8%	152.2%	9.11	9.28	1.9%
LT-VII Commercial	168.5%	157.8%	9.32	9.62	3.3%
LT-VIII Public lighting	82.2%	82.1%	4.55	5.01	10.2%
LT total	96.9%	94.7%	5.36	5.78	7.8%
HT Categories					
HT-1 Industry	119.5%	115.0%	6.61	7.02	6.1%
HT-II	146.3%	135.4%	8.09	8.26	2.1%
HT-III	93.0%	93.8%	5.15	5.72	11.3%
HT-IV	167.2%	154.8%	9.24	9.44	2.1%
HT-V	145.4%	141.3%	8.04	8.62	7.2%
HT total	134.4%	127.0%	7.43	7.75	4.2%
EHT category					
EHT-66 kV	104.4%	101.1%	5.77	6.17	6.9%
EHT-110 kV	101.2%	98.1%	5.60	5.98	6.9%
EHT 220 kV	104.8%	102.6%	5.80	6.26	8.0%
EHT Gen	140.7%	130.9%	7.78	7.98	2.6%
Railways	110.6%	103.7%	6.12	6.32	3.4%
KMRL	107.0%	98.9%	5.92	6.03	1.9%
EHT total	105.7%	101.5%	5.84	6.19	6.0%
Licensees & Bulk consumers	112.7%	107.8%	6.23	6.58	5.5%

As above, the Commission made efforts to move closer towards the Tariff Policy Requirement of +/-20% of the average cost of supply. This has done by enhancing the tariff of the subsidised category towards +80% of the average cost of supply, and by reduces the cost coverage and cross subsidy level of all subsidising categories in the approved tariff for the year 2019-20 as shown in the Table 6.80 above.

OTHER CHARGES

(Transmission charges, wheeling charges, cross subsidy surcharges, pooled cost of power purchase)

Transmission charges

6.90 Based on the energy input, transmission losses, the energy handled by the Transmission system for the year 2019-20, as approved by the Commission for the year 2019-20 is given below.

Table 6.82
Energy flow in the transmission system for the year 2019-20

Sl No	Particulars	
1	Energy injected into the system (MU)	26243.43
2	Transmission loss	3.95%
3	Loss of energy (MU)	1036.62
4	Auxiliary consumption of substations	16.36
5	Energy handled in transmission(MU)= (1)-(3)-(4)	25190.46

6.91 As detailed under Chapter-4, the total ARR of SBU-T of KSEB Ltd approved for the year 2019-20 is Rs 983.79crore. The peak demand expected to be met in 2019-20 is 4300 MW.

6.92 Based on the approved ARR of the SBU-T for the year 2019-20 and also based on the approved energy sales, the transmission charges approved for the year 2019-20 is given in the Table below.

Table 6.83
Transmission charges approved

Particulars	Approved by Commission
Transmission ARR for the year 2019-20 (Rs. Crore)	983.69
Energy handled in Transmission system for the year 2019-20 (MU)	25190.46
Transmission charges (Rs/unit)	0.39
Peak demand for the year 2019-20(MW)	4300
Transmission charges (Rs/MW/day)	8705

- 6.93 As indicated above, the transmission charges approved is Rs 0.39/unit, for short-term collective transaction through power exchanges. The transmission charges per MW per day is approved as Rs.8705/ MW/day for those who avail the transmission system of KSEB Ltd.
- 6.94 The transmission charges as approved above shall be applicable to all consumers of the State, who are availing open access facility, irrespective of whether the consumers belong to the KSEB Ltd or other licensees availing power from KSEB Ltd.

Wheeling charges at HT level

- 6.95 As per the Regulation-85 of the Tariff Regulations, 2018, the wheeling charges of the distribution licensee may be determined on the basis of segregated accounts of the distribution wire business. The relevant provisions in the Tariff Regulations, 2018 is extracted below.

“85. Determination of wheeling charges.—(1) The wheeling charges of the distribution business/licensee may be determined by the Commission on the basis of segregated accounts for distribution wires business:

(2) (a) Where the distribution business/licensee is not able to submit audited/ certified separate accounts for the distribution wires business and retail supply business, the distribution business/licensee shall submit to the Commission for its approval, an allocation matrix for segregation of expenses between the distribution wires business and the retail supply business with proper justification.

(b)The Commission may take appropriate decision on such allocation matrix for segregation of expenses between the distribution wires business and the retail supply business

(3) The wheeling charges payable by a user of the distribution system of the distribution business/licensee may comprise demand charges or variable charges or any combination thereof, as may be stipulated by the Commission in such order.”

- 6.96 KSEB Ltd has not submitted the details of the distribution wire business separately. However, KSEB Ltd in their petition submitted that, the ARR of the BU-D at HT level as 25% of the total ARR of the SBU-D. Accordingly, the distribution ARR at the SBU-D at HT level is adopted as 25% of the distribution ARR, excluding the cost of generation, power purchase and intra-state transmission charges.

6.97 The energy handled by the HT system of KSEB Ltd for the year 2019-20 is given below.

Table 6.84
Energy handled at HT level for FY 2019-20

1	Energy handled at Transmission system (MU)	25190.46
2	Energy sale at EHT level (MU)	2130.57
3	Energy input to distribution system of KSEB Ltd (excluding sale at EHT level & transmission losses) = (1)-(2) in MU	23059.89
4	Loss at HT level	5.15%
5	Loss at HT level in MU	1187.58
6	Net Energy handled at HT level = (3)-(5) in MU	21872.30

6.98 Out of the total distribution ARR approved for the FY 2019-20, the amount considered for determining the wheeling charge is given below.

Table 6.85
SBU- Distribution ARR approved for the year 2019-20

Item	2019-20
	Rs. Crore
O&M Expenses	2,458.95
Interest on long-term loans	222.94
Interest on Master Trust Bonds	612.43
GPF Interest	162.58
Interest on Additional Bond to Trust	167.10
Interest on Security Deposit	199.93
Carrying Cost on Gap	223.59
Depreciation	93.47
Return on Equity	253.50
Recovery of previous revenue gap	1,000.00
Less Non Tariff/Other Income	548.10
Distribution ARR	4,846.39

6.99 Based on the above details, the wheeling charges approved is given below.

Table 6.86
Wheeling charges approved

Sl No	Particulars		Approved by the Commission
1	ARR of the SBU-D of KSEB Ltd	(Rs. Cr)	4,846.39
2	Distribution ARR at HT level considered for approving wheeling charges (25% of the ARR of SBU-D)	(Rs. Cr)	1211.60
3	Energy handled at HT level	(MU)	21872.30
4	Wheeling charges at HT level =(2)/(3)	(Rs/unit)	0.55

As above, the wheeling charges approved is Rs 0.55/unit.

Cross Subsidy Surcharge (CSS)

6.100 The Regulation 88 of the KSERC (Terms and Conditions for Determination of Tariff) Regulations 2018 (herein after referred as the Tariff Regulations, 2018), specify the procedures for determination of Cross Subsidy Surcharge payable by the open access consumers, which is extracted below for ready reference.

“88. Cross subsidy surcharge.–(1) The consumers who are permitted open access shall pay to the distribution business/licensee in whose area the consumer is located, a cross subsidy surcharge as per the formula specified in the Annexure-XI to these Regulations.

(2) The cross subsidy surcharge shall be levied in the manner specified with the Kerala State Electricity Regulatory Commission (Connectivity and Intra state Open Access) Regulations, 2013, as amended from time to time.”

The Annexure-XI of the Tariff Regulations, 2018 specify the formula for calculating the cross subsidy surcharge, which is extracted below.

“ Cross subsidy surcharge shall be calculated as per following formula:

Surcharge formula:

$$S = T - [C / (1 - L/100) + D + R]$$

Where

S is the surcharge

T is the tariff payable by the relevant category of consumers, including reflecting the Renewable Purchase Obligation

C is the per unit weighted average cost of power purchase by the Licensee, including meeting the Renewable Purchase Obligation.

D is the aggregate of transmission, distribution and wheeling charge applicable to the relevant voltage level.

L is the aggregate of transmission, distribution and commercial losses, expressed as a percentage applicable to the relevant voltage level.

R is the per unit cost of carrying regulatory assets.

Provided that the surcharge shall not exceed 20% of the tariff applicable to the category of consumers seeking open access.

Provided further that the Commission in consultation with the Government shall exempt levy of cross subsidy surcharge on railways, as defined in Indian Railways Act 1989 being a deemed licensee on electricity purchase for its own consumption.

6.101 During the public hearings of the Tariff petition, the HT&EHT Industrial electricity consumers association and other HT&EHT consumers availing open access requested that, since the embedded consumers availing open access are bearing the demand charges for the power contracted with the licensee, the demand charge may be excluded while computing the average tariff for determining the cross subsidy surcharge. The Commission has examined the request of the HT&EHT consumers association and other stakeholders in this regard.

In a similar case in Appeal No. 184 of 2015, Hon'ble APTEL in its judgment dated 24.05.2017, in the appeal filed by the Open Access Users Association of Madhya Pradesh against the order of the MPERC to adopt the effective tariff including demand charge and energy charge for calculating CSS, has clarified the issue in detail. The relevant portion of the judgment is extracted below for ready reference.

“

Para 11.1

f. The Appellant has contested that the State Commission has erred in considering fixed charges for computation of the component 'T'. The Respondents have submitted that as per the formula prescribed in the NTP, the component 'T' is the tariff payable by the relevant category of the consumers which can only be arrived by considering fixed charges and variable charges.

g. The component 'T' as defined above is the tariff payable by the relevant category of the consumers. The fixed charges are the integral part of the tariff. The State Commission has fixed the tariff of different categories of consumers including the fixed charges based on Tariff Regulations, 2012. The component 'C' also includes the fixed charges and variable charges. The formula for CSS will be misinterpreted if fixed charges are removed from the component 'T'. In our view, it seems that the Appellant is looking for reduction of CSS by way of pleading for removal of fixed charges from the component 'T'.

h. The State Commission at paras 4.22, 4.23 and table 87 of the Impugned Order determined 'T' as stated below:

“4.22 Finally, the last term in the Tariff Policy formula 'T', Average Tariff for each category is derived from their expected revenue for FY 2015-16. 4.23 As per the MPERC (Open Access) Regulations, 2005, the consumers with contract demand of 1 MW or above are allowed open access w.e.f. 1st October, 2007.

These consumers are to be connected at 33 KV or above as per Madhya Pradesh Electricity Supply Code, as amended from time to time.

Table 87 : Category wise average tariff (Rs. per unit)

Category of HT/EHT consumers	Average Tariff 'T'
HV- 1 : Railway Traction	6.41
HV- 2 : Coal Mines	7.10
HV- 3.1 : Industrial	6.75
HV- 3.2 : Non-Industrial	7.21
HV-3.3: Shopping Malls	7.48
HV-3.4: Power Intensive Industries	5.48
HV-4 : Seasonal	6.26
HV- 5.1 : Public Water Works	5.02
HV- 5.2 : Other than Irrigation	5.27
HV- 6 :Bulk Residential Users	5.27
HV-7: Start-up power for generators connected to the grid	6.25

- i. In view of our observations as above, we are of the considered opinion that the State Commission has not erred in computation of the component 'T' of the CSS formula.

Considering the above settled position, and also as per the surcharge formula specified by this Commission as extracted above, this Commission is of the considered view that, the term 'T', i.e., the tariff payable by the relevant category of consumers is the effective tariff, which includes the demand charge and energy charge.

6.102 As per the Tariff approved by the Commission, the average tariff for the various HT&EHT consumers is given below.

Table 6.87
Average tariff of consumers availing supply at HT & EHT level

Category	Annual consumption 2019-20	Annual revenue at approved tariff for 2019-20	Average Tariff
	(MU)	(Rs. Cr)	(Rs/ kWh)
EHT- 66 kV	369.22	227.73	6.17
EHT-110 kV	778.40	465.63	5.98
EHT 220 kV	101.61	63.60	6.26
EHT- Gen A	12.89	7.93	6.15
EHT- Gen B	60.85	50.95	8.37
Railways	293.05	185.34	6.32
KMRL	16.92	10.20	6.03
HT-1(A) Industry	2267.35	1589.11	7.01

Category	Annual consumption 2019-20	Annual revenue at approved tariff for 2019-20	Average Tariff
	(MU)	(Rs. Cr)	(Rs/ kWh)
HT-I(B) Industry	13.56	11.03	8.13
HT-II(A)	197.54	144.81	7.33
HT-II (B)	667.33	571.36	8.56
HT-III(A)	7.95	4.72	5.93
HT-III(B)	2.22	1.10	4.98
HT- IV (A)	727.59	686.87	9.44
HT-IV (B)			9.74
HT-V	16.51	14.23	8.62

6.103 The weighted average cost of power purchase approved for the year 2019-20, as per the approved ARR of SBU-D is given below.

Table 6.88
Weighted average cost of power purchase for the year 2019-20

Sl No	Particulars	Quantity	Amount
		(MU)	(Rs. Cr)
1	Own Generation	6970.25	505.93
2	CGS	11241.96	4135.05
3	LTA	8647.06	3528.02
4	Small IPPs	280.70	103.78
5	RPO-Non solar	503.35	145.97
6	RPO- solar	485.51	145.65
7	RGCCPP	0.00	0.00
8	Inter state transmission charges	0.00	555.46
	Sub total	28128.83	9119.86
9	Less surplus sale	1885.40	942.70
10	Net Generation & power purchase for sale within the State	26243.43	8177.16
	Weighted average cost of Power Purchase (Rs/unit)		3.12

6.104 The component 'L' in the surcharge formula is the aggregate of transmission, distribution and wheeling charges applicable to the relevant voltage level. The transmission loss for providing supply at EHT level including the auxiliary consumption of the substation is 4.00% and the aggregate transmission and distribution loss for providing supply at HT level is 9.00%.

6.105 The component 'D' is the aggregate of the transmission, distribution and wheeling charges applicable to the relevant voltage level. The transmission charges approved is Rs 0.39/unit and the wheeling

charge approved is Rs 0.44/unit. Accordingly, the aggregate transmission and wheeling charges for providing supply at EHT is Rs 0.39/unit and the same for providing supply at HT is (0.39+0.44) Rs 0.83/unit.

6.106 Based on the above, the cross subsidy surcharge approved for the consumers who avail open access is given below.

Table 6.89
Cross subsidy surcharge approved

Category	T =Avg tariff (Rs/unit)	C= Weighted Avg. cost of PP (RS/unit)	L =Aggregate transmission & distribution loss (in %)	D= transmission and wheeling charges (Rs/unit)	R= Per unit carrying cost	Surcharge as per formula (Rs/unit)	Surcharge limit (20% avg. tariff) (Rs/unit)	Cross subsidy surcharge approved (Rs/unit)
EHT- 66 kV	6.17	3.12	4.0%	0.39	0.10	2.43	1.23	1.23
EHT-110 kV	5.98	3.12	4.0%	0.39	0.10	2.24	1.20	1.20
EHT 220 kV	6.26	3.12	4.0%	0.39	0.10	2.52	1.25	1.25
EHT- Gen A	6.15	3.12	4.0%	0.39	0.10	2.41	1.23	1.23
EHT- Gen B	8.37	3.12	4.0%	0.39	0.10	4.63	1.67	1.67
Railways	6.32	3.12	4.0%	0.39	0.10	2.59	1.26	1.26
KMRL	6.03	3.12	4.0%	0.39	0.10	2.29	1.21	1.21
HT-1(A)	7.01	3.12	9.0%	0.83	0.10	2.65	1.40	1.40
HT-I(B)	8.13	3.12	9.0%	0.83	0.10	3.78	1.63	1.63
HT-II(A)	7.33	3.12	9.0%	0.83	0.10	2.98	1.47	1.47
HT-II (B)	8.56	3.12	9.0%	0.83	0.10	4.21	1.71	1.71
HT-III(A)	5.93	3.12	9.0%	0.83	0.10	1.58	1.19	1.19
HT-III(B)	4.98	3.12	9.0%	0.83	0.10	0.62	1.00	0.62
HT- IV (A)	9.44	3.12	9.0%	0.83	0.10	5.09	1.89	1.89
HT- IV (B)	9.74	3.12	9.0%	0.83	0.10	5.39	1.95	1.95
HT-V	8.62	3.12	9.0%	0.83	0.10	4.27	1.72	1.72

6.107 Since the Commission has been following uniform RST for all consumers irrespective of whether the consumers are availing supply from KSEB Ltd or other licensees, and differential BST for other licensees who are purchasing power from KSEB Ltd for distributing within their area of jurisdiction, the Commission orders that, cross subsidy surcharge as approved above, are applicable to KSEB Ltd and other licensees operating in the State.

Low voltage supply surcharge

6.108 The Regulation 9 of the Kerala Electricity Supply Code, 2014 (hereinafter referred as KESC, 2014) provide as under:

“9. Low voltage supply surcharge.-Consumers availing supply at voltage lower than the one specified in Regulation 8 for the respective limits of connected load or contract demand shall pay the low voltage supply surcharge to the licensee at the rates as approved by the Commission from time to time in the tariff order.”

6.109 Commission has noted that, there are many consumers with KSEB Ltd and other licensees, having connected load above 100kVA, but availing supply at LT. As per the Regulation - 9 of the KESC, 2014, such consumers shall pay low voltage supply surcharge at the rate approved by the Commission.

6.110 In the tariff order dated 17.04.2017, the Commission has approved the Low voltage supply surcharge as the difference between the demand charge/ fixed charge at HT level and the same at the LT level. The consumers who continue to avail supply at LT, though are required to avail supply at HT as per the Supply Code, 2014 has to pay the low voltage supply surcharge, in addition to the fixed charge/ demand charge at LT and energy charge at LT.

6.111 The existing low voltage supply surcharge and the same proposed by KSEB Ltd is given below.

Table 6.90
Existing and proposed low voltage supply surcharge

Category	Existing rate	Proposed by KSEB Ltd (Rs/ kVA/month)	
		2018-19	2020-21
Consumers listed under LT-IV (A) category	Rs 150/kVA/month	400	500
Consumers listed under LT-IV (B) category	Rs 175/kVA/month	250	280
Consumers listed under LT-VI(A) category	Rs 268/kW/month	690	715
Consumers listed under LT-VI(B) category	Rs 248/kW/month	660	690
Consumers listed under LT-VI(C) category		490	490
Consumers listed under LT-VI(F) category	Rs 243/kW/month	475	460
Consumers listed under LT-VII (A) category	Rs 243/kW/month	415	400
Consumers listed under LT-VII(C) category	Rs 273/kW/month	415	400

The Commission carefully considered the low voltage supply surcharge demand submitted by KSEB Ltd in their petition. The Commission is of

the view that KSEB Ltd proposal is excessive and is neither based on any empirical data made available nor justifiable.

6.112 A comparison of the fixed charge/ demand charge at LT and HT level approved for various consumer categories are given below.

Table 6.91
Difference between fixed charge/demand charge at LT and HT for different consumer categories

Particulars	Fixed charge/ demand charge at LT	Demand charge at HT	Difference (PF @0.90 for converting kVA to KW)
Consumers listed under LT-IV (A)	Rs 170 kVA/ month	Rs 340/kVA/month	Rs 170/kVA/month
Consumers listed under LT-IV (B)	Rs 170/ kVA/ month	Rs 340/kVA/month	Rs 170/kVA/month
Consumers listed under LT-VI(A)	Rs 65/ kW/ month	Rs 370/kVA/month	Rs 268/kW/month
Consumers listed under LT-VI(B)	Rs 80/kW/month	Rs 370/kVA/month	Rs 253/kVA/month
Consumers listed under LT-VI(C)	Rs 180/ kW/month	Rs 440/kVA/month	Rs 216/kW/month
Consumers listed under LT-VI(F)	Rs 140/kW/month	Rs 440/kVA/month	Rs 256/kVA/month
Consumers listed under LT-VI(G)	Rs 140/kW/month	Rs 440/kVA/month	Rs 256/kVA/month
Consumers listed under LT-VII(A)	Rs 140/kW/month	Rs 440/kVA/month	Rs 256/kVA/month
Consumers listed under LT-VII(C)	Rs100/KVA/month	Rs440/kVA/month	Rs 296/kVA/month

6.113 Based on the above, the low voltage supply surcharge the Commission hereby approve for consumers having connected load/ contract demand above 100 kW/kVA and availing supply at LT level as shown below.

Table 6.92
Low voltage supply surcharge approved

Particulars	Low voltage supply
Consumers listed under LT-IV (A) category	Rs 170/kVA/month
Consumers listed under LT-IV (B) category	Rs 170/kVA/month
Consumers listed under LT-VI(A) category	Rs 268/kW/month
Consumers listed under LT-VI(B) category	Rs 253/kW/month
Consumers listed under LT-VI(C) category	Rs 216/kW/month
Consumers listed under LT-VI(F) category	Rs 256/kW/month
Consumers listed under LT-VI(G) category	Rs 256/kW/month
Consumers listed under LT-VII (A) category	Rs 256/kW/month
Consumers listed under LT-VII(C) category	Rs 296/kW/month

Note.

In the case of the consumers opt for 'optional demand based tariff' the low voltage surcharge shall be the difference between the demand charge at HT supply and the optional demand based tariff at LT.

Power factor Incentive and Penalty

6.114 The existing power factor incentive and penalty, and the proposal of KSEB Ltd is given below.

Table 6.93
Existing PF incentive/ penalty and PF incentive/penalty proposed by KSEB Ltd

Existing PF incentive/ penalty		PF rate proposed by KSEB Ltd	
Power factor range	Existing rate	Power factor range	Proposed rate
<u>Incentive</u>		<u>Incentive</u>	
PF between 0.90 and 1.00	Incentive @0.50% of energy charge for each 0.01 increase in PF from 0.90	PF between 0.95 and 1.00	Incentive @0.25% of energy charge for each 0.01 increase in PF from 0.95
<u>Disincentive</u>		<u>Disincentive</u>	
Power factor below 0.90	1% of the energy charge for every 0.01 fall in PF from 0.90	Power factor below 0.95	1.50 % of the energy charge for every 0.01 fall in PF from 0.90

During the deliberations of the tariff petition, KSEB Ltd has raised the following regarding the PF incentive and penalty proposed by it.

- (i) Vide Suo-motu Tariff Order dated 17.04.2017, the Commission had raised the PF incentive from 0.25% of the energy charge to 0.50% of the energy charge for each 0.01 increase in PF between 0.90 to 1.00. The total PF incentive paid during the year 2017-18 was Rs 90.21 crore as against Rs 41.72 crore paid during 2016-17.
- (ii) As per the CEA (Technical standards for connectivity to the Grid) Regulations, 2007, part IV para 2, the power factor of the distribution system and bulk consumer shall not be less than 0.95.
- (iii) As per the Regulations 65 of the Tariff Regulations 2018, the maximum reactive energy drawal at interchange point shall be limited corresponding to the power factor of 0.95.
- (iv) KSEB Ltd also submitted that Tamilnadu and Karnataka are not providing any incentive for power factor.

6.115 The HT&EHT Industrial Electricity Consumers Association and other stakeholders vehemently opposed the proposal of KSEB Ltd, especially for reducing the PF incentive rates and incentive at unity power factor. They also claimed that, KSEB Ltd is ultimately benefited by improving the PF by the consumers.

6.116 The Commission examined the proposal of KSEB Ltd and the arguments of the stakeholders in detail. There is no doubt that, PF should be improved and the consumers shall take efforts to maintain unity power

factor. If the PF is not maintained by the consumers, it will affect the power system of the distribution utility.

6.117 The Commission has noted that, Central Electricity Authority (CEA), the statutory authority constituted under Section 70 of the Electricity Act, in exercise of the powers conferred on it under Section 73(b) read along with Section 177(2)(e) of the EA-2003 notified the Regulations on Technical Standards for Connectivity to the Grid. The Part IV of the Regulation deals with Grid Connectivity Standards applicable to the Distribution Systems and Bulk Consumers. In para-2 under Part-IV of the said Regulation specified that, the bulk consumer shall maintain PF not less than 0.95 or above. The relevant portion of the Regulation is extracted below.

“2. Reactive Power The distribution licensees shall provide adequate reactive compensation to compensate the inductive reactive power requirement in their system so that they do not depend upon the grid for reactive power support. The power factor of the distribution system and bulk consumer shall not be less than 0.95.”

The said Regulation also defines the ‘bulk consumer’ as the consumers availing supply at 33 kV or above. Accordingly, all such consumers of the State shall maintain a power factor not less than 0.95.

6.118 The Commission has examined the existing PF incentive and penalty with reference to the provisions in the CEA (Technical Standards for Connectivity to the Grid) Regulations, 2007. As per the CEA Regulations, it is mandatory that, all bulk consumers has to maintain the PF at 0.95, however, there is no mandate for such consumers to maintain the PF above 0.95. Hence, the Commission is of the view that, an incentive can be provided for those consumers who maintain the PF above 0.95. There is no merit in the argument of the KSEB Ltd that, since the existing consumers are already compensated for the capacitors and other investments made for maintaining the power factor, there is no requirements for providing PF incentives. The Commission after due consideration has decided to provide incentive @0.50% of the energy charges for each 0.01unit increase in power factor from 0.95.

6.119 Though the Commission has decided to provide incentive to the consumers who maintain the PF above 0.95, it is also decided that, no penalty shall be levied for the PF between 0.90 to 0.95. However, if the PF maintained by the consumers is below 0.90, the existing disincentive @1% of the energy charge for every 0.01 fall in power factor from 0.90.

6.120 The PF incentive and disincentive approved is given below.

Table 6.94
Power factor incentive and dis-incentive approved

PF range (lag)	Incentive/ Penalty
Incentive	
Above 0.95 and upto 1.00	0.50% of the Energy Charge for each 0.01 increase in power factor from 0.95
Penalty	
0.90 and upto 0.95	0.50% of the Energy charge for every 0.01 fall in PF below 0.95 and upto 0.90
below 0.90	1% of the energy charge for every 0.01 fall in PF from 0.90

The Commission also decided that, no penalty and incentive shall be allowed for the consumers with leading PF.

Meter rent

6.121 The meter rent approved by the Commission vide the order dated 17.04.2017 is given below.

Table 6.95
Meter rent

Sl No	Description	Existing rate	Approved rate
		(Rs/ meter/ month)	(Rs/ meter/ month)
1	Single phase static energy meters with LCD and ToD facility and with ISI certification	6	6
2	Three phase static meters with LCD and ToD facility with ISI certification	15	15
3	LT CT operated three phase four wire static energy meters (Class 0.5 accuracy) with LCD and ToD facility and ISI certification	30	30
4	3 phase AC static tri-vector energy meters with ABT, ToD facility and compliant to Device Language Message Specification (DLMS) protocol	1000	1000

KSEB Ltd has not made any proposal for revising the meter rent. The Commission decided to continue the meter rent as above till further orders.

6.122 The Schedule of Tariff approved by the Commission along with this order shall form part and parcel of the tariff order. The general conditions for supply of electricity are specified in the schedule of tariff. Time of the day (ToD) tariff, power factor incentives and disincentives, recommended values of static capacitors, billing procedures under ToD tariff system, and optional demand based tariff have been specified in the annexures to the Schedule of Tariff.

ANNEXURE

KERALA STATE ELECTRICITY REGULATORY COMMISSION THIRUVANANTHAPURAM

SCHEDULE OF TARIFF AND TERMS AND CONDITIONS FOR RETAIL SUPPLY OF ELECTRICITY BY KERALA STATE ELECTRICITY BOARD LIMITED AND ALL OTHER LICENSEES WITH EFFECT FROM 08.07.2019 to 31.03.2020

(Vide order dated in OP No. 15/2018)

Unless the context otherwise requires, the words and expressions used in this schedule shall be as defined in the Electricity Act, 2003 or in the Regulations specified by the Kerala State Electricity Regulatory Commission and shall have the meaning respectively assigned to them in the Act or in the Regulations mentioned above.

The tariff mentioned in this Schedule shall apply to consumers to whom the Kerala State Electricity Board Limited or other distribution licensee has undertaken or undertakes to supply electricity, notwithstanding anything to the contrary contained in any agreement entered into with any consumer earlier by the Kerala State Electricity Board, or other distribution licensees or Government of Kerala or in any of the Tariff Regulations or rules and / or orders previously issued.

The rates specified in this Schedule are exclusive of Electricity Duty and / or surcharge and/or any other cess, taxes, minimum fees, duties and other impositions existing or that may be levied or imposed in future by the Government or the Commission, which are payable in addition to the charges payable as per the tariff mentioned in this Schedule.

PART A - LOW TENSION (LT) TARIFF

The expression 'Low Tension Consumer' (LT) means a consumer who is supplied with electrical energy at low or medium voltage by the Kerala State Electricity Board Limited and other distribution licensees in the State. The voltage limits specified for low tension supply are however subject to the variations allowed under the provisions of the Kerala Electricity Supply Code, 2014.

General Conditions

1. The minimum charge payable by all LT consumers shall be the fixed charge or demand charge as the case may be of the respective category even during the period of disconnection.
2. All LT Industrial (both LT-IV (A) and LT-IV (B) consumers) and LT Agricultural consumers shall, for power factor improvement, install static capacitors with ISI certification as specified in Annexure C attached to this schedule and obtain the approval of the licensee. Such consumers shall submit to the licensee, an application for approval of the capacitor, as soon as it is installed. The licensee shall communicate to the consumer, its decision about such approval or otherwise within a period of 15 days from the date of submission by the consumer, the application for approval of capacitor. If the licensee does not communicate to the consumer its decision about such approval or otherwise within a period of 15 days, it shall be deemed that the licensee has granted the required approval for the installation of the capacitor.
3. For LT Industrial and Agricultural consumers who have not installed capacitors with ISI certification of specified value, the fixed charge and energy charge shall be higher by 20% of the tariff applicable to the respective categories.
4. For the consumers using welding sets without installing capacitors with ISI certification of specified value, the fixed charge and energy charge shall be higher by 30% of the tariff applicable to the respective categories.
5. The officer of the licensee who is authorized to take meter reading shall inspect the static capacitor and ensure that it is functioning properly. If such officer notices that the static capacitor has become faulty or unserviceable, he shall forthwith intimate the matter to the officer in charge of the Electrical Section / Sub-division of Kerala State Electricity Board Limited or to the concerned officer in the case of other distribution licensees, who shall issue notice to the consumer directing him to replace such faulty or unserviceable capacitor within one month or within such other time limit as stipulated by the concerned officer of the licensee. The consumer shall replace such faulty /unserviceable capacitors within the time limit as directed by the officers of the licensee.
6. If the capacitor is not replaced or put back into service duly repaired, to the satisfaction of the concerned officer of Kerala State Electricity Board Limited or of other distribution licensees, as the case may be, within one

month or such other time limit as stipulated by the concerned officer of the licensee, enhanced charges as per clause 3 or clause 4 above shall be payable for the whole period during which the capacitor remains faulty or unserviceable.

7. Such consumers other than those in LT-IV Industry and LT-V Agriculture category who install capacitors as specified above shall be eligible for a rebate at the rate of 5% on the energy charges. Such rebate shall be allowed from the billing month succeeding the month in which the approval / deemed approval has been obtained for the capacitors installed by the consumer. No rebate is admissible on the fixed charges.
8. (a) Power supply for common facilities in high rise buildings/ apartment complex etc used exclusively for domestic (housing) purpose such as fire control, common lighting, lifts, water pumping, sewage treatment, waste disposal, offices of the residential associations in residential apartment complexes shall be billed at domestic tariff.
(b) Power supplies to common facilities in high rise buildings mainly for domestic occupation shall be under the domestic tariff if the connected load other than for domestic purpose, is less than 5% of the total load.
9. (a) Power supply for common facilities such as fire control, common lighting, lifts, water pumping, sewage treatment, waste disposal etc in the high rise buildings, for the occupation by consumers in LT-VI or in LT-VII categories shall be charged at the respective tariffs for such categories.
(b) In the case of combination of occupation of different categories of consumers, common facilities shall be charged at the highest of LT-VI or LT-VII tariff applicable to such categories.
10. ToD tariff shall be applicable to all LT-IV Industrial consumers (except the pumphouses of Kerala Water Authority) having connected load above 20 kW and to LT-I domestic consumers (3 Phase) having monthly consumption above 500 units. The charges and other terms & conditions for ToD tariff shall be as per Annexures 'A, D & E' to this schedule.
11. Optional Demand Based Tariff can be availed by consumers under LT VI General(A), LT VI General (B), LT VI General (C), LT VI General (E), LT VI General (F), LT-VI General (G), LT VII Commercial (A) and LT VII Commercial (C) as per the conditions in Annexure – F to this schedule.
12. The consumers who are required to avail supply at HT and above as per the Regulation 8 of the Kerala Electricity Supply Code, 2014, but availing supply at LT, shall pay the low voltage surcharge at the following rates.

Low voltage surcharge for consumers having connected load/ contract demand above 100 kW/kVA and availing supply at LT level

Particulars	Low voltage supply
Consumers listed under LT-IV (A)	Rs 170/kVA/month
Consumers listed under LT-IV (B)	Rs 170/kVA/month
Consumers listed under LT-VI(A)	Rs 268/kW/month
Consumers listed under LT-VI(B)	Rs 253/kW/month
Consumers listed under LT-VI(C)	Rs 216/kW/month
Consumers listed under LT-VI(F)	Rs 256/kW/month
Consumers listed under LT-VI(G)	Rs 256/kW/month
Consumers listed under LT-VII (A)	Rs 256/kW/month
Consumers listed under LT-VII(C)	Rs 296/kW/month

Note. The consumers opt for 'optional demand based tariff, the low voltage surcharge shall be the difference between the demand charges at HT supply and the optional demand based tariff at LT.

LOW TENSION – I- DOMESTIC (LT- I)

The tariff applicable to supply of electrical energy for domestic purpose(both single phase and three phase)

Low Tension - I- Domestic (LT-I)				
Monthly consumption slab	Fixed charge		Energy Charge	Remarks
	(Rs/ Consumer/ month)			
	Single phase	Three phase	(Rs/Unit)	
0-40	Nil		1.50	This rate is applicable only to BPL category with connected load of and below 1000 watts.
0-50	35	90	3.15	Telescopic
51-100	45	90	3.70	
101-150	55	100	4.80	
151-200	70	100	6.40	
201-250	80	100	7.60	
0-300	100	110	5.80	Non- Telescopic
0-350	110	110	6.60	
0-400	120	120	6.90	
0-500	130	130	7.10	
Above 500	150	150	7.90	

Note-1. Fixed charges shall not be applicable to consumers belonging to below poverty line (BPL) category with connected load of and below 1000 watts and monthly consumption of and below 40 units.

Note-2. BPL family having cancer patients or permanently disabled persons as family members due to polio or accidents, and consume upto 100 units per month shall be billed @Rs 1.50/unit, provided their connected load is of and below 1000 watts.

Note-4. Home stay units approved as such by Department of Tourism shall be billed under LT-I domestic.

Note-5. Domestic consumers shall be allowed to utilize electrical energy in a portion of their residence for their own use for purposes other than domestic if the connected load for the purposes other than for domestic, in their premises does not exceed 20% of the total connected load or 1000 Watts whichever is less. When connected load other than for domestic use in such cases exceeds 20% of the total connected load or 1000 Watts whichever is less, such loads shall be segregated and separate service connection shall be obtained under appropriate tariff. When this is not done, the tariff applicable to the whole service connection shall be at the appropriate tariff applicable to the connected load used for purposes other than domestic, if such tariff is higher than the tariff for LT-I category.

Note.6: (a) The tariff for domestic consumption by the families of the victims of endosulfan tragedy in Hosdurg and Kasaragod Taluks of Kasaragod District shall be Rs.1.50 / unit for a monthly consumption up to 150 units. If the consumption of the consumer, who is eligible for the above concession exceeds 150 units per month, the consumption in excess of 150 units will be charged at the rates specified for the slabs 151-200 units or 201-250 units as the case may be. This concession will not be available for the consumers with monthly consumption above 250 units.

(b) The consumer who is eligible for this concession granted to endosulfan victims has to submit to the officer in charge at the section office of the licensee, a certificate from the revenue authorities or

from the local self-government authority to prove his / her eligibility for this tariff concession.

Note-7: (a) The following water supply schemes, solely for domestic purposes shall be charged under domestic tariff.

- (i) water supply schemes under Jananidhi, Jaladhara or Swajaladhara Projects;
- (ii) water supply schemes coming under water supply societies or under beneficiary committees;
- (iii) water supply schemes for Scheduled Caste (SC) and / or Scheduled Tribe (ST) colonies;
- (iv) water supply schemes for Laksham Veedu Settlements taken over and managed by Local Self Government Institutions;
- (v) social drinking water supply schemes established using local area development funds of Members of Legislative Assembly (MLA) and / or Members of Parliament (MP);
- (vi) social drinking water supply schemes established using funds of Local Self Government Institutions;
- (vii) social drinking water supply schemes under Peoples Participatory Schemes (PPS);
- (viii) Rajeev Gandhi Drinking Water Schemes managed by beneficiary groups.

(b) The method for billing for the above mentioned water supply schemes solely for domestic purpose shall be as specified hereunder;

(c) The total monthly consumption of electricity of the units of such water supply schemes will be divided by the number of beneficiary households and the average consumption per households will be billed under LT – I domestic tariff. The amount of electricity charges assessed for the average consumption per beneficiary household will then be multiplied by the number of beneficiary households to assess the total electricity charges to be paid by the units of such schemes.

(d) Anganwadies, if any, availing drinking water from the above water supply schemes shall also be considered as a beneficiary availing the water supply for domestic purpose and the benefit of such community drinking water schemes shall be extended to them.

LOW TENSION – II COLONIES (LT- II)

Tariff applicable to,-

- (i) the colonies of HT and EHT consumers,
- (ii) the colonies of universities,
- (iii) the colonies of State / Central Government Departments and of public institutions like companies / boards / corporations under State /Central Government,
- (iv) the colonies of hospitals,
- (v) the colonies of Railways, Bharat Sanchar Nigam Limited (BSNL), All India Radio (AIR) and Doordarshan and
- (vi) the private colonies,

where resale of energy is not involved and where supply at a single point is given at LT by Kerala State Electricity Board Limited or by any other licensee for domestic use, for street lighting or for pumping water for domestic use.

LOW TENSION – II COLONIES (LT- II)	
Fixed Charge (Rs/Month/ domestic)	Single phase- Rs 50/-
	Three phase Rs 100/-
Energy Charge (Rs/kWh)	Energy charge applicable to the respective industry or plantation or organization which maintains the colony

LOW TENSION – III TEMPORARY SERVICES INCLUDING TEMPORARY CONNECTIONS AND EXTENSION (LT- III)

Low Tension – III (A) Temporary connections {LT III(A)}

Tariff applicable for single or three phase temporary connections for purposes such as illumination, exhibition, festivals, public meeting and fairs.

LT – III (A) Temporary connections	
Energy Charge (Rs/kWh)	15.00
OR	
Daily minimum of Rs.150 /kW or part thereof of the connected load, whichever is higher	

Note: 40% concession in the rates shall be allowed if the connection is for;

- (a) the exhibitions conducted or sponsored by the Government or Local Self-Government institutions or by Government educational institutions or by Public Sector Undertakings and the exhibitions conducted by recognized private educational institutions;
- (b) festivals of religious worship centres for the illumination, public address system and security lighting. (This concession is limited to the energy availed by the religious worship centres and not by other agencies who function in the premises of religious worship centers where festival is being organized).

LOW TENSION – III (B) - TEMPORARY EXTENSIONS {LT III (B)}

Applicable to temporary extension taken from the premise of existing consumers.

LT - III(B) Temporary extensions
Fixed charges per day - Rs.65/kW or part thereof of, the temporarily connected load plus the application fee, test fee etc. Energy charges shall be recovered from the consumer wherefrom extension is availed, at the tariff applicable to him

Note: Temporary extension shall be allowed only for a maximum period of 15 days at a time.

LOW TENSION IV - INDUSTRY (LT- IV)

(a) LT- IV (A) – INDUSTRY

LT-IV (A) Industrial tariff is applicable for the general purpose industrial loads (single or three phase) which include,-

- (i) manufacturing units,
- (ii) grinding mills, flour mills, oil mills, rice mills,
- (iii) saw mills, units using electric hydraulic axe machine to break down logs into small pieces.
- (iv) ice factories,

- (v) rubber smoke houses, tyre vulcanizing/re-treading units, units manufacturing rubber sheets from latex, coconut drying units,
- (vi) workshops using power, mainly for production and/or repair,
- (vii) public waterworks, drinking water pumping for public by Kerala Water Authority, Corporations, Municipalities and Panchayats, telemetry stations of KWA, pumping water for non- agricultural purposes, sewage pumping units,
- (viii) power laundries,
- (ix) screen printing of glass ware or ceramic, SSI units engaged in computerized colour printing excluding photo studios/ colour labs.
- (x) audio/video cassette/CD manufacturing units,
- (xi) printing presses including presses engaged in printing dailies,
- (xii) bakeries (where manufacturing process and sales are carried out in the same premises)
- (xiii) diamond- cutting units, stone crushing units, granite cutting units (where boulders are cut into sheets in the same premises)
- (xiv) book binding units with allied activities,
- (xv) garment making units,
- (xvi) seafood processing units, prawn peeling and processing units, ,
- (xvii) plantations of cash crops, tea factories, cardamom drying and curing units,
- (xviii) units carrying out extraction of oil in addition to the filtering and packing activities carrying out in the same premise and under the same service connection,
- (xix) dairy, processing of milk by pasteurization and its storage and packing,
- (xx) soda manufacturing units, bottling plants/ packaging drinking water.
- (xxi) electric crematoria.

LT - IV (A) INDUSTRY	
(a) Fixed Charge	
(i) Connected load of and below 10 kW (Rs. per consumer per month)	120
(ii) Connected load above 10kW and up to 20 kW (Rs. per kW or part thereof per month)	75
(iii) Connected load above 20 kW (Rs. per kVA or part thereof per month)	170
(b) Energy Charge (Rs/kWh)	
Connected load of and below 10 kW	5.65
Connected load above 10kW and up to 20 kW	5.65
Connected load above 20 kW	5.75

Note: 1.- Workshops with automobile service stations shall segregate the workshop load for availing the benefit of industrial tariff. If loads are not segregated the charges shall be realized at the rates applicable to automobile service stations.

Note : 2.- General conditions relating to installation of capacitors will apply.

LOW TENSION – IV (B) – IT and IT Enabled Services. {LT IV (B)}

Tariff applicable to Information Technology (IT) and IT enabled services including akshaya-e-centres, computer consultancy services units, call centers, software services, data processing activities, desktop publishing (DTP), software development units and such other IT enabled services.

LT - IV (B) IT and IT Enabled Services	
(a) Fixed Charge	
(i) Connected load of and below 10kW (Rs. per consumer per month)	150
(ii) Connected load above 10 kW and up to 20kW (Rs. per kW or part thereof per month)	100
(iii) Connected load above 20 kW (Rs. per kVA or part thereof per month)	170
(b) Energy Charge (Rs/kWh)	
Connected load of and below 10kW	6.20
Connected load above 10 kW and up to 20kW	6.20
Connected load above 20 kW	6.25

Note: General conditions relating to installation of capacitors will apply.

LOW TENSION - V- AGRICULTURE

(a) LT- V AGRICULTURE (A) {LT- V (A)}

This tariff applicable to the use of electricity for:

- (1) pumping, dewatering and lift irrigation for cultivation of food crops, fruits and vegetables.
- (2) pumping, dewatering and lift irrigation for the cultivation of cash crops such as cardamom and coffee and for the cultivation of crops such as coconut, arecanut, pepper, nutmeg, cloves, cocoa and betel leaves as pure crops or as inter crops.

LT - V (A)- Agriculture	
Fixed Charge (Rs. per kW or part thereof per Month)	10
Energy Charge (Rs/kWh)	2.30

Note: -1. General conditions relating to installation of capacitors will apply.

2. The electricity for pumping and lift irrigation for the cultivation of cash crops only are included under LT V(A) agriculture tariff and the electricity for general purpose industrial loads like drying, further processing, value addition etc. of plantation of cash crops shall be billed under LT IV(A) tariff.

(b) LT – V - AGRICULTURE (B) {LT -V (B)}

The tariff under this category is applicable to the supply of electricity for the use of the following activities such as,-

- (i) livestock farms, combination of livestock farms with dairy, poultry farms, rabbit farms, piggery farms, hatcheries,
- (ii) silk worm breeding units, sericulture,
- (iii) floriculture, tissue culture, agricultural and floricultural nurseries, mushroom culture,
- (iv) aquaculture, fish farms including ornamental fish farms, prawn farms, other aqua farms, aquarium run by the Agency for Development of Aquaculture, Kerala, and
- (v) cheenavala without fish farming and egger nurseries,

LT - V (B)- Agriculture	
Fixed Charge (Rs. per kW or part thereof per Month)	10
Energy Charge (Rs/kWh)	2.80

Note1: General conditions relating to installation of capacitors will apply.

Note-2.

LT-V (B) Agriculture tariff is applicable to the dairy farms, which have facilities for collection and storing of milk, till it is sent to the processing units, and also applicable to the primary milk producer's co-operative societies, the primary function of which is the collection of milk from the farmers and to sell the same to the processing units in bulk. This tariff will be also applicable for retail sales outlets if the connected load of sales outlets does not exceed 10% of the total connected load.

Note-3

The electricity used for running electric motors for making rubber sheets from Latex by individual farmers shall be billed under LT-V- Agriculture (B) [LT-V(B)].

LOW TENSION –VI GENERAL

LT-VI- General (A) [LT- VI (A)]

The tariff under LT-VI (A) category is applicable to,-

- (i) Government or Government aided educational institutions; libraries and reading rooms of Government or Government aided educational institutions,,
- (ii) Primary health centres, dispensaries and hospitals under the Central Government or State Government or Local Self Government Institutions; X-Ray units, laboratories, blood banks, mortuaries and such other units attached to such primary health centres, dispensaries and hospitals; blood banks of IMA; poly clinics under Ex-servicemen Contributory Health Scheme (ECHS).
- (iii) Centres for religious worship such as temples, mosques and churches; institutions imparting religious education, monasteries and convents;

LT - VI GENERAL (A)	
(a) Fixed Charge (Rs. per kW or part thereof per Month)	65
(b) Energy Charge (Rs/kWh) (Non telescopic)	
(i) Of and Below 500 kWh (all units)	5.70
(ii) Above 500 kWh (all units)	6.50

LT- VI GENERAL (B)

The tariff under this category is applicable to,-

- (i) offices and institutions under the State or Central Governments or under the Local Self Government Institutions except those which are included in the category LT-VI General (C); village offices; Government Treasuries.
- (ii) offices of the Corporations, Boards and other Public Sector Undertakings under State or Central Governments, administrative/ office buildings of BSNL;
- (iii) offices of the Kerala Water Authority (KWA), Kerala State Road Transport Corporation (KSRTC) and Kerala State Water Transport Corporation (KSWTC), KMRL
- (iv) museum and / or zoo;
- (v) hostels of educational institutions affiliated to Universities, hostels under the control of the Director of Technical Education or Director of Medical Education or Director of Public Instruction or such other institutions of government, hostels run by the State or Central Government, hostels run by State Social Welfare Board, hostels run by institutions registered under the Travancore - Cochin Literary, Scientific and Charitable Societies Registration Act, 1955 (12 of 1955) or under the Societies Registration Act, 1860 (21 of 1860) or under Indian Trust Act, 1882, the donations to which are exempted from payment of Income Tax; Working women hostels operating under the scheme approved by the Ministry of Women and Child Development, Government of India, hostels under the supervision and monitoring of Department of Social Welfare, Government of Kerala;
- (vi) Pay wards and institutions of Kerala Health Research and Welfare Society (KHRWS);

- (vii) travellers bungalows, rest houses and guest houses under government; Police Clubs,
- (viii) type writing institutes;
- (ix) offices of advocates or chartered accountants or company secretary or consulting engineers or tax consultants or architects or cost accountants or of management consultants;
- (x) offices of social service organizations, offices of religious organizations, offices of service pensioners' associations
- (xi) offices of political parties not approved by the Election Commission of India;
- (xii) collection centres of 'FRIENDS'; single window service centres under Department of Information Technology;
- (xiii) offices of Department of Posts, all post offices including extra departmental (ED) post offices;
- (xiv) micro financing institutions registered and functioning as per the guidelines issued by Reserve Bank of India;
- (xv) cameras at traffic signal points, surveillance camera installed by Local Self Government Institutions (LSGI).
- (xvi) Old age homes, which charge the inmates for boarding and lodging.

LT - VI GENERAL (B)	
(a) Fixed Charge (Rs. per kW or part thereof per Month)	80
(b) Energy Charge (Rs/kWh) (Non-telescopic)	
(i) Of and below 500 kWh (all units)	6.30
(ii) Above 500 kWh (all units)	7.00

LT- VI GENERAL (C)

The tariff under this category is applicable to:

- (i) offices or institutions under Income Tax or Central Excise and Customs Departments,
- (ii) offices under Motor Vehicles Department or Sales Tax department or Excise Department; Sub-Registry offices; and such other tax earning departments under State or Central Government (other than Local Self Government Institutions);
- (iii) light houses;

- (iv) banking and / or financing institutions (excluding micro financing institutions registered and functioning as per the guidelines issued by Reserve Bank of India);
- (v) ATM counters including the ATM counters of post offices.
- (vi) offices of Railways including railway stations;
- (vii) offices of Airport Authority of India except airports;
- (viii) Insurance companies, and
- (ix) any other LT categories not included anywhere in this schedule.

LT - VI GENERAL (C)	
(a) Fixed Charge (Rs. per kW or part thereof per Month)	180
(b) Energy Charge (Rs/kWh) (Non telescopic)	
(i) Of and below 500 kWh (all units)	7.00
(ii) Above 500 kWh (all units)	8.50

LT- VI GENERAL (D)

The tariff under LT-VI (D) category is applicable to:

- (i) orphanages;
- (ii) anganwadis; schools and hostels for differently abled or physically challenged persons (including mentally retarded students, deaf/dumb/blind/physically handicapped persons),
- (iii) old age homes where no charges are levied for the boarding and lodging of inmates,
- (iv) Cheshire homes; polio homes; SoS Childrens' Villages,
- (v) charitable centres for cancer care, pain and palliative care and HIV rehabilitation,
- (vi) charitable hospital guidance centres registered under the Travancore - Cochin Literary, Scientific and Charitable Societies Registration Act, 1955 (12 of 1955) or under the Societies Registration Act, 1860 (21 of 1860) or under Indian Trust Act, 1882, donations to which are exempted from payment of Income Tax,
- (vii) shelters exclusively for orphaned animals and birds run by charitable institutions registered under the Travancore - Cochin Literary, Scientific and Charitable Societies Registration Act, 1955;

- (viii) libraries and reading rooms with connected load of and below 2000 watts and monthly consumption of and below 100 units.
- (ix) e-toilet and public comfort stations, where no charges levied for use.

LT - VI GENERAL (D)	
(a) Fixed Charge	Rs .35.00/ consumer/ month
(b) Energy Charge (Rs/kWh)	2.10

LT VI GENERAL (E)

The tariff under LT-VI(E) category is applicable to:

- (i) sports and / or arts clubs (with connected load not exceeding 2000 W);
- (ii) sailing and / or swimming clubs (with connected load not exceeding 2000 W);
- (iii) gymnasium (with connected load not exceeding 2000 W);
- (iv) libraries and reading rooms excluding those which are included in LT VI-A and LT VI-D categories,
- (v) press clubs;
- (vi) offices of political parties approved by Election Commission of India;
- (vii) e-toilet and public comfort stations, where charges are levied for use

LT-VI-GENERAL (E)	
Particulars	Approved tariff
(a) Fixed charge (Rs/ consumer/month)	
Single phase consumers	40
Three phase consumers	100
(b) Energy charges (Rs /kWh) (Non telescopic)	
0 to 50 units per month	3.40
0 to 100 units per month	4.40
0 to 200 units per month	5.10
Above 200 units per month	6.80

LT VI GENERAL (F)

The tariff under LT- VI (F) is applicable to:

- (i) computer training institutes, private coaching or tuition centres, self-financing educational institutions including the hostels run by them,
- (ii) cinema studios, audio/video cassette recording/duplication units, CD recording units, cinema dubbing and animation studios,
- (iii) all construction works,
- (iv) installations of cellular mobile communications, satellite communications, exchanges of telecom companies, offices of telecom companies except the administrative offices of BSNL,
- (v) offices or institutions of All India Radio (AIR), Doordarshan and other television broadcasting companies, cable TV networks, radio stations,
- (vi) hall marking centres.

LT VI GENERAL (F)	
Fixed charge (Rs/ kW or part thereof per month)	
Single Phase	70
Three phase	140
Energy Charge (Rs per unit) (Non- telescopic)	
0 to 100 units per month	5.80
0 to 200 units per month	6.50
0 to 300 units per month	7.20
0 to 500 units per month	7.80
above 500 units per month	9.00

LT-VI- GENERAL (G)

The tariff under this category is applicable to all the private hospitals, private clinics, private clinical laboratories, private X-ray units, private mortuaries, private blood banks and private scanning centres and such other private institutions in health care sector.

LT VI General (G)	
Fixed charge (Rs/ kW or part thereof per month)	
Single Phase	70
Three phase	140
Energy Charge (Rs per unit) (Non-telescopic)	
0 to 500 units per month	5.70
0 to 1000 units per month	6.50
0 to 2000 units per month	7.50
Above 2000 units per month	8.50

LOW TENSION - VII – COMMERCIAL

LT- VII-Commercial (A) [LT- VII (A)]

The tariff under LT-VII (A) category is applicable to commercial and trading establishment such as,

- (i) shops, showrooms, display outlets, business houses,
- (ii) hotels and restaurants (having connected load exceeding 1000 W), house boats
- (iii) private lodges, private hostels, private guest houses, private rest houses, private travellers bungalows,
- (iv) freezing plants, cold storages, milk chilling plants,
- (v) shops selling confectioneries, sweetmeat, breads and such other eatables without manufacturing process,
- (vi) petrol/diesel/ LPG /CNG bunks, LPG bottling plants,
- (vii) automobile service stations, computerized wheel alignment centres,
- (viii) marble and granite cutting units,
- (ix) units carrying out filtering, packing and other associated activities of oil brought from outside,
- (x) share broking firms, stock broking firms, marketing firms,
- (xi) godowns of Kerala State Beverages Corporations,
- (xii) photo studios/ colour labs

LT VII Commercial (A)		
(a) Fixed charge (Rs/ kW or part thereof per month)		
(i)	Single Phase	70
(ii)	Three phase	140
(b) Energy Charge (Rs per unit) (Non telescopic)		
(i)	0 to 100 units per month	6.00
(ii)	0 to 200 units per month	6.70
(iii)	0 to 300 units per month	7.40
(iv)	0 to 500 units per month	8.00
(v)	Above 500 units per month	9.30

LT- VII Commercial (B) [LT-VII-B]

Tariff applicable to commercial and trading establishments such as,-

- (i) shops, bunks, hotels, restaurants, having connected load of and below 1000 Watts.
- (ii) telephone / fax / e-mail / photocopy booths and internet cafes having connected load of and below 1000 Watts.

When connected load of the above mentioned consumers exceeds 1000 Watts, such consumers shall be charged under LT -VII (A) tariff. If monthly consumption of LT- VII (B) consumers having connected load of and below 1000 Watts, exceeds 300 units, the energy charges shall be realized at the rate of energy charges applicable to LT -VII (A) consumers.

LT - VII Commercial (B)		
(a) Fixed Charge (Rs. per kW or part thereof/ month)		50
(b)Energy charge (Rs/unit) (Non telescopic)		
(i)	0 to 100 units	5.20
(ii)	0 to 200 units	6.00
(iii)	0 to 300 units	6.60

LT- VII Commercial (C) [LT-VII-C]

The tariff under LT VII (C) is applicable to,-

- (i) cinema theatres;
- (ii) circus;
- (iii) sports and arts clubs, sailing or swimming clubs and gymnasium having connected load exceeding 2000W.

LT - VII Commercial (C)	
(a) Fixed Charge (Rs. per kW or part thereof / Month)	100
(b) Energy Charge (Rs/kWh) (Non telescopic)	
(i) Of and below 1000 kWh	6.00
(ii) Above 1000 kWh	7.40

LOW TENSION – VIII PUBLIC LIGHTING (LT- VIII)

LT – VIII (A) Unmetered street lights {LT VIII (A)}

Tariff applicable to various categories of unmetered public lighting per lamp.

LT – VIII (A) – Composite Tariff approved for Unmetered Street Lights				
TYPE OF LAMP	Watts (W)	Rs/Lamp/Month		
		Burning Hours per day		
		4 Hours	6 Hours	12 Hours
Ordinary	40	24	36	73
Ordinary	60	36	55	112
Ordinary	100	61	92	184
Fluo tube	40	24	36	73
Fluo tube	80	48	73	147
Floodlight	1000	615	922	1845
MV Lamp	80	56	77	157
MV Lamp	125	83	123	244
MV Lamp	160	106	157	315
MV Lamp	250	164	244	492
MV Lamp	400	263	392	785
SV Lamp	70	46	70	138
SV Lamp	80	53	77	157
SV Lamp	100	65	98	196
SV Lamp	125	83	123	244
SV Lamp	150	98	147	294
SV Lamp	250	164	244	492
CFL	11	6	9	18
CFL	15	8	12	24
CFL	18	10	14	29
CFL	22	12	18	35
CFL	30	17	24	48
CFL	36	19	29	58
CFL	44	23	35	70
CFL	72	39	58	116
CFL	144	77	116	231
LED	12	3	4	10
LED	18	4	8	15
LED	20	6	8	17
LED	24	7	10	22
LED	30	8	12	28
LED	40	11	17	33
LED	45	12	18	39
MV Lamp on semi high mast only for 12 hrs burning per day	1200			2376
SV Lamp on semi high mast only for 12 hrs burning per day	250			495

LT – VIII (B) METERED STREET LIGHTS AND TRAFFIC SIGNAL LIGHTS
{LT-VIII (B)}

Tariff applicable for metered street lights and tariff signal lights.

b) LT – VIII (B) Tariff for Metered Street Lights and TrafficSignal Lights	
(a) Fixed charge (Rs/ meter/month)	50
(b) Energy Charge (Rs per unit)	4.30

Note: 1.- When public lighting is to be done after extension of lines, the beneficiaries shall pay the cost of the work as per the cost data approved by the Commission.

Note: 2.- In campuses where lines and lights are provided by the beneficiary, LT metered supply shall be provided at 3.90 Rs /kWh plus fixed charge of Rs.40 per meter per month subject to other conditions regarding the payment of cost of the work.

Note: 3.- Supply to light houses when taken from the street mains of Kerala State Electricity Board Limited or any other licensee will be charged at appropriate public lighting tariff. Where metered independent supply is provided at low tension, the rate applicable will be 3.90 Rs/kWh plus fixed charge at Rs.40 per meter per month and subject to other conditions regarding payment of cost of the work.

Note: 4.- In areas where low tension distribution lines of Kerala State Electricity Board Limited and other licensees exist, metered supply shall be given by the respective licensee for special type of lamps, for which the rates are not given in the table above, provided the lamps are installed and maintained by the local bodies at their cost. The tariff applicable in such cases shall be 4.30 Rs per unit plus fixed charge at Rs 50/- per meter per month, subject to other conditions regarding payment of cost of the work.

Note: 5.- Separate charges shall not be collected from the consumers towards service charges for street lighting.

Note: 6.- Electricity duty is not payable for public lighting as per the provisions of Kerala Electricity Duty Act, 1963.

LT IX : DISPLAY LIGHTING AND HOARDINGS

Tariff applicable to display lighting, hoarding, external illumination of buildings for publicity and sales- promotion purposes.

LT - IX Display Lighting and Hoardings	
(a) Fixed Charge (Rs. per Connection per month)	550
(b) Energy Charge (Rs per unit)	12.50

Note: The electricity used for the purposes of displaying the name, address, working time and such essential details of commercial, industrial or other category of consumers is allowed to be charged at same tariff applicable to the category to which such consumers belong.

LT-X: ELECTRIC VEHICLES CHARGING STATIONS

Tariff applicable to electric vehicle charging stations at LT

LT – X : Electric vehicle charging stations	
(c) Fixed Charge (Rs per kW or part thereof per month)	75
(d) Energy Charge (Rs/kWh)	5.00

PART B – HIGH TENSION (HT) AND EXTRA HIGH TENSION (EHT) TARIFF

General conditions for HT and EHT tariff

1. For the purpose of conversion from kVA to kW or vice versa, an average power factor of 0.9 shall be taken.
2. Billing demand shall be the recorded maximum demand for the month in kVA or 75% of the contract demand as per the agreement, whichever is higher.
3. All the HT&EHT consumers shall be allowed to use upto 130% of the contract demand during off-peak hours without the payment of excess demand charge. However, when the recorded maximum demand during normal period or peak period in a month exceeds the contract demand as per the agreement or the recorded maximum demand during off-peak hours exceeds 130% of the contract demand, the excess demand shall be charged at a rate of 150 percent of the demand charges applicable, as per the billing procedure specified under Annexure-E to this Schedule.
4. (a) As per Section 55 of the Electricity Act, 2003 and provisions of the Central Electricity Authority (Installation and Operation of meters) Regulations 2006, consumer meter shall generally be installed and owned by the licensee.

(b) Even if the consumer elects to purchase the meter as stipulated in proviso under sub section 1 of section-55 of the Electricity Act, 2003, such meter shall be tested, calibrated, sealed, installed, operated and maintained by the licensee as provided in the said regulations.

(c) The consumer has to purchase only such meters which are included in the list of manufactures and models which has to be provided by the licensee, as stipulated in clause (c) of Sub-Regulation (2) of Regulation 6, of the Central Electricity Authority (Installation and Operation of Meters) Regulations 2006.

(d) If any existing consumer, having elected to purchase and supply the meter for replacement of the defective meter in his premises, fails to do so within two months, such consumer will be charged 50% extra over the prevailing rates applicable to him for both demand and energy, for the said two months and one month thereafter.

- (e) The licensee shall, in performance of its duty under Section 55 of the Act, replace the defective meter and realize the security deposit and meter rent in accordance with the provisions of Section 55 of the Electricity Act, 2003.
5. All EHT consumers (except Railway Traction) and all HT consumers (except drinking water supply pumping stations of Kerala Water Authority, Municipal Corporations, Municipalities and Panchayats) shall be billed on ToD tariff as per the formula indicated in the Annexure - A to this schedule.
 6. The monthly minimum charge payable shall be the minimum guarantee amount as per Minimum Guarantee Agreement, if any, or the billing demand as per condition 2 above, whichever is higher. This applies even during the period of disconnection of power supply.
 7. In the case of factory lighting and colony supply of HT /EHT (Industrial) consumers, the applicable tariff shall be subject to the following conditions:
 - a. **Factory lighting** – When the total connected lighting load of the factory is less than or equal to 5% of the connected load for power, it can be tapped off from the power mains without segregation. When the above lighting load exceeds this limit of 5%, the whole lighting load should be segregated and metered by a sub-meter and lighting consumption in excess over 10% of the bulk supply consumption for power, shall be charged at 20 paise extra per kWh for HT and 10 paise extra per kWh for EHT consumers.
 - b. **Colony Supply:** Colony supply, when availed from the HT / EHT supply of the consumer, such supply shall be segregated and metered by means of a sub-meter and the consumption will be charged at 20 paise extra per kWh for HT and 10 paise extra per kWh for EHT consumers.
 - c. If no segregation is made as specified in clauses (a) or (b) above, the bill amount of the consumer shall be increased for demand and energy charges by 10% for both HT and EHT consumers.
 8. Power factor incentives/penalties as per Annexure - B shall be applicable to all HT and EHT consumers.

TARIFF FOR HIGH TENSION (HT) CONSUMERS

This tariff shall be applicable to all high tension consumers to whom the Kerala State Electricity Board Limited or other licensees has undertaken or undertakes to supply energy. The expression 'high tension' (HT) consumer means a consumer who is supplied with electrical energy at a voltage of 33,000 Volts, 22,000 Volts or 11,000 Volts under normal conditions, subject however to, the variation indicated in the agreement with the Kerala State Electricity Board Limited or other licensees or the variation allowed under the Kerala Electricity Supply Code, 2014.

HIGH TENSION- I - INDUSTRY (A) {HT- I (A)}

Tariff applicable to general purpose industrial load of all classes of consumers listed in LT-IV (A) category availing supply of electricity at high tension.

HIGH TENSION- I - INDUSTRY (A)	
(a) Demand Charge (Rs./kVA of Billing Demand/Month)	340
(b) Energy Charge (Rs/kWh)	5.75

HIGH TENSION-I - IT and IT Enabled Services {HT – I (B)}

Tariff applicable to of all classes of consumers listed in LT-IV (B) category availing supply of electricity at high tension.

HIGH TENSION-I (B)- IT and IT Enabled Services	
(a) Demand Charge (Rs./kVA of Billing Demand/Month)	340
(b) Energy Charge (Rs/kWh)	6.05

HIGH TENSION - II - GENERAL (A) {HT – II (A)}

Tariff applicable to all classes of consumers listed in LT-VI (A), LT-VI (B), LT-VI (D), and LT-VI (E) categories availing supply of electricity at high tension.

HIGH TENSION - II - GENERAL (A)	
(a) Demand Charges (Rs./kVA of Billing Demand/Month)	370
(b) Energy Charge (Rs/kWh)	5.60

HIGH TENSION – II - GENERAL (B) {HT –II (B)}

Tariff applicable to all classes of consumers listed in LT-VI(C), LT-VI (F) and LT-VI (G) categories availing supply of electricity at high tension.

HIGH TENSION – II - GENERAL (B)	
(a) Demand Charges (Rs./kVA of Billing Demand/Month)	440
(b) Energy Charge (Rs/kWh)	
(i) Of and below 30,000 units (All units)	6.20
(ii) Above 30,000 units (All units)	7.20

HIGH TENSION –III AGRICULTURE (A) –{HT – III (A)}

Tariff applicable to the classes of agricultural consumers listed in LT-V (A) category, availing supply of electricity at high tension.

HIGH TENSION –III (A) AGRICULTURE	
(a) Demand Charges (Rs./kVA of Billing Demand/Month)	190
(b) Energy Charge (Rs/kWh)	3.10

HIGH TENSION - III AGRICULTURE (B) – (HT – III (B))

Tariff applicable to classes of agricultural consumers listed in LT-V (B) category, availing supply of electricity at high tension.

HIGH TENSION – III (B) AGRICULTURE	
(a) Demand Charges (Rs./kVA of Billing Demand/Month)	200
(b) Energy Charge (Rs/kWh)	3.60

HIGH TENSION – IV (A) COMMERCIAL[HT – IV(A)]

Tariff applicable to all classes of commercial consumers listed in LT-VII (A) and LT-VII (C) categories availing supply of electricity at high tension, except those who categorize under HT-IV (B).

HIGH TENSION – IV (A) COMMERCIAL[HT – IV(A)]	
(a) Demand Charges (Rs./kVA of Billing Demand/Month)	440
(b) Energy Charge (Rs/kWh) (Non telescopic)	
(i) Of and below 30,000 units (All units)	6.30
(ii) Above 30,000 units (All units)	7.30

HIGH TENSION – IV (B) COMMERCIAL [HT – IV (B)]

Tariff applicable to hotels, marriage halls, convention centers, shopping malls and multiplexes availing supply at high tension.

HIGH TENSION – IV (B) COMMERCIAL [HT – IV(B)]	
(a) Demand Charges (Rs./kVA of Billing Demand/Month)	440
(b) Energy Charge (Rs/kWh) (Non telescopic)	
(iii) Of and below 30,000 units (All units)	6.60
(iv) Above 30,000 units (All units)	7.60

HIGH TENSION – V DOMESTIC (HT – V)

Tariff applicable to domestic consumers and colonies availing supply of electricity at high tension.

HIGH TENSION – V DOMESTIC (HT – V)	
(a) Demand Charges (Rs./kVA of Billing Demand/Month)	390
(b) Energy Charge (Rs/kWh)	5.80

Note: The HT domestic connection shall be effected subject to the following conditions:

- 1. The connections provided shall be for domestic use only.*
- 2. The consumer shall not resell the power supplied to the occupants inside or outside the premises to which HT connection is provided.*
- 3. If the apartment /flat/ room is rented out or made use of for any other purpose, he shall take individual LT connection at his cost. Appropriate LT tariff shall apply in such cases, based on the purpose of electricity usage. The consumer shall maintain the transformer and allied equipment at his cost in such cases.*

HT- VI. ELECTRIC VEHICLES CHARGING STATIONS

Tariff applicable to charging stations of electric vehicles availing electricity at high tension.

HIGH TENSION – V DOMESTIC (HT – V)	
(a) Demand Charges (Rs./kVA of Billing Demand/Month)	250
(b) Energy Charge (Rs/kWh)	5.00

HIGH TENSION- VII TEMPORARY CONNECTIONS (HT-VII)

Tariff applicable availing temporary connections at HT for the purposes such as illumination, exhibition, festivals, public meetings, fairs etc.

HT VII- Temporary connections	
<i>Energy charge</i>	Rs 11.00 per unit
OR	
<i>Daily minimum Rs/kW or part thereof of connected load whichever is higher</i>	Rs 110.00/KW

HIGH TENSION –VIII -SEASONAL CONSUMERS (HT – VIII)

1. HT consumers with seasonal load shall register themselves with the Kerala State Electricity Board Limited or other licensees as seasonal consumers for the purpose for which electricity is used. They shall be billed under appropriate tariff applicable to the category to which they belong, for the period of use.
2. For registration as a seasonal consumer, the consumer should have a minimum of four working months per annum or he should guarantee a minimum equivalent thereto for the working season.
3. If a consumer registered with the Kerala State Electricity Board Limited or other licensees as a seasonal consumer, specifies the use of electricity for different purposes during different seasons and also specifies the period of usage for each such purpose, then the consumer shall be billed under appropriate tariff for each purpose during different seasons separately.
4. If a registered seasonal consumer using electricity for different purposes without specifying the purposes and the period of usage, then the consumer shall be charged at the highest tariff applicable amongst the different uses, for the various operations for the whole year.
5. The conditions for lighting for seasonal industrial consumers shall be the same as applicable in the case of HT-I.
6. If a registered seasonal consumer opts for disconnection of supply during the period other than the period of usage (specified seasonal usage), then he shall pay higher demand charges during the working season as below:
 - (a) Demand charges shall be increased by $5(12-N)$ % where 'N' is the number of months during which the consumer registers himself with the Kerala State Electricity Board Limited or other licensees to utilize the service in the year.
 - (b) There will be no billing for the idling period.
 - (c) The service to the consumer will be disconnected without notice immediately on termination of the registered period unless the consumer asks for continuance of the service during the idle period for which also he will be charged at the same seasonal rate applicable for the original period.
 - (d) Monthly minimum charge equivalent to demand charges for 75% of the contract demand increased as per (a) above shall be collected from the consumer in each working month.

(e) The reconnection fee shall be as specified in the Kerala Electricity Supply Code, 2014 and its amendments from time to time.

EXTRA HIGH TENSION (EHT) TARIFF

This tariff shall be applicable to all Extra High Tension consumers. The expression Extra High Tension (EHT) consumer means a consumer who is supplied with electrical energy at a voltage exceeding 33000 Volts under normal conditions subject however to, the variation indicated in the agreement with the Kerala State Electricity Board Limited or other licensees or allowed under the Kerala Electricity Supply Code, 2014.

EXTRA HIGH TENSION (EHT) INDUSTRIAL

EHT Industrial (66 kV)

Tariff applicable to general purpose industrial load at 66 KV.

EHT Industrial (66 kV)	
(a) Demand Charges (Rs./kVA of Billing Demand/Month)	340
(b) Energy Charge (Rs/kWh)	5.50

EHT Industrial (110 kV)

Tariff applicable to general purpose industrial load at 110 kV.

EHT Industrial (110 kV)	
(a) Demand Charges (Rs./kVA of Billing Demand/Month)	330
(b) Energy Charge (Rs/kWh)	5.40

EHT Industrial (220 kV)

Tariff applicable to general purpose industrial load at 220 KV.

EHT Industrial (220 kV)	
(a) Demand Charges (Rs./kVA of Billing Demand/Month)	320
(b) Energy Charge (Rs/kWh)	5.00

EHT COMMERCIAL (66 kV, 110 kV, 220kV)

Tariff applicable to commercial institutions availing power at EHT.

EHT Commercial (66 kV, 110 kV, 220kV)	
(a) Demand Charges (Rs./kVA of Billing Demand/Month)	440
(b) Energy Charge (Rs/kWh) (non telescopic)	
(i) Of and below 60,000 units	6.10
(ii) Above 60,000 units	7.10

Extra High Tension –General A (EHT-General-A) (66 kV, 110kV, 220 kV)

This tariff is applicable to the consumers enumerated under LT-VI(A) category, availing supply at EHT level.

EHT-General A (66kV, 110kV, 220kV)	
(a) Demand Charges (Rs./kVA of Billing Demand/Month)	340
(b) Energy Charge (Rs/kWh)	5.30

Extra High Tension –General – B (EHT-General-B) (66 kV, 110kV, 220 kV)

The tariff under this category is applicable to Indian Space Research Organisation (ISRO), utility services such as Airport, Self-Financing Educational Institutions and any other EHT consumers not included elsewhere.

EHT -General –B (66 kV, 110 kV, 220kV)	
(a) Demand Charges (Rs./kVA of Billing Demand/Month)	410
(b) Energy Charge (Rs/kWh) (non telescopic)	
(i) Of and below 60,000 units	5.80
(ii) Above 60,000 units	6.80

RAILWAY TRACTION (110 kV)

Tariff applicable to Railway Traction

Railway Traction (110 kV)	
(a) Demand Charges (Rs./kVA of Billing Demand/Month)	300
(b) Energy Charge (Rs/kWh)	5.10

Kochi Metro Rail Corporations

Tariff applicable to traction for KMRL

KMRL (110 kV)	
(a) Demand Charges (Rs./kVA of Billing Demand/Month)	275
(b) Energy Charge (Rs/kWh)	4.80

PART-C BULK SUPPLY TARIFF APPLICABLE TO SMALL LICENSEES AND BULK CONSUMERS

1. The tariff mentioned in this schedule shall apply to the Licensees who avail energy through High Tension or Extra High Tension systems at their terminal notwithstanding anything to the contrary contained in any agreement earlier entered into with any Licensee by Kerala State Electricity Board/Government or any of the Tariff Regulations and/or rules and/or orders previously issued.
2. The rates specified in this schedule are exclusive of Electricity Duty and/or surcharge, other cesses, taxes, minimum fees, duties and other impositions existing or that may be levied in future by the Government or the Commission which are payable in addition to the charges as per the tariff mentioned in this Schedule.
3. The tariff applicable will be two part tariff as under:--

Name of Licensees	Demand Charges (Rs/kVA of Billing Demand per month)	Energy Charges (Rs per unit)
KINESCO POWER & UTILITIES (P) LIMITED	340	5.85
COCHIN SPECIAL ECONOMIC ZONE	340	5.60
RUBBER PARK INDIA (P) LIMITED	340	4.75
TECHNOPARK	340	5.50
COCHIN PORT TRUST	340	6.10
THRISSUR CORPORATION ED	340	6.05
KANNAN DEVAN HILLS PLANTATIONS	340	4.80
INFOPARK	340	5.65
SMART CITY	340	5.65
MILITARY ENGINEERING SERVICES	390	5.85
KARNATAKA ELECRCITY DEPARTMENT	390	5.85

Note: Billing Demand shall be the recorded Maximum Demand for the month in kVA or 75% of Contract Demand whichever is higher.

Special Conditions

1. The installations and maintenance of meters shall be strictly in accordance with the provisions of the Central Electricity Authority (Installation and Operation of Meters) Regulations, 2006.

2. For billing purpose each point of supply shall be treated as a separate consumer.
3. ToD tariff shall be applicable to HT, EHT and LT consumers of the respective licensees as per the terms and conditions mentioned in the respective schedule.

PART-D OTHER CHARGES

Summary of other charges applicable with effect from 08.07.2019

1. The transmission charges - Rs 0.39/unit or Rs.8705/MW/day.
2. The wheeling charges - Rs 0.55/unit.
3. The cross subsidy surcharge.

Category	Cross Subsidy surcharge (Rs/ unit)
EHT- Industrial (66 kV)	1.23
EHT-Industrial (110 kV)	1.20
EHT- Industrial (220 kV)	1.25
EHT- Gen A	1.23
EHT- Gen B	1.67
Railways	1.26
KMRL	1.21
HT-1(A) Industry	1.40
HT-I(B) Industry	1.63
HT-II(A)	1.47
HT-II (B)	1.71
HT-III(A)	1.19
HT-III(B)	0.62
HT- IV (A)	1.89
HT- IV (B)	1.95
HT-V	1.72

4. Meter rent to be levied from the consumers

Sl No	Description	Meter rent approved (Rs/meter/month)
1	Single phase static energy meters with LCD and ToD facility and with ISI certification	6
2	Three phase static meters with LCD and ToD facility with ISI certification	15
3	LT CT operated three phase four wire static energy meters (Class 0.5 accuracy) with LCD and ToD facility and ISI certification	30
4	3 phase AC static tri-vector energy meters with ABT, ToD facility and compliant to Device Language Message Specification (DLMS)protocol	1000

5. The transmission charges, wheeling charges, cross subsidy surcharge and meter rent approved in this order shall be applicable to KSEB Ltd and other licensees in the State.

Annexure- A

ToD Tariff applicable to EHT, HT (except HT-V domestic) and LT industrial consumers (with connected load of and above 20KW) Consumers

The ToD tariff applicable to EHT, HT (except HT-V domestic) and LT industrial consumers (with connected load of and above 20 kW) for energy consumption is given below:

	Rates		
	Normal period (6:00 hrs to 18:00 hrs)	Peak period (18:00 hrs to 22:00 Hrs)	Off peak (22:00 hrs to 6:00 hrs)
Energy Charges	100%	150%	75%

Billing of the demand charges:

Monthly Demand Charge shall be:

$$\text{Billing Demand during the month} \times \text{Demand Charge per kVA}$$

Billing of Energy charges:

The billing of the energy charge for HT&EHT consumers shall be done as follows

- Normal time: $\text{Consumption during normal time} \times \text{energy rate} / \text{unit}$.
- Peak time: $\text{Consumption during peak time} \times \text{energy rate} / \text{unit} \times 1.50$
- Off-peak time: $\text{Consumption during off-peak time} \times \text{energy rate} / \text{unit} \times 0.75$

$$\text{Total energy charge during a month} = (a) + (b) + (c)$$

Other conditions:

- Demand/energy charges shall be the demand/energy charges for normal period as per the tariff approved in this Schedule.
- Demand/energy charges for LT industrial consumers with a connected load of and above 20KW, shall be as per the tariff approved in this Schedule.
- Demand charges during a particular month shall be assessed based on the recorded maximum demand during that month or 75% of the contract demand whichever is higher.
- Excess demand charges: Additional demand charges shall be levied if the recorded maximum demand exceeds the contract demand during normal period and peak period, which shall be charged at 50% extra for the excess over the contract demand (ie., additional demand during normal/peak period \times ruling demand charges \times 0.5). Additional demand

charges during off-peak period shall be levied only if the recorded maximum demand during off peak period is in excess of 130% of the contract demand.

- For the consumption of electricity during normal period ie 6.00 hours to 18.00 hours the demand/energy charges shall be at the notified rates applicable to the consumer category.

Annexure - B

Power factor incentive / disincentive

The following incentive and disincentive shall be applicable to LT industrial consumers with a connected load of and above 20 kW, HT&EHT Consumers for power factor improvement.

<u>PF range (lag)</u>	<u>Incentive/ Penalty</u>
<u>Incentive</u>	
Above 0.95 and upto 1.00	0.50% of the Energy Charge for each 0.01 unit increase in power factor from 0.95
<u>Penalty</u>	
0.90 and upto 0.95	0.50% of the energy charges for every 0.01 fall in PF below 0.95 and upto 0.90
below 0.90	1% of the energy charge for every 0.01 fall in PF from 0.90

Note: No penalty and incentives for consumers with leading power factor.

Annexure- C

Recommended values of Static capacitor in kVAR for power factor improvements

A. Induction Motors (LT)

Sl.No.	Total Motor Rating (HP)	KVAR rating of capacitors insisted	Sl.No.	Total Motor Rating (HP)	KVAR rating of capacitors insisted
1	Upto 3	1	8	Above 25 up to 30	10
2	Above 3 up to 5	2	9	Above 30 up to 40	12
3	Above 5 up to 7.5	3	10	Above 40 up to 50	14
4	Above 7.5 up to 10	4	11	Above 50 up to 60	18
5	Above 10 up to 15	5	12	Above 60 up to 80	22
6	Above 15 up to 20	6	13	Above 80 up to 100	25
7	Above 20 up to 25	7.5	14	Above 100 up to 130	35

B. WELDING TRANSFORMERS (LT)

Sl.No.	Rating of welding trans-formers in KVA	KVAR rating of capacitors insisted	Sl.No.	Rating of welding trans-formers in KVA	KVAR rating of capacitors insisted
1	1	1	16	16	12
2	2	2	17	17	13
3	3	2	18	18	13
4	4	3	19	19	14
5	5	4	20	20	15
6	6	4	21	Above 20 up to 22	16
7	7	5	22	Above 22 up to 24	17.5
8	8	6	23	Above 24 up to 26	18
9	9	7.5	24	Above 26 up to 28	20
10	10	7.5	25	Above 28 up to 30	21
11	11	8	26	Above 30 up to 35	24
12	12	9	27	Above 35 up to 40	27.5
13	13	10	28	Above 40 up to 45	32.5
14	14	10	29	Above 45 up to 50	35
15	15	11			

Annexure - D

ToD Tariff for Domestic Consumers

(applicable to HT-V and LT consumers with monthly consumption above 500 units)

	Normal Period (6 hrs to 18 hrs)	Peak Period (18 hrs to 22 hrs)	Off Peak Period (22hrs to 06 hrs)
Energy charge	100% of the ruling tariff	120% of the ruling tariff	90% of the ruling tariff

Note

1. In the case of LT- domestic category;
 - (a) Six months consumption shall be monitored from normal bi-monthly readings during January / February and July / August every year. If the average monthly consumption for first or second half of the year is above 500 Units, the consumer will be brought under ToD system after installing ToD meter in the premises.
 - (b) ToD based billing will be done whenever the monthly consumption exceeds 500 Units. If the consumption falls below 500 Units/month in any month, slab based billing shall be followed.
 - (c) The ruling tariff for LT- domestic is the energy charge approved for the monthly consumption above 500 units.
2. In the case of HT-V domestic, the ruling energy charge is the energy charge approved for HT-V domestic category.

Annexure – E

Billing Procedures under ToD tariff system for LT -IV Industrial, HT & EHT consumers.

1. Demand Charges (DC)

- (i) The recorded maximum demand during normal time zone (T1) from 06.00 hrs to 18.00 hrs = RMD1
- (ii) The recorded maximum demand during peak time (T2) from 18.00 hrs to 22.00 hrs = RMD2
- (iii) The recorded maximum demand during off- peak time (T3) from 22.00 hrs to 06.00 hrs = RMD3
- (iv) Recorded Maximum demand during a billing period,
RMD= RMD1, RMD2 or RMD3 whichever is higher.
- (v) The Contract Demand (kVA) = CD
- (vi) The Ruling Demand Charge (Rs/kVA) = D
- (vii) Billing Demand, BMD = RMD or 75% of the CD whichever is higher.
- (viii) Demand Charge, DC = BMD x D
- (ix) Excess Demand for LT, HT& EHT consumers in each time zone shall be
 - (a) in Time Zone (T1), ED1 = (RMD1-CD)
 - (b) in Time Zone (T2), ED2 = (RMD2-CD)
 - (c) in Time Zone (T3), ED3 = {RMD3-(1.30x CD)}
- (x) Excess Demand Charge (ED) = Excess demand ED1, ED2 or ED3
whichever is higher x 0.50 X D
- (x) Total Demand Charge (TDC) = DC + ED

2. Energy Charges (EC)

- (i) The energy consumption in Time Zone (T1) = X1
- (ii) The energy consumption in Time Zone (T2) = X2
- (iii) The energy consumption in Time Zone (T3) = X3
- (iv) The Ruling Energy Charge (Rs/unit) = E
- (v) Energy Charges in each time zone shall be :
 - (a) in Time Zone (T1), Ec1 = X1 x E
 - (b) in Time Zone (T2), Ec2 = X2 x E x 1.5
 - (c) in Time Zone (T3), Ec3 = X3 x E x 0.75
- (vi) Total Energy Charge (EC) = Ec1+Ec2+Ec3

3 Total Monthly Charges

$$= \text{TDC} + \text{EC}$$

Annexure – F
OPTIONAL DEMAND BASED TARIFF

Eligibility : Optional Scheme for LT VI General (A), LT VI General (B), LT VI General (C), LT VI General (E), LT VI General (F), LT VI General (G), LT-VII Commercial (A) and LT VII Commercial (C) having connected load equal or above 20 kW.

Billing demand : Recorded maximum demand or 75% of the contract demand whichever is higher

Demand charges: Based on Rs./kVA of billing demand as per tariff mentioned in the table below.

Consumer Categories	Tariff
	Rs./kVA of billing demand per month
LT VI General (A), LT VI General (B), LT VI General (C), LT VI General (E), LT VI General (F), LT-VI General (G), LT-VII Commercial (A) and LT VII Commercial (C)	220

Energy Charges: Existing energy charges of respective categories shall apply.

Other conditions

- (1) Consumers who opt for maximum demand based tariff may, at their option, install ToD compliant meters at their cost. Meters may also be installed at the cost of KSEB Ltd. If the consumers provide meters, it has to be got tested at the laboratory of KSEB Ltd or of the Electrical Inspectorate. It will be the responsibility of KSEB Ltd or other licensees as the case may be to ensure the accuracy of the meters after proper testing.
- (2) For those who opt for maximum demand based tariff, the contract demand shall be treated as connected load.
- (3) The consumers who opt for maximum demand based tariff shall declare the contract demand in kVA by executing a supplementary agreement showing the contract demand and details of connected load in their premises.
- (4) The consumers who opt for the new system may be allowed to revise upwards or downwards the declared contract demand within six months from the date of option without any conditions or charges. After this, the usual terms and conditions shall be applicable for changing contract demand.
- (5) The Billing demand shall be the recorded maximum demand or 75% of the contract demand whichever is higher. In case the billing demand exceeds the contract demand during normal or peak hours or 130% of the contract demand during night off peak hours, the demand charges for the excess demand shall be charged 50% extra.

(6)The above scheme (optional demand based tariff) shall be effective till ToD tariff is made compulsory.

By order of the Commission

Secretary

CHAPTER -7

DIRECTIVES

The Commission hereby issues the following directives to KSEB Ltd for immediate compliance and report the same within the time frame specified therein.

7.1 Master trust and related issues.

- (1) The State Government vide notification No. G.O(P) No.46/2013/PD dated 31st October 2013 on 'Kerala Electricity Second Transfer Scheme (Re-vesting) 2013 and its amendment notification No. G.O(P) No. 3/2015/PD dated 28th January 2015, envisaged creation of a Master Trust for funding the terminal benefits of the personnel transferred from the erstwhile KSEB to KSEB Ltd as on 31.10.2013. As per the said notifications, KSEB Ltd will issue two series of bonds to the Master Trust;-
 - (i) 20 year bond with a coupon of rate 10% p.a for Rs 8144 crore.
 - (ii) 10 year bond with a coupon rate 9% p.a for Rs 3751 cores.

The interest liability of the first set of bonds is envisaged to be recovered from consumers through tariff and the liability of the second sets of bond is borne by the State Government, by adjusting the electricity duty collected by KSEB Ltd on behalf of the State Government @Rs 586.10 crore per annum.

As per the Government notifications on re-vesting cited above, the 'Trust' shall meet the liability of pension etc in future from the interest and principal repayment from KSEB Ltd against the bonds issued to the Trust.

In addition to interest on bonds and repayment of principal, KSEB Ltd has to pay annual pension contributions based on the actuarial valuation to the Master Trust in respect of the personnel transferred to KSEB Ltd.

- (2) As per the details submitted before the Commission, KSEB Ltd issued two sets of bonds on 01.04.2017, the first set of bonds for Rs 8144.00 crore at the coupon rate of 10% with 20 year tenor

and the second set of bond for Rs 3751.00 crore at the coupon rate of 9% with 10 year tenor.

It was also specified in the bond certificate that, KSEB Ltd will pay the interest and principal value of bonds to the Trust on 1st day of April of every financial year, failing which an additional interest @24% p.a will be payable by KSEB Ltd.

- (3) Sine 01.04.2017, KSEB Ltd has been making the payment of pension and terminal benefits through the Trust. However it is noticed that, though the KSEB Ltd has created the Trust and issued the bonds as envisaged in the Government notification on re-vesting, KSEB Ltd, is not paying the interest and principal to the trust as envisaged. Instead the actual amounts to be paid towards pension and terminal benefits are being transferred to the Trust for onward payment to the beneficiaries. If this non-payment is not resolved immediately, it will lead to a serious situation whereby the Trust will not be in a position to discharge its liability of payment of pension and terminal liabilities of the personnel and pensioners transferred from erstwhile KSEB to KSEB Ltd. The Commission hereby asks KSEB Ltd to immediately make the payments due to the Trust as per its Terms and Conditions so as to avoid defaults in pension and terminal liabilities and the Trust is able to discharge its liabilities appropriately.
- (4) KSEB Ltd has conducted two actuarial valuation in respect of the personnel transferred to KSEB Ltd, one as on 31.03.2017 and the second one as on 31.03.2018. The Commission notes that, there is serious inconsistencies in the assumptions adopted by actuary for the actuarial valuation and the same was reported to the KSEB Ltd.
- (5) Considering the entire issue holistically, Commission hereby direct the following actions to be undertaken immediately and in a time bound manner regarding the Master Trust and related issues.
 - (i) KSEB Ltd shall, w.e.f 01.04.2017, pay the interest and principal of the two bonds to the Trust as envisaged in the Government notifications on re-vesting dated 31.10.2013 and 28.01.2015, and as per the terms and conditions

specified in the bond certificates dated 01.04.2017. KSEB Ltd shall also pay the amount provisionally approved in the ARR for the control period from 2018-19 to 2021-22 to the Master Trust. The audited accounts along with the bank statement of Master Trust shall be submitted along with the petition for approval of the Truing Up of accounts of each year of the control period. Failing which such amount approved in the ARR will not be approved in the Truing up of accounts.

- (ii) KSEB Ltd shall report the compliance on the above, on quarterly basis to the Commission, beginning with the quarter ending September 2019.
- (iii) The amount due from the State Government towards the second set of bonds shall be adjusted against the electricity duty collected as envisaged in the Government notifications on re-vesting.
- (iv) KSEB Ltd shall, every year, carry out the actuarial valuation of the pension liabilities of the personnel transferred to KSEB Ltd as on date of re-vesting and claim the additional contributions required if any, through tariff as provided in the Tariff Regulations, 2018, with all the relevant details and supporting documents.

7.2 Manpower rationalisation

- (1) The Commission vide the suo-motu order dated 17.04.2017 has directed that,
 - (a) KSEB Ltd shall, on or before 31.07.2017, prepare and submit to the Commission, a scheme with time bound actions and deliverables on the implementation of the recommendations of IIM Report.
 - (b) KSEB Ltd shall, based on the recommendation in the IIM Report, prepare scheme for de-layering the organization and re-deploying the under-utilized human resources. However, KSEB Ltd has not complied with the direction of the Commission till date.

- (2) KSEB Ltd, as the largest public utility in the State is required to enhance the productivity and efficiency of its employees through re-deployment, training, reskilling, job enrichment etc. This will enable the licensee to provide quality power and reliable and timely service at affordable cost to its consumers.

The Commission in its previous orders has clarified that, re-deployment of employees does not aim to retrench or drastically reduce the existing benefits enjoyed by the employees. Instead it aim at improving the efficiency and productivity of each of the employees.

- (3) Hence, considering the importance of the efficient use of the man power available with KSEB Ltd, the Commission hereby direct that,

(i) KSEB Ltd shall submit the details as per the paragraph (1) above, on or before 30.09.2019.

(ii) KSEB Ltd shall prepare and implement schemes for utilising in the most appropriate manner, its vast and highly experienced man power and domain expertise for best utilisation of its human resources so as to improve the financial stability by way of:

(a) Redeployment of the civil engineers for undertaking independent engineering contract assignments or such works deemed appropriate by KSEB Ltd Management.

KSEB Ltd shall provide the year wise details of the revenue if any through such assignments till 31.03.2019.

(b) The Commission also asks KSEB Ltd to consider whether its vast resources can be fruitfully utilised for additional revenue generation without compromising on its principal role as the main distribution licensee of the State. This could ease the fiscal position of KSEB Ltd to some extent.

7.3 Metering and related issues

(1) As per Section 55 of the Electricity Act, 2003, it is the statutory responsibility of KSEB Ltd to provide electricity supply to the consumers through a correct meter. The Commission has also approved the rent for the meters installed by KSEB Ltd at its cost at the consumer premises.

(2) However, it is reported that, field offices of KSEB Ltd do direct the consumers to purchase the meters at their cost. Further, there is laxity from the field offices to replace the faulty meters in a time bound manner. The Commission hereby directs KSEB Ltd to address this issue urgently and to procure meters and other essentials in a timely manner.

It is also a fact that, lakhs of electro-mechanical meters over 15 years old is still in service in the system. KSEB Ltd is urgently required to take steps to replace such sluggish meters in a time bound manner.

The Commission views the laxity on these accounts very seriously and if not addressed in a timely and satisfactory manner shall be constrained to account for the revenue loss on this account as penalty on KSEB Ltd.

(3) Based on the above facts, the Commission hereby direct that,
(i) KSEB Ltd shall ensure that, sufficient single-phase meters, three phase meters and net-meters are procured in a timely manner and available with the licensee throughout the year. The cost of procurement of these meters shall be allowed as part of the capital expenditure allowed in the ARR of the respective years.

KSEB Ltd shall submit before the Commission on quarterly **basis** the stock/ availability of the meters with the regional Distribution Chief Engineers of KSEB Ltd and also at the corporate offices. The first report on the availability of meters shall be submitted before the Commission, not later than 31.08.2019

- (ii) KSEB Ltd shall submit a status Report of the meters with the distribution system, showing separately the faulty and working meters in the system, on quarterly basis to the Commission.
- (iii) KSEB Ltd shall, on or before 30.09.2019, submit an Action Plan for replacing the existing electro mechanical meters in its distribution system.

7.4 **Collection of arrears**

KSEB Ltd accounting system follows the accrual system of accounting. Accordingly, as soon as the licensee raise an invoice to the consumers for the electricity charges payable the amount due from the consumer is accounted as revenue receipts of the licensee, irrespective of whether the consumer remits the electricity charges or not as per the invoice in time. Consequently, it is the responsibility of the KSEB Ltd to collect the arrears in a timely manner from the consumers, since the same is already accounted for as its revenue receipt.

However, the arrears of electricity charges has been mounting year by year. In order to improve its financial position, ensure adequate cash flow and to avoid liquidity problems, the licensee has to collect the electricity dues from the consumers, when due and within the time specified by the Commission through the Regulations. Some of the consumers of KSEB Ltd, during the public hearing of the tariff petitions argued that, if KSEB Ltd collects the electricity dues from the defaulting consumers in a timely manner, the revenue gap and resulting tariff revisions can be avoided.

After considering the importance of the issue in detail, the Commission hereby directs the following course of action by KSEB Ltd, for immediate compliance. KSEB Ltd shall report the progress on a quarterly basis to the Commission.

- (i) The category wise details of the arrears including the age wise details.
- (ii) The details of the arrears held up due to court cases.
- (iii) The amounts and age wise details of the arrears due from State Government department, PSUs, Private consumers etc.
- (iv) Proposed actions by KSEB Ltd to recover the arrears in a time bound manner.

7.5 Voltage level losses

KSEB Ltd shall conduct a detailed study on the voltage level losses for providing supply at EHT 220 kV level, EHT 110 kV, EHT 66 kV, HT level and LT level, and report the same with all supporting documents by 30th November 2019.

7.6 Ring fencing of SLDC

Independent function of State Load Despatch Centre (SLDC) is an important requirement to carry out its statutory functions under Section 32 of the Electricity Act, 2003. In view of its importance, KSEB Ltd shall implement a scheme for ring fencing the State Load Despatch Centre, Kalamassery, to ensure its independent function, and submit the report on the action taken in this regard by 30.11.2019.

7.7 Introduction of Smart meters

Smart meters have the advantages of remote metering and billing, implementation of peak and off-peak tariff and demand side management through demand response. The Tariff Policy 2016, notified by the Central Government provides the following time lines for introduction of smart meters.

- (a) Consumers with monthly consumption of 500 units and more at the earliest but not later than 31.12.2017;
- (b) Consumers with monthly consumption above 200 units by 31.12.2019.

However, KSEB Ltd has not reported the action taken so far for introducing smart meters in its distribution system.

KSEB Ltd shall, on or before 30.11.2019 shall submit a plan for introduction of smart meters for the consumers having monthly consumption of and above 500 units, in accordance with guidelines in paragraph 8.4 (3) of the Tariff Policy 2016.

7.8 Digital mode of payment for electricity charges

Digitalisation and e-payment is an important step in increasing collection efficiency, optimising man power and enabling consumers easy access to payment modes. Therefore, KSEB Ltd shall, on or before 30.11.2019, submit details of their initiative so far in this regard and also propose

the action plan to encouraging the digital mode of payment of electricity dues by the consumers.

KSEB Ltd shall also submit on quarterly basis, the details of the amount collected through digital mode of payments.

7.9 Subsidy under Section 65 of the Electricity Act, 2003

KSEB Ltd shall, on quarterly basis w.e.f 30.09.2019, provide the details of the subsidy provided by the State Government as per Section 65 of the Electricity.

KSEB Ltd shall also submit the year wise details of the subsidy paid by the Government under Section 65 of the EA-2003, on quarterly basis.

7.10 Separate account for wire business and retail supply business

The Regulation 85 of the Tariff Regulations, 2018 provides for determining wheeling charges of the distribution business/ licensee on the basis of segregated account for distribution wire business.

KSEB Ltd shall, on or before 30.11.2019, submit a proposal for segregation of accounts of the wire business and supply business for determination of wheeling charges as per the Regulation 85 of the Tariff Regulations, 2018.

7.11 kVAh billing

The demand for kVAh billing has been a long pending demand of the HT-EHT consumers. In order to understand this issue holistically, KSEB Ltd shall conduct a detailed study on the introduction of kVAh billing to HT &EHT consumers, latest by 30.11.2019.

7.12 SBU wise accounting

The Regulatory Accounts of KSEB Ltd is required to be maintained SBU wise. This would enable the Commission to appropriately appraise the ARR of each of the SBUs and consequent revenues. In order to facilitate this process, the Commission hereby direct KSEB Ltd to ensure proper maintenance of SBU wise accounting records as per companies accounting policies. This will enable the Commission to evaluate the performance of each of the SBUs as separate independent units and ensure proper control mechanisms to ensure that all the account

rendering units are following the accounting policies correctly and consistently.

7.13 Petition for fuel surcharge

As per the Regulation 86 of the Tariff Regulations, 2018, KSEB Ltd is required to submit regularly and at the specified intervals, the application for approval of the fuel surcharge. As per the Regulation 87 of the Tariff Regulations, 2018, within 30 days from the close of every financial year, KSEB Ltd also required to submit the proposals for passing on the impact of the change in hydro-thermal mix.

KSEB Ltd shall comply with the above provisions in the Tariff Regulations, 2018.

7.14 Petition for Truing up of accounts

Petitions for the truing up of accounts which facilitates a proper review on the licensees compliance to the Regulatory norms is one of the most important yearly exercises. The licensee is required as per the Regulations to submit their truing up petition for the year 2017-18 by 1st January 2019 and for the subsequent years in 30th November of the succeeding year. The Commission note with serious concern that KSEB Ltd till date not submitted the truing up petition for the financial year 2017-18 onwards. In view of this default by KSEB Ltd, the Commission hereby directs KSEB Ltd to file the petition for approval of truing up of accounts, as per the time schedule specified in the Tariff Regulations, 2018. In case of any failure on part of KSEB Ltd without any justifiable reason, the Commission shall be constrained to not allow the carrying cost for the approved revenue gap in the truing up process for the period of delay in filing the petition.

7.15 ToD tariff for LT consumers other than LT IV industries.

Inorder to restrict the peak hour electricity consumption by shifting the load to off-peak hours and normal period, the Time of the Day (ToD) tariff is introduced in the State for all the HT&EHT consumers (except pumping stations of KWA) and also to LT-IV industrial consumers with

connected load of and above 20 KW. The Commission is of the view that, the ToD tariff may be extended to all the LT consumers with connected load of and above 20 kW. Hence KSEB Ltd shall submit a suitable proposals for introducing ToD tariff for LT consumers having connected load of and above 20 kW, other than LT IV industries.

7.16 Power purchase from long term, medium term and short term purchase

Inorder to have a proper appreciation of the power situation in the State, KSEB Ltd shall, within 15 days from the end of each month submit a summary of its generation and details of power purchase from different sources under long term, medium term and short term contracts including the power purchase from day ahead and power exchanges separately. The indicative cost of power purchase from each source shall also be provided to the Commission.

7.17 Compliance of the KSERC (Standards of Performance of Distribution Licensees) Regulations, 2015

The Regulation 19 of the KSERC (Standards of Performance of Distribution Licensees) Regulations, 2014 mandate the following.

“19. Duty of distribution licensee to submit quarterly reports.- (1) The licensee shall, within fifteen days from the close of each quarter, submit to the Commission, a quarterly report on the compliance of guaranteed standards of performance, providing the following information,-

- a) performance levels achieved by the licensee with reference to the guaranteed standards of performance, in the format as in Annexure – I to these regulations;
- b) measures taken to improve the performance;
- c) details regarding the cases in which compensation was paid as per the format as in Annexure – I to these regulations; and
- d) aggregate amount of compensation paid during the quarter.

(2) The licensee shall, within fifteen days from the close of each quarter, submit to the Commission, a quarterly report on the compliance of overall standards of performance providing the following information,-

- a) level of performance achieved with reference to the overall standards in the format as in Annexure-II of these regulations;
- b) measures taken by licensee to improve performance in the areas covered by overall standards; and
- c) separate projection of the capital expenditure requirement for meeting requirements of these regulations along with the performance trajectory.”

However, KSEB Ltd is not submitting the quarterly reports as mandated in the KSERC (Standards of Performance of Distribution Licensees) Regulations, 2015.

Hence it is directed that, KSEB Ltd shall submit the quarterly report as mandated above, and the first report shall reach the Commission on or before 30.09.2019.

The Commission hereby directs that, KSEB Ltd shall scrupulously comply with above directives within the time frame specified therein. However, if there is any genuine difficulty in implementing any of the above directions, the KSEB Ltd may approach the Commission within one month from the date of this order.

Chapter- 8
ORDERS OF THE COMMISSION

8.1 The Commission, in exercise of the powers vested in it under the provisions of the Electricity Act, 2003 and of the Kerala State Electricity Regulatory Commission (Terms and Conditions for Determination of Tariff) Regulations, 2018 and other regulations enabling it in this behalf, orders as follows,-

- (1) The Aggregate Revenue Requirement (ARR) of Strategic Business Unit (Generation) for the financial years 2018-19 to 2021-22 is approved at as shown below:

	SBU-G			
	2018-19	2019-20	2020-21	2021-22
Aggregate Revenue Requirement	507.24	539.31	623.62	681.03
Non-Tariff income	25.83	33.38	37.28	41.17
Net Aggregate Revenue Requirements	481.41	505.93	586.34	639.86

- (2) The Aggregate Revenue Requirement (ARR) of Strategic Business Unit (Transmission) for the financial years 2018-19 to 2021-22 is approved at as shown below:

	SBU-T			
	2018-19	2019-20	2020-21	2021-22
Aggregate Revenue Requirement	903.45	1,020.99	1,204.29	1,329.88
Non-Tariff income	28.85	37.30	41.82	46.35
Net Aggregate Revenue Requirements	874.60	983.69	1,162.47	1,283.53

- (3) The Aggregate Revenue Requirement (ARR), Revenue from Existing Tariff and Revenue gap of Strategic Business Unit (Distribution) for the financial years 2018-19 to 2021-22 is approved at as shown below:

	SBU-D			
	2018-19	2019-20	2020-21	2021-22
Aggregate Revenue Requirement	13,754.02	15,501.03	15,973.31	16,487.91
Non-Tariff income	531.55	548.10	571.23	594.36
Net Aggregate Revenue Requirements	13,222.47	14,952.93	15,402.08	15,893.55
Total Revenue from existing Tariff	13,190.32	14,152.38	14,457.33	14,895.02
Revenue gap	-32.15	-800.56	-944.75	-998.53

- 8.2 An amount of Rs.3100 Crore out of the total revenue gap of Rs.5693.25 Crore outstanding as on 31.03.2017 is approved for recovery through tariff for the financial years 2018-19 to 2021-22.
- 8.3 The Commission approves to recover an additional amount of Rs. 902.90 Crore through revision for the year 2019-20.
- 8.4 The Commission orders that the retail tariff approved for KSEB Ltd. and its consumers as detailed in Chapter 6 read with the Tariff Schedule approved as per this order shall come into force with effect from 8.07.2019 and shall continue to be in force up to 31.03.2020.
- 8.5 The Commission does also order that the transmission charges, the wheeling charges, the cross subsidy surcharge applicable to the open access consumers, the average pooled power purchase cost, the meter rent and the low voltage surcharge at the rates specified in Chapter 6 read with the Tariff Schedule approved as per this order come into force with effect from 8-7-2019 and shall continue to be in force up to 31.03.2020.
- 8.6 The retail tariff, the transmission charges, the wheeling charges, the cross subsidy surcharge, the average pooled power purchase cost, the meter rent, the low voltage surcharge, etc., as approved in this order read with the Tariff Schedule, shall also be applicable to the distribution licensees, other than KSEB Ltd., and to its consumers from 8-07-2019 to 31.03.2020.
- 8.7 The ToD tariff structure, incentive for power factor and such other charges and processes as approved in Chapter 6 of this order shall be in force with effect from 08-07-2019 and shall continue to be in force up to 31-03-2020.
- 8.8 Tariff Schedule shall be part and parcel to this Tariff Order.
- 8.9 If any difficulty arises in giving effect to any of the provisions of this order, the Commission may, for reasons to be recorded in writing, issue orders necessary for removing such difficulty.
- 8.10 The licensee shall submit the application for truing up of accounts for each year of the control period as per the provisions in the Tariff Regulations, 2018.

Sd/-

K.Vikraman Nair
Member

Sd/-

S. Venugopal
Member

Sd/-

Preman Dinaraj
Chairman

Approved for issue

G.Jyothichudan
Secretary

Annexure- I

List of persons attended the Public Hearings

Public Hearing at Kozikode on 26.11.2018

1. Shri.Radhakrishnan.V, Deputy Chief Engineer, Electrical Circle, Kozhikode
2. Shri.Suresh.T.R, Deputy Chief Engineer, KDPP, Nallalam.
3. Shri.Manikandan.A.K., Project Manager, Olakkal, Poovaramthode.
4. Shri.Anil.G, Project Manager,Barapole, Pazhassi Sagar.
5. Shri.Bijin Lathief, Project Manager, Chothankottwada SHEP
6. Smt.E.R.Sreelatha Selvam, Deputy Chief Engineer, Electrical Circle, Vadakara
7. Smt.Geetha.M, Deputy Chief Engineer, Office of EDN, North Malabar
8. Shri.Bipin Sankar.P, Deputy Chief Engineer, TRAC, KSEB Ltd.
9. Shri.K.G.P.Nampoothiri, Executive Engineer, TRAC, KSEB Ltd.
10. Shri.Anandan.M, PATSPIN, Palakkad
11. Shri.S.Suresh, CITU President, PATSPIN
12. Shri.S.Babu, PATSPIN India Ltd, Palakkad
13. Shri.C.Moorthy, INTUC PATSPIN India Ltd., Palakkad
14. Shri.K.Suresh, CITU PATSPIN India Ltd., Palakkad
15. Shri.Muralidharan, BMS PATSPIN India Ltd., Palakkad
16. Shri.A.Sudhakaran, PATSPIN General Manager
17. Shri.M.P.Chandran, PATSPIN Kanjikode General Manager
18. Shri.Manoj.G, TRAC, KSEB, Trivandrum
19. Shri.Edward.P.Boniface, Assistant Executive Engineer, KSEB, Trivandrum
20. Shri.Rajesh.R, Assistant Executive Engineer, TRAC, KSEB, Trivandrum
21. Shri.P.C.Abdul Latheef, Kerala Jana vedi, Calicut
22. Shri.P.M.Musthafa, Halayan Charitable Trust
23. Shri.P Kesavadas,FEEC
24. Shri.Ramesh Babu, FEEC
25. Shri.Jayakumar.C.K., Consultant Engineer
26. Shri.Surendran.P, Executive Engineer, PMU, Kasargod
27. Shri.Santhosh Kumar.V.N., Executive Engineer, PMU, KSEB Ltd., Kannur
28. Shri.Sunil Kumar.V.K., Executive Engineer, PMU, KSEB Ltd., Kalpetta
29. Shri.Asokan.K., FEEC, Kozhikode
30. Shri.Ramadas.K., FEEC, Kozhikode
31. Shri.Krishnakumar, Assistant Engineer, Office of DNM
32. Shri.E.K.Radhakrishnan, Executive Engineer, Transmission Division, Shornur
33. Shri.Hyderali.P, Executive Engineer, Trans Grid, Kozhikode
34. Shri.Abdul Lathief.K.C., PM, Chembukadan
35. Shri.Abdul Razak, Assistant Executive Engineer, Peruvannamuzhy SHEP
36. Shri.Viswanathan.K., Assistant Executive Engineer, Peruvannamuzhy SHEP
37. Shri.Ismail Pattunara, PM, Valanthode SHEP

38. Shri.Balakrishnan.K, Chief Engineer-CC (North)
39. Shri.Babu Rajendran, FEEC
40. Shri.Sandeep.V.P., FEEC
41. Shri.Rajan.M.K., FEEC
42. Shri.John.C.Das, FEEC
43. Shri.M.P.Syam Prasad, Deputy Chief Engineer, Electrical Circle, Kalpetta
44. Shri.M.Khalid, President, KSSIA, Kochi
45. Shri.Latheesh.P.V., KSEB Officers' Association
46. Shri.Chandrasekharan.P.P
47. Shri.Sirajudheen.V.K., General Manager, Solar CPC
48. Shri.Shiju.K.P., Assistant Engineer, KSEB Ltd.
49. Shri.Harinarayanan.C.N., Assistant Engineer, KSEB Ltd.
50. Shri.Prakasan.V.P., Kerala State Rice, Flour Oil Millers' Association
51. Shri.Shaji Sudhakaran, Executive Engineer, Electrical Division, Feroke
52. Shri.G.S.Georgekutty, Deputy CE, Transmission Circle, KSEB Ltd., Kannur.
53. Shri.P.K.Rajan, Executive Engineer, PMU, KSEB Ltd., Sreekandapuram
54. Shri.Anilkumar.K.J., Executive Engineer, Electrical Division, KSEB Ltd., Wandoor
55. Shri.K.P.Janardanan, Residents Apex Council of Kerala
56. Shri.Harshan.D.Rajandran, Kerala State Ice Manufacturing Association.
57. Shri.P.K.Sasidharan, Residents Apex Council
58. Shri.Rajan, Domestic Consumer
59. Shri.E.Manoj, INSDES, Shornur
60. Shri.J.Narayanan, Panchayat Secretary (Retd.), Kerala State Pensioners Association

Public Hearing at Ernakulam on 27.11.2018

1. Shri.K.K.George, HT & EHT Association
2. Prof.G.Raveendran Nair, Mata Amritanandamayi Math
3. Shri.G.Sivaramakrishnan, KREEPA, Aluva
4. Shri.Thomas Kadavundy, AVT
5. Shri.Dijo Kappan, Kappil, Meenachil P.O., Pala
6. Shri.N.S.Alexander, Nadackal House, Kottayam
7. Shri.C.R.Neelakandan, AAP Kerala
8. Shri.Amal Kunnappally, Kunnappally, Iritty.
9. Shri.Brijlal.V., Chief Engineer, Transmission (South), KSEB Ltd.
10. Shri.George.V.James, Deputy Chief Engineer, Transmission Circle, Iritty
11. Shri.Johnson.C.V., FEA (FACT Trade Union)
12. Shri.T.A.Marshall, FACT Trade Union
13. Shri.A.R.Rajeev, (C.D.) Employees Association
14. Shri.Abdul Zalam.M.K., Cochin International Airport
15. Shri.Rajumon.P.C., Cochin International Airport
16. Shri.E.G.Jayaprakash, GTN Textiles Limited

17. Shri.Binny.P.J., FACT Cochin Division
18. Shri.Mathew.P.J., FACT Udyogamandel
19. Shri.Subramanian.P.K., FRBL, FACT Building
20. Shri.George Thomas, FACT Workers Organisation
21. Sri.James Jose, CGR Metal Alloys, Edayar
22. Shri.Eloor Gopinath, "RACCO" Residence Association Co-ordination Council
23. Shri.M.R.Vijayasundaran, FACT Officers Federation
24. Shri.Damodaran Nampoothiri, KREEPA
25. Shri.Mathew.P.Kurien, Executive Engineer, Transgrid, KSEB
26. Shri.P.Hussain Koya, FACT Employees Association
27. Shri.M.Sambasivan, HINDALCO, CITU
28. Shri.Jose Mathew, HINDALCO IWA- INTUC
29. Shri.Sudarsan, HINDALCO HEO, BMS
30. Shri.Ajith.R., T.C.C. Ltd., C.E
31. Shri.Renjit Jacob, Apollo Tyres, Perambra
32. Shri.K.P.Uthup, Kerala Master Printer
33. Shri.P.A.Ramakrishnan, CUMI Koratty Employees Assn.
34. Shri.Romy George, CUMI, Koratty
35. Shri.Ranjith.R, CUMI, Kakkanad
36. Shri.A.A.Dany, CUMI, Koratty
37. Shri.V.A.Nazar, FACT (INTUC)
38. Shri.P.K.Sathyan, FACT Employees Organisation (BMS)
39. Shri.K.C.George Babu, FACT Workers Union
40. Shri.Mohammed Kurian, Executive Engineer, KSEB, Ernakulam
41. Shri.Rijesh.O.P., TELK (CITU) Angamaly
42. Smt.Nisha.K.B., CUMI, Kalamassery
43. Shri.Biju Issac, CUMI, Koratty
44. Shri.K.R.Radhakrishnan, CUMI, EMD
45. Shri.P.L.Yacob, Kerala Master Printers-SignTek
46. Shri.P.M.Varky, Consumer Nos.7746, Trivandrum
47. Shri.Ashok Kumar.J, Carborandum Universal Limited
48. Shri.Radhakrishnan.A.K., AVT Natural Products Limited, Aluva
49. Shri.Bijil Markose, AVT NPC Employees Union (CITU)
50. Shri.Akhil Alex, Solgen Energy Private Ltd.
51. Shri.Joseph.T.J, CUMI Kalamassery
52. Shri.Siraj.P.S., KNEU (CITU) Kottayam HNL
53. Shri.Jojin Jose, INTUC, HNL
54. Shri.V.N.Tomy, Office Association, HNL
55. Shri.Prasad, HNLEA
56. Shri.Kesavadas.V, KSEB Ltd. CE/TSO
57. Shri.P.Rajan, KSEB Ltd. CE/TG

58. Shri.D.S.Girija Devi, CEO, KPUPL
59. Shri.Tenson, KSEBL, Dy.Chief Engineer, Perumbavoor
60. Shri.Anand, KSEBL, Dy.Chief Engineer, Ernakulam
61. Shri.Sunitha Jose, KSEBL, Assistant Executive Engineer, Electrical Sub Division
62. Shri.Ismail.P.B., CUMI (CITU)
63. Shri.N.Ramadas, CUMI (CITU)
64. Shri.Bose.V.Jose, CUMI, Maniyar
65. Shri.Francis.P., TCED
66. Shri.Jaya.V.R, TCED
67. Shri.Baburaj.N, TCED
68. Shri.Jose.T.S., TCED, Executive Engineer
69. Shri.Anvar.V.S., KESFOMA
70. Shri.Tomy Thomas, KESFOMA
71. Shri.Joby Santhosh Sam, KESFOMA
72. Shri.Jerome Keepurath, KESFOMA
73. Shri.Arun.C.Aby, PTC India Ltd.
74. Shri.Mathew.C.R
75. Shri.Jeevan.V.J., Sud Chemie India Private Limited, Edayar.
76. Shri.M.K.Sudheer, Sud Chemie India Private Limited, Edayar
77. Shri.Jose Kunnampilly, KESFOMA
78. Shri.Premanandan.P.V., GTN Textiles Limited (AITUC)
79. Shri.E.A.Joseph, GTN Textiles Limited Union
80. Shri.Viswanadhan.K, BPCL- Kochi Refinery
81. Shri.Saju Thomas, BPCL- Kochi Refinery
82. Shri.M.K.Anilkumar, HIL Officers Association
83. Shri.K.Venugopalan, HIL Officers Association
84. Shri.Boban.C.P, Executive Engineer, PMU, Perumbavoor
85. Shri.T.K.Viswanathan, Electrical Consultant, CSEZA, Kakkanad
86. Shri.K.G.P.Nampoothiri, Executive Engineer, TRAC, KSEBL
87. Shri.Bipin Sankar.P, Dy.Chief Engineer, TRAC, KSEBL
88. Shri.Anoop Mathew, SA, Office of SOK-VB, KSEBL
89. Smt.Meharunnisa, Executive Engineer, TRAC, KSEBL
90. Shri.S.Reghunathan.
91. Shri.Manikandan.P, Apollo Tyre Limited
92. Shri.T.K.Ashwin Kumar, Apollo Tyre Limited
93. Shri.Manoj.G, Assistant Executive Engineer, TRAC, KSEBL
94. Shri.Rajesh.R, Assistant Executive Engineer, TRAC, KSEBL
95. Shri.Manu Senan.V, Assistant Executive Engineer, TRAC, KSEBL
96. Shri.Sujith.R, Assistant Executive Engineer, TRAC, KSEBL
97. K.J.Skaria, General Secretary, Kerala Small Scale Industries Federation
98. Shri.Antony.P.P., Ollur Estate Industrialists Association, Thrissur

99. Shri.Lalit Kumar, Jagadamba Containers, Binanipuram, Edayar
100. Shri.Shaji.B.Nair, Teccap Electronics
101. Shri.Krishna Varma, Consultant
102. Shri.P.J.Jose, Joint Secretary, KSSIA
103. Shri.K.P.Madhavan, Kerala Plastics Association, Perumbavoor
104. Shri.K.Kurian, Smart City, Kochi
105. Shri.Ranjithlal, Smart City, Kochi
106. Shri.Sarath Chandran, Infopark Kerala
107. Shri.Sujith.P.M., HOCL, Ambalamugal
108. Shri.Sunil Kumar.V.V., Executive Engineer, KSEBL, Alappuzha
109. Shri.Mohanan.N.S., HOCL, Ambalamugal
110. Shri.Sumesh.T, HOCL (CITU), Ambalamugal
111. Shri.Suraj.I.S., HOCL (INTUC), Ambalamugal
112. Shri.K.V.Vinod Kumar, HOCL (CITU)
113. Shri.K.K.Ibrahim, President, EPIP
114. Shri.Anil.M.P., KSEB OA
115. Shri.Thanseer.M.A, KSEB OA
116. Smt.Indira.K, KSEB OA
117. Shri.K.Krishna Kumar, GTN Textiles Ltd., Aluva
118. Smt.Kanthimathinathan, GTN Textiles Ltd., Aluva
119. Shri.K.Rajagopal, Veegaland Developers
120. Shri.Renith.R, Veegaland Developers
121. Shri.P.Rajan, KSSIA
122. Shri.Tom Thomas, Secretary, KSSIA
123. Shri.Thomas Vadakkad, Techs India Company
124. Shri.Raphael.N.J, ESSIA, Edayoor
125. Shri.K.Bara, TRCI, Mandoor, Thrissur
126. Shri.Giri.S.Nair, Veegaland
127. Shri.Tomy Augustin, Kosamattam Finance
128. Shri.Shaji Sebastian, KSSIA, Ernakulam
129. Smt.Neena Staria, IECC
130. Smt.Jesna Jose, IECC
131. Shri.Sudhi Industries, SM Industries
132. Shri.George.K.Sebastian, Sun Star Products
133. Shri.Santhosh Kumar.M.V.
134. Shri.Sunny,Trichur Mall
135. Shri.Antony Joseph, Manorama Carbon Ltd.
136. Smt.Mini Susheelan, Assistant Executive Engineer, TRAC, KSEBL
137. Smt.Latha.S.V., Assistant Executive Engineer, TRAC, KSEBL
138. Smt.Lekshmi.S. Superintendent, KSEBL
139. Smr.Seema.P.Nair, TRAC, KSEBL

140. Smt.Prasanna Vasudevan, BJP District Secretary
141. Shri.T.T.Emmanuel, Domestic Consumer
142. Shri.P.Manikuttan Carborandum (INTUC)
143. Shri.Satheesh Kumar Pai, CIAL
144. Shri.Kannan.S, AFCL
145. Shri.K.M.G., Ganesh, The Southern India Millis Association
146. Shri.P.C.Babu, Apollo, Kalamassery
147. Shri.P.K.Unnikrishnan, VP-GTN Group
148. Smt.C.A.Athulya Ghosh, Apollo Tyres, Kalamassery
149. Shri.Fijo Jose, ACE Technologies
150. Shri.Johnson Fernandz, Travancore Cochin Chemicals Limited
151. Shri.T.S.Shaju, Travancore Cochin Chemicals Limited
152. Shri.Sajith.N.S., Travancore Cochin Chemicals Limited
153. Shri.Vinod.B., Travancore Cochin Chemicals Limited
154. Shri.M.G.Francis, Travancore Cochin Chemicals Limited
155. Shri.S.A.Thomas, Travancore Cochin Chemicals Limited
156. Shri.Sudheesh.M.S., Travancore Cochin Chemicals Limited
157. Shri.Aneesh.R, Apllo Tyres, Kalamassery
158. Shri.Pradeep.N., HINDALCO, Kalamassery
159. Shri.Ajith Kumar.G, TRAC, KSEBL
160. Shri.Praseed Kumar.K, Senior Assistant, KSEBL
161. Shri.A.V.Joseph, NGIL
162. Shri.Sreeyesh.T.S., NGIL
163. Shri.Tony.K.Paul, GTN, Aluva
164. Shri.M.R.Rajeev, CITU(GTN), Aluva
165. Shri.S.Sajeesh, AMTMS (BMS) GTN, Aluva
166. Shri.Sumith Chandran, Assistant Engineer (Electrical), Ernakulam
167. Shri.Basil, Koral Printers
168. Shri.Joseph.
169. Shri.Jaleel.K.K., GTN Workers Association
170. Shri.Anees.T.M., Rubber Park

Public Hearing at Kattapana, Idukki on 28.11.2018

1. Shri.Shibin.G.Varghese, Flour Mill Association, Idukki
2. Shri.Kurian Sebastian, KSEB Officers Association
3. Shri.B.Binu, KSEB Officers Association
4. Shri.S.Jayathilakan, Kerala State Productivity Council , Past Chairman
5. Shri.Bipin Sankar.P., Deputy Chief Engineer, TRAC, KSEBL

6. Shri.C.P.George, Deputy CE, Office of Chief Engineer-Generation, KSEBL.
7. Shri.K.G.P.Nampoothiri, Executive Engineer, TRAC, KSEBL
8. Shri.Manu Senan.V, Assistant Executive Engineer, TRAC, KSEBL
9. Shri.Sujit.T.R., Assistant Executive Engineer, TRAC, KSEBL
10. Shri.Rajan.K.R., Deputy Chief Engineer, Transmission Circle, Thodupuzha
11. Shri.Mathew.P.Kurien, Executive Engineer, Trans Grid, KSEBL
12. Smt.Seema.P.Nair., Assistant Engineer, TRAC, KSEBL
13. Smt.Latha.S.V., Assistant Executive Engineer, TRAC, KSEBL
14. Smt.Lakshmi, LA & DEO
15. Smt.Mini.K.Shanmukham, Assistant Executive Engineer, TRAC, KSEBL
16. Shri.Vinodkumar.V., Assistant Engineer, Electrical Circle, Erattayar
17. Shri.P.H.Srikrishnan, KDHPCL
18. Sajamma.J.Punnoor, Executive Engineer, PMU, Thodupuzha
19. Shri.Aby Abraham, Assistant Executive Engineer, PMU, Thodupuzha
20. Shri.Binny.R., Assistant Engineer, Electrical Section, Alakode.
21. Shri.Tony.M, Assistant Executive Engineer, Electrical Sub Division, Kattapana.

Public Hearing at Thiruvananthapuram on 10.12.2018

1. Shri.Jayaprakash, General Secretary, Workers Association (CITU)
2. Smt.Safeena Kumar, CITU
3. Shri.Joy, General Secretary, INTUC, Parambrar, Apollo Tyres
4. Shri.Jayanth Gargutty, HINDALCO Industries Ltd.
5. Shri.Harikrishnan.G, Alupuram Works, Kalamassery
6. Shri.Sreelal, Kerala State Cherukida Rice Flour Mill and Oil Millers Association.
7. Shri.Anvar, Kerala State Cherukida Rice Flour Mill and Oil Millers Association
8. Shri.Bijo.P.Paul, Kerala State Cherukida Rice Flour Mill and Oil Millers Association.
9. Smt.Asha Prasanth, Kerala State Cherukida Rice Flour Mill and Oil Millers Association
10. Shri.N.S.Alexander, Nadackal House, Kowdiar P.O.
11. Shri.George Ommen.S, Head Apollo
12. Trade Union, Apollo
13. Shri.Saji Mathew, MRF
14. Shri.Satheesh.R.R., President, HT & EHT Association
15. Prof.Raveendran Nair Mata Amritanandamayi Math
16. Shri.Dijo Kappen, 9447300978
17. Shri.Renjith Jacob, Appollo Tyres, Perambra
18. Shri.Ratheesh Kumar, ECIL
19. Shri.P.T.Thomas, MLA
20. Shri.Prabhakaran.K.V., Aluva
21. Shri.K.K.Ibrahim, Perumbavoor
22. Shri.Alexander, Consumer Forum
23. Shri.S.H.Govindreddi, Senior Chief Engineer (Ele.) BSNL

24. Smt.Susan Joseph, Dy.Chief Engineer, KSEB
25. Shri.Vinod Kumar, EICL
26. Shri.Krishnanunni.V.R, EICL
27. Shri.Arun.C.Aby, PTC India
28. Shri.Shakeek Ahmed, IEX, Delhi
29. Shri.Satheesh.A.R, HT & EHT Association
30. Shri.R.R.Biju, Executive Engineer, KSEBL
31. Shri.Binu Jay, MRF, Kottayam
32. Shri.P.Ganesh, CLL
33. Shri.Saji Mathew, CLL
34. Smt.Meharunisa.M, Executive Engineer, TRAC, KSEBL
35. Shri.K.Krishna Kumar, GTN Textiles Ltd.
36. Shri.Bipin Sankar.P, Deputy Chief Engineer, KSEBL
37. Shri.Ajith.R, TCC Ltd., Ernakulam
38. Smt.Anitha.K.S, Executive Engineer, PMU, KSEBL, Trivandrum
39. Shri.N.T.Job, KSEB Engineers Association
40. Shri.Arun.C.Aby, PTC India Ltd.
41. Shri.Mathew George, Industrial Estate, Changanacherry
42. Shri.Siby Sebastian Mini Industrial Estate, Nalukody, Changanacherry
43. Shri.K.G.P.Nampoothiri, Executive Engineer, TRAC, KSEBL
44. Shri.Jose Lawrence, KSSIA Kottayam
45. Shri.V.S.Jeeva Kumar, KSSIA Angamaly
46. Shri.Sathish.T, KEWP (AITUC), Trivandrum
47. Shri.Ajith Paul, KEWP (AITUC), Trivandrum
48. Shri.Thulaseedharan Pillai.B, CPAI, Kottayam
49. Shri.Biju.R, Financial Adviser, KSEBL
50. Shri.Anil Rosh.T.S, Dy.A.O, KSEBL
51. Shri.C.P.George, KSEB Engineers Association
52. Shri.Gopakumar.P.G, Executive Engineer, KSEBL
53. Shri.Sreekumar.G, KSEB...
54. Shri.Nandakumar.N, Oorjam Navamadhyama Koottayma
55. Shri.Harikumar.B, KSEB Officers Association
56. Shri.Sathyarajan.J, KSEB Officers Association
57. Shri.P.Kumaran, Director, KSEB Ltd
58. Shri.B.V.Mohanakumar, Dy.Chief Engineer, Office of Director
59. Shri.Sreenivasan.G, Executive Engineer, KSEB
60. Shri.Manoj.G, Assistant Executive Engineer, TRAC
61. Shri.Manu Senan.V, Assistant Executive Engineer, TRAC
62. Shri.K.Parameswaran, SME,FACT
63. Shri.Sarath.R, Dy.MM, FACT
64. Shri.Einstein.E.V, Deputy Manager, Technopark

65. Shri.S.B.Kumar, Deputy Manager (Finance), BSNL
66. Shri.S.H.Govindareddi, Chief Engineer, BSNL, Trivandrum
67. Shri.R.Chandrababu, SE (E), BSNL, Trivandrum
68. Shri.P.Manoj, BSNL
69. Shri.Anoop Mathew, SA, Office of SOR, V.B., Pattom, Trivandrum
70. Shri.Edward.P.Boniface, Assistant Executive Engineer, TRAC, KSEBL
71. Smt.Leelamma Mathew, Executive Engineer (Ele.), KSEBL
72. Smt.Nisha Jose, SED (E), BSNL
73. Shri.Sunil.K, KSEB Engineers Association
74. Shri.Peter.C.A, Kochuveli Industrial Association
75. Shri.Pradeepkumar.G.P., Executive Director (Technical), KSRTC
76. Shri.Pramod.S.V, HIL (INDIA) LTD., Ernakulam

Annexure- II

List of the written comments/objections received

Public Hearing held at Kozikode

1. Kerala Jana Vedi State Committee
2. Halcyon Charitable Trust
3. Kerala State Ice Manufactures Association
4. Resident's Apex Council of Kozhikode
5. District Textile Mill Workers Union, Palakkad
6. Palakkad District Textile Mazdoor Sangham
7. Patspin India Limited Employees Association, Palakkad
8. Chief Executive, Patspin India Limited
9. Jayakumar.C.K. Souparnika, Koorakal Padath, Kuttikkattur, Kozhikode.

Public hearing held at Ernakulam

10. The Fertilizers And Chemicals Travancore Limited
11. Telk Employees Union, Angamaly
12. AVT Natural
13. Premier Tyres Workers Union
14. Premier Tyres Worker's Association
15. Premier Tyres Employees Union
16. Bharat Petroleum Corporation Limited
17. Thrissur Corporation Electricity Department
18. TCC Employees Association (CITU), TCC Thozhilali Union, TCC Employees Union (INTUC), TCC Staff & Workers Association (AITUC)
19. Palakkad District Rice, Flour & Oil Mini Millers Association
20. Ollur Estate Industrialist's Association
21. Veega Land
22. Apollo Tyres Limited, Ernakulam
23. Apollo Tyres Limited, Thrissur
24. The Edayar Small Scale Industries Association
25. Infopark, Kochi
26. National Energy & Waste Management Co-operative Multipurpose Society (Kerala) Limited.
27. P.M.Varkey, House No.426, Carborandom Road, K.D. Plot, South Kalamassery-683014.
28. Kerala Renewable Energy Entrepreneurs and Promoters Association (KREEPA)
29. HIL Officers Association
30. HIL Employees Joint Trade Union Council
31. Associations of FACT

32. The Kerala State Small Scale Industries Association
33. Resident's Association Co-ordination Council
34. Standing Council of Trade Unions
35. Kerala State Small Scale Rice, Flour & Oil Mills Association, Ernakulam
36. Kerala State Small Industries Association
37. HNL Employees Association
38. Kerala State Small Scale Industrialist's Federation
39. HINDALCO, Aluminum Factories Employees Association
40. Kerala Newsprint Employees Union
41. Kochi Metro Rail Limited
42. Hindustan Paper Corporation Employees Association
43. Nitta Gelatin India Limited
44. Jose Paul, Nalpat, 06/372, Koratty- 680 308
45. The Southern India Mills' Association
46. Hindustan Organic Chemicals Limited
47. Hindustan Newsprint Limited
48. Ernakulam District Plastic Industries Association
49. M/s.Kosamattom Finance Limited
50. Prasanna Vasudevan, BJP Secretary, Ernakulam
51. Sri.T.T.Emmanuel, Ernakulam
52. Democratic Human Rights & Environment Protection Forum
53. Smart City, Kochi
54. GTN Textiles Limited

Public hearing held at Idukki

55. Kerala State Small Scale Rice, Flour & Oil Mills Association, Idukki
56. Kerala State Productivity Council
57. Kannan Devan Hills Plantations Company Private Limited

Public hearing held at Thiruvananthapuram

58. Shri.P.Ganesh, CII-Kerala & Convener, Economic Affairs & Policy Advocacy Panel.
59. The Travancore-Cochin Chemicals Limited, Udyogamandal
60. Shri.Joseph.P.V, Unit Head, EICL Limited, Trivandrum
61. English Indian Clays Mazdoor Sangam, Karamana, Trivandrum.
62. Kerala State Small Industries Association, Kottayam.
63. The Kerala Renewable Energy Developers Association, Perumbavoor.
64. Apollo Tyres Employees Unions
65. The Senior Chief Engineer, BSNL Kerala Electrical Zone, Trivandrum
66. Kerala State Road Transport Corporation, Trivandrum
67. Shri.C.P.George, Vice President, KSEB Engineers' Association, Trivandrum
68. Kerala Samsthana Cherukida Rice, Flour & Oil Millers Association, Trivandrum

69. Prof.Raveendran Nair, Association AIMS
70. The Kerala High Tension and Extra High Tension Industrial Electricity Consumers' Association, Ernakulam.
71. Shri.K.K.George, FIE, Chartered Engineer, Energy Consultant & Bureau of Energy Efficiency accredited Energy Auditor.
72. The Assistant Secretary, Electricity Department, Thrissur Corporation.
73. Shri.P.M.Varky, House No.426, Carborandom Road, K.D. Plot, South Kalamassery-683 104.
74. Kannan Devan Hills Plantations Company Private Limited.
75. Shri.N.S.Alexander, Nadackal House, Kottayam.

Via Post/Email

76. Santa Cruz Residents Association
77. Centre For Professional and Advanced Studies
78. FRBL- FACT-RCF Building Products Ltd.
79. P. Rajashekar Nair, Vellayambalam.
80. K.R.Radhakrishnan, Energy Manager, Ushus, Aroor.
81. S.P.Ravi, Chalakudypuzha Samrakshana Samithi
82. Shri.Lorance K M, Kunnappilly House, Thrissur
83. Rubber Park India Private Limited
84. Shoufar Navas, Malappuram
85. Kochuveli MSME Association.
86. K.Govindan Nampoothiry
87. P.P Antony, Electrical Contractor, Thrissur
88. Friends of Electricity Employees & Consumers
89. Jose Paul, Nalpat, 06/372, Koratty- 680 308
90. K.S.E.Board Pensioners' Association
91. Technopark
92. A Consumer of KSEB Ltd.

Annexure -III

KERALA STATE ELECTRICITY REGULATORY COMMISSION MINUTES OF 35TH MEETING OF STATE ADVISORY COMMITTEE

02:30 PM on 17th December, 2018:

SFS HOME BRIDGE, Vellayambalam. Thiruvananthapuram

Members Present :

1. Shri. Preman Dinaraj, Chairman, KSERC
2. Shri. K. Vikraman Nair, Member, KSERC
3. Shri. S. Venugopal, Member, KSERC
4. Shri. N.S.Pillai, CMD, KSEB Limited, Thiruvananthapuram
5. Shri. P.Kumaran, Director,
Distribution, KSEB Limited, Thiruvananthapuram
6. Shri. K.M. Dharesan Unnithan, Director, Energy Management Centre.
7. Shri.R.Harikumar, Director, ANERT
8. Shri. Baby Mathew, General Manager i/c, NTPC, Kayamkulam
9. Shri. A.R. Satheesh, President,
Kerala HT-EHT Electricity Consumers Association
10. Shri. S.N. Raghuchandran Nair, President, Chamber of Commerce
11. Shri.R.Rajesh, President, CREDAI
12. Shri.Khaled, President, Kerala Small Scale Industrial Association

In attendance

Shri. B.Pradeep, Deputy Chief Engineer with full powers of Chief Engineer, KSEB Limited, Thiruvananthapuram

The meeting commenced at 02:30 PM. Shri. Preman Dinaraj, Chairman, Kerala State Electricity Regulatory Commission presided over the meeting. In the introductory remarks, he welcomed all the members and the other officials to the meeting. He then introduced and welcomed Shri.G.Jyothichudan, the newly appointed Secretary to the Kerala State Electricity Regulatory Commission, to the members of the State Advisory Committee and briefed on his experience and expertise. The members of the State Advisory Committee also introduced themselves. The Chairman also mentioned the items included in the agenda and briefed on the same.

Firstly the minutes of the previous meeting of the State Advisory Committee held on 23-07-2018 was confirmed and approved.

The Second matter considered was the Kerala State Electricity Regulatory Commission (Terms and Conditions for the determination of Tariff) Regulations

2018 based on which the Commission finalises the Multi Year ARR & ERC and Tariff applicable to all the licensees of the State for the next control period of four years (2018-19 to 2021-22). Chairman stated that the draft was published and the public hearings were conducted at the Mini Hall, Town Hall Campus, Ernakulam on 03-01-2018 and the Court Hall, Office of the Commission, Thiruvananthapuram on 10-01-2018 and 01-10-2018 respectively. The Commission had considered the comments of the public and the stakeholders prior to finalising the Regulations. Based on the said Regulations, KSEB Ltd has filed the Multi Year ARR & ERC and Tariff petition for the control period 2018-19 to 2021-22. The Commission conducted public hearings at Kozikode, Ernakulam, Kattapana & Thiruvananthapuram inviting the comments/objections of the general public and stakeholders, which is under the consideration of the Commission.

Shri. B.Pradeep, Deputy Chief Engineer with full powers of Chief Engineer, KSEB Limited, Thiruvananthapuram presented in brief the tariff proposal of KSEB Limited. He pointed out the highlights of the proposed tariff revisions for the various consumer categories, revision in the transmission charges, SLDC charges, wheeling charges, cross subsidy surcharge & power factor incentive. He added that KSEB Ltd has tried to conform to the policy directives of Government of India while formulating the tariff proposal. The Chairman then invited the comments of the members of the State Advisory Committee on the proposal made by KSEB Ltd.

Sri K.M. Dhaharan Unnithan, Director, Energy Management Centre pointed out that the hydro projects in the summer months cannot demonstrate capacity due to shortage in water availability. It is clarified that the same is well addressed in the regulation and the hydro projects need to demonstrate capacity only when water become available and CoD can be declared retrospectively.

Shri. A.R. Satheesh, President, Kerala HT-EHT Electricity Consumers Association presented the Association's views and submitted that the proposal made by KSEB Ltd to increase the tariff will have a huge impact on all the consumers in the State. He further stated that the increase proposed in the fixed charges is unscientific & unacceptable. He pointed out that in the MYT order of MEDCL, it is clearly mentioned that there cannot be steep increase in fixed charges. He pointed out that the State Commission is to encourage open access in the state. If the Commission revises the fixed charges in line with the proposal made by KSEB Ltd, consumers would require paying higher fixed charge to the

licensee without consuming any power. This coupled with the open access charges will make open access unviable. He requested for introducing kVAh billing in a phased manner and made his comment on the proposal to reduce the power factor incentive. Reducing the power factor incentive and increasing the power factor penalty for all the consumers, as proposed by the KSEB Ltd has a negative impact on industries in the State.

He further submitted that Government of Kerala has permitted to utilize the Electricity Duty Collected and retained by KSEB Ltd till 31-12-2014 against the Pension liabilities. Accordingly, the total amount of Electricity Duty collected during this period is Rs.3056.32 Cr. It was submitted to the Commission to deduct this Rs.3056.32 Cr of Govt. Contribution while computing the unbridged revenue gap of KSEB Ltd. He also submitted that the Commission may revisit the orders on the truing up of accounts process and arrive at the realistic ARR requirements of KSEB Ltd before deciding to proceed with the Multi Year Tariff determination process. Shri. B.Pradeep replied to the comments made by Shri. A.R Satheesh on the introduction of kVAh billing and the point on retaining of electricity duty by KSEB Ltd.

Shri.Khaled, President, Kerala Small Scale Industrial Association submitted to reduce the steep increase in the fixed charges proposed by KSEB Ltd. Further he requested to enhance the contract demand to 150 KVA for small scale industries in the LT Category across the state.

Shri. Reghuchandran Nair, President, Chamber of Commerce firstly appreciated the performance of KSEB Ltd. He stated the consumers should properly be enlightened. With regard to the high inflow of water during the year, he pointed out that KSEB Ltd should utilise the same to the maximum. He also enquired as to why fixed charges are collected even from consumers who generate and feed in excess solar power to the grid. He also mentioned that the desilting of the dams is to be done for increasing the capacity and to gain more revenue. He submitted that the production sector has been badly hit by the introduction of GST and demonatisation. He requested the Commission to consider the same prior to deciding on the tariff increase proposed. He also showed his concern on the move of the central government to grant powers to the Central Electricity Regulatory Commission to determine the tariff across the nation.

Sri.Reghuchandran Nair mentioned that the Chief Electrical Inspector should also be made a part of the meeting. Further it was submitted that the central government should properly be informed and updated on the power sector of

Kerala, and a meeting may be convened as per the availability of the Joint Secretary to the Power Department. He also submitted that the elevation and the beauty of the buildings/houses constructed should not be blocked due to installation of the RMUs.

Shri. N.S.Pillai, CMD of KSEB Limited replied to the comments made by Shri. Reghuchandran Nair. He stated that KSEB Ltd is collecting fixed charge to keep the grid as well as power ready to cater the electricity requirement of all the consumers of the state as and when required. He pointed out that huge capital investments are also being done to strengthen the grid. He also mentioned that Solar generation cannot be always relied on to, as Kerala has a strong monsoon climatic condition. With regard to the installation of RMUs, he stated that the request can be considered as per availability of the land. He emphasized the need to provide 24x7 supply to the consumers of the State. He pointed out that the assets of KSEB Ltd. are over 50 years old, which necessitates higher O&M. He urged the Commission to approve the proposal considering all these aspects explained in various hearing and also in the written submission.

Sri.B.Pradeep appreciated to views of Sri.Reghuchandran Nair. He stated that the consumer expects an excellent service, even with some increased cost. In view to achieve the customer satisfaction, KSEB Ltd decided to improve the transmission grid to cope the CEA planning criteria. Trans Grid 2 is intended to provide efficient redundancy to the system.

The Chairman, KSERC in his concluding remarks expressed the view that the deliberations were thought provoking and thanked all members for the active participation and for rendering valuable views on the various issues in the agenda and assured that the remarks made, will duly be considered. He also mentioned that Consumer advocacy will be strengthened in the near future.

The meeting came to a close at 05:00 PM.

Approved for Issue

Sd/-

Secretary

ANNEXURE-IV

Note on

Preliminary scrutiny of the Capital Investment Proposals for SBU-G, SBU-T and SBU-D of KSEB Ltd

1. KSEB Ltd, along with the petition for approval of ARR, ERC and Tariff petition, has also filed the 'Capital Investment Plan' for their Strategic Business Units (SBU's) Generation, Transmission and Distribution, and for the assets put in use in each of the above SBUs, during the control period for approving the interest on capital liabilities, depreciation and O&M expenses of the SBUs. The summary of the total GFA addition claimed by the KSEB Ltd for the four year control period from 2018-19 to 2021-22 is given below.

Table-1

Summary of the GFA addition proposed by KSEB Ltd

Functional area	2018-19	2019-20	2020-21	2021-22	Total
	(Rs. Cr)	(Rs. Cr)	(Rs. Cr)	(Rs. Cr)	(Rs. Cr)
Generation	99.47	477.68	1008.86	665.71	2251.72
Transmission	840.84	1772.05	2703.95	769.32	6086.16
Distribution	2620.25	1521.74	1362.97	1270.24	6775.20
Total	3560.56	3771.47	5075.78	2705.27	15113.08

KSEB Ltd, has also submitted the Detail Project Reports (DPR) of the major capital projects proposed in Generation, Transmission and Distribution during this control period.

2. The Commission has conducted a preliminary examination of the details submitted by KSEB Ltd, and noted that, the total Gross Fixed Assets of KSEB Ltd as on 31.03.2018 is only about Rs 18, 500.00 crore excluding the cost of re-valued assets. It means that, the GFA addition proposed in the four year control period is about 82% of the total GFA created by KSEB/ KSEB Ltd, since its existence in the year 1957 till 31.03.2018. The Commission, may consider KSEB Ltd.'s claim on the proposed capital investment in its three SBUs, the interest on loan availed for capital investments, return on equity invested in the capital projects, depreciation and also O&M cost for the assets created, only after its prudence check. Since, the investment proposed by KSEB Ltd in

generation, transmission and distribution is requested to be considered in the ARR of each SBU and ultimately in the tariff, the Commission is provisionally approving capital investment in the three SBUs, as explained in the succeeding paragraphs.

3. The Commission, vide Annexure-IV of the Tariff Regulations, 2018 had specified the 'Guidelines for in-principle clearance of investment schemes' and also specified the procedures for evaluation of the detailed projects reports, while granting investment approval.
4. Considering the huge investments proposed by KSEB Ltd in the four year period of the MYT, the Commission has decided to evaluate the investment proposal in Generation, Transmission and Distribution Units, separately through public consultation process, and to conduct prudence check on the investment proposals. The Commission may issue a public notice on the same for the information of the stakeholders separately.
5. However, as part of the determination of the ARR and Tariff for the current control period, the Commission has to provisionally adopt a reasonable level of asset addition during the current control period for providing interest on debt, depreciation and O&M expenses, for the assets expected to put in use. Based on the details submitted by KSEB Ltd, and the progress of the capital investments made so far, and other information submitted by KSEB Ltd, the Commission provisionally approves the following GFA addition, for approving the interest on loan, depreciation and O&M expenses as part of approving the ARR.

Table 2

Summary of the GFA addition provisionally approved for depreciation, interest on loan and O&M cost of the control period

Functional area	Proposed by KSEB Ltd					Provisionally approved by the Commission				
	2018-19	2019-20	2020-21	2021-22	Total	2018-19	2019-20	2020-21	2021-22	Total
	(Rs. Cr)	(Rs. Cr)	(Rs. Cr)	(Rs. Cr)	(Rs. Cr)	(Rs. Cr)	(Rs. Cr)	(Rs. Cr)	(Rs. Cr)	(Rs. Cr)
Generation	99.47	477.68	1008.86	665.71	2251.72	65.79	448.07	593.59	153.76	1261.21
Transmission	840.84	1772.05	2703.95	769.32	6086.16	511.60	1082.11	1427.76	615.21	3636.68
Distribution	2620.25	1521.74	1362.97	1270.24	6775.20	1773.70	1242.17	831.69	627.61	4475.17
Total	3560.56	3771.47	5075.78	2705.27	15113.08	2351.09	2772.35	2853.04	1396.58	9373.06

The GFA addition approved as above is strictly provisional and only for estimating the ARR of each of the SBUs of KSEB Ltd. This does not mean that, the Commission has approved the GFA addition to that extent or dis-allowed the balance portion of the GFA addition out of the total GFA addition proposed. As clearly stated earlier, the Commission shall separately examine for approval the capital investment in generation, transmission and distribution, through public consultation process and prudence check. The GFA out of the Capital Investment so approved only finally consider while truing up of the accounts of KSEB Ltd in each year of the control period.

6. The rationale adopted by the Commission for approving the GFA addition provisionally in SBU-Generation, SBU- Transmission and SBU-Distribution as given in the Table-2 above is discussed in the following paragraphs.

GFA addition in SBU-Generation

7. Year wise GFA addition proposed in SBU-Generation as per the capital investment plan submitted by KSEB Ltd is given below.

Table-3
GFA addition in Generation proposed by KSEB Ltd

Sl No	Particulars	Asset addition (Rs. Cr)				Total
		2018-19	2019-20	2020-21	2021-22	
1	New Hydel projects			87.99	87.23	175.22
2	Renovation & Modernisation New		12.22	327.20		339.42
3	Solar new		57.51			57.51
4	Ongoing Hydel projects	99.47	384.55	331.41	578.48	1393.91
5	RMU- Ongoing		20.40	252.26		272.66
6	Others - DRIP etc		3.00	10.00		13.00
	Total	99.47	477.68	1008.86	665.71	2251.72

8. The Commission has perused the GFA addition in SBU-G proposed by KSEB Ltd. For approving the provisional GFA addition, the Commission has considered the schedule of commissioning of the ongoing (except

Pallivasal) and new hydel projects as proposed by KSEB Ltd. The Commission notes that the proposed capital cost of these proposed/ongoing projects projected by KSEB Ltd is very much on the higher side. Since the admissibility and prudence check of these expenditures is yet to be done, the Commission for the limited purpose of assessing and approving the capital cost of these hydel projects has adopted the normative capital cost of Rs 7.07 crore/MW for capacity 5 MW to 25 MW and Rs 7.79 crore/MW for capacity below 5 MW, as per the CERC((Terms and Conditions for Tariff determination from Renewable Energy Sources) Regulations, 2017.

As per the petition filed before the Commission, KSEB Ltd has proposed to the Commission the renovation and modernisation works at Kuttiadi amounting to Rs 327.70 crore in the year 2020-21. However, in the additional details submitted on 06.12.2018, KSEB Ltd clarified that, it is rescheduled to commission the R&M works of Kuttiadi in the year 2022-23 and therefore is beyond the control period of this Regulation.

The Commission has not considered the asset addition of Pallivasal extension at this stage. Once this project is commissioned, KSEB Ltd shall submit a separate petition before the Commission with all relevant details including the date of award of the works/contracts, original project cost, cost of completion, time overrun and cost overrun and all relevant details, with supporting documents required for assessing and approving the project cost and tariff determination.

Accordingly, the provisional GFA addition approved for SBU-Generation is given below.

Table-4
GFA addition provisionally approved for SBU-Generation (Rs. Cr)

Sl No	Particulars	2018-19	2019-20	2020-21	2021-22	Total
1	New Hydel projects	0.00	0.00	53.03	42.42	95.45
2	Renovation & Modernisation New		12.22			12.22
3	Solar new		57.51			57.51
4	Ongoing Hydel projects	65.79	354.94	278.30	111.34	810.37
5	RMU- Ongoing		20.40	252.26		272.66
6	Others - DRIP etc		3.00	10.00		13.00
	Total	65.79	448.07	593.59	153.76	1261.21

SBU- Transmission

9. The total GFA addition proposed by KSEB Ltd in SBU- Transmission for the control period is given below.

Table 5
GFA addition proposed by KSEB Ltd for SBU-Transmission (Rs.Cr)

No.	Name of Work	2018-19	2019-20	2020-21	2021-22	Total
SBU-T						
1	Ongoing projects plus new small works	804.12	568.73	196.28	254.26	1823.39
2	New Capital Works above 10Cr	0	662.59	421.83	41.65	1126.07
3	Transgrid Works	0	362.57	2073.84	260.96	2697.37
4	Edamon-Kochi Line compensation	10	118.02			128.02
	Total	814.12	1711.91	2691.95	556.87	5774.85
SLDC						
1	Ongoing projects plus new small works	14.72	7.14	0	0	21.86
2	New projects	12	53	12	212.45	289.45
	Total	26.72	60.14	12	212.45	311.31
	Total for SBU-T & SLDC	840.84	1772.05	2703.95	769.32	6086.16

10. The Commission has examined in details the capital investment proposed under each sub heads of works under SBU-T, mentioned above. The Commission has also collected the present status of capital projects in Transmission as on 30th November, 2018. The initial observation of the Commission on the capital investment and asset addition proposed in transmission is given below.

- (i) As directed by the Commission, KSEB Ltd has submitted the circle wise details of the ongoing capital works and new small works in transmission with investment less than Rs 10.00 crore. The Commission has noted that, large number of works proposed under this head are still not tendered or yet to be started. Hence the Commission has excluded such works, while granting provisional approval of GFA addition in SBU-T.
- (ii) KSEB Ltd has proposed 40 different schemes with capital cost more than Rs 10.00 crore, which are proposed to be executed

during the current control period from 2018-19 to 2021-22. As instructed by the Commission, KSEB Ltd has submitted the progress of each of these scheme as on 30.11.2018. It is noticed that, many of the projects proposed under this head are either not tendered or commenced work. The Commission has excluded GFA addition of such projects while granting provisional approval for the GFA addition.

- (iii) KSEB Ltd has also submitted the status of the TRANSGRID projects as on 30th November 2018. The Commission has noted that, as per the details submitted, the following three schemes are likely to be delayed beyond the current MYT period. Hence the GFA addition of these schemes not considered while granting provisional approval of GFA addition.

Name of the TRANSGRID package	Capital investment	Expected COD	Present status
	(RS. Cr)		
Kottayam, Thuravur&Ettumanoor	541.67	2020-21	Land acquisition not completed
Kunnamkulam	130.30	2020-21	KIIFB approval yet to be obtained
Thalasseri	157.03	2020-21	Revised DPR being prepared

- (iv) There is no GFA addition associated with the Edamon-Kochi compensation package. Hence, the GFA addition under this item cannot be considered as part of GFA addition of SBU-T at this stage.
- (v) Though the Commission has directed KSEB Ltd. to submit the details of the ongoing schemes under SLDC, the same is still not provided. Hence the same was not considered as part of GFA addition.
- (vi) As per the details submitted by KSEB Ltd, an amount of Rs.514.58 crore is available under PSDF grant and hence the assets created

using PSDF has not considered for depreciation and interest & finance charges.

The GFA addition in SBU-Transmission approved for determining depreciation, interest of loan etc are given below.

Table-6
GFA addition provisionally approved for SBU-Transmission

Sl No	Particulars	2018-19	2019-20	2020-21	2021-22	Total
		(Rs. Cr)	(Rs. Cr)	(Rs. Cr)	(Rs. Cr)	(Rs. Cr)
1	Ongoing & new works with capital cost less than Rs 10.00 Cr	499.60	312.80	20.00	0.00	832.40
2	New capital works with capital cost above Rs 10.00 crore	0.00	353.74	150.92	141.80	646.46
3	Transgrid works	0.00	362.57	1244.84	260.96	1868.37
4	SLDC works	12.00	53.00	12.00	212.45	289.45
5	Total	511.60	1082.11	1427.76	615.21	3636.68
6	PSDF grant	0.00	25.00	389.58	100.00	514.58
7	GFA excluding consumer contribution & grants	511.60	1057.11	1038.18	515.21	3122.10

SBU- Distribution

11. The GFA addition proposed in SBU- Distribution during the four year control period starting from 2018-19 to 2021-22 is given below.

Table-7
GFA addition proposed by KSEB Ltd

Particulars	2018-19	2019-20	2020-21	2021-22	Total
Normal woks -Dhyuthi 2021	808.64	1300.55	1139.26	787.86	4036.31
Estimated & other funded Works	199.7	201.69	203.71	205.74	810.84
System strengthening & IT works	1593.91				1593.91
IT related works (CAP)				258.14	258.14
Safety	18	19.5	20	18.5	76
Total	2620.25	1521.74	1362.97	1270.24	6775.2

12. The Commission has examined the capital investment and GFA addition, proposed in SBU-D during the present control period. The capital outlay for various distribution works including Dhyuthi during the control period is given below.

Table-8
Capital outlay for SBU-D

No	Particulars	FY-19	FY-20	FY-21	FY - 22	Total
A	Dhyuthi					
1	Normal -Dhyuthi(Normal work + Faulty meter	783.64	1275.55	1114.26	762.86	3936.31
2	Continued Electrification	5.00	20.00	20.00	5.00	50.00
3	Special Projects like SCADA	5.00	20.00	20.00	5.00	50.00
	Sub Total	793.64	1315.64	1154.26	772.86	4036.30
B	Other Funded Works (New Capital works)	199.70	201.69	203.71	205.74	810.84
C	Centrally Aided Projects					
C1	System Strengthening works					
1	R APDRP PART B -(ongoing Capital works)	111.00	0.00	0.00	0.00	111.00
2	IPDS (ongoing Capital works)	507.31	0.00	0.00	0.00	507.31
3	DDUGJVY (ongoing Capital works)	246.29	0.00	0.00	0.00	246.29
	Sub Total	864.60	0.00	0.00	0.00	864.60
C2	IT Related works					
1	IPDS- Phase II Incr IT	7.00	11.00	4.86	0.00	22.86
2	IPDS--ERP	4.00	26.00	12.64	0.00	42.64
3	IPDS-Smart Metering @ Kumarapuram	19.53	0.00	0.00	0.00	19.53
4	IPDS-Smart metering- UDAY	19.00	32.00	13.36	0.00	64.36
5	Smart Grid	0.00	20.00	40.00	43.40	103.40
6	RT-DAS	1.00	3.00	1.25	0.00	5.25
7	Cyber security	0.50	0.00	0.00	0.00	0.50
8	RAPDRP PART A- IT -SCADA (Ongoing work)	17.00	17.00	0.00	0.00	34.00
	Sub Total	68.03	109.00	72.11	43.00	292.14
D	Safety Works					
1	Safety (New Capital works)	18.00	19.50	20.00	18.50	76.00
	Total Distribution	1943.97	1645.83	1450.08	1040.10	6079.98

13. The Commission has preliminarily examined the capital outlay and asset addition proposed by KSEB Ltd. As against the average capital outlay of about Rs 1500.00 crore per year proposed by KSEB Ltd in SBU-D, the actual capital works executed in distribution side including the capital works with consumer contribution and grants during the recent past is in the range of Rs 700.00 crore to Rs 800.00 crore per year.

The Commission has also noted that, the substantial portion of the capital investment and GFA addition proposed in SBU-D is under the Dhyuthi scheme. The various tasks identified under Dhyuthi and its capital outlay as per the petition is given below.

Table-9
Distribution tasks under Dhyuthi 2021

No	Particulars	Unit	Physical target					Financial target (Rs.Cr)					
			2018-19	2019-20	2020-21	2021-22	Total	2018-19	2019-20	2020-21	2021-22	Total	(%) of total
1	Construction - HT line	km	1978	3279	2786	1893	9936	176.70	320.63	257.07	170.46	924.87	23.5%
2	Reconductoring - LT line	km	30107	51283	47693	31239	160322	129.16	219.76	204.43	133.92	687.27	17.5%
3	Conversion - LT line	km	2852	4250	3551	2582	13235	79.52	119.90	99.92	73.66	373.00	9.5%
4	Construction - LT line	km	1139	1822	1527	1096	5584	67.20	119.27	98.50	70.20	355.17	9.0%
5	Conversion - HT line	km	269	691	635	398	1993	39.79	102.30	93.97	58.90	294.97	7.5%
6	Standardisation - Other Structures	No	24036	39138	33046	33399	129619	38.50	72.52	88.68	67.06	266.75	6.8%
7	Other works							42.49	82.77	60.05	36.12	221.42	5.6%
8	Faulty Meter Changing	No	715446	653227	565231	500478	2434382	60.00	54.49	47.61	42.18	204.27	5.2%
9	Construction - Switches	No	10531	8016	4836	3135	26518	49.28	54.94	45.40	28.09	177.71	4.5%
10	Construction - DTR	No	974	1100	987	680	3741	35.27	39.24	34.54	24.32	133.37	3.4%
11	Standardisation - HT line	km	945	1443	1412	1063	4863	16.50	25.53	25.90	17.14	85.07	2.2%
12	Reconductoring - HT line	km	1586	2838	2750	1693	8867	12.84	22.96	22.25	13.70	71.75	1.8%
13	Earthing	No	99204	150586	132539	102060	484389	10.46	15.55	14.16	10.54	50.71	1.3%
14	Replacement - DTR	No	312	373	400	336	1421	6.65	7.93	8.42	7.14	30.14	0.8%
15	Construction - FPI	No	4827	5820	3409	2202	16258	5.79	6.98	4.09	2.64	19.51	0.5%
16	Metering - DTR Meter	No	4662	4505	2887	2386	14440	4.60	4.45	2.85	2.36	14.25	0.4%
17	Shifting lines	km	65	88	115	53	321	1.81	2.50	3.24	1.48	9.03	0.2%
18	Dismantling - Lines	km	226	274	234	267	1001	1.78	2.16	1.85	2.11	7.90	0.2%
19	Metering - Border Meter	No	685	77	62	56	880	3.78	0.42	0.34	0.31	4.86	0.1%
20	Shifting DTR	No	208	168	137	74	587	1.51	1.23	0.99	0.53	4.25	0.1%
21	Dismantling - DTR/ Structure	No	19	3	7	1	30	0.01	0.00	0.00	0.00	0.02	0.0%
	Total							783.64	1275.55	1114.26	762.85	3936.30	100.0%

14. The Commission has also examined the proposed achievement of the major tasks proposed under Dhyuthi, with the actual achievement of various tasks executed during the recent past from 2014-15 to 2017-18 (four years). The details are given below.

Table-10

Comparison of the achievement of the major tasks proposed under Dhyuthi during last four years from 2014-15 to 2018-19

Particulars		Achievement in Last four year period from 2014-15 to 2017-18	Proposed under Dhyuthi from 2018-19 to 2021-22
Construction of HT line	km	9936	7416
Construction of LT line	km	16436	5584
Conversion of LT line	km	8467	13235
Construction of Distribution Transformer	Nos	10564	5162
Meter replacement	Lakh	32	24

As detailed above, the actual achievement of the major tasks during the last four years (except construction of LT line) was much higher than the physical targets proposed under Dhyuthi. However, the financial targets proposed under Dhyuthi is very much higher than the actual cost incurred during the recent past. The Commission hereby directs KSEB Ltd. to examine the reasons for such cost escalations and to justify it before the Commission during the proposed capital expenditure public hearings. Though the Commission has directed KSEB Ltd to submit, the standard estimate of the various tasks covered under Dhyuthi, the same was not submitted by KSEB Ltd till date.

15. KSEB Ltd, vide the letter dated 06.12.2018 stated that, out of the total capital outlay of Rs 783.00 crore proposed under Dhyuthi, the revised target for the year 2018-19 is only Rs.302.00 core.
16. The Commission has also noticed that, KSEB Ltd has not submitted the source of funds for the capital works proposed under Dhyuthi.
17. The Commission is of the opinion that while the capital investment in distribution works under Dhyuthi may be justified, KSEB Ltd is required to provide the Commission with substantive evidence as to how such investment shall ensure that the licensee supplies quality power to the consumers at an affordable cost. Hence KSEB Ltd is required to present

its capital investments, with proper justification including cost benefit analysis in quantifiable terms during the public consultation process. KSEB Ltd should also present relevant details before the Commission with all supporting documents to justify this huge investment.

18. The Commission has also considered the capital works proposed with consumer contribution and also the works proposed under Centrally aided projects such as R-APDRP, IPDS, and also the IT related works.
19. Based on the above, the Commission, provisionally approve the GFA addition in SBU-Distribution, as follows for approving ARR.

Table-11
GFA addition provisionally approved for SBU-Distribution
in Rupees Crores

No	Particulars	2018-19	2019-20	2020-21	2021-22	Total
1	Normal woks -Dhyuthi 2021	302.23	651.67	567.98	393.37	1915.25
	Continued Electrification	5.00	20.00	20.00	5.00	50.00
		5.00	20.00	20.00	5.00	50.00
	Sub total	312.23	691.67	607.98	403.37	2015.25
2	Estimated & other funded Works	199.70	201.69	203.71	205.74	810.84
3	System strengthening & IT works	1243.77	329.31			1573.08
4	IT related works (CAP)				258.14	258.14
5	Safety	18.00	19.50	20.00	18.50	76.00
6	Total considered for O&M cost	1773.70	1242.17	831.69	627.61	4475.17
7	Government grant & contributions					
	RAPDRP, IPDS etc	707.24	197.59			904.82
	Estimated & other funded works	199.70	201.69	203.71	205.74	810.84
	Sub total	906.94	399.28	203.71	205.74	1715.66
8	Net GFA for depreciation & IF	866.76	842.90	627.98	421.87	2759.51
9	Grant Total					