KERALA STATE ELECTRICITY REGULATORY COMMISSION
THIRUVANANTHAPURAM

Present : **Shri T.M.Manoharan, Chairman**
Shri K.Vikraman Nair, Member
Shri S.Venugopal, Member

In the matter of purchase of power from the Rajiv Gandhi Combined Cycle Power Plant(RGCCPP) of National Thermal Power Corporation Limited (NTPC) at Kayamkulam

Order No. 143/F&T/2017/KSERC dated 27.04.2017

1. This order is issued in response to the request of the Chairman and Managing Director (CMD) of KSEB Ltd in his letter No.KSEB/TRAC/Power purchase/2016-17 dated 23.01.2017.

2. The Commission had, while processing the documents received during the course of the suo motu proceedings initiated as per notice dated 22.6.2016 for determination of tariff for the financial year 2017-18, noticed that KSEB Ltd has requested to allow a very huge amount of about Rs.300 crore per annumfor payment of fixed charges to the Rajiv Gandhi Combined Cycle Power Plant, of NTPC at Kayamkulam (hereinafter referred to as RGCCPP) of which the energy charge is prohibitively costly. It was also noticed that KSEB Ltd had renewed the PPA with RGCCPP for 12 years from 01.03.2013, without obtaining approval from the Commission under clause (b) of sub-section (1) of Section 86 of the Electricity Act, 2003. The Commission has, therefore called for and examined the original PPA dated 6-1-1995, signed between the erstwhile KSEB with NTPC for procuring power from RGCCPP Kayamkulam and the subsequent extension of PPA up to 28.02.2013 and also the supplementary PPA dated 15-2-2013 signed by KSEB for 12 years from 01.03.2013. It was also noticed that,

   (i) KSEB Ltd has, renewed the PPA with RGCCPP for 12 years from 1stMarch, 2013, without obtaining approval from the Commission under clause (b) of sub-section (1) of Section 86 of the Electricity Act, 2003.

   (ii) KSEB Ltd has not ensured additional allotment of equal quantity of cheaper power (360 MW) from coal based stations of NTPC to pool with RGCCPP, as was being done in the past.

(iii) KSEB Ltd has already paid an amount of Rs 948.56 crore towards depreciation for the said plant, of which the capital expenditure was Rs 1250.79 crore, and the depreciated value is only about Rs 302.23 crore.

(iv) KSEB Ltd has paid to NTPC Ltd, the accelerated depreciation for the plant as claimed for by NTPC Ltd for the financial years upto 2008-09.

(v) The capital liabilities of the plant have already been repaid fully at the cost of KSEB Ltd.

(vi) In spite of the above facts, the fixed cost has increased alarmingly from Rs. 215.77 crore in 2012-13 to Rs.296.70 crore in 2017-18 and to Rs 301.16 crore in 2018-19.

The Commission had already expressed its serious concerns over the payment of huge amounts as fixed charges to the naphtha based power plants such as BSES Kerala Power Limited (BKPL) and RGCCPP, in view of the prohibitively high cost of naphtha and the consequent limited or little use of the said plants for power generation. The Commissionhad therefore, vide letter No. 1007/F&T/ Suo-motu tariff revision/KSERC/1104 dated 04.11.2016, issued the following directions to the KSEB Ltd regarding the power purchase from RGCCPP, power plant of NTPC at Kayamkulam.

(i) The Commission is constrained to exclude the fixed cost of the RGCCPP Kayamkulam of NTPC from the ARR of KSEB Ltd for the purpose of tariff determination.

(ii) KSEB Ltd shall present the facts with all supporting details to NTPC and to Government of India, so that a viable solution can be worked out by minimizing the fixed cost of RGCCPP and by allotting cheaper power to mitigate the problem faced by KSEB Ltd and its consumers.

(iii) If no tangible results come out of the discussions, the matter has to be submitted before Hon'ble CERC and Hon'ble APTEL for favourable orders.

(iv) Such actions are absolutely necessary to safeguard the interest of the consumers and of KSEB Ltd.

3. The Chairman & Managing Director (CMD) of KSEB Ltd had, vide letter No. KSEB/TRAC/Power purchase/2016-17 dated 23.01.2017, informed the following,in response to the above directions,-

"

1) KSEB has entered in to a Power Purchase Agreement with M/s.NTPC on 6-1-1995 for purchase of entire power from the Rajiv Gandhi Combined Cycle Power Project (RGCCPP), at Kayamkulam, *owned and operated by NTPC with an installed capacity of 359.58 MW. The plant is envisaged as a dedicated station to Kerala.*

2) *The term of the agreement was initially for 5 years from the date of commercial operation (CoD). The PPA with M/s.NTPC was extended as per mutual agreement between both the parties till 28-2-2013. Subsequently, KSEB entered into a supplementary PPA with M/s.NTPC on 15-2-2013, for extending the validity of the PPA for a further period of 12 years from 1-3-2013.*
3) *Considering the high variable cost of the plant, MoP has allocated 180MW cheaper power from NTPC's Talcher –II power station to pool with RGCCPP, Kayamkulam. The average cost of generation from Talcher –II power station at the State periphery is about Rs.2.34 per unit. The pooled cost of power from Talcher-II and RGCCPP, Kayamkulam is about Rs.4.52 per unit.*
4) *KSEBL is reserving RGCCPP plant as a stand-by one to be operated during extreme emergencies like failure to obtain power from external sources due to corridor constraints etc. KSEBL is retaining the plant by paying fixed cost and schedule the same at extreme emergencies. It is also submitted that Hon'ble Commission, as per order on ARR & ERC for the years 2013-14 and 2014-15 had duly considered all these facts and was pleased to allow scheduling and payment of charges to RGCCPP for these years.*
5) *Being a Central Generating Station, the Annual Fixed Cost of RGCCPP, Kayamkulam is being approved by Hon'ble CERC as per the tariff norms issued by Hon'ble CERC. NTPC in the tariff petition filed for the period 2014-19 had raised a huge increase in Annual Fixed Cost for the tariff period 2014-19. The huge increase in AFC claimed for the tariff period 2014-19 compared to previous tariff period was mainly attributed due to increase in working capital, claimed as per the tariff norms issued by Hon'ble CERC vide the CERC (Terms and Conditions of Tariff)Regulations, 2014.*
6) *As per the tariff norms issued by Hon'ble CERC for the tariff period 2014-19 , the working capital is computed based on the price of fuel for the 3 months prior to the start of the tariff period 2014-19, i.e. the price of fuel for the months January 2014, February 2014 and March 2014 are considered for computation of working capital for the entire tariff period 2014-19.*
7) *In the case of RGCCPP plant, about 45% of the Annual Fixed Cost is constituted by the 'Interest on Working Capital' component of AFC. This excessive increase in working capital is attributed due to the*

excessive price of Naphtha that prevailed during the months of January2014, February 2014 and March 2014, which was of the order of Rs.70,948/MT.

8) *KSEBL had duly appraised Hon'ble CERC its concerns on the claim of high working capital for a rarely scheduled plant like RGCCPP, pointing out the subsequent drastic reduction in naptha price. KSEBL had also prayed before Hon'ble CERC for fixing the AFC of the plant taking into due consideration the concerns and submissions made by KSEBL in this matter.*

9) *However, the concerns raised by KSEBL were not taken into consideration by Hon'ble CERC while issuing the order dated 27-10-2016. As per the order of CERC, there is an excessive increase in Annual Fixed Cost (AFC) commitments for the tariff period from 1st April-2014 to 31st March 2019. The annual fixed cost approved by CERC for the tariff period 2014-19 as per the order is tabulated below.*

2014-15 (Rs.Cr.)	2015-16 (Rs.Cr.)	2016-17 (Rs.Cr.)	2017-18 (Rs.Cr.)	2018-19 (Rs.Cr.)
284.74	288.93	292.51	296.69	301.17

The average annual Fixed Cost of RGCCPP plant for the tariff period 2014-19 comes to around Rs.292.81 Crore.

10) *It is submitted that since the tariff order issued by Hon'ble CERC for RGCCPP is in line with the regulations issued by Hon'ble CERC for determining the tariff of Central Generating Stations for the tariff period 2014-19, there is no scope for challenging the same before higher judicial forums.*

11) *As rightly observed by Hon'ble Commission in the suo-motu tariff revision notices, the age of the RGCCPP plant is nearing its useful life and depreciation claims are almost over. Further, the principal and interest of the capital liabilities relating to the plant were fully repaid. In view of the fact that the interest and principal repayment obligations of the plant are over and the asset is almost fully depreciated, the fixed charge of the RGCCPP should have come down considerably and the benefit of reduced tariff of the plant shall be available for the beneficiaries and consumers. However, on the contrary, the AFC of the RGCCPP is found to have increased for the tariff period 2014-19.*

12) However, since there exist a PPA, valid till 2025 with NTPC, for procuring power from the project, KSEBL is bound by this PPA to pay charges towards NTPC as per the tariff orders of Hon'ble CERC. This PPA executed cannot be withdrawn unilaterally by KSEBL . Further, NTPC has every right to claim higher AFC as per the orders of CERC and draw the amount from the account of KSEBL through the Letter of Credit which is in operation as per the payment security mechanism approved by RBI, Government of Kerala and KSEBL.

13) Under these circumstances, disallowance of fixed cost of RGCCPP, Kayamkulam in the ARR of KSEBL will result in huge financial crisis for KSEBL as KSEBL is bound by the PPA terms to pay the amount approved by CERC to NTPC and NTPC is empowered to draw the amount by operationalizing the LC.

14) Considering all the above facts and circumstances, and also the provisions under sub-clause (c) under clause 5.11 of the National Tariff Policy-2016 , that the benefit of reduced tariff after the assets have been fully depreciated should remain available to the consumers, it is humbly requested that, Hon'ble Commission may kindly approve the appropriate quantum of annual fixed charges of RGCCPP, Kayamkulam that can be allowed to be recovered from the consumers through tariff while approving the ARR of KSEBL for the years 2016-17 and 2017-18.

15) It is additionally submitted that in compliance with the direction of Hon'ble Commission vide the letter dated 4-11-2016, efforts are taken by KSEBL to arrive at a mutually agreed lower AFC for the plant through discussions with officials of NTPC. KSEBL has already requested Government of Kerala vide letter dated 21-11-2016, to approach Ministry of Power for allocation of additional power from Talcher-II station or other cheaper stations of NTPC for pooling with power from RGCCPP, Kayamkulam to keep the bundled price of RGCCPP power low.

It is earnestly appealed that Hon'ble Commission may kindly consider the facts and submissions made above and an appropriate decision may kindly be taken in the matter."

4. The Commission has, vide letter No. 1007/F&T/ Suo-motu tariff revision/KSERC/ dated 31.01.2017, directed KSEB Ltd to submit the following additional details regarding the power purchase from the RGCCPP, Kayamkulam.

(i) Copy of the original PPA dated 06/01/1995 for 5 years. i.e. upto 05/01/2000.

(ii) Copy of the agreements/ Supplementary PPA / letters relating to extensions / revision of PPA with NTPC for purchase of power from RGCCPP till date.

(iii) Copies of the orders of GOI/CEA/NTPC allotting low cost power from other NTPC plants to pool with high cost RGCCPP power.

(iv) The actual stock of naphtha at RGCCPP for last 3 years and the cost of stock.

(v) The rate of naphtha/metric ton during last 3 years.

(vi) The real facts / legal provisions leading to the statement of KSEB Ltd in para 10&11 of the letter cited, that there is no scope for challenging the tariff order dated 27.10.2016 before higher judicial fora.

(vii) The particulars of generation at RGCCPP after increase of cost of naphtha to prohibitive levels.

(viii) The average month wise rate of transaction of electricity in power exchanges during the last 5 years.

5. KSEB Ltd has vide letter No.KSEB/TRAC/Power purchase/2016-17 dated 01.03.2017 submitted the details as directed by the Commission. As per the details submitted by KSEB Ltd, the term of the original PPA dated 6-1-1995 was expired on 28-2-2005. Subsequently, KSEB Ltd has extended the term of the PPA as per the clause-11 of the original PPA as follows.

   (i) From 1-3-2005 till 28-2-2007 vide letter No.CP/BD/121-G1/05/7 dtd.18-4-2006.
   (ii) From 1-3-2007 till 28-2-2010 vide letter No.CP/BD/108/RGCCPP/08/126 dated 23-6-2008.
   (iii) From 1-3-2010 till 28-2-2013 vide letter No.CP/BD/108/RGCCPP/506 dated 3-2-2010.
   (iv) From 01-03-2013 for a further period of 12 years, vide the supplementary agreement was signed on 15-2-2013.

KSEB Ltd has further submitted that, it has an additional allocation of 180 MW cheaper power from Talcher-II STPS ofNTPC, to pool with the high cost RGCCPP Kayamkulam power.

6. In its specific remarks as called for by the Commission, KSEB Ltd has, in its letter dated 23.01.2017 submitted as follows.

"

1) The tariff comprising of fixed charges and variable charges of RGCCPP is determined as per the regulations issued by Central

Electricity Regulatory Commission. The norms for determining the tariff for the control period 2014-19 are as per the CERC (Terms and Conditions of Tariff) Regulations, 2014 issued by CERC.

2) *The increase in Annual Fixed Cost claimed for the tariff period 2014-19 compared to previous tariff period is mainly attributed due to increase in working capital claimed. Almost 45% of the Annual Fixed Cost of RGCCPP comprises of Interest on Working capital component.*

3) *As per CERC (Terms and Conditions of Tariff) Regulations, 2014, working capital is allowed on normative basis for recovery through tariff. Regulation 28(1) (b) of the CERC (Terms and Conditions of Tariff)Regulations, 2014 stipulates the Interest on Working Capital allowed for open cycle gas turbine/combined cycle thermal generating stations as extracted below.*

*"**28. Interest on Working Capital :**(1) The working capital shall cover:*
(b) Open-cycle Gas Turbine/Combined Cycle thermal generating stations

(i) Fuel cost for 30 days corresponding to the normative annual plant availability factor, duly taking into account mode of operation of the generating station on gas fuel and liquid fuel;

(ii) Liquid fuel stock for 15 days corresponding to the normative annual plant
availability factor, and in case of use of more than one liquid fuel, cost of main liquid fuel duly taking into account mode of operation of the generating stations of gas fuel and liquid fuel;

(iii) Maintenance spares @ 30% of operation and maintenance expenses specified in Regulation 29;

(iv) Receivables equivalent to two months of capacity charge and energy charge for sale of electricity calculated on normative plant availability factor, duly taking into account mode of operation of the generating station on gas fuel and liquid fuel; and

(v) Operation and maintenance expenses for one month."

4) *As extracted above, as per CERC (Terms and Conditions of Tariff) Regulations, 2014, a generator is allowed working capital corresponding to the cost of fuel for generation corresponding to 30 days and liquid fuel stock for 15 days taking normative annual plant availability factor.*

5) *Further, as per regulation 28(2), the cost of fuel computed as above for working capital is based on the landed cost incurred (taking into account normative transit and handling losses) by the generating*

company and gross calorific value of the fuel as per actual for the three months preceding the first month for which tariff is to be determined and no fuel price variation shall be provided during the tariff period.

The relevant regulation is quoted below.

"(2) The cost of fuel in cases covered under sub-clauses (a) and (b) of clause (1) of this regulation shall be based on the landed cost incurred (taking into account normative transit and handling losses) by the generating company and gross calorific value of the fuel as per actual for the three months preceding the first month for which tariff is to be determined and no fuel price escalation shall be provided during the tariff period."

6) *Hence the interest on working capital claimed for the entire tariff period 2014-19 for RGCCPP is based on the cost of fuel, in this case, Naphtha for the preceding three months of the tariff period 2014-19 starting from April 2014. In other words the weighted average price and GCV of naptha for the months January-2014, February 2014 and March 2014 have been taken for computation of the working capital.*

7) *The price of naptha that prevailed during the months January-2014, February 2014 and March 2014 were very high as tabulated below.*

	Jan-14	*Feb-14*	*March-14*
Weighted price of naptha (Rs/MT)	*71076*	*71114.44*	*70631.45*

8) *KSEBL, in the counter affidavit to the tariff petition filed by NTPC for RGCCPP, had submitted before CERC that the norms on working capital may be relaxed for RGCCPP, Kayamkulam treating the same as a special case as the plant is very rarely scheduled and had prayed that the working capital requirement of RGCCPP Kayamkulam may be assessed considering:*

- *the average actual PLF of the RGCCPP during last three years.*
- *the prevailing price of Naphtha may be used for assessing working capital.*
- *Considering the excessive price of Naptha, the fuel may be arranged based on the scheduling proposals of KSEBL.*

- *Year end true-up may be allowed based on the quantum and price of fuel stocked.*

9) *KSEBL had also presented the facts before CERC in the hearings on the tariff petition through legal counsel. However, the prayer of KSEBL was not considered by CERC while issuing the tariff order.*

10) *It is submitted that eventhough the norms specified in the regulation are ceiling norms and Regulation 47 of the CERC (Terms and Conditions of Tariff) Regulations, 2014 allows for adopting improved norms, the improved norms have to be agreed to by the generating company and cannot be imposed.*

11) *KSEBL is in the process of negotiations with top management of NTPC for arriving at improved norms for working capital and lower AFC for RGCCPP.*

12) *Since the tariff order issued by CERC is in line with the provisions in the tariff regulations, there is little chance for obtaining favourable orders for KSEBL, if the tariff order is challenged before higher judicial forums. Further, filing of appeal against the tariff order will adversely affect the ongoing process of mutual negotiations. It is also submitted that though NTPC claimed the higher AFC as ordered by CERC from KSEBL, the monthly payment is restricted to the AFC that existed prior to the tariff revision."*

<u>Analysis of the Commission</u>

7. The Commission has, in its letter dated 04.11.2016, informed KSEB Ltd and the State Government about the inevitability of getting approval of the Commission for the purchase of power by any distribution licensee including KSEB Ltd, as per clause (b) of sub-section (1) ofSection 86 of the Electricity Act, 2003 which stipulates as follows,-

> ***"86 Function of State Commission.*** *(1) (b) regulate electricity purchase and procurement process of distribution licensees including the price at which electricity shall be procured from the generating companies or licensees or from other sources through agreements for purchase of power for distribution and supply within the State."*

It can easily be seen that the Commission has the duty and authority to regulate the purchase of power by a distribution licensee, including the procurement process and the price at which electricity shall be procured from the generating companies or licensees or from other sources. This is absolutely necessary to safeguard the interest of the consumers from the adverse consequences of irregular purchase of power at high cost. As per clause (a) of sub-section (1) of Section 79, the Hon’ble CERC has power to regulate the tariff for generating companies owned or controlled by the Central Government. RGCCPP Kayamkulam, being a unit of the generating company namely, NTPC, which is owned and controlled by the Central Government, the Hon’ble CERC is the authority to determine the tariff of power generated in RGCCPP Kayamkulam. RGCCPP can sell its power to any distribution licensee or consumer or trader in any state, at the maximum ceiling rate approved by the Hon’ble CERC or at lower rates. If any distribution licensee in the State decides to purchase such power, the State Electricity Regulatory Commission has to necessarily approve such purchase of power. This legal position is squarely applicable to the purchase of power by KSEB Ltd from RGCCPP as well.If any consumer or trader purchases power from RGCCPP, no such approval is required from the Commission. Thus the powers of the Hon’ble CERC with regard to determination of tariff and the powers of the Commission with regard to regulation of power purchase and procurement processes of distribution licensees, are independent and mutually exclusive. The Commission has the statutory duty to safeguard the interest of consumers in the State and therefore the Commission is duty bound to point out the matters which would adversely affect the interest of the consumers of State and to take appropriate remedial measures to safeguard the interest of the consumers. Cost of power purchase is an uncontrollable item of expenditure as per the provisions of KSERC (Terms and Conditions for Determination of Tariff) Regulations, 2014. Therefore, any amount paid to RGCCPP in terms of the renewed PPA will become a burden to the consumers of the State. As per regulation 47 of the CERC (Tariff) Regulations, 2014, the tariff fixed is only the normative maximum and the generating company and distribution licensee are free to negotiate and agree at a lower rate. Further in the past, NTPC along with the concurrence of Government of India used to allot equal quantum of cheaper power to compensate KSEB Ltd for the huge loss on account of payment of fixed charges to RGCCPP without availing power therefrom. It was in view of the above facts and circumstances, the Commission had directed KSEB Ltd to negotiate with the NTPC and the Central Government to reduce the fixed cost liability of the plant based on the fact that the interest on working capital as approved by the Hon’ble CERC is not actual expenditure incurred by RGCCPP, and that it is only notional and normative. However, no fruitful result of such negotiations based on the directions issued by the Commission, has so far been communicated.

8. The Hon'ble CERC has been determining the tariff of generating stations and transmission licensees as per the Tariff Regulations notified by it from time to time read with clause (b) to sub-section (1) of Section 79 of the Electricity Act, 2003. The Hon'ble Central Commission has, vide the notification No. L-1/144/2013/CERC dated 21st February 2014, notified the CERC (Terms and Conditions of Tariff) Regulations, 2014, (hereinafter referred as CERC Tariff Regulations, 2014) for the control period 1st April-2014 to 31st March-2019. The said regulation contains the general provisions for determination of tariff.The generation tariffs of all generating stations owned and controlled by Central Government including, RGCCPP Kayamkulam, are also being determined based on the general tariff norms specified in the CERC Tariff Regulations, 2014.The CERC Tariff Regulationsdo not contain provisions to deal with peculiar problems of individual naphtha based power stations, such as RGCCPP Kayamkulam, which is not generally scheduled for generation of power in view of the prohibitive cost of naphtha.

9. The Hon'ble CERC has, vide the order dated 27th October-2016 in petition No. 269/GT/2014, approved the tariff of the RGCCPP Kayamkulam plant for the period from 1st April-2014 to 31st March-2019. A comparison of the components of annual fixed cost approved for the tariff period2014-15 to 2018-19 with the components approved for the previous tariff period 2009-10 to 2013-14 is given below.

Year	Depreciation	Interest on loan	Return on equity	O&M exp	Interest on working capital	Total
	(Rs.Cr)	(Rs.Cr)	(Rs.Cr)	(Rs.Cr)	(Rs.Cr)	(Rs.Cr)
Tariff period 2009-10 to 2013-14						
2009-10	61.77	8.99	87.02	53.22	48.12	259.12
2010-11	61.94	5.16	86.04	56.27	48.24	257.65
2011-12	62.06	2.88	85.06	59.47	48.51	257.98
2012-13	19.18	0.95	85.06	62.89	47.69	215.77
2013-14	19.27	0.32	87.08	66.49	47.97	221.12
Tariff period 2014-15 to 2018-19						
2014-15	19.32	0.00	72.77	52.80	139.86	284.74
2015-16	19.36	0.00	73.14	56.11	140.33	288.93
2016-17	19.36	0.00	73.14	59.63	140.38	292.51
2017-18	19.46	0.00	73.19	63.37	140.67	296.69
2018-19	19.58	0.00	73.24	67.36	140.98	301.16

From the above data it can easily be seen that,-

(i) NTPC had been claiming accelerated depreciation till 2011-12 and thereafter the depreciation has been more or less constant from 2012-13 to 2017-18.

(ii) the interest on loan (capital liabilities) has been gradually coming down and it has become zero from 2014-15, thereby indicating that the entire loan has been fully repaid.

(iii) the return on equity has also come down slightly during the recent years.

(iv) the O&M expenses have also been varying in the range of Rs.52.80 crore to Rs.67.36 crore, and

(v) the interest on working capital has suddenly increased disproportionately from about Rs.47 crore per annum to more than Rs.140 crore per annum.

It has to be specially noted that, though the RGCCPP Kayamkulam plant is almost nearing completion of its useful life and the capital liabilities have been fully repaid, the interest on working capital has sky-rocketed during the current tariff period from 2014-15 to 2018-19, when compared to the tariff payable during the previous tariff period. In absolute terms, the annual increase of fixed charges is from the average annual fixed cost of Rs.218.44 crore to Rs.292.81 crore, resulting in an increase of about Rs.74.37 crore per annum. This is a matter of serious concern to the poor consumers of Kerala, who had hither to, been supporting this plant without commensurate benefits therefrom. Therefore the Commission is constrained to undertake a closer examination of the issue in performance of its duties under Section 86 (1) (b) of the Act.

10. On a closer item wise examination of the components of tariff approved by the Hon'ble Central Commission, it canbe seen that, there is an abnormal increase on the interest on working capital approved for the tariff period 2014-19. The annual average of the interest on working capital approved for the previous tariff period was Rs 47.83 crore, whereas the sameapproved for the current tariff period 2014-15 to 2018-19 is Rs.140.44 crore, i.e., the interest on working capital approved for the current tariff periodis exorbitantly higher, by about Rs.92.61 crore when compared to the interest on working capital approved for the previous tariff period.

11. The Hon'ble Central Commission has approved the interest on working capital for the RGCCPP Kayamkulam as per the ceiling norms specified under Regulation 28(1)(b), 28(2) and 28(3) of the CERC Tariff Regulations, 2014, which are extracted below.

*“**28. Interest on Working Capital :**(1) The working capital shall cover:*

(b) Open-cycle Gas Turbine/Combined Cycle thermal generating stations

(i) Fuel cost for 30 days corresponding to the normative annual plant availability factor, duly taking into account mode of operation of the generating station on gas fuel and liquid fuel;

(ii) Liquid fuel stock for 15 days corresponding to the normative annual plantavailability factor, and in case of use of more than one liquid fuel, cost of main liquid fuel duly taking into account mode of operation of the generating stations of gas fuel and liquid fuel;

(iii) Maintenance spares @ 30% of operation and maintenance expenses specified in Regulation 29;

(iv) Receivables equivalent to two months of capacity charge and energy charge for sale of electricity calculated on normative plant availability factor, duly taking into account mode of operation of the generating station on gas fuel and liquid fuel; and

(v) Operation and maintenance expenses for one month.”

28 (2) The cost of fuel in cases covered under sub-clauses (a) and (b) of clause (1) of this regulation shall be based on the landed cost incurred (taking into account normative transit and handling losses) by the generating company and gross calorific value of the fuel as per actual for the three months preceding the first month for which tariff is to be determined and no fuel price escalation shall be provided during the tariff period.

28(3) Rate of interest on working capital shall be on normative basis and shall be considered as the bank rate as on 1.4.2014 or as on 1st April of the year during the tariff period 2014-15 to 2018-19 in which the generating station or a unit thereof or the transmission system including communication system or element thereof, as the case may be, is declared under commercial operation, whichever is later.”

12. (a) The Hon’ble CERC has adopted the following normative values for arriving at the working capital requirement.

(i) Normative plant availability factor - 85%

(ii) Weighted average rate of fuel - Rs 70948.40/MT

(iii) Variable cost (rate of energy) - Rs 12.79/unit.

(b) The Hon’ble Central Commission hasthus adopted the target availability of 85% as the actual plant availability factor and the fuel cost at Rs.70948.40/MT for arriving the following components of the working capital requirementsofRGCCPP Kayamkulam of NTPC.

(i) Fuel cost of 30 days at 85% target availability and at the cost of fuel at the rate of Rs.70948.40/MT
(ii) Liquid fuel stock for 15 days at 85% target availability and at the cost of fuel at the rate of Rs.70948.40/MT
(iii) Two months energy charge for sale of electricity calculated on normative plant availability factor of 85% and also adopting the energy charge at the rate of Rs 12.79/unit, (energy charge corresponding to the fuel cost at Rs 70948.40/MT).

(c) The Hon’ble CERC has arrived atthe fuel cost for 30 days and liquid fuel stock of 15 days at 85% normative maximum PLF,as detailed below.

Particulars	Quantum of fuel at 85% availability	Rate of Fuel	Fuel cost
	(MT)	(Rs/MT)	(Rs. Cr)
Fuel stock for 30 days	39007.26	70948	274.47
Liquid fuel stock of 15 days	19503.63	70948	137.24
Total	58510.89		411.71

(d) The Hon’ble CERC has also determined the energy charges receivable for two months at the normative maximum availability of 85% and at the cost of fuel at the rate of Rs.70948/MT as given below.

One month generation at the target availability of 85%	217.54 MU
Average variable cost at the rate of Rs.70948/MT	Rs.12.79 / unit
Energy cost for two months (217.54 x 2 x 12.79 x 10^6)	Rs.556.55 Cr

13. It can be found that the above figures adopted by the Hon’ble CERC are only notional and normative with absolutely no relation with the reality in the field, as can be seen from the real facts and figures which are given below.The Commission has collected the abstract of the average stocks of naphtha maintained at RGCCPP Kayamkulam during the FY 2014-15, 2015-16 and 2016-17 till December-2016, whichare given below.

Year	Avg.stock of naphtha (MT)	Price of naphtha (Rs/MT)
2014-15	23739	62555
2015-16	21005	43632
2016-17	16228	40347

From the above data,it can be seen that, the actual stock of naphtha maintained at RGCCPP Kayamkulam has been much less than the normative quantity of 58510.89 MT, which has been adopted by the Hon'ble CERC for assessing the working capital. Further, the actual presentaverage price of naphtha isonly Rs.40347/MT which is also much less than the price of Rs.70948/MT, adopted by the Hon'ble Central Commission, in assessing the working capital requirement.

14. The abstract of actual scheduling of power from RGCCPP Kayamkulam including sale to other States at actual variable cost plus comfort charges is detailed below.

Year	Total generation (MU)	Average PLF (%)	Avg. variable cost (Rs/ kWh)
2011-12	486.36	15.42%	10.08
2012-13	1509.57	47.87%	11.14
2013-14	947.15	30.03%	12.13
2014-15	952.64	30.21%	10.61
2015-16	138.90	4.40%	6.73
2016-17	14.93	0.47%	6.51

From the above details, it can be seen that, in reality, KSEB has been scheduling only as minimum quantity of power as possible from RGCCPP Kayamkulam for meeting the power requirements of the State, especially during 2015-16 and 2016-17. It should also be noted that the generation capacity of the nation is more than 3 lakh MW whereas the peak demand is only about 1.6 lakh MW. Consequently, the price of electricity in the national market has come down drastically. Therefore there is little chance to schedule more power from RGCCPP in the current year or in the ensuing years at the present prohibitive cost of naphtha. Therefore it is only just and reasonable that the actual cost of energy paid by KSEB Ltd in the previous years is considered for working out the energy charges receivable for two months, for the purpose of assessing the working capital. The actual energy charges paid by KSEB Ltd during 2015-16 and 2016-17 are given below.

Financial year	Energy charges paid (Rs. in crore)
2015-16	105.50
2016-17	10.43

From the above facts it can be found that the average monthly bill of RGCCPP at an average of Rs 4.83 crore and the average amount of energy charges receivable for two months would only be Rs 9.66 crore as against the amount of Rs.556.55 crore adopted by the Hon'ble CERC for assessing the working capital, the details of which are given in earlier paragraphs.

15. The rate of interest adopted by the Hon'ble CERC for assessing the interest on working capital is 13.50% (bank rate 10.00+ 350bps as given in the order of the Hon'ble CERC). But the rate of interest for loans and overdrafts have come down considerably during the past few months and it is only in the range of 10.25%. In view of the financial reforms and economic development in our nation, the rate of interest is not likely to increase. Therefore it is only just and reasonable to adoptthe present rate of interest for assessing the interest on working capital.

16. The Hon'ble CERC has formulated the norms for determining interest on working capital, based on the conditions in a continuously working generating station. The normative PLF fixed for thermal stations is 85%. For achieving the PLF of 85%, the generating unit has to work continuously throughout the year, except during the period of scheduled annual maintenance. Such continuously running plants will have to procure and stock fuel required for 45 days as specified normatively by the Hon'ble CERC in the CERC Tariff Regulations, 2014. But in the case of RGCCPP the situations are totally different. Due to prohibitive cost of naphtha, the actual PLF was only 4.40% in 2015-16 and 0.47% in 2016-17. Similarly the actual average stocks of naphtha maintained by RGCCPP were only 21005MT and 16228MT respectively during 2015-16 and 2016-17. There is no need to increase the stock of naphtha from the present level of 16228MT. The price of naphtha has come down to about Rs.40000 / MT. The cost of 16228MT of naphtha at the rate of Rs.40342/MT is only is Rs.65.47 crore. It is only just and reasonable that the cost of present stock of 16228 MT of naphtha estimated at Rs.65.47 core, considering the present priceof Rs.40342/MT, is adopted for determining the working capital.

17. The energy charges for two months are included in the working capital on the basis of the following rationale. The generating company has to take the reading, assess the quantum of electricity supplied to the distribution licensee during the

previous month, prepare the bill and prefer the claim for the electricity supplied. For completing the above formalities it is only natural to take 5 to 10 days. Further, the distribution licensee has to be given a grace period of about 15 days for remittance of the amount. It is with a view to compensating the generating company for the normal delay in realizing the energy charges, two months energy charges receivable are included in the working capital. Here in the case of RGCCPP, the actual average monthly bill for energy charge is only Rs.4.83crore. The two parameters namely the average quantum of 217.54 MU of electricity at 85% PLF and the average variable cost of Rs.12.79 / unit adopted for calculation for two months energy charges are not at all realistic. Therefore it is just and reasonable that the actual monthly average bill amount is adopted to assess the energy charges for two months.

18. It is under these facts and circumstances the relevance of regulation 47 of the CERC Tariff Regulations, 2014 assumes greater importance. Hon'ble CERC has, in Regulation-47 of the CERC Tariff Regulations, 2014, categorically specified that, the norms specified in the said Regulations, are only ceiling norms and that the generating company and beneficiaries are free to agree mutually for better and improved norms for tariff determination. The said regulation, is extracted below,-

> **"*47. Norms to be ceiling norms:*** *Norms specified in these regulations are the ceiling norms and shall not preclude the generating company or the transmission licensee, as the case may be, and the beneficiaries and the long-term transmission customers /DICs from agreeing to the improved norms and in case the improved norms are agreed to, such improved norms shall be applicable for determination of tariff*."

From the above regulation, it is clear that NTPC and KSEB Ltd are free to negotiate and bring down the fixed charges and to work out a win-win strategy without any undue enrichment to either party.

19. The history of RGCCPP itself is a classic example of mutual cooperation among Government of India, Government of Kerala, NTPC and KSEB for working out win-win strategy to tide over even more difficult situations. The price of naphtha in the international market had been steadily sky-rocketing from Rs.6000 per MT, to the alarming rate of about Rs 70000 per MT during 2012-13.In view of the consequent prohibitive cost of power from RGCCPP Kayamkulam, KSEB was not in a position to schedule power from it. At the same time KSEB had to bear the burden of huge fixed cost of the plant which was around to Rs.200 crore per annum in those days. Such a huge fixed cost was not bearable for a small utility like KSEB, of which more than 80% of the consumers were in domestic category, consuming more than 50% of the energy. In view of the prohibitive cost of power

from RGCCPP, the southern states did not approve the proposal to make RGCCPP a regional station. Subsequently KSEB and TNEB had agreed to share 180 MW each, subject to the condition that NTPC with concurrence of Government of India would allot equal quantity of cheaper power, to bring the cost of bundled power within merit order. This arrangement had continued during the period from January 2003 to August 2011. When the power position in Tamil Nadu improved, consequent to commissioning of Koodamkulam nuclear power station and large number of wind generating stations, the above arrangement was discontinued. Now the entire burden of fixed charge has to be borne by KSEB Ltd and therefore it is only just and reasonable that the 180 MW of cheaper power which was allotted to TNEB, is re-allotted to KSEB Ltd, in addition to the 180 MW of cheaper power which had been allotted to it earlier. Such an arrangement would be a win-win strategy, which would give considerable relief to KSEB Ltd, without any hardship or financial loss to NTPC.

20. While considering the suggestions of this Commission, the peculiar problems faced by the State of Kerala and KSEB Ltd do deserve special consideration.

(a) Kerala is a state without any known reserve of gas or coal. There is no coal based thermal power station in the State. Being the most thickly populated State, it would be difficult to commence a coal based thermal plant or a nuclear plant in the state. Therefore, the benefits of coal linkages as per the UDAY scheme cannot be availed by the State Government and KSEB Ltd, though they have executed MoU for the said scheme.

(b) In view of the fact that the Western Ghat is a biodiversity hotspot declared by IUCN, the scope for implementing medium or large scale hydro-electric projects is also not bright. The bio diversity in Western Ghats is being conserved by the State for the benefit of the entire people of the world. Many hydro-electric projects such as Silent Valley, Pooyamkutty, Athirapally and Achencoil could not be implemented so far. It was in view of the above facts, the project for naphtha based RGCCPP was implemented in the State. Unfortunately the cost of naphtha has increased alarmingly beyond expectation, making the said plant almost defunct. In view of the prohibitive cost of naphtha as explained earlier, the State could not avail the benefit of such project. On the other hand KSEB Ltd has been constrained to bear the prohibitively high fixed cost of the project.

(c) Though Government of India had introduced a scheme to revive gas based thermal power plants by making available cheaper domestic gas, KSEB Ltd could not avail any benefit of such scheme since RGCCPP was naphtha based.

Therefore KSEB Ltd, which has sustained huge financial loss on account of payment of fixed charges to RGCCPP without any commensurate benefits, deserves special consideration by Government of India and NTPC.

21. Two of the major objects of the Electricity Act, 2003, is to promote competition with a view to bringing down the cost of energy and thereby providing electricity to every citizen of this country at affordable rates and to protect interests of consumers. It was with these objects in view, generation was de-licensed and mandatory open access to the transmission and distribution system was introduced. There have been salutary results in the field of generation and transmission of power.As on date the total generation capacity of the country is more than 3.1 lakh MW as against the peak demand of about 1.6 lakh MW. Previously thegrids of individual States used to have separate frequency. Due to large scale development of inter-regional transmission systems and inter-state transmission lines, the dream of National Grid has become a reality. As a first step towards this, the NEW grid was made operational as early as in August-2006 Now, after the commercial operation of 2x765kV Raichur- Sholapur transmission lines, the congestion between the NEW grid and the southern grid has been minimized, paving the way for National Grid. The increase in generation and transmission capacity has brought down the rates of energy considerably. This can be seen from the average rates of energy transaction done at IEX at S2 region, (Tamil Nadu and Kerala) which are given below.

Year	Average rates of energy in IEX at S2 Region (Rs/ kWh)
2012	7.29
2013	6.15
2014	6.61
2015	4.92
2016	2.81

There is no chance for increase in the rates of power in the near future, in view of the increase in availability of power and in capacity for inter-state transmission.

22. It should also be noted that the rate of solar power in the recent national tender invited in Madhya Pradesh has come down to Rs.2.97 per unit. As per the provisions in the Tariff Policy, 2016 and the directives issued by Government of India, the distribution licensee which uses the transmission capacity of the inter-state transmission lines, need not pay any transmission charges or transmission

losses. By purchasing power at such lower rates, KSEB Ltd can avail the benefit of meeting its solar RPO as well.

23. The Commission has considered the data relating to purchase of power by KSEB Ltd from other NTPC stations in the recent past, the details of which are given below.

Cost of purchase of power from Ramagundam STPS

Year	Energy purchased (MU)	Fixed charge (Rs.Cr)	Variable cost (Rs.Cr)	Cost/unit (Rs/unit
2012-13	2313.33	155.04	424.87	2.51
2013-14	2312.73	160.69	532.05	3.00
2014-15	2570.53	165.08	654.42	3.19
2015-16	2497.74	166.11	607.10	3.10
2016-17	2072.18	133.83	458.36	2.86
	11766.50	780.75	2676.80	2.94

Cost of purchase of power from Talcher II STPS

Year	Energy purchased (MU)	Fixed charge (Rs.Cr)	Variable cost (Rs.Cr)	Cost/unit (Rs/unit
2012-13	2797.25	234.27	407.78	2.30
2013-14	2882.00	239.63	436.37	2.35
2014-15	3183.53	253.02	480.42	2.30
2015-16	3179.79	247.68	443.82	2.17
2016-17	2803.44	216.43	475.71	2.47
	14846.01	1191.02	2244.10	2.31

Cost of power purchase from Simhadri TPS

Year	Energy purchased (MU)	Fixed charge (Rs.Cr)	Variable cost (Rs.Cr)	Cost/unit (Rs/unit
2012-13	405.05	73.1	83.53	3.87
2013-14	644.07	113.02	158.72	4.22
2014-15	736.64	121.85	199.99	4.37
2015-16	780.52	117.99	202.65	4.11
2016-17	608.81	93.23	169.26	4.31
	3175.09	519.18	814.16	4.20

Cost of power purchase from Vallur TPS

Year	Energy purchased (MU)	Fixed charge (Rs.Cr)	Variable cost (Rs.Cr)	Cost/unit (Rs/unit
2014-15	187.59	34.72	37.56	3.85
2015-16	233.51	41.52	48.45	3.85
2016-17	280.23	50.55	70.26	4.31
	701.3159	126.7915	156.2677	4.036116

The total cost and average cost of power purchase from NTPC

Year	Energy purchased (MU)	Fixed charge (Rs.Cr)	Variable cost (Rs.Cr)	Average cost (Rs/unit
2012-13	5515.63	462.41	916.18	2.50
2013-14	5838.80	513.34	1127.14	2.81
2014-15	6678.28	574.67	1372.40	2.92
2015-16	6691.55	573.30	1302.02	2.80
2016-17	5764.65	494.03	1173.58	2.89
	30488.91	2617.74	5891.33	2.79

From the above details it can be seen that the average cost of power purchase by KSEB Ltd from NTPC stations has been in the range of Rs.2.50 per unit to Rs.2.92 per unit. It would be desirable if NTPC allots cheaper power to make the bundled cost in the above range.

24. As already indicated, the actual plant load factor of RGCCPP has been extremely low when compared to the normative availability factor of 85%. In view of the demand – supply position of energy in our nation, there is little chance to schedule power from RGCCPP on a regular basis, in the near future. Therefore only minimum staff need be posted at RGCCPP. There is enough scope to minimize the administrative and general expenses as well. The need for replacement of spares will also be minimum.

25. Thus it can easily be found that there is enough scope for optimizing the fixed cost of RGCCPP if actual figures relating to generation of energy, cost of naphtha, rate of interest, etc are adopted for working out the interest on working capital and if the administrative and general expenses, the employee cost and the R&M expenses are optimized. The Commission is of the view that it is only just and reasonable to adopt actual average figures of the present stock of naphtha, the present price of naphtha and the present rate of interest for assessing the interest on working capital. Further, the administrative and general expenses, the employee cost and the R&M expenses should also be optimized to minimize the fixed cost of the plant as much as possible.

26. In this regard it should also be specifically noted that adoption of actual figures as suggested above by this Commission will not result in any financial loss to RGCCPP. On the other hand, if the exorbitant normative values are adopted it will result in undue enrichment of RGCCPP by realizing expenditure without actually incurring it. It is also most pertinent to note that such undue enrichment can only be at the cost of the poor consumers of the State. The Commission is sure that, NTPC being a Maharatna Company of the nation with a generation capacity of more than 41684 MW, will not be interested in making undue

enrichment. Further the Commission is also sure that the Hon'ble CERC will also not insist on such undue enrichment to NTPC at the cost of the poor consumers of the State. Regulation 47 of the CERC (Tariff) Regulations, 2014 do also provide for working out more efficient rates compared to the normative maximum rates fixed in accordance with the regulations.

27. Therefore, in the best interest of the consumers of the State and also without causing any financial loss to RGCCPP Kayamkulam of NTPC, this Commission recommends to re-work the working capital requirement of RGCCPP as below.

(1) The actual stock of naphtha at RGCCPP- Kayamkulam, which is only about 16228MT may be adopted for computing the working capital requirement.

(2) The cost of fuel adopted by the CERC is Rs 70948/MT. However, since January 2015 to January 2017, the cost of Naphtha is only in the range of Rs 27000/MT to Rs 45000/MT. The present actual weighted average cost of naphtha available at RGCCPP Kayamkulam is only Rs 40347 /MT as shown in the table below.

Particulars	Quantum (MT)	Rate of Fuel (Rs/MT)	Fuel cost (Rs. Cr)
Fuel stock & Liquid fuel stock (Regulation 28(1)(b) of the CERC Tariff Regulations, 2014	16228.00	40347.00	65.48

Therefore the above actual weighted average cost of naphtha may only be used for working out the cost of the actual stock of 16228 MT of naphtha.

(3) During the year 2016-17, the energy scheduled from the plant is only 14.93 MU @PLF of 0.47%. It may be noted that, the year 2016-17 is one of the worst monsoon year in the recent history in the State. In the coming years alsothere may not be any need to schedule power from RGCCPP for meeting the power requirement of the State. The actual average monthly bill paid by KSEB Ltd to RGCCPP during the last two years towards energy chargeis only Rs 4.83 crore. It is therefore recommended that the actual average bill for two months assessed at Rs.9.66 crorefor the last two years as shown in the table below, may be adopted in place of the two months energy cost of Rs. 556.55 crore adopted by Hon'ble CERC for calculation of working capital.

Particulars	Amount (Rs. Cr)
Actual average energy bill for two months (for the last two years 2015-16 & 2016-17)	9.66

(4) The rate of interest adopted by the Hon'ble CERC for assessing the interest on working capital is 13.50% (bank rate 10.00+ 350bps). But the rate of interest for loans and overdrafts have come down considerably during the past few months and it is only in the range of 10.25%. Hence the interest rate @10.25% may be adopted for assessing the interest on working capital requirement.

(5) The administrative and general expenses, the employee cost and the R&M expenses may be minimized to the extent possible.

28. Thus, if earnest attempts are made by NTPC Ltd and KSEB Ltd, in view of the provisions in regulation 47 of the CERC (Tariff) Regulations, 2014, the working capital requirement and interest on working capitalcan be reduced as indicated below to work-out a win-win situation in the best interest of the consumers of the State and to protect the interest of RGCCPP Kayamkulam plant without any financial loss.

	Particulars	CERC order @ceiling norms	Proposed by KSERC
		(Rs. Cr)	(Rs. Cr)
1	Fuel cost- 30 days	274.47	
2	Liquid fuel stock-15 days	137.23	65.48
3	Maintenance spares	15.84	15.84
4	Variable charges- 2 months	556.55	9.66
5	Fixed charge -2 months	47.45	29.00
6	O&M expenses-1 month	4.40	4.40
	Total	1035.94	124.38
	Rate of interest	13.50%	10.25%
	Interest on working capital	139.85	12.75

29. The order of the Hon'ble CERC has created an anomalous and ironical situation. Because of the prohibitive cost of naphtha, the RGCCPP has become practically defunct, just like many other naphtha based power plants in the Country. No licensee or consumer or trader can afford to purchase electricity from RGCCPP at the present exorbitant rate. Therefore the plant is working only sparingly. Though the plant is working sparingly, the interest on working capital has increased exorbitantly, since notional generation at 85% PLF and the exorbitant notional price of naphtha have been adopted to assess the interest on working capital. Thus the very cause of exorbitant price of naphtha which has made the RGCCPP practically defunct, has become the means for availing undue advantage and enrichment by NTPC Ltd.

30. Unless the fixed cost of RGCCPP is minimized and equal quantity of cheaper power is additionally allotted to KSEB Ltd, as recommended by the Commission, which is duty bound to protect the interest of the consumers of the State, the Commission will be constrained to withhold the approval for purchase of power as per the renewed PPA.

31. In this regard the following facts also deserve special consideration. The total capital cost of RGCCPP was Rs.1250.79 crore. KSEB Ltd has already paid an amount of Rs. 948.56 crore by way of depreciation, the details of which are given below,-

Depreciation paid by KSEB Ltd for RGCCPP

Year	Depreciation (Rs. in crore)
1998-1999	
1999-2000	34.61
2000-2001	77.63
2001-2002	65.64
2002-2003	65.64
2003-2004	65.64
2004-2005	70.19
2005-2006	73.24
2006-2007	74.88
2007-2008	82.00
2008-2009	56.61
2009-2010	61.77
2010-2011	61.94
2011-2012	62.06
2012-2013	19.18
2013-2014	19.27
2014-2015	19.32
2015-2016	19.36
2016-2017	19.58
Total	948.56

The depreciated value of the project as on 01-04-2017 is only about Rs.300 crore which is almost equal to one year's fixed charge as assessed by the Hon'ble CERC. Therefore it would be worthwhile to take over the plant paying the depreciated value as indicated above, if the recommendations of the Commission to minimize the fixed charges of RGCCPP and to allot 360 MW of cheaper power are not acceptable to NTPC Ltd to work out, in the best interest of the consumers of the State, a win-win situation to both NTPC Ltd and to KSEB Ltd.

Order of the Commission

(1) The request of KSEB Ltd to approve payment of fixed charges as assessed by the Hon'ble CERC is declined.

(2) KSEB Ltd is directed to negotiate with NTPC Ltd and to work out minimum fixed charges payable for RGCCPP, in view of the facts, the statutory provisions and the financial propriety explained above.

(3) KSEB Ltd is directed to obtain 360 MW of cheaper power to bring the cost of power to the range of Rs.2.50 to Rs.2.92 per unit.

(4) If the recommendations for minimizing the fixed cost of RGCCPP and for allotting 360 MW of cheaper power are not acceptable to NTPC Ltd, the scope for taking over the plant by paying its depreciated value shall be explored and reported.

The Commission does earnestly hope that both NTPC Ltd and KSEB Ltd which had jointly worked out practical solutions for even more difficult problems in impecunious situations, would join hands with the active support of the State and Central Governments to work out win-win situation in the best interest of the utilities and the consumers. Copies of this order may be furnished to RGCCPP, Kayamkulam, the Additional Chief Secretary, Power Department, Government of Kerala and to the Secretary, Ministry of Power, Government of India.

Dated this, the 27th day of April, 2017.

Sd/-	Sd/-	Sd/-
K.Vikraman Nair	**S.Venugopal**	**T.M.Manoharan**
Member	**Member**	**Chairman**

Approved for issue,

Santhosh Kumar.K.B