KERALA STATE ELECTRICITY REGULATORY COMMISSION
THIRUVANANTHAPURAM

Present : Shri. T.M. Manoharan, Chairman
Shri. Mathew George, Member

Original Petition No. 9/2014

In the Matter of

ARR & ERC of the Kerala State Electricity Board Limited for 2014-15 and Revision of Tariff – Approval of Open Access Charges, Meter Rent, Pooled Cost of Power Purchase and Cost at Voltage Model.

Order dated 30.09.2014

1. KSEB Ltd has, on 18-06-2014, submitted the additional proposal for approval of the open access charges, meter rent and the pooled cost of power purchase. It was submitted as an addendum to the original petition dated 15-05-2014 for the approval of Aggregate Revenue Requirement (ARR), Expected Revenue from Charges (ERC) and tariff for the financial year 2014-15. The details of the said additional proposal and the decisions of the Commission thereon are given below:

Transmission & Wheeling charges:

2. The KSEB Ltd in its petition dated **18-06-2014** stated that though the Regulation 38 of the KSERC (Connectivity and Intra State Open Access) Regulations, 2013 clearly specifies that all the open access consumers shall pay the transmission charges, wheeling and other charges as approved by the Commission, the said regulations do not specify the procedures for determining the transmission charges and wheeling charges. Hence KSEB has estimated the transmission charges and wheeling charges for the year 2014-15 based on the methodology approved by the Commission for the year 2013-14 for determining the transmission and wheeling charges.

3. The particulars of transmission charge proposed by KSEB Ltd based on the projections given in the petition for approval of the ARR& ERC for 2014-15 are shown below:

Table 1
Transmission Charges Proposed by KSEB Ltd for 2014-15

(1)	ARR for Transmission (Table 128 of the ARR &ERC petition)	775.21	Rs. Cr
(2)	Energy input into the System (Table 130 of the ARR)	21696.65	MU
(3)	Transmission loss (5%)	1084.83	MU
(4)	Net energy available for sale to Distribution = (2)-(3)	20611.82	MU
(5)	Transmission charges payable = (1)/(4)	0.38	Rs/unit

The transmission charge estimated by KSEB Ltd. is 38 paise per unit based on the segregated ARR for Transmission Strategic Business Unit (TSBU).

4. Wheeling Charge is calculated based on the segregated ARR of the Distribution Strategic Business Unit (DSBU), as estimated by KSEB Ltd., at Rs.3253.13 crore (excluding cost of power purchase, transmission charges) for the year 2014-15. KSEB Ltd stated in the petition dated 18-06-2014 that in order to determine the wheeling charge for the open access consumers availing supply at HT level, the ARR of DSBU has to be segregated between the 11 kV system and LT distribution system.Further, the actual value of the distribution assets of 11kV system and LT distribution system is yet to be segregated. Any under estimation of the value of the distribution assets above 11 kV may ultimately burden the LT consumers. Considering the above, KSEB Ltd proposed to adopt the 50% of the ARR of DSBU as the segregated ARR for the 11 kV distribution system (excluding LT system). Further distribution loss upto 11 KV is assumed as 7.50%. Based on the above assumptions, wheeling charges for the year 2014-15 is estimated at Rs 0.95 per unit by KSEB Ltd. The abstract of calculation done by KSEB Ltd is given below.

Table 2
Wheeling Charge proposed by KSEB Ltd for 2014-15

(1)	ARR for Distribution (excl. cost of Power Purchase and Transmission charges) (Table-129 of the ARR& ERC petition)	3253.13	Rs. Cr
(2)	ARR for 11/ 33 kV (50% of the total distribution expense)	1626.57	Rs. Cr
(3)	Energy input into the System (Table130 of the ARR)	21696.65	MU
(4)	Consumption by EHT consumers (including bulk licensees and railway traction)	2006.67	MU
(5)	Transmission loss	1084.833	MU
(6)	Energy carried by 33/ 11kV = (3)-(4)-(5)	18605.15	MU
(7)	Loss in the 11 kV/ 22 kV / 33 kV system (7.5%)	1395.386	MU
(8)	Net energy carried by 33/22/11 kV = (6)-(7)	17209.76	MU
(9)	Wheeling charges payable = (2)/(8)	0.95	Rs/unit

Thus the existing transmission and wheeling charges and those proposed by KSEB Ltd. for 2014-15, are as shown below;

Table 3
Existing and Proposed Transmission and Wheeling Charges

	Existing (paise per unit)	Proposed by KSEB Ltd (paise per unit)
Transmission charges	19	38
Wheeling Charges (HT Level only)	24	95

5. The Commission has examined in detail, the proposal of KSEB Ltd. Many prospective open access consumers have objected to the proposal of KSEB Ltd. and suggested that the open access charges are to be reasonable and should promote open access. Based on the approved level of losses of 14.5% for 2014-15, reasonable level of segregation of losses at the voltage level has to be worked out. In view of the direction of the Hon'ble APTEL in its order dated 31.05.2013 in Appeal no. 179/2013 to assess the voltage wise cost, the Commission had, in its letter no.59/CT/KSERC/2013 dated 18.06.2013 given direction to KSEB Ltd to conduct necessary studies on losses at different voltage levels. KSEB Ltd, vide letter no.KSEB/TRAC/ARR&ERC/ 2013-14/Voltage wise/1010 dated 07.01.2014 submitted a model for determining the cost of supply at different voltage levels. This model was published vide notice dated 30.01.2014 and a public hearing was conducted on 18.03.2014. In the public hearing the stake holders expressed doubts on the accuracy of data used by KSEB Ltd for estimating cost at different voltages. Accordingly the Commission had, during the public hearing itself, directed KSEB Ltd to furnish more data to substantiate their arguments. KSEB Ltd in its letter no. KSEB/TRAC/ ARR&ERC/ 2014-15/Voltage wise cost/ dated 12.08.2014 reported that the reasonable transmission loss is about 4.5 percent to 4.7 percent, that the over all loss in HT system is about 5.5 percent and that the over all loss in LT system is about 7.8 percent to 8 percent. KSEB Ltd had also submitted that the above figures of losses are based on system simulation studies conducted by it. In the absence of more reliable data, the Commission inclined to accept the transmission loss at 4.5 percent, loss at HT level at 5.50 percent and loss at LT level at 7.70 percent. The energy flow at different voltage levels as per the above assessments, is given below:

Table 4
Energy Flow at Voltage Levels

Particulars	EHT	HT	LT	
Energy injected to the system	21630	18648	14776	
Percentage of loss	4.50	5.50	7.70	14.50
Loss of energy (MU)	973	1062	1101	3136
Energy handled	20657	17586	13675	
Sale of energy	2009	2810	13675	18494
Sum of loss and sale of energy	2982	3872	14776	21630
Energy transmitted to next level	18648	14776	0	

6. Based on the above estimation, the transmission and wheeling charges have to be determined. The Commission had revised the open access charges in the tariff order dated 30.04.2013 and the methodology followed by the Commission in the said order is followed in this year also. The KSEB Ltd, in its petition for the approval of ARR and tariff for 2014-15, has used the ratio of 19.90 : 15.42 : 64.69 for segregation of ARR among GSBU, TSBU and DSBU. During scrutiny by the Commission it was found that while working out the said ratio, KSEB Ltd had included cost of fuel also as part of generation. The anomalies noted in the calculation of KSEB Ltd were rectified and the ratio was reworked as 15.07 : 16.34 : 68.59. This ratio is applied on the ARR approved by the Commission for the year 2014-15 to provisionally estimate the SBU- wise ARR. Accordingly, the provisional segregation of approved ARR for 2014-15 among GSBU, TSBU and DSBU is given in the table below:

Table 5
Split up of SBU wise Approved ARR for 2014-15

Function	Share of each function	Split up of Approved Net ARR (Rs.crore)
Generation	15.07%	494.97
Transmission	16.34%	536.68
Distribution	68.59%	2252.80
Total	100.00%	3284.45
Power Purchase and cost of fuel		6481.44
Total (Net ARR)		9765.89

Based on the above, transmission charge is assessed as given below:

Table 6
Proposed and Approved Transmission Charges

	Proposed by KSEB Ltd.	Approved by the Commission
Transmission ARR (Rs. crore)	775.21	536.68
Energy Handled (MU)	20611.82	20657.00
Transmission Charges (paise per unit)	38	26

7. The segregated ARR for DSBU is proposed by KSEB Ltd to be split up in the ratio of 50 : 50 between HT & LT levels for the purpose of estimating wheeling charge. The Commission has considered the proposal of KSEB Ltd in this regard. It is seen that the distribution system of KSEB Ltd at LT level consists of 259345 km of LT lines, 67804 no. of distribution transformers and other related installations including meters. The distribution system of KSEB Ltd at HT level consists of 53681km of 11 kV feeders and related installations. Majority of technical staff is employed for the maintenance and operation of distribution system at LT level. Further the cost of repairs and maintenance is also more for the distribution system at LT level. Therefore the ratio of 50 : 50 between HT and LT levels as proposed by KSEB Ltd does not appear to be reasonable. The ratio for segregation of the ARR of DSBU between HT and LT levels was taken as 25% and 75% respectively in the tariff order dated 25.07.2012. In view of the above facts the Commission adopts the ratio of 25 : 75 for segregation of ARR of DSBU between HT and LT levels. Accordingly, the approved wheeling charge at HT level is worked out as given below:

Table 7
Proposed and Approved Wheeling Charges

	Proposed by KSEB Ltd.	Approved by the Commission
Distribution ARR (HT Level) (Rs.crore)	1626.57	563.20
Energy Handled (MU)	17209.00	17586.00
Wheeling Charges at HT level (paise per unit)	95	32

Based on the above, the transmission charge is fixed at 26 paise per unit and wheeling charge at HT level is fixed at 32 paise per unit.

Cross Subsidy Surcharge.

8. The formula for assessing the cross subsidy surcharge as per the Tariff Policy 2006 issued by Government of India is given below:

$$S = T – [C (1+L/100) + D]$$

Where

S is the cross subsidy surcharge;

T is the tariff payable by the relevant category of consumers;

C is the weighted average cost of power purchase of top 5% at the margin excluding liquid fuel based generation and renewable power;

D is the wheeling charge; and

L is the system losses for the applicable voltage level, expressed as a percentage.

9. According to the KSEB Ltd, it cannot avoid the power purchase from costly sources considering the penalty clauses/ fixed charge commitments and minimum technical limits of the generation. Therefore, according to KSEB Ltd., it is most appropriate to consider the weighted average cost of power purchase for the year 2014-15 as 'C' for computing the cross subsidy surcharge.KSEB Ltd has stated that "the weighted average power purchase costs for the year 2014-15, excluding the liquid fuel based generation and renewable power is detailed below".

Table 8
Weighted Average Cost of Power Purchase as Proposed by KSEB Ltd. for 2014-15

Source	Energy Purchased at Generator periphery for the year 2014-15	Fixed Cost	Total Variable cost	Cost of Power Purchase
	MU	Rs. Cr	Rs. Cr	Rs. Cr
TALCHER - Stage II	3113.74	242.23	479.52	721.75
NLC- Exp- Stage-1	436.32	58.06	93.37	151.43
NLC-II- Stage-1	388.54	24.12	83.15	107.27
NLC-II- Stage-2	553.31	35.07	110.11	145.18
RSPTS Stage I & II	2359.28	150.05	504.88	654.93
MAPS	128.55	26.19	0.00	26.19
KAIGA Stg I	242.74	72.95	0.00	72.95
KAIGA Stg II	225.05	67.64	0.00	67.64
SimhadriExp	609.87	104.09	127.46	231.55
Kudamkulam	718.27	251.40	0.00	251.40

NLC - II Exp	293.93	35.27	62.90	98.17
Vallur JV with	301.81	45.27	64.89	110.16
Tuticurin JV	82.77	12.42	17.80	30.21
Jhajjar	619.88	97.50	221.17	318.67
Wind	70.43			22.12
Ullumkal	34.00			6.80
MP Steel	40.80			9.42
Irukkikkanam SHP-stage-1	11.92			3.22
Irukkikkanam SHP-stage-2	3.60			1.07
PCBL	36.00			12.60
Traders	4366.24			2491.29
Total	14637.06			5534.03
Average cost of Power Purchase				3.78

10. On scrutiny of the above table it is found that KSEB Ltd has included power purchased from wind generating units, small hydro projects and co-generation plants for computing the weighted average costs, though they have stated that the weighted average power purchase cost as per the above table is excluding "the liquid fuel based generation and renewable power". As shown in the table above, the weighted average cost of power purchase for the year 2014-15 has been estimated by KSEB Ltd. at Rs 3.78 per unit. Substituting the said value of Rs.3.78 per unit (weighted average cost of power purchase per unit excluding liquid fuel based generation, but including purchase of renewable energy) for the value of 'C'(weighted average cost of power purchase of top 5% at the margin excluding liquid fuel based generation and renewable power as stipulated in the formula in Tariff Policy 2006), KSEB Ltd has estimated the cross subsidy surcharge for EHT-1 66 kV, EHT-II 110 kV, HT-1 Industry, Railways and HT-IV commercial as detailed below;

Table 9
Cross Subsidy Surcharge Proposed KSEB Ltd. for Open Access Consumers

Category	Average Tariff	Weighted average cost of Power purchase (C)	System Losses (L)	Transmission/ Wheeling charges (D)	Cost = C(1+L/100)+D	Surcharge applicable
	Rs./kWh	Rs./kWh	(%)	Rs./kwh	Rs./kWh	Rs./kWh
EHT-66kV	6.15	3.78	4.5%	0.38	4.33	1.82
EHT-110kV	6.05	3.78	4.5%	0.38	4.33	1.72
Railways	6.21	3.78	4.5%	0.38	4.33	1.88
HT-I Industrial	6.58	3.78	7.5%	0.95	5.01	1.57
HTII Non industrial	6.88	3.78	7.5%	0.95	5.01	1.87
HT IV Commercial	9.28	3.78	7.5%	0.95	5.01	4.27

11. The Commission has examined the estimation of proposed cross subsidy surcharges by KSEB Ltd. The Commission is of the firm view that the value of 'C' in the formula stipulated in the Tariff Policy 2006 shall only be the weighted average cost of power purchase of top 5% at the margin excluding liquid fuel based generation and renewable power. The details of power purchase approved by the Commission for 2014-15 and the details of power purchase at top 5% margin based on the approved cost are given below;

Table 10
Power Purchase at 5% Margin Based on Approved cost

Source	Net Energy Input to KSEB T&D system (MU)	Total Cost (Rs. Cr)	Cost/kWh
Total Energy Input Approved	21630	6,481.43	
Energy from Hydel, LFS & RE Stations	7753	1217.77	
Power Purchase Excluding hydel, LFS & RE Stations	**13877**		
Traders Contracted	**2995**	**1737.29**	5.80
Jhajjar	600	318.67	5.31
Traders and day ahead	940	470	5.00
SimhadriExp	590	231.55	3.92
Tuticorin JV	80	30.21	3.78
Vallur JV	292	110.16	3.77
Kudamkulam	886	320.27	3.61
NLC – Exp-Stage-I	422	151.43	3.59
NLC- II Exp	285	98.17	3.44
KAIGA Stg I	235	72.95	3.10
KAIGA Stg II	218	67.64	3.10
RSPTS Stage I & II	2284	654.93	2.87
NLC-II- Stage-1	376	107.27	2.85
TALCHER - Stage II	3014	721.75	2.39
MAPS	124	26.19	2.11
5% of the Power Purchased excluding hydel, LFS and RE	**694**		

12. Thus, from the data given in the above table, it can easily be seen that, as per the approved power purchase for FY 2014-15, the power purchase at the top 5% margin excluding the liquid fuel stations and renewable energy, as envisaged in the Tariff Policy, 2006 is purchased from traders at the rate of Rs.5.80 per unit. Of the total energy requirement of 13877 MU, other than the energy from hydel, liquid fuel and renewable energy stations, the Commission has approved power purchase of 2995 MU from traders at the rate of Rs.5.80 per unit. Accordingly, the value of 'C" (the cost of power purchase at top 5% margin) is Rs.5.80 per unit for the purpose of estimating cross subsidy surcharge. The tariffs for HT and EHT consumer categories have two parts namely demand charge and energy charge. Depending upon the load factor, the average realization of revenue would vary from consumer to consumer and consumer category to consumer category. The average realization of revenue

per unit consists of energy charge per unit and the demand charge per unit depending upon the load factor. A few categories of consumers such as EHT Commercial, EHT General, HT General and HT Domestic have been formed only in the tariff order dated 14-8-2014. In such cases, the average revenue has been worked out based on assessed load factor. Therefore the average realization per unit for each category of consumer is adopted as the value of 'T' in the formula stipulated in the Tariff Policy 2006 for assessing the cross subsidy surcharge. The value of 'L' is taken as 4.5% for EHT categories and 9.4% for HT categories being the combined loss at HT & EHT levels. The value of 'D' is Rs.0.32 per unit for HT consumers (wheeling charge) and Rs.0.26 per unit for EHT consumers (transmission charge) as estimated earlier. Based on the above values of 'T' (the average tariff for different consumer categories based on approved tariff), 'C' (weighted average cost of power purchase of top 5%), 'D' (wheeling charges) and 'L' (system losses), the surcharges applicable to various categories of consumers are estimated as shown below:

Table 11
Cross Subsidy Surcharge Estimated by the Commission for 2014-15

Category	Average Tariff (T) (Rs./kWh)	Weighted Average Cost of Power purchase (C) (Rs./kWh)	System Losses (L)	Wheeling Charge (D) (Rs./kWh)	C(1+L/100)+D (Rs./kWh)	T- C(1+L/100)+D (Rs./kWh)
EHT –Industrial (66kV)	**5.94**	5.8	4.50%	26	6.32	-0.38
EHT- Industrial(110 kV)	**5.54**	5.8	4.50%	26	6.32	-0.78
EHT –Industrial (220KV)	**6.06**	5.8	4.50%	26	6.32	-0.26
EHT-Commercial	8.48	5.8	4.50%	26	6.32	2.16
EHT – General (66kV,110kV, 220kV)	**8.13**	5.8	4.50%	26	6.32	1.81
Railway Traction	**5.75**	5.8	4.50%	26	6.32	-0.57
HT- I Industry (A)	**6.18**	5.8	9.40%	58	6.93	-0.75
HT - I Industry (B)	**7.46**	5.8	9.40%	58	6.93	0.53
HT II General (A)	**7.09**	5.8	9.40%	58	6.93	0.16
HT II General (B)	**8.79**	5.8	9.40%	58	6.93	1.86
HT III Agriculture (A)	**5.61**	5.8	9.40%	58	6.93	-1.32
HT III Agriculture (B)	**4.62**	5.8	9.40%	58	6.93	-2.31
HT-IV Commercial	**9.26**	5.8	9.40%	58	6.93	2.33
HT V Domestic	7.00	5.8	9.40%	58	6.93	0.07

13. The value of T- C(1+L/100)+D as worked out in the Table above has been rounded of to (i) zero in the case of negative values and (ii) next lower multiple of paise ten in the case of positive values with a view to encouraging open

access transactions in the State. The approved cross subsidy surcharges applicable to different categories of consumers are given below:

Table 12
Existing, proposed and approved cross subsidy surcharge

Categories	Proposed (paise/unit)	Approved (paise/unit)
EHT 66kV	182	0
EHT 110kV	172	0
EHT 220kV	---	0
EHT General	---	180
EHT Commercial	---	210
Railways	188	0
HT- I Industry (A)	157	0
HT - I Industry (B)	157	50
HT II General (A)	187	10
HT II General (B)	187	180
HT III Agriculture (A)	---	0
HT III Agriculture (B)	---	0
HT-IV Commercial	427	230
HT V Domestic	----	0

Additional surcharge.

14. KSEB Ltd stated that the regulation-41 of the KSERC (Connectivity and Intra State Open Access) Regulations, 2013 specifies as under:

"An open access customer, receiving supply of electricity from a person other than the distribution licensee of his area of supply, shall pay to the distribution licensee an additional surcharge on the charges of wheeling, in addition to wheeling charges and surcharge, to meet the fixed cost of such distribution l icensee arising out of his obligation to supply as provided under sub-section (4) of section 42 of the Act."

15. KSEB Ltd stated further that open access consumers, generally avail the open access facility as and when the energy prices in the short-term market is less than the prevailing tariff. This usually happens only during monsoon months. During monsoon months (June to November every year), energy demand in the State is usually less by 15 to 20% of the demand during summer months. During monsoon months, KSEBL is constrained to schedule about 750 to 800 MW from run-off the river hydel stations, continuously as base load plants,

during monsoon months to minimize the spill. Since the variable cost of generation from hydel stations is practically little, KSEBL has been taking all efforts to maximize the generation from the run-off the river hydel plants to the possible extent. About 1150 MW power would be available from central generating stations (CGS) during monsoon months. The tariff for CGS comprises of fixed cost and variable cost. As per the power purchase agreement (PPA) entered with the CGS, the KSEBL is liable to pay fixed cost to the CGS. The anticipated fixed cost of CGS for the year 2014-15 is detailed below.

Table-13
Fixed cost and variable cost of CGS for the year 2014-15

Source	Energy Purchased at Generator periphery for the year 2014-15	Fixed Cost	Fixed cost per unit	Variable cost	Variable cost per unit
	MU	Rs. Cr	(Rs/ kWh)	(Rs.Cr)	(Rs/ kWh)
TALCHER - Stage II	3113.74	242.23	0.78	479.52	1.54
NLC- Exp- Stage-1	436.32	58.06	1.33	93.37	2.14
NLC-II- Stage-1	388.54	24.12	0.62	83.15	2.14
NLC-II- Stage-2	553.31	35.07	0.63	110.11	1.99
RSPTS Stage I & II	2359.28	150.05	0.64	504.88	2.14
MAPS	128.55	26.19	2.04	---	----
KAIGA Stg I	242.74	72.95	3.01	---	----
KAIGA Stg II	225.05	67.64	3.01	----	----
SimhadriExp	609.87	104.09	1.71	127.46	2.09
Kudamkulam	718.27	251.40	3.50	----	----
NLC - II Exp	293.93	35.27	1.20	62.90	2.14
Vallur JV with	301.81	45.27	1.50	64.89	2.15
Tuticurin JV	82.77	12.42	1.50	17.80	2.15
Jhajjar	619.88	97.50	1.57	221.17	3.57
Total /Average	10074.07	1222.26	1.21	----	----

16. As detailed above, the average fixed cost of CGS is about Rs 1.21 per unit for the year 2014-15. It is further submitted by KSEBL that, as per the merit order principle, KSEBL has to surrender/ under schedule electricity from the sources having highest variable cost during low demand period/ contingencies. However, in reality, the distribution licensees are not allowed to surrender/ reschedule, if the surrender/ reschedule results in operating the stations below their technical minima, i.e., less than 70% of the capacity of the individual units. Hence it is appropriate to consider the weighted average fixed cost for estimating the likely fixed cost commitment arising out of the KSEBL's obligation to supply as per the subsection (4) of the section-42 of the Electricity Act 2003.

17. KSEB has proposed to procure about 20% of the electricity requirement of the State through traders/ generators through short-term contracts. As per the penalty provisions in the Power Supply Agreement (PSA) entered into between KSEBL and the traders, KSEBL has to pay 20% of the quoted tariff in the event of the actual schedule during contract period is less than 85% of the contracted power. The details of the energy contracted through traders from SR grid with penalty provision are given below;

Table-14
Penalty for under scheduling below 85% of the contracted capacity

Trader	Source	Quantum	Period of contract	Rate at point of supply	Compensation @20% of the tariff
		(MW)		(Rs/ kWh)	(Rs/ kWh)
PTC India Ltd	Simhapuri Energy Ltd (SEL)	130	01-06-2014 to 31-05-2015	5.56	1.11
JSWPTC	JSW Plant in Karnataka	200	01-06-2014 to 31-05-2015	5.66	1.13
TPCIL	TPCIL Plant, AP	175	01-02-2015 to 31-05-2015	5.50	1.10
Total/ avg		505			1.12

KSEBL has requested to approve the additional surcharge for the year 2014-15 as Rs 1.12 per unit.

18. Since the proposal of KSEB Ltd for additional surcharge is not in conformity with Regulation 41 of Kerala State Electricity Regulatory Commission (Connectivity and Intra-state Open Access) Regulations, 2013 the proposal of KSEBL to approve additional surcharge at the rate of Rs.1.12 per unit cannot be accepted. The additional surcharge for each consumer shall be determined as per the procedure in Regulation 41 of Kerala State Electricity Regulatory Commission (Connectivity and Intra-state Open Access) Regulations, 2013 on submission of details by the licensee within 15 days of receipt of application from a consumer for open access. The Commission will consider such applications as and when received and will take appropriate decisions.

Grid Support Charges.

19. Open access customers and embedded consumers shall pay grid support charges as per Regulation 45 of Kerala State Electricity Regulatory Commission (Connectivity and Intra-state Open Access) Regulations, 2013.

The above regulations envisages at three groups namely open access customers, limited short term open access customers and open access customer who is also an embedded open access consumer of the distribution licensee. As per sub-regulation (1) of regulation 45 of the above regulations, scheduling of all transactions pursuant to grant of long term open access or medium term open access or short term open access shall be carried out on day-ahead basis. As per sub-regulation (2) of regulation 45 of the above regulations, deviation between scheduled drawal and actual drawal shall be regulated as per clauses (a), (b), (c), (d) and (e) thereunder. As per sub-regulation (3) of regulation 45, the procedure specified in sub-regulation (2) shall be applicable to limited short term open access customer also. The excess drawal by an open access customer (long term, medium term or short term) over and above the applicable sanctioned open access load or the excess drawal by an open access customer over and above the actual injection by a generating company shall be accounted on a daily basis in 15 minutes time blocks, where ever applicable, and the quantum of excess energy drawn shall be billed at the average rate (including both fixed and energy charges) applicable to the category of consumer or unscheduled interchange (UI) charges applicable to the corresponding time block whichever is higher. The average rate including fixed and energy charges for this purpose as mentioned above for different categories of consumers shall be the value of 'T' as given in Table 11 which is reproduced below;

Category	Average Tariff (T) (Rs./kWh)
EHT –Industrial (66kV)	5.94
EHT- Industrial(110 kV)	5.54
EHT –Industrial (220KV)	6.06
EHT-Commercial	8.48
EHT – General (66kV,110kV, 220kV)	8.13
Railway Traction	5.75
HT- I Industry (A)	6.18
HT - I Industry (B)	7.46
HT II General (A)	7.09
HT II General (B)	8.79
HT III Agriculture (A)	5.61
HT III Agriculture (B)	4.62
HT-IV Commercial	9.26
HT V Domestic	7.00

As per sub-regulation (4) of regulation 45, in the case of open access customer who is also an embedded consumer of the licensee, the embedded consumer shall be

liable to pay for the over drawal at the applicable rates of energy charges (excluding demand charges) as determined by the Commission if the actual energy drawal is more than the scheduled drawal and the recorded maximum demand is within the contract demand. In case the actual drawal of energy is more than the scheduled energy drawal and the total recorded maximum demand is more than the contract demand, the payment of demand charges for the demand in excess over the contract demand shall be at 150 percent of the normal demand charges applicable to that category of consumer.

Meter rent.

20. KSEB Ltd has, in the addendum dated 18-06-2014 to the tariff petition dated 15-05-2014, included a proposal for revising the rent of meters. In the petition KSEB Ltd stated that, in exercise of the powers conferred by the Section 79(j) of the Electricity (Supply) Act 1948, the then KSEB vide its order BO (FB) No. 463/2002 (Plg.com 3809/99) Thiruvananthapuram dated 05-04-2002 had revised the monthly rental charges for meters installed and maintained by KSEB at its cost for initial installations and replacement.

Table-15
Meter Rent with effect from 05-04-2002

Sl No	Description	Rent (Rs/ month or part thereof)
1	For Single phase meters	10
2	For three phase meters	20
3	Three phase CT meters upto 30 Amps	50
4	Three phase CT meters above 30 Amps	75

21. KSEB Ltd further stated in the petition that, KSEB Ltd vide its order dated 24-12-2013 has ordered to levy meter rent @Rs. 75/month for all types of three phase CT meters irrespective of their capacity. Accordingly, at present KSEB Ltd levies meter rent at following rates for meters installed, maintained and replaced by it at its own cost.

Table 16
Meter rent as revised by KSEB Ltd with effect from 24.12.2013

Sl No	Description	Rent (Rs/ month or part thereof)
1	For Single phase meters	10
2	For three phase meters	20
3	Three phase CT meters	75

22. Regulation 68(2) of the Kerala Electricity Supply Code, 2014, enables KSEB Ltd to charge a rent for the meter provided by it at the rates approved by the Commission. The rates of meter rent were originally determined during the year 2002 based on the cost of meters, other accessories and installation charges prevailing at that time. The KSEBL has stated that the cost of meters and installation has increased manifold now compared to the cost during 2002. The present costs of meters indicated by KSEB Ltd as per the latest procurement rates are as detailed below.

Table 17
Present Cost of Meters

Sl No	Description	Approximate present cost (Rs)
1	Single phase static energy meters with LCD and ToD facility and with ISI certification	700 to 800
2	Three phase static meters with LCD and TOD facility with ISI certification	2100 to 2200
3	LT CT operated three phase four wire static energy meters (Class 0.5 accuracy) with LCD and ToD facility and ISI certification	2500 to 2600
4	3 phase AC static tri-vector energy meters with ABT, ToD facility and compliant to Device Language Message Specification (DLMS) protocol	85000

23. KSEB Limited has stated that manufactures of the meters are offering 5 year warranty period from the date of installation. Further, the prevailing interest rate for long term borrowings is about 12%.Based on the cost of meter as detailed in the Table above, warranty period of 60 months and interest rate of 12%, the approximate 'Equated Monthly Installment (EMI) to be recovered from the consumers as meter rents for providing meters, as worked out by KSEB Ltd are given below.

Table 18
Meter rent proposed for the year 2014-15

Sl No	Description	Meter rent proposed (Rs/month or part thereof)
1	Single phase static energy meters with LCD and ToD facility and with ISI certification	20
2	Three phase static meters with LCD and TOD facility with ISI certification	50
3	LT CT operated three phase four wire static energy meters (Class 0.5 accuracy) with LCD and ToD facility and ISI certification	60
4	3 phase AC static tri-vector energy meters with ABT, ToD facility and compliant to Device Language Message Specification (DLMS) protocol	2000

24. KSEB Ltd requested for the approval of the Commission to levy meter rent as detailed above from all the new service connections, where in meter is being provided by it at its own cost. KSEB Ltd proposes to levy meter rent at the prevailing rate as detailed above from the existing consumers till the existing meters become faulty. KSEBL has requested to allow it to levy the proposed meter rent from the existing consumers also, once the existing meters become faulty and the same is replaced by KSEB Ltd at its cost.
25. During public hearing many consumers pointed out that KSEB Ltd collects rent for the meters indefinitely even after recovering twice the cost of meters and the present practice of KSEB Ltd is not justifiable. They wanted the collection of meter rent to be discontinued once the cost of meter is fully recovered.
26. The submissions made by KSEB Ltd and the responses of consumers have been examined by the Commission in detail. For the purpose of calculation of meter rent, the KSEB Ltd has adopted 5 years as the life period of the meters since the warranty period is 5 years. This is not a just and reasonable assumption. As per the provisions of Kerala State Electricity Regulatory Commission (Terms and Conditions for Determination of Tariff for Distribution and Retail Sale of Electricity under MYT Frame work) Regulations 2006, the useful life of meters is 15 years and the rate of depreciation has been worked out accordingly. Therefore the Commission adopts 15 years as the life period of meters. The cost of meters, except those for single phase and three phase meters and the rate of interest as proposed by KSEB Ltd have been adopted by the Commission. In the case single phase and three phase meters, KSEB Ltd has adopted the cost of recently purchased meters for the purpose of calculating meter rent. But in reality all the meters connected to the single phase and three phase connections are not new. Majority of meters are electronic meters which were installed in last 10 years under the schemes for replacement of faulty and sluggish meters and for replacement of electro mechanical meters. Therefore appropriate adjustment is required in the case of cost of single phase and three phase meters. Further it would not be practical to collect meter rent at different rates depending upon the actual cost of meter installed in the premises of consumers. Therefore the Commission decides to assess the rates for rent of single phase and three phase meters assuming the average cost of single phase and three phase meters to be Rs.500 and Rs.1200 respectively. The useful life of meters is taken as 15 years and the rate of interest is adopted as 12%. The monthly rates of meter rent as approved by the Commission for different types of meters irrespective of their vintage are given below:

Table 19
Meter rent approved for the year 2014-15

Sl No	Description	Meter rent (Rs/month or part thereof)		
		Existing	Proposed	Approved
1	Single phase static energy meters with LCD and ToD facility and with ISI certification	10	20	6
2	Three phase static meters with LCD and ToD facility with ISI certification	20	50	15
3	LT CT operated three phase four wire static energy meters (Class 0.5 accuracy) with LCD and ToD facility and ISI certification	75	60	30
4	3 phase AC static tri-vector energy meters with ABT, ToD facility and compliant to Device Language Message Specification (DLMS) protocol		2000	1000

Pooled Cost of Power Purchase for the year 2014-15

27. KSEB Ltd has, in the addendum dated 18-06-2014 to the tariff petition dated 15-05-2014, submitted a proposal for estimating the pooled cost of power purchase of KSEB Ltd for the year 2014-15.
28. KSEB Ltd stated in the petition that CERC vide the regulation 5 (1) (c) of the CERC (Terms and Conditions for Recognition and Issuance of Renewable Energy Certificate for Renewable Energy Generation) Regulation, 2010, has defined the Pooled Cost of Power Purchase as extracted below.

> *"for the purpose of these regulations 'Pooled Cost of Purchase' means the weighted average pooled price at which the distribution licensee has purchased the electricity including cost of self generation, if any, in the previous year from all the energy suppliers long-term and short-term, but excluding those based on renewable energy sources, as the case may be."*

The source wise details of generation and power purchase for the year 2013-14 as submitted by KSEB Ltd are given below.

Table-20
Source wise details of Generation and Power Purchase

Source	Quantity (MU)
Hydel (excluding SHP having capacity up to 15MW)	7519.19
BDPP+KDPP	215.35
CGS (Generator bus)	9175.07
RGCCPP+BSES	374.25
Traders	2920.69
Total (excluding Renewable)	20204.55

29. Since KSEB Ltd is yet to submit the details of accounts of Generation SBU, it may be difficult to arrive at the cost of self generation accurately. As per the version of KSEB Ltd, the ARR of the Generation SBU is about 11.25% of the ARR of KSEB Ltd for the year 2013-14. Further, KSEB Ltd is yet to finalise its accounts for the year 2013-14. Hence, KSEB Ltd has adopted the revised estimate of its ARR for the year 2013-14 which amounts to Rs.4694.45crore. Accordingly, the ARR of Generation SBU for the year 2013-14 is arrived at Rs.528.12 crore (11.25% of Rs.4694.45crore) for estimating the APPC for the year 2014-15. The source wise details of generation and power purchase for the year 2013-14 and the APPC for the year 2014-15 as submitted by KSEB Ltd are given below.

Table 21

Pooled Cost of Power Purchase

Source	Quantity (MU)	Cost (Rs. Cr)
Hydel	7519.19	528.24
BDPP+KDPP	215.35	236.89
CGS (KSEB periphery)	9175.07	2714.96
RGCCPP+BSES	374.25	628.53
Traders	2920.69	1581.10
Total	20204.55	5689.71
Pooled cost of Power purchase including self generation (Rs/unit)		**2.82**

30. KSEB Ltd requested the Commission to approve Rs. 2.82 per unit as the average pooled power purchase cost (APPC) for the year 2014-15 for the purpose of granting renewable energy certificates (REC), in conformity with the regulation 5 (1)(c) of the CERC (Terms and Conditions for Recognition and Issuance of Renewable Energy Certificate for Renewable Energy Generation) Regulation, 2010.

31. Commission has examined the proposal of KSEB Ltd. The Commission has approved the ARR for 2013-14. The proposal for truing up the ARR for 2013-14 based on the actual figures is yet to be submitted by KSEB Ltd. Based on the figures in the ARR approved by the Commission for the year 2013-14, the Commission approves the APPC as per the power purchase approved in the ARR for 2013-14 at Rs.3.14 per unit as shown below:

Table 22
Pooled Cost of Power Purchase

Source	Quantity (MU)	Cost (Rs. Cr)
Hydel excluding SHP	6352	472.03
BDPP+KDPP	196	207.78
CGS (KSEB periphery)	9156	2502.8
RGCCPP+BSES	831	1177.02
Traders	4482	2241
Total	21017	6600.63
Pooled cost of Power purchase including self generation (Rs/unit)		**3.14**

In view of the above facts, the Commission fixes the average pooled power purchase cost of KSEB Ltd for the year 2014-15 at Rs 3.14 /Unit.

Voltage-wise cost of supply of KSEB Ltd

32. Commission had directed KSEB Ltd to propose a model for the estimation of voltage wise cost based on the directions contained in the order dated 31-05-2013 of Hon. Appellate Tribunal for Electricity, New Delhi in Appeal No. 179, to apply the data for the year 2012-13, to estimate the cost at voltages for that year and to forward the same to the Commission.

33. The APTEL has directed to follow the principles laid down as per the order dated 30-5-2011 in M/s Tata Steel Limited Vs OERC. In para 34 of the said order, the principles for determination of voltage wise cost of supply is given as shown below:

"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. "

34. As per the above order, KSEB Ltd was directed to estimate the voltage wise cost of supply considering the power purchase / generation cost at various voltage levels and the losses in the system at different voltage levels. The other costs such as the net work costs can be apportioned at the different voltage levels appropriately so as to arrive at the cost at voltage levels approximately. The APTEL has also directed in the Order dated 31-5-2013 that for determining the cross subsidy at the voltage level, the voltage wise cost of supply is to be used.
35. Commission as per letter No 59/CT/KSERC/2013 dated 18-06-2013 directed KSEB Ltd to submit necessary calculation of the model and data required for computation of voltage wise cost of supply. KSEB Ltd vide letter KSEB/TRAC/Tariff rev /2012-13/HT &EHT APTEL/759 dated 24-09-2013 informed that the accounts of KSEB for the year 2012-13 were yet to be finalised and hence data required were compiled based on accounts for 2011-12.It was also submitted in the letter that SBU wise split of assets and liabilities were yet to be completed and hence the function wise split up figures might be subject to change once the same was finalised.
36. KSEB Ltd vide letter no.KSEB/TRAC/ARR&ERC/2013-14/Voltagewise/1010 dated 07-01-2014 submitted a model for determining the cost of supply at different voltage levels. This model was published vide notice dated 30.01.2014 and a public hearing was conducted on 18-03-2014 . In the public hearing stake holders expressed doubts on the accuracy of the data used by KSEB Ltd for estimating cost at voltages. Accordingly the Commission had during the public hearing itself directed KSEB Ltd to furnish more data to substantiate its arguments.
37. KSEB Ltd vide letter No KSEB/TRAC/ARR&ERC 2014-15/Voltage wise Cost dated 12-08-2014 has forwarded a cost at voltage calculation based on apportionment of Generation SBU, Transmission SBU and Distribution SBU costs as per proposed ARR for the year 2014-15 taking transmission loss at the rate of 4.5%, loss at HT level at the rate of 5.8% and the loss at LT level at the rate of 7.7% based on system simulation studies conducted by KSEB Ltd. The cost at different voltage levels as estimated and reported by KSEB Ltd are Rs.4.03 for EHT, Rs.4.98 for HT and Rs.6.46 for LT levels. The above costs at different voltage levels were worked out by KSEB Ltd adopting the figures of ARR proposed by them.
38. In these circumstances, based on the approved level of losses at 14.5% for the year 2014-15, and based on the approved ARR for the year 2014-15 segregated on the basis of SBU wise split of expenses as per the ARR/ERC proposal of KSEB Ltd for the year 2014-15, the Commission estimated the cost

at different voltage levels. This has been done with segregation of losses at different voltage levels, with transmission loss (EHT level) at 4.5%, loss at HT level at 5.5% and loss at LT level at 7.7%. The average cost of generation and power purchase is Rs.3.10 / unit for the financial year 2014-15. The costs of supply at EHT, HT and LT levels are assessed taking in to consideration the loss at each level as indicated above, the transmission charge at the rate of Rs.0.26 / unit and the wheeling charge at the rate of Rs.0.32 / unit. The cost of supply at EHT, HT and LT levels are accordingly fixed at Rs.3.50/Unit, Rs.4.04/Unit and Rs.5.60/Unit respectively. The average cost of supply as per approved ARR for the year 2014-15 is Rs.5.28/Unit. The progress of cost coverage in various tariff orders issued by the Commission is shown in the table below;

Table 23
Cost Coverage and Increase in Tariff

	Cost Coverage as per tariff			**Average realisation as per tariff**		
Tariff Category	for 2012-13	for 2013-14	for 2014-15	for 2013-14	for 2014-15	Increase (%)
LT Domestic Total	***61%***	***61%***	***71%***	***3.08***	***3.76***	***21.9%***
LT IV Industrial,	*111%*	*111%*	*113%*	*5.58*	*5.96*	*6.8%*
LT V Agricultural	*38%*	*37%*	*45%*	*1.84*	*2.39*	*30.0%*
LT XI Pub lighting	*59%*	*60%*	*68%*	*3.00*	*3.60*	*20.0%*
HT- I Industrial	*112%*	*113%*	*117%*	*5.70*	*6.18*	*8.3%*
HT III Agriculture	*99%*	*93%*	*104%*	*4.67*	*5.50*	*17.9%*
EHT -66kV	*107%*	*106%*	*112%*	*5.35*	*5.94*	*11.1%*
EHT-110 kV	*101%*	*102%*	*105%*	*5.15*	*5.54*	*7.5%*
Railways	*110%*	*111%*	*109%*	*5.57*	*5.75*	*3.2%*

From the data in the above table it can easily be seen that the cost coverage for different categories of consumers is being gradually improved without causing tariff shock to any category. The cost coverage for different categories of consumers has been assessed based on the average cost of supply. If the basis is suddenly changed to cost at voltage instead of average cost of supply, the trend now being followed by the Commission would be upset. Further any effort to regulate cost coverage based on the cost at voltage levels at this juncture is likely to result in tariff shock to certain categories of consumers. The Hon'ble APTEL has, while directing to work out cost at different voltage levels and to work out cross subsidies accordingly, also directed to implement such directions without causing tariff shock to any category of consumers.

39. The judgment of Hon: APTEL dated 11.01.2012 in Appeal Nos.57 of 2008, 199 of 2009, 196 of 2009 and 40 of 2010 states as follows:

"107. The cross subsidies have to be brought down by degrees without giving tariff shock to the consumers. Though it is desirable that cross subsidies are reduced through every tariff order but in a given situation, it may not be possible. As long as cross subsidy is not increased and there is a roadmap for its gradual reduction in consonance with Section 61(g) of the Act of 2003 and the National Tariff Policy, the determination of tariff by the Commission on account of existence of cross subsidy in the tariff can not be flawed.

108. The learned counsel for the Industrial Consumers canvassed that the Commission is required to safeguard the interests of the consumers by fixing a reasonable tariff, which should reflect the cost of supply of electricity. There cannot be any quarrel with the proposition that the ultimate aim is to go by the concept of cost plus basis of supply of electricity to various categories and classes of consumers, but this cannot be achieved immediately in one go. This can be accomplished stage by stage over a period of time by reducing the cross subsidies etc. In case, the cost of supply of electricity is known the inefficiencies of the generator and the licensee cannot be hidden. This will tend to bring transparency and efficiency in the working of the utilities. It will also be conducive to the recovery of the cost of electricity by utility in a reasonable manner, giving boost to cost plus regime. We are conscious of the fact that at present, data on cost of supply has not been made available to the Commission. The data must be supplied by the utilities to the Commission. The cost of supply at different voltages is different. Therefore, data in this regard must be acquired with reference to cost of supply to the different class of consumers by calling upon the Board to furnish the same.

109. According to Section 61(g) of the Act of 2003, the Commission is required to specify the period within which till the Commission progressively reaches that stage, in the interregnum, the roadmap for achieving the objective must be notified by the Commission cross subsidy would be reduced and eliminated so that the tariff progressively reflects the cost of supply of electricity. Under Section 28(2) of the Act of 1998, the Commission while prescribing the terms and conditions of tariff was required to safeguard the interests of the consumers and at the same time, it was to ensure that the consumers paid for the use of the electricity in a manner based on average cost of supply. The word "Average" preceding the words "cost of supply" is absent in Section 61(g) of the Act of 2003. The omission of the word "Average" is significant. It indicates that the cost of supply means the actual cost of supply, but it is not the intent of the legislation that the Commission should determine the tariff based on cost of supply from the date of the enforcement of the Act of 2003. Section 61(g) of the Act of 2003 envisages a gradual transition from the tariff loaded with cross subsidies to a tariff reflective of cost of supply to various class and categories of consumers when the tariff Policy was notified by the Government of India, within six months from January 6, 2006, i.e. by July 6, 2006. In consonance with the tariff policy, by the end of the year 2010-11, tariffs are required to be fixed within + 20% of the average cost of supply (pooled cost of supply of energy received from different sources). But the policy has reached only up to average cost of supply. As per the Act, tariff must be gradually fine tuned to the cost of supply of electricity and the

Commission should be able to reach the target within a reasonable period of time to be specified by it. Therefore, for the present, the approach adopted by the Commission in determining the average cost of supply cannot be faulted. We, however, hasten to add that we disapprove the view of the Commission that the words "Cost of Supply" means "Average Cost of Supply". The Commission shall gradually move from the principle of average cost of supply towards cost of supply."

40. The Commission is taking all efforts to gradually move from the principle of average cost of supply towards the cost of supply as ordered by the Hon'ble APTEL. While implementing the above directions of the Hon'ble APTEL the Commission has to ensure that tariff shock is avoided as stipulated in the Tariff Policy, 2006, and in various orders issued by the Hon'ble APTEL in different cases. As per Kerala State Electricity Regulatory Commission (Principles of determination of road map for cross subsidy reduction for Distribution Licensee) Regulations, 2012 "Cross subsidy" in the context of this regulation means the difference between the applicable average tariff of that consumer category and the average cost of supply as approved by the Commission for that year." In view of the above facts the Commission has seriously considered the relevant issues and taken a balanced view which is explained in its order dated 14.08.2014 in OP No. 9/2014 on ARR&ERC of KSEB Ltd for the year 2014-15. Relevant paragraphs in the said order are given below.

"8.56 KSEBL has submitted along with addendum to the petition dated 14.05.2014, a model for estimation of voltage wise cost of supply along with the cost at different voltage levels estimated based on the ARR/ERC petition of KSEBL for the year 2014-15 with revalidated data. The Commission generally approves in principle, the model for estimation of cost at different voltage levels based on the re-validated data submitted by KSEBL. A comparative of analysis of cost coverage using cost at different voltage levels as well as average cost of supply shall be done separately along with the orders on Open Access charges. It is clear that if increase in tariff has to be made based on the cost at different voltage levels, (instead of average cost of supply) the cost coverage of subsidised category of consumers has to increased correspondingly within a period of five years. This will result in tariff shock to such consumers. The Commission has been effecting increase in cost coverage for subsidised category of consumers during the tariff revisions for the years 2012-13 and 2013-14 as can be seen in Table 8.4. In the tariff revision for 2014-15 also the trend continues. Hence cost coverage ratios for subsidising and subsidised consumers shall be improved further in the ensuing years also and thereafter cost at different voltage levels can be taken as the basis for improving cost coverage ratios. Commission has duly considered the voltage wise cost of supply also for determining the cross subsidy and tariffs as directed by Hon. APTEL in their order dated 25.07.2012 in the appeal against tariff order for 2012-13. But reduction of cross subsidy beyond a level is not possible now, since tariff shock also has to be avoided. The Commission has made an endeavour to

strike a delicate balance among the divergent factors affecting the determination of tariff for different categories of consumers.

8.57 Commission had approved and published the Principles for Determination of Roadmap for Cross-subsidy Reduction for Distribution Licensees Regulations, 2012 on 20th November 2012. The above Regulations specify the principles of cross subsidy reductions as given below:

> *"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.*
>
> *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.

8.58 The Commission is bound to follow the Regulations formulated and notified by it after completing the due process. As per the Regulation Commission shall take the average cost of supply (ACoS) as the basis for tariff formulation and assessing cross subsidy levels The Commission has to ensure that when tariff of subsidized categories such as domestic, agriculture, public lighting etc are increased, tariff shock should not be inflicted upon the consumers in the subsidized categories as well. The Commission notes that the subsidizing categories in the State, in the descending order of subsidy offered by them are the commercial, non-domestic and industrial categories. Domestic, Agricultural and Public Lighting are the major subsidized categories. Among subsidising categories, cross subsidy is minimum in the case of industrial consumers in general.

8.59 Hence the Commission has taken the average cost of supply (ACoS) as the basis for tariff formulation and assessing cross subsidy levels at present. The Commission puts on record that the current tariff revision is the third comprehensive annual tariff revision in succession after the commencement of the regulatory regime in the State. Hence the Commission will strive to ensure that existing cross subsidy ranges are not enhanced. In other words, the existing level of cross subsidy provided by the subsidizing consumers will not in general, go up. At the same time the Commission will have to ensure that, the revenue gap for the current year is made good as far as possible by the tariff revision, leaving the un bridged revenue gap, if any, for appropriate consideration in due course. "

41. Commission approves in principle, the model for estimation of cost at different voltage levels submitted by KSEB Ltd vide letter No KSEB/TRAC/ARR&ERC 2014-15/Voltage wise Cost dated 12-08-2014. The cost at voltage model approved by the Commission shall be further improved after validating the data for losses at various voltages in future and the model will be used for estimation of cost at voltages in future. Commission views with utmost seriousness and respect, the direction given by the Hon Appellate Tribunal for Electricity in Order dated 31-05-2013 in Appeal No 179 of 2012 to determine the voltage wise cost of supply for the various categories of consumers and take that into account in determining the cross subsidy and tariffs in future. Commission has made every effort to implement the above directions by improving the cost coverage. But due to difficulties explained in above paragraphs Commission is constrained to adopt the average cost of supply as the basis for the calculation of cost coverage and cross subsidy reduction for the year 2014-15 also.

Order of the Commission

In view of the facts and circumstances explained above the Commission hereby orders that:

1. The transmission charge of KSEB Ltd for the financial year 2014-15 shall be paise 26 / unit (twenty six paise).
2. The wheeling charge at HT level of KSEBL Ltd for the financial year 2014-15 shall be paise 32 / unit (thirty two paise)
3. The cross subsidy surcharges for various categories of consumers for the financial year 2014-15 shall be as given in the table below:

Categories	Cross subsidy surcharge for 2014-15 (paise/unit)
EHT 66kV	0
EHT 110kV	0
EHT 220kV	0
EHT General	180
EHT Commercial	210
Railways	0
HT- I Industry (A)	0
HT - I Industry (B)	50
HT II General (A)	10
HT II General (B)	180
HT III Agriculture (A)	0
HT III Agriculture (B)	0
HT-IV Commercial	230
HT V Domestic	0

4. Additional surcharge if any will be determined by the Commission on a case to case basis in accordance with the procedure specified in regulation 41 of KSERC (Connectivity and Intra-State Open Access), Regulations, 2013 on submission of details by the licensee within 15 days of the receipt from the consumer, an application for open access.
5. The grid support charges payable by the open access customers and embedded consumers for the drawal in excess over the sanctioned open access load shall be regulated as detailed in paragraph 19 of this order.
6. Meter rent to be levied from the consumers for the period from 01.10.2014 shall be at the following rates;

Sl No	Description	Meter rent (Rs/month or part thereof) with effect from 01.10.2014
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

7. The Average pooled power purchase cost for the financial year 2014-15 shall be Rs. 3.14/ unit.

Dated this 30th day of September 2014

Sd/-
Mathew George
Member

Sd/-
T.M.Manoharan
Chairman

Approved for Issue,

Sd/-
SECRETARY