



KERALA STATE ELECTRICITY BOARD Ltd

(Incorporated under the Companies Act, 1956)

Registered Office: Vidyuthi Bhavanam, Pattom,

Thiruvananthapuram – 695 004

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ABSTRACT

RE Billing Procedure – Modifications in accordance with KSERC (Renewable Energy & Net metering) Regulations, 2020 & its 1st Amendment, 2022 – Orders issued.

Corporate Office - REES

Office Order (DREES,S,S&W)No.766/2023(CEREES- Thiruvananthapuram,Dated: 01.06.2023
AE6/2022/3563)

- Read:
1. B.O.(FTD) No.49/2021 (CE(REES)/Re Projects/AEE6/RE Cell/2020-21/112) dated 22.01.2021
 2. Meeting dtd 19.01.2023 involving officials from REES, IT and SOR in the chamber of CE (REES)
 3. KSERC (Renewable Energy & Net metering) Regulations, 2020 & its 1st Amendment, 2022
 4. KSERC Tariff Order of OP No.11/2022 dated 25.06.2022
 5. Note No.CEREES-AE6/2022/3563(3) dtd 09.02.2023 of Chief Engineer (REES) submitted to FTD, KSEBL
 6. Note No.IT/CU/RE-Billing/2023/94 dtd 27.02.2023 of Chief Engineer (IT , CR & CAPS) submitted to Director (Distribution, SCM & IT)
 7. Remarks No.FA-FPOP-FO1/2023/25 dtd 12.03.2023 of Financial Advisor
 8. Note No.CEREES-AE6/2022/3563(5) dtd 17.03.2023 of Chief Engineer (REES) submitted to FTD, KSEBL and MoM of FTD meeting dtd 27.03.2023
 9. Note No.CEREES-AE6/2022/3563(6) dtd 31.03.2023 submitted to Full Time Directors
 10. Note No.CEREES-AE6/2022/3563(8) dtd 29.04.2023 of Chief Engineer (REES) submitted to Full Time Directors and MoM of FTD meeting dtd 18.05.2023
 11. Note No.CEREES-AE6/2022/3563(9) dtd 27.05.2023 submitted to Director (Distribution, IT & SCM) with additional charge of Director (REES, Soura, Nilaavu, Sports & Welfare)

ORDER

Board had issued detailed procedure for Renewable Energy (RE) billing and accounting as per BO read as 1st above. However, there are ambiguities and lack of certainty in aspects such as wheeling of energy generated by RE plants at various voltage levels to consumers at different voltage levels. Further, KSERC has amended the RE & Net metering regulations, 2020 vide First Amendment dated 15.07.2022. Hence, a procedure as detailed in the attached Annexure for clarity regarding calculation of various charges corresponding to RE billing and accounting in accordance with Regulations and Orders read as 3rd and 4th above was proposed as per Note read as 5th above after obtaining remarks of Director (Distribution, IT & SCM) vide Note read as 6th above. Director (Distribution, SCM & IT) had remarked that bills prior to implementation of the proposed modifications in billing softwares may be done manually in offices concerned.

Consequent to FTD meeting dated 01.03.2023, Financial advisor had also remarked vide Note read as 7th above that the proposed billing modifications may be implemented. Proposal was resubmitted to FTD vide Note read as 8th above and it was directed to furnish details of all relevant regulations and orders related to the proposal to Directors. Subsequently, aforesaid documents were submitted to Full Time Directors vide Note read as 9th above.

It was also suggested that Chief Engineer (Commercial & Tariff) may include the values of the losses (distribution / transmission) and charges specified in the annexure, in tariff orders amended from time to time.

The proposal was again submitted to FTD vide Note read as 10th above and it was directed that FTD approval need not be obtained for the suggested RE billing modifications. Consequently, the proposal was submitted to Director (Distribution, IT & SCM) vide Note read as 11th above.

Having considered the matter in detail, Director (Distribution, IT & SCM) with additional charge of Director (REES, Soura, Nilaavu, Sports & Welfare)

1. Resolved to approve the RE billing modifications as detailed in the appended Annexure
2. Further resolved to authorize Chief Engineer (IT, CR & CAPs) to implement necessary modifications in billing softwares in accordance with the annexure
3. Further resolved to accord sanction to offices concerned such as revenue wings in distribution, Special Officer (Revenue), etc to implement manually the RE billing/accounting as per the appended annexure, prior to implementation of proposed modifications in billing softwares
4. Further resolved to authorize Chief Engineer (Commercial & Tariff) to include the value of losses (distribution/transmission) and charges specified in the annexure in tariff orders amended from time to time by KSERC.

Orders are issued accordingly.

**By Order of the
Director**

Sd/-

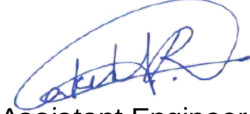
**SABITHA S
Secretary**

To:

Chief Engineer (REES) / Chief Engineer (IT, CR & CAPs) / Chief Engineer (Commercial & Tariff) / Chief Engineers, Distribution / Deputy Chief Engineers, Electrical Circles

Copy to: FA/CIA/TA to Chairman & Managing Director / PA to Director (Finance & HRM) / TA to Director (REES, Soura, Sports, Nilaavu & Welfare) / TA to Director (Gen-Ele) / TA to Director (Distribution, IT & SCM) / TA to Director (Gen-Civil) / TA to Director (T, SO, P & Safety) / Sr.CA to Secretary (Admn) / Company Secretary / Library

Forwarded / By Order



Assistant Engineer

Annexure - Accounting of Renewable Energy for Prosumers/Captive consumers/IPP

Definition of categories as per KSERC (Renewable Energy & Net metering) Regulations, 2020

Category I - RE systems under Net metering facility as per **Chapter III** of Net metering Regulations 2020, i.e. Prosumers with RE plant capacity ≤ 1 MW limited to their sanctioned connected load or contract demand, as applicable, with exception for (1) Prosumers under **domestic and agricultural tariff** with RE plant capacity ≤ 20 kW and (2) LT Prosumers such as common services of residential flats or group housing societies with RE plant capacity ≤ 100 kW

Category II - RE systems as per **Chapter IV** of KSERC (RE & Net metering) Regulations 2020, i.e.

- (1) Prosumers not included under Category I above
- (2) Captive consumers
- (3) Independent Power Producers

Values of Losses* as per KSERC Order of OP No.11/2022 dated 25.06.2022

Distribution Loss (LT alone) = $D_{L_{LT}}$	5.85%
Distribution Loss (HT alone) = $D_{L_{HT}}$	4.15%
Distribution Loss (HT & LT) = $D_{L_{HTLT}}$	8.10%
T & D Loss (Transmission Loss + Distribution loss in HT level) = $T D_{L_{HT}}$	7.40%
T & D Loss (Transmission Loss + Distribution loss in HT & LT level) = $T D_{L_{HTLT}}$	11.22%
Transmission Loss alone = TL	3.40%

* - Value of losses for 2022-23 and is to be updated as per **Tariff order** amended from time to time

Procedure for calculation of various charges for RE accounting including wheeling		
Let Surplus energy available after consumption, if any, be		S units
Out of the S units available, let energy wheeled (from sending end) be		X units
1. Transmission / Distribution losses, as applicable		
Part A - Prosumers with net metering facility (under Category I above)		
A.1. RE Plant Connected at LT level		
A.1.1 Wheeling group consists only of one or more LT premises under same DTR	$D_{L_{LT}}\%$ of X	A.1.2 Wheeling group consists of (a) atleast one LT premises under different DTR or (b) one or more HT premises only or (c) combination of LT premises and HT premises only
A.1.3 Wheeling group consists of atleast one premises of voltage level $\geq 33kV$	$TD_{L_{HTLT}}\%$ of X	
A.2. RE Plant Connected at HT (11kV) level		
A.2.1 Wheeling group consists of (a) LT premises only or (b) combination of LT premises and HT premises only	$D_{L_{HTLT}}\%$ of X	A.2.2 Wheeling group consists of HT premises only
A.2.3 Wheeling group consists of (a) premises of voltage level $\geq 33kV$ only or (b) premises of voltage level $\geq 33kV + HT$ premises	$TD_{L_{HT}}\%$ of X	A.2.4 Wheeling group consists of atleast one premises of voltage level $\geq 33kV$ and atleast one LT premises
		$D_{L_{HT}}\%$ of X
		$TD_{L_{HTLT}}\%$ of X

A.3. RE Plant Connected at voltage level >= 33kV level			
A.3.1 Wheeling group includes atleast one LT premises	$TD_{L_{HTLT}}\%$ of X	A.3.2 Wheeling group consists (a) HT premises only or (b) combination of HT premises and premises of voltage level >= 33kV only	$TD_{L_{HT}}\%$ of X
A.3.3 Wheeling group includes only premises of voltage level >= 33kV	$TL\%$ of X		
Part B - Prosumers, Captive consumers, Consumers purchasing power from IPPs under Category II above			
B.1. RE Plant Connected at LT level			
B.1.1 Wheeling group consists only of LT premises under same DTR	$D_{L_{LT}}\%$ of X	B.1.2 Wheeling group consists of (a) LT premises only out of which atleast one LT premises is under different DTR but under same substation or (b) HT premises only but all under same substation or (c) combination of LT premises and HT premises but all under same substation	$D_{L_{HTLT}}\%$ of X
B.1.3 Wheeling group consists of (a) atleast one premises of voltage level >= 33kV or (b) atleast one LT or one HT premises is under different substation	$TD_{L_{HTLT}}\%$ of X		

B.2. RE Plant Connected at HT (11kV) level			
B.2.1 Wheeling group consists of (a) LT premises only but all under same substation or (b) combination of LT and HT premises but all under same substation		B.2.2 Wheeling group consists of (a) atleast one LT premises under different substation or (b) combination of LT and HT premises with any one under different substation or (c) LT premises and premises of and above 33kV	TD_{L_{HT},L_T} % of X
B.2.3 Wheeling group consists of HT premises only but all under same substation	DL_{HT} % of X	B.2.4 Wheeling group consists of (a) HT premises only but atleast one premises under different substation or (b) one or more premises of voltage level \geq 33kV only or (c) combination of HT premises and premises of voltage level \geq 33kV	$TD_{L_{HT}}$ % of X
B.3. RE Plant Connected of and above 33kV level			
B.3.1 Wheeling group consists of atleast one LT premises	TD_{L_{HT},L_T} % of X	B.3.2 Wheeling group consists (a) only of HT premises or (b) combination of HT premises and premises of voltage level \geq 33kV only	$TD_{L_{HT}}$ % of X
B.3.3 Wheeling group consists only of premises of voltage level \geq 33kV	TL % of X		
Note:- Owner of the RE plant and that of the premises to which wheeling is to be done shall be SAME in case of Prosumers and Captive consumers whereas this restriction is NOT applicable in case of purchasing power from IPPs			

Calculation of other applicable charges			
Transmission Loss (T_L)	TL% of X	Note:- Transmission loss deduction for calculation of wheeling charges shown aside is NOT applicable for entire Part A and for cases under part B which do not use transmission network, i.e. B.1.1, B.1.2, B.2.1, & B.2.3, i.e. Y = X	
Balance after T_L (Y)	Y = X - T_L	Applicable for	Rate
2. Grid support charges	Rate 5% of S	Part B only	-----
3. SLDC charges[#]	Rs 95/MW capacity/ day	Part B only	-----
4. Transmission charges[#]	Rs 0.44 * X units	Part B excluding consumers purchasing power from IPP	Rs 9869/ MW capacity/day Consumers purchasing power from IPP
5. Wheeling charges[#]	Rs 0.61 * Y units	Part A & Part B except A.3.3 & B.3.3	Note:- 1) Transmission charges is applied before deducting transmission loss & wheeling charges is applied after deducting transmission loss but before deducting distribution loss 2) Y = X for Part A and B.1.1, B.1.2, B.2.1 & B.2.3
6. Cross subsidy charges[#]	As per Part D of KSERC Tariff Order dated 25.06.2022	Only for consumers purchasing power from IPP	-
# - Rates are to be updated as per Tariff order amended from time to time			
7. Banking charges - Excess energy available can be banked (for next billing periods till settlement period - 1 st April to 31 st March) for wheeling/non-wheeling consumers or Part A / Part B above subjected to banking charges as below			
Let energy available with generator at end of billing period after making adjustments = E			
Banking charges (applicable only for Category II , i.e, Part B)	5% of E	Note:- Banking charges is not cumulative, i.e. once 5% deduction is applied as banking charges during a billing period, further deduction for the same energy shall not be applied even if it is available in future billing periods.	
Units that can be banked	for Part A = E for Part B = 95% of E		

Time period wise adjustment of RE energy

Prosumers with Connected Load \leq 20kW

Energy injected during a time can be drawn back (adjusted against their consumption) irrespective of time period

Prosumers with Connected Load $>$ 20kW & for Prosumers/Captive consumers under Category II above

(a) Energy injected to the grid in a time period during a billing period shall be first set off against the electricity consumed during the same billing period

(b) Any excess generation over consumption in that time period during the billing period shall thereafter be set-off against other time period as follows

- (i) 80% of the net energy injected in time periods other than peak hours shall be allowed to adjust against peak hour consumption
- (ii) The net energy injected during peak hours shall be allowed to be adjusted 100% during the peak hour and the balance shall be allowed to be adjusted at 120% during other time blocks
- (iii) At all other time periods, except energy injection during peak hours, 100% of the net energy injected in any time periods will be allowed to adjust against the consumption, during the time period other than peak hours