

Before the Hon'ble Commission

OP No. 36/2023

**Petition seeking approval of
Cost Data – 2023 & per kVA rates
for Distribution Works**

Petitioner : Kerala State Electricity Board Limited



Legal Provisions

Electricity Act, 2003

Section 46 - Power to recover Expenditure

The State Commission may, by regulations, authorise a distribution licensee to charge from a person requiring a supply of electricity in pursuance of section 43 any expenses reasonably incurred in providing any electric line or electric plant used for the purpose of giving that supply

Kerala Electricity Supply Code, 2014

Regulation 33

The Licensee shall submit once in a year, a proposal to the Commission for approval of the cost data of the rates of materials and work at which the expenditure as per section 46 of the Act is to be recovered by the Licensee

Background

- The Hon'ble KSERC as per order dated 27.04.2018 in OA No. 17 of 2017 had approved revision of rates for distribution works in the year 2018-19
- **The Cost Data 2018-19**
 - The labour rates had been arrived considering the **DSR 2016** and **Cost Index** published by Chief Engineer, KPWD
 - The material rates are taken based on the weighted average purchase of KSEBL.
 - Transportation rates had been arrived considering inflation, transportation in DSR 2016 and material transportation from SRS.

Cost Data 2023 - Criteria Followed

- **Methodology for estimation is almost the same as in earlier cost data - 2018**
- **Standardisation of materials and works** had been undertaken. Rates of materials which are not presently used as part of standardisation have been eliminated.
- **Materials rates** arrived giving due consideration to the procurement authority and recent year of purchase.
- **Transportation** taken *only from section store to work site*
- **New additions are made** – mostly for **ABC works**

Uniform Labour Data -2022 (ULD -2022)

- **DSR 2018 and Cost Index** Published by PWD on 09.09.2021 is adopted.
- **Contractors Profit and overhead** was taken as **15%** in the ULD -2022 considering the same value taken in PRICE software and **DSR 2018**

Simple average of Cost Index at District HQ is considered uniformly

Sl No	Location	Cost Index to be applied in DSR 2018	Remarks
1	Trivandrum	135.59	Cost Index Published by the Chief Engineer (Administration, KPWD) on 09.09.2021
2	Pathanamthitta	137.29	
3	Kottayam	136.44	
4	Kollam	138.14	
5	Alleppy	141.53	
6	Idukki	141.53	
7	Ernakulam	135.59	
8	Calicut	136.44	
9	Kannur	133.90	
10	Kasargod	133.05	
11	Trichur	135.59	
12	Palakkad	134.75	
13	Malappuram	136.44	
14	Wayanad	136.44	
Average Rate		136.62	

Schedule of Rates taken in ULD-2022

Sl No	Category	Rate as per DSR 2018 (Rs)	Cost Index MF as on 09.09.21	Rate taken in ULD - 2022 (Rs) (A)	Rate taken in the ULD-2018 as per DSR 2016 (Rs) (B)	Difference in Rates (Rs) (A)-(B)	% hike
1	LM	673	1.3662	919.45	657.05	262.40	39.9%
2	LM - A	553	1.3662	755.51	540.92	214.59	39.6%
3	HL Mazdoor	612	1.3662	836.11	598.25	237.86	39.7%
4	Spl Mazdoor	612	1.3662	836.11	598.25	237.86	39.7%
5	Mazdoor	553	1.3662	755.51	540.92	214.59	39.6%
6	Wood Cutter	738	1.3662	1008.26	715.84	292.42	40.8%

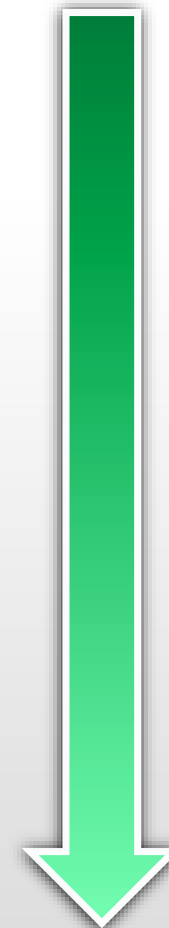
Rate of Materials - Methodology

- Weighted Average Rate of materials is considered – Purchases during FY 2018-19 to FY 2021-22 is taken
- Abnormal rates are excluded .
- **Standard Rate arrived by giving priority for Procurement Authority (6 procurement authorities) and recent year of purchase.**
- **If standard rate cannot be obtained, DSR rates/ Market rates were adopted**

Priority Given on procurement

1. **Corporate level** during FY 2021-22 (CE SCM, CE Civil Const, Pallom Circle)
2. **Regional Chief Engineers** during FY 2021-22
3. **Corporate Level** during FY 2020-21
4. **Regional Chief Engineers** during FY 2020-21
5. **Corporate Level** during FY 2019-20
6. **Regional Chief Engineers** during FY 2019-20
7. **Electrical Circle** Level during FY 2021-22
8. **Electrical Circle** Level during FY 2020-21
9. **Electrical Circle** Level during FY 2019-20
10. **Corporate Level** during FY 2018-19
11. **Regional Chief Engineers** during FY 2018-19
12. **Electrical Circle** Level during FY 2018-19

HIGHEST



*Then **Electrical Division** Level on 4 years, **Sub-Division** Level for the 4 Years and **Section** Level for the 4 years are taken

Material Rates

Sl No	Particulars	Unit	As per Material Rate Committee (Rs)	Material used in Cost Data 2023 (Rs)	Remarks
1	PSC Pole 8M	E	2566.00	3364.18	Standardisation (200kg)
2	PSC Pole 9M	E	3908.00	3908.00	
3	Pin Insulator 415V with Pin	Set	61.00	61.00	
4	Stay Rod HT	E	405.00	405.00	
5	AB Switch 400A Polymer Composite	E	16706.00	16706.00	
6	RMU 11kV630A gCg SCADA	E	232433.00	402648	P. O. dated 13/12/2021
7	ACSR Rabbit	m	42	42	
8	Distribution Transformer 3Ph, 100kVA, 11kV/433V ONAN	E	133966	227681	P. O. dated 17/11/2022
9	Earth Pipe 40mm dia	E	1056	1056	
10	LT ABC 3×70 + 1×50 + 1×16	m	176	280	P. O. dated 14/03/2023

Transportation Charges

- Original petition:

Transportation of materials had been taken *from SRS stores to Section Store and then to Work Site*

- Revised petition:

Transportation charges *from section store to work site has only been considered for LT /HT Line materials in Cost Data* (provision given to charge transportation if incurred).

The rates of transportation charges are as per *DSR - 2018*

Cost Data - 2023

Methodology taken for Cost Data

- I. **(a)** Cost of Materials *(Standard Rate of materials arrived)*
 - (b)** Centage charge **16% of (a)**
 - (c)** Transportation Charges, if any
 - (d)** Labour charges.

Total cost of works is [(a) + (b) + (c) + (d)]

- II. Administrative Overhead Charges at the rate of **10% of I (c) and of I (d)**

Grand Total is (I + II)

Hon'ble Commission's **Observation** (dt 22/06/2023) & KSEBL's **Reply**

▪ **Increase in number of Poles for drawing HT and LT lines**

- **Number of poles** considered based on **construction data**
- **Most road and pathways are not straight** – property crossings need to be avoided

▪ **Deletion of Annexures from prevailing Cost Data**

- **Annexures 40, 41, 42** – Reconductoring works (not based on consumer request)
- **Annexure 43** – Adding one conductor on existing cross arm (Non-Standard work)
- **Annexure 56** – Construction of 11kV line with **ACSR Rabbit** (considering back feeding, higher current carrying capacity conductor **ACSR Racoon** was decided **to be used** in all points)

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- **Annexure 60** – Construction 11kV line with 4 legged tower
 - Construction of entire length using 4 legged tower is **RARE**
- **Annexure 61 and 65** – Installation of 25kVA and 500kVA transformer
 - Omitted as it was found to be extremely **RARE**
- **Annexure 73** – Stringing 11kV ABC 3x95 +1x70
 - This size was decided to be **NOT USED for HT lines**
- **Annexure 74** – Drawing LT ABC 3x95 +1x70 +1x16
 - This size was decided to be **NOT USED for LT lines.**
*(However, this **annexure no.** was used for other work)*
- **Annexure 77** – This Number had been **omitted** to be used.

Comparison of Rates

Annexure	Description of work	Proposed rate in Original Petition (Rs) (A)	Proposed rate in revised petition (Rs) (B)	Rate approved on Cost Data - 2018 (Rs) (C)	Difference (hike in %) (B - C)
1	LT 1Ph W/P service connection up to 5kW	2,983	2,700	1,740	960 (55%)
2	LT 3 ph W/P service connection up to and including 10kW	4,981	4,697	4,220	477 (11%)
3	LT 3Ph W/P service connection above 10kW up to and including 25kW	17,978	17,694	14,420	3,274 (22.7%)
4	LT 3Ph W/P service connection above 25kW and below 50kVA	24,230	23,946	21,750	2,196 (10%)
5	LT 3Ph W/P service connection above 50kVA to 100kVA	25,734	25,450	23,000	2,450 (10.6%)

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Annexure	Description of work	Proposed rate in Original Petition (Rs) (A)	Proposed rate in revised petition (Rs) (B)	Rate approved on Cost Data - 2018 (Rs) (C)	Difference (Hike in %) (B - C)
7	LT 1Ph OH Service Connection up to and including 50m with max 1 post	16,116	16,116	9,160	6,956 (75.9%)
11	LT 3 ph OH service connection up to and including 50m with max 1 post	18,659	18,659	11,550	7,106 (61.5%)
15	Post Insertion for LT 1Ph OH line (without stay)	8,563	8,563	6,700	1,863 (27.8%)
21	Conversion of LT 1Ph to LT 3Ph with load up to 10kW	5,933	5,649	4,170	1,479 (35.4%)
24	Conversion of LT 1Ph to LT 3Ph with load above 50kVA and up to 100kVA	26,686	26,402	23,800	2,602 (10.9%)

Per kVA rates

- **Clause 4(13) of Electricity (Right to Consumers) Rules, 2020**

“For electrified areas up to 150kW or such higher load as the Commission may specify the connection charges for new connection shall be fixed on the basis of load, category of connection sought and average cost of connection of the distribution licensee so as to avoid site inspection and estimation of demand charges for each and every case individually.”

Calculation of per kVA rates

- Methodology was to use the past actuals to average out the costs applicable.
- The per kVA rates had been **limited to 100kVA** being the upper limit of LT connections
- The **data** for past service connections during the period from **01.06.2018 to 31.03.2020** shown below are taken for calculation.

Consumer Type	Single Phase (No)	Three Phase (No)	Total Count (No)
WP	5,20,292	41,549	5,61,841
OH	15,422	4,641	50,063
LE	291	166	457
EC Only	6,267	16,576	22,843
Total	5,72,272	62,932	6,35,204

Percentage of various combination of WP connection

Sl No	Network Components	Single Phase	Three Phase
1	Without any additional component	91.00	78.00
2	With one WP support pole	3.78	9.24
3	With Two WP Support poles	0.09	0.22
4	Post Insertion (PI) without stay – 1Ph	1.62	
5	PI with stay – 1Ph	0.45	
6	PI with strut -1Ph	0.27	
7	PI without stay - 3Ph	1.62	7.92
8	PI with stay – 3Ph	0.45	2.20
9	PI with strut -3Ph	0.27	1.32
10	PI without stay – 1Ph + support	0.18	
11	PI with stay – 1Ph + support	0.04	
12	PI with strut -1Ph + support	0.01	
13	PI without stay – 3Ph + support	0.18	0.88
14	PI with stay – 3Ph + support	0.04	0.18
15	PI with strut -3Ph + support	0.18	0.04

- **Average Length of OH Line**

As per the data analyzed, it was found that the average length inclusive of WP and OH was 70m and 80m for 1Ph and 3Ph respectively, Hence deducting an average 30m for WP, the average OH length was

OH length for **1Ph – 40m**

OH length for **3Ph – 50m**

- **ABC factor included**

Considering the fact LT ABC lines are constructed now, it is **assumed that a 10% of the connection are given from the ABC lines.**

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Weighted average rate of Cost data with 10% ABC

SI No	Particulars	1Phase	3Phase
1	Weather proof from ABC	3,005	5,248
2	Weather proof from Rabbit	2,700	4,697
Weighted Average with 10% ABC		2,731	4,752
1	OH with Max. 1 Post ABC	18,504	46,909
2	OH with Max. 1Post Rabbit	20,196	28,909
Weighted average with 10% ABC		20,027	30,709
1	WP SC 10-25kW from ABC		18,245
2	WP SC 10-25kW from Rabbit		17,694
Weighted average with 10% ABC			17,749

I. WP service connection rates (1Ph upto 5kw and 3Ph upto 10kW)

Item No	1 Phase %	3 Phase %	Rate of Network (Rs)	Total rate of N/w with WP (Rs)	Total amt realised (Rs)	Total rate of N/w with WP (Rs)	Total amt realised (Rs)
1	91	78		2,731	2,48,521	4,752	3,70,656
2	3.78	9.24	7,547	10,278	34,850.54	12,299	1,13,642.80
3	0.09	0.22	15,094	17,825	1,604.25	19,846	4,366.12
4	1.62	0	8,563	11,294	18,296.28		
5	0.45	0	12,263	14,994	6,747.30		
6	0.27	0	16,455	19,186	5,180.22		
7	1.62	7.92	9,365	12,096	19,595.52	14,117	1,11,806.60
8	0.45	2.2	13,065	15,796	7,108.20	17,817	39,197.40
9	0.27	1.32	17,257	19,988	5,396.76	22,009	29,051.88
10	0.18	0	16,110	18,841	3,391.38		
11	0.036	0	19,810	22,541	811.47		
12	0.009	0	24,002	26,733	240.59		
13	0.18	0.88	16,912	19,643	3,535.74	21,664	19,064.32
14	0.036	0.176	20,612	23,343	840.34	25,364	4,464.06
15	0.009	0.044	24,804	27,535	247.81	29,556	1,300.46

Average Rate (Rs)

3,604

6,935

A. The per kVA rates for WP service connections

1. Single Phase (up to 5KW) – Rs 3,604/- per service connection
2. Three Phase (up to 10kW) – Rs 6,935/- per service connection

(The **rates** will be **irrespective of connected load** under this category)

B. Overhead Service Connection rates (SP up to 5kW and TP up to 10kW)

The weighted average rate of OH line with 10% ABC and WP portion comes to;

$$1 \text{ Phase} - (20,027 + 2,731) = 22,758/-$$

$$3 \text{ Phase} - (30,709 + 4,752) = 35,461/-$$

B. OH service connection rates (1Ph upto 5kw and 3Ph upto 10kW)

Item No	1 Phase %	3 Phase %	Rate of Network (Rs)	Total rate of N/w with WP (Rs)	Total amt realised (Rs)	Total rate of N/w with WP (Rs)	Total amt realised
1	91	78		22,758	20,70,978	35,461	27,65,958
2	3.78	9.24	7,547	30,305	1,14,552.90	43,008	3,97,393.90
3	0.09	0.22	15,094	37,852	3,406.68	50,555	11,122.10
4	1.62	0	8,563	31,321	50,740.02		
5	0.45	0	12,263	35,021	15,759.45		
6	0.27	0	16,455	39,213	10,587.51		
7	1.62	7.92	9,365	32,123	52,039.26	44,826	3,55,021.90
8	0.45	2.2	13,065	35,823	16,120.35	48,526	1,06,757.20
9	0.27	1.32	17,257	40,015	10,804.05	52,718	69,587.76
10	0.18	0	16,110	38,868	6,996.24		
11	0.036	0	19,810	42,568	1,532.44		
12	0.009	0	24,002	46,760	420.84		
13	0.18	0.88	16,912	39,670	7,140.6	52,373	46,088.24
14	0.036	0.176	20,612	43,370	15,61.32	56,073	9,868.848
15	0.009	0.044	24,804	47,562	428.05	60,265	2,651.66

Average Rate (Rs)

23,631

24

37,644

B. The per kVA rates OH service connections

1. Single Phase (up to 5kW) – Rs 23,631/-
2. Three Phase (up to 10kW) – Rs 37,644/-

(When the existing distribution main is more than 200m from the consumer premises, charges for that portion in excess of 200m will also be applicable)

C. Service Connection for LT consumers having C/L above 10kW with or without Line construction

- i. Minimum Fixed rate applicable for weather proof portion
- ii. Incremental rate applicable for WP portion for increasing C/L
- iii. Incremental rate for loading cost of DTR and OH portion.

C) i. WP portion for connected load of 10kW to 25kW

Item No	3 Phase %	Rate of Network (Rs)	Total rate of N/w (Rs)	Total amt realised (Rs)
1	78		17,749	13,84,422
2	9.24	7,547	25,296	2,33,735
3	0.22	15,094	32,843	7,225.46
4	0	8,563		
5	0	12,263		
6	0	16,455		
7	7.92	9,365	27,114	2,14,742.90
8	2.2	13,065	30,814	67,790.80
9	1.32	17,257	35,006	46,207.92
10	0	16,110		
11	0	19,810		
12	0	24,002		
13	0.88	16,912	34,661	30,501.68
14	0.176	20,612	3,8361	6,751.53
15	0.044	24,804	42,553	1,872.33

Average Rate

19,932

ii. Incremental rate applicable for WP for increasing load

Particulars	Category	Amount (Rs)
ECSC upto 25kW	11 to 25	17,694
ECSC upto 50kVA	26 to 50	23,946
ECSC upto 100kVA	51 to 100	25,450

Incremental Rate = $(25,450 - 17,694) / [100 - (25/0.95)] = 105$ per kVA

iii. Incremental rate for loading cost of DTR and OH Portion

Item	Qty	Rate (Rs/unit)	Amount (Rs)
100kVA DTR	1No	5,57,927/E	5,57,927
HT Stay set	4No	4,386/E	17,544
HT Line	75m	1,090/m	81,750
LT line	50m	681/m	34,050
Total			6,91,271

- DTR Capacity addition from May 2018 to March 2021 = 4,42,413 kVA
- Connected Load added during the above period = 23,57,766 kW

ie; Every kVA addition in DTR capacity can cater $(23,57,766/4,42,413)$ 5.329 kW C/L

The loading of 100kVA DTR component will be Rs $(6,91,271/532.93) = 1,297.11$

Adding both the incremental rates corresponding to WP portion above 25kW and the transformer portion (ii + iii) = (Rs 105 + Rs 1,297.11) = approx. Rs 1,400/-

C. The rate of service connection having load above 10kW with or without line is;

Rs 19,932/- (base rate) + Rs 1,400/kW of connected load above 10kW, but will be subject to a minimum of Rs 37,644/- (the rate applicable to TP SC up to and including 10kW)

Prayer

- The Hon'ble Commission may kindly approve the revised Cost Data - 2023 and the per kVA rates for recovery of expenditure under section 46 of the Electricity Act, 2003.
- KSEBL may also be authorized to collect the applicable GST from consumers based on the orders issued by the Government in this behalf from time to time.

Thank You

