Kerala’s CAPEX Model for Smart Metering:

From Resistance to TOTEX to a National Cost Benchmark

A note on Phase I and Phase II of the KSEB AMI programme | 26 September 2026

1. Background: What Was Being Planned, and Why It Mattered

The Kerala State Electricity Board Limited (KSEB Ltd.) supplies electricity to about 1.37 crore consumers in the State. Under a central scheme called the Revamped Distribution Sector Scheme (RDSS), the Ministry of Power approved a plan to install smart meters on the KSEB system. A smart meter records consumption digitally, can send readings without a manual visit, and can be used for prepaid supply. The plan covered system meters (meters on feeders and distribution transformers) and prepaid smart meters for consumers. The estimated cost of the full project was ₹8,175 crore.

The official plan was to begin with 37 lakh consumer meters in the first phase and to cover the rest later. The Ministry calculated the life-cycle cost of one consumer meter over 93 months (seven years and nine months) as ₹6,000. The method first chosen was the TOTEX model. TOTEX means Total Expenditure. Under TOTEX a private firm called an AMI Service Provider, or AMISP, pays for the meters, software, communication and related work up front. AMI means Advanced Metering Infrastructure: the full chain of smart meters, communication network and software that collects and manages meter data. The central government would give a grant of 15 per cent. For the full programme that grant was worked out as ₹1,226.26 crore. The AMISP would recover the rest from KSEB in monthly instalments for 93 months.

KSEB management at that time was headed by an IAS officer as Chairman and Managing Director. Management treated TOTEX as an order that had to be followed. The Electricity Employees’ Federation of India (EEFI) read the same plan differently. If metering and revenue work were handed to a private AMISP, the Board would lose control of two core functions that it had built up over many years. In the language of the power sector this is called separating “content” from “carriage”: the wires stay with the public utility, while metering, billing and collection move to a private player. EEFI warned that this was a back door to privatisation of distribution.

There were other objections as well. Network strengthening under RDSS receives a 60 per cent central grant. Smart metering receives only a 15 per cent grant. More of the RDSS money, EEFI argued, should go to lines and transformers. Working meters did not have to be replaced all at once. KSEB staff could install the new meters. The State’s K-FON optical-fibre network could carry the meter data. KSEB’s own data centre could store the data. Technology developed by C-DAC (Centre for Development of Advanced Computing) deserved a trial. None of this required a Project Implementation Agency (PIA) sitting above the Board.

2. The Failed TOTEX Tender of 2023

Despite the protests, KSEB issued a TOTEX tender on 1 April 2023. The tender was for 37 lakh smart meters. It covered system meters, meters of government institutions, high-tension (HT) consumer meters, and meters in 14 high-revenue divisions. The Probable Amount of Contract, or PAC (the official estimate), was ₹2,400 crore. The 15 per cent RDSS grant on that estimate was about ₹360 crore.

Bids were opened on 15 May 2023. Three firms took part. The lowest bid came from Polaris Smart Metering Private Limited. That bid was 44.8 per cent above the PAC and stood at

₹3,475 crore. Even after the 15 per cent grant, KSEB would still have paid about 30 per cent more than the official estimate. The monthly payment to the installing company, after the grant and including GST, would have been ₹79.59 for each single-phase meter, ₹104.09 for each three-phase meter, and between ₹283 and ₹288 for LT-CT meters and feeder meters, for 93 months. LT-CT means a low-tension meter that works with a current transformer. Those monthly charges would have become a lasting burden on consumers and on the Board.

3. How the Kerala Government Changed Course

EEFI continued the agitation. It placed an alternative before the Government of Kerala. The alternative was a CAPEX model. CAPEX means Capital Expenditure. Under CAPEX the utility itself buys the assets and owns them. Installation would be done by KSEB employees. Communication would use the K-FON fibre network. Data would be stored in the KSEB data centre. Billing software would stay with the Board.

On 25 August 2023 a high-level meeting was held under the Chief Minister and the Minister for Electricity. The meeting accepted EEFI’s alternative. Six decisions were taken. First, an alternative to TOTEX would be prepared and central approval would be sought. Second, the first batch would be three lakh meters for commercial, industrial, government and HT consumers and for feeder, distribution-transformer and boundary meters. Third, KSEB would develop its own billing-related services. Fourth, K-FON would be used for communication. Fifth, the KSEB data centre would store the information. Sixth, KSEB employees would install the new smart meters.

An IT advisory committee of technical experts then drafted the model. The first phase was split into two packages so that the work could be tendered clearly. Package-1 covered smart meters, the communication network, and the Head-End System (HES). The HES is the software that first receives raw data from the meters. Package-2 covered the Meter Data Management System (MDMS) and the work of linking it with KSEB’s other software. MDMS is the software that stores, checks and uses meter data for billing and analysis.

On 23 May 2024 the full Board of KSEB gave administrative sanction of ₹277 crore. That sum included the cost of upgrading the data centre. A 60 per cent grant under RDSS applied to this CAPEX route. Before tendering, the PAC was fixed at ₹211 crore for Package-1 and ₹10 crore for Package-2. Technical bids were opened on 24 October 2024 for Package-1 and on 15 November 2024 for Package-2. Six firms bid in each package.

All categories of meters were tested at the Thirumala TMR (Transformer and Meter Relay) wing. Instead of costly proprietary testing software, KSEB used SMITHA. SMITHA stands for Smart Meter Integrated Testing and Higher Analysis. It was jointly developed by C-DAC and CPRI (Central Power Research Institute). This was the first time an Indian power utility used SMITHA for this purpose. Financial bids for both packages were opened on 17 January 2025.

In Package-1 the lowest bid was ₹160.9 crore, from Iskraemeco India Private Limited. That was 23.74 per cent below the PAC. In Package-2 the lowest bid was ₹4.45 crore, from Easiasoft Technologies Private Limited. That was 55.5 per cent below the PAC. Claims that a tender outside the TOTEX model would fail, or would cost more, were shown to be wrong.

Table 1. Monthly cost per meter for 93 months — CAPEX model versus TOTEX model (amount in rupees)

Meter category	Qty (Phase I)	CAPEX / month	TOTEX / month	TOTEX higher by

1-phase whole-current smart meter (5–30 A), with net metering	1,50,000	59.98	79.59	32.69%
3-phase whole-current smart meter (10–60 A)	35,000	73.34	104.09	41.94%
3-phase whole-current smart meter (10/20–100 A)	2,000	73.34	104.09	41.94%
3-phase LT-CT consumer meter, accuracy class 0.5S	1,100	112.54	283.00	151.46%
3-phase CT/PT HT consumer meter, accuracy class 0.2S	7,630	210.24	286.79	36.41%
3-phase LT-CT distribution-transformer meter, 0.5S	91,760	116.98	283.00	141.92%
3-phase CT/PT feeder meter, accuracy class 0.5S	3,000	130.31	288.20	121.17%
3-phase CT/PT boundary meter, accuracy class 0.5S	1,200	130.31	288.20	121.17%

Note: The CAPEX monthly figures include installation and data storage done by KSEB. The TOTEX figures are the rates after grant, including GST, as discovered in the 2023 tender. Whole-current meters measure load directly. CT/PT meters work with current and potential transformers and are used for larger loads, feeders and high-tension consumers. Accuracy class 0.5S or 0.2S is a stated limit of measurement error. Net metering records both import and export of power. Source: P. V. Lathish, Working Committee Member, EEFI.

The comparison is stark. A single-phase meter cost 33 per cent more under TOTEX. An LT-CT meter cost 151 per cent more. The extra amount was largely the finance charge and profit of the AMISP. KSEB was still doing installation and data storage under the alternative model. Even then the TOTEX price was far higher.

Rates for the MDMS software were already secured for up to 50 lakh consumers. Later phases would therefore not need a fresh tender for Package-2. C-DAC has also developed a Head-End System called SEEMA (Smart Electrical Energy Measurement and Analysis). SEEMA is under pilot testing. C-DAC is offering it at no licence cost. KSEB will only have to meet the cost of later updates. In future tenders the Board can confine the purchase to smart meters and keep every other function inside the organisation.

4. Phase II: Fifty Lakh Meters and the Attempt to Restore TOTEX

The first phase of three lakh meters went ahead on the CAPEX model. After that, the previous Left Democratic Front (LDF) Government tendered the second phase in February 2026. The work is titled “Smart Meters & Allied Software and Communication Infrastructure — AMI Project Phase II.” The tender identity number is 2026_KSEB_828557_1. This phase covers 50 lakh meters.

The tender process was still on when the Assembly elections of May 2026 brought the United

Democratic Front (UDF) into office. Pressure then built on the new Government, and from the Government on KSEB, to cancel the live tender and go back to the TOTEX model. EEFI unions in Kerala told the Government that they would not watch such a move in silence.

A second line of attack then appeared in sections of the media. The story was that the incoming UDF leadership was in collusion with Adani Power, and that Adani would be given the work. A chartered-flight journey of the Chief Minister-designate and a meeting with Adani officials at Mangalore were held up as evidence. Adani Power was one of the companies shortlisted in the tender. That fact gave the story a surface of plausibility.

EEFI treated the campaign as a device, not as a disclosure. The likely calculation was this. If the Left heard of a nexus between Shri Satheesan and Adani, Left voices would themselves attack the tender. The new Government would then have a public reason to scrap the tender. Time would be gained to roll the project back to TOTEX. On tracing the source of the reports, there was confidential knowledge that the rumour was being spread from the Adani side as a trick. The plan did not work. The unions refused to walk into that trap. The tender was not cancelled. The financial bids were opened.

5. What the Phase II Tender Discovered, and What the Ministers Confirmed

The tender result was announced on 5 September 2026. Eleven firms took part. One firm failed the technical qualification stage. GridCrest Technologies Private Limited emerged as the lowest bidder (L1). Its financial bid was ₹3,241 crore. The stated completion period is 2,880 days. Infinite Computer Solutions (India) Limited was the second-lowest bidder (L2) at ₹3,461 crore. Kimbal Private Limited was third at ₹3,643 crore, which is about 12.4 per cent higher than the L1 bid. Linkwell Telesystems Private Limited quoted ₹3,831 crore. Allied Engineering Works Limited quoted ₹4,218 crore. HPL Electric & Power Limited quoted ₹4,593 crore. Genus Power Infrastructures Limited quoted ₹4,985 crore. Adani finished tenth. That was last among the firms that had cleared the technical stage. That ranking is the factual answer to the claim that the tender had been written for one house.

Table 2. Phase II AMI tender — selected financial bids (opened on 5 September 2026)

Bidder	Bid (₹ crore)	Position
GridCrest Technologies Pvt. Ltd.	3,241	L1 (lowest)
Infinite Computer Solutions (India) Ltd.	3,461	L2
Kimbal Private Ltd.	3,643	L3 (12.4% above L1)
Linkwell Telesystems Pvt. Ltd.	3,831	—
Allied Engineering Works Ltd.	4,218	—
HPL Electric & Power Ltd.	4,593	—
Genus Power Infrastructures Ltd.	4,985	—
Adani (cleared technical stage)	—	10th / last qualified

Eleven bidders took part. One bidder did not clear the technical qualification stage. The project completion period is 2,880 days.

When installation, finance charges, MDMS and cloud storage are counted as they fall under the CAPEX arrangement, the average price discovered is about ₹2,800 per meter. A smart-meter programme below ₹3,000 a meter is a record in India. The rate is roughly one-fourth to one-fifth of the TOTEX rates discovered in 2023. On 26 September 2026 the

ministerial meeting on power, held at Kochi, approved the continuation of smart metering in Kerala on the CAPEX mode. That decision closes, for the present, the attempt to drag the Board back into TOTEX.

6. What This Struggle Has Established

When EEFI opposed the TOTEX model, some critics said the Federation was against modern technology and against progress in the power sector. That charge was misplaced. EEFI did not oppose smart meters. It opposed the motive behind the chosen contract form, and it opposed a covert move to privatise metering and revenue.

Smart meters are needed if the grid is to be modernised. That is not in dispute. Implementation still has to be thought through. The existing network does not yet guarantee supply every hour of every day. Making the meter “smart” while the line remains weak does not solve the main problem of the consumer. Work should therefore proceed in stages, with pilot testing, and with the public utility in charge.

Phase I showed that an Indian utility can buy meters and software on a CAPEX basis, use public tools such as SMITHA, K-FON, the Board’s data centre and, in time, SEEMA, and still beat the TOTEX price by a wide margin. Phase II has now shown that the same model can be scaled to 50 lakh meters, that genuine competition will come, and that a national-low unit rate can still be discovered. Adani’s last place among qualified bidders is the factual reply to the manufactured story of collusion.

EEFI takes pride in this fight. The alternative model protects the integrity of KSEB. It keeps metering and billing in public hands. It saves public money. The work now is to complete Phase II on schedule, to integrate the MDMS with the Board’s existing information-technology applications, and to refuse any fresh attempt — administrative, political, or through planted news — to restore TOTEX. The vigilance that saved the tender must now see the work through.