



KERALA STATE ELECTRICITY BOARD LIMITED

(Incorporated under the Companies Act, 1956)

Reg. Office: Vidyuthi Bhavanam, Pattom, Thiruvananthapuram - 695 004

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ABSTRACT

Implementation of SAMAST Framework in Kerala - Revised estimate- Approved- Orders issued.

Corporate Office(SBU-T)

B.O.(FTD)No. 439/2020/D(T&SO)/T6/SO/SAMAST/2019-20 dated Thiruvananthapuram 25.06.2020

- Read :
1. BO (DB) No. 205/D(T&SO)/T2/SO/SAMAST/2018-19 dated 5.03.2019.
 2. BO (FTD)No. 937/2019/D(T,SO&S)/T6/SO/SAMAST/2019-20 dated 13.12.2019.
 3. Letter No. CESO/Tech/SAMAST/2020-21/293 dated 12.05.2020 of the Chief Engineer (Transmission) System Operation.
 4. Note No. D (T, SO & S) / T6 / SO / SAMAST/ 2019-20 /184 dated 23.05.2020 of the Director(T,SO&S) to the Full Time Directors (Agenda : 40/6/20).

ORDER

KSEBL as per BO read as (1) above accorded sanction for an estimate amounting to ₹ 53 crore for the implementation of SAMAST (Scheduling, Accounting, Metering and Settlement of Transactions in Electricity) project at SLDC, Kerala in two phases. The sanction for the DPR for implementation of SAMAST framework in Kerala was accorded as per BO read as (2) above.

The Chief Engineer (Transmission) System Operation as per letter read as 3rd above reported that the approved copy of the DPR was submitted to NLDC for approval and NLDC has sought clarifications based on the observations of the 51st meeting of TESSG(Techno Economic Sub Group). TESSG made the following observations on the cost estimate:-

- The interface meters are being funded as per the benchmark cost of ₹ 36000/- per meter and the cost estimates shall be considered by the entity accordingly.
- Infrastructure component, annual operating cost, cost of CT,PT, contingency @ 3% on metering 5% on other cost are not admissible for PSDF funding and are to be excluded from the cost estimate.
- The requirement of the intra state- interface meters is to be assessed as per CEA metering regulations.

The Chief Engineer(Transmission) System operation forwarded the revised estimate amounting to ₹ 46.73 crore after incorporating the changes suggested by TESSG as above. Since the estimated figures under PSDF funding and utility funding has changed considerably, the Chief Engineer requested sanction for the revised estimate. The revised estimate has been prepared limiting the interface meter cost to ₹ 36,000/meter (instead of ₹ 55000/meter as per the original estimate) and after excluding Infrastructure component, annual operating cost, cost of CT,PT, and contingency charges from the PSDF funded part. The total number of meters have been revised

considering the newly commissioned stations and present number of Open Access consumers and Licensees. For EHT consumers and Interstate drawal/injection points of Kerala, check meters are also included. The meters in the case of licensees which were omitted in the original estimate are also included. The revised estimate is attached as Annexure I.

The revised estimate of ₹ 46.73 crore includes:-

Part A- PSDF funding- ₹ 17.8 crore (inclusive of GST)

Includes cost of meters, hardware component, software component, communication equipment,

Part B- Utility funding- ₹ 28.93 crore (inclusive of GST)

Includes cost of CT/PT, installation & testing cost of CT/PT, cost of high resolution watt-hour meter, cost for infrastructural arrangements, support service for software.

As per the sanctioned DPR, 90% of the estimated cost of ₹ 53 crore was originally proposed as grant from PSDF. KSEBL's share was then ₹ 5.3 crore only.

The sanction for the revised estimate was placed before the Full Time Directors as per note read as 4th above for approval.

Having considered the above, the Full Time Directors, in the meeting held on 18.06.2020 resolved to accord Revised Administrative Sanction for the estimate amount of ₹46.73 crore for implementation of SAMAST project with an expected grant of ₹ 17.8 crore from PSDF and the balance amount of ₹28.93 crore funded by KSEBL. Further resolved to place the matter before the Board of Directors of KSEBL for information since Administrative sanction for the original estimate amount of ₹ 53 crore for implementation of SAMAST was sanctioned by the Board of Directors.

Orders are issued accordingly.

By Order of the Full Time Directors

Sd/-

Lekha G.

Company Secretary (In- Charge)

To :

The Chief Engineer, (Transmission) System Operation

Copy to:

The Deputy Chief Engineer (IT)

The Financial Adviser/ The Chief Internal Auditor.

The RAO/ RAO.

The TA to Chairman & MD/ D(T&SO)/ D(D, IT&HRM)/ D(G-C)/ D(G-E& SCM)/D(P&S)

The PA to Director (Finance)/CA to Company Secretary

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Forwarded / By Order



Assistant Executive Engineer

Annexure I to BO(FTD) No. 439/2020/D(T&SO)/T6/SO/SAMAST/2019-20 dtd 25.06.2020

Sr.No.	Item Description	Tentative Unit Rate (INR/unit)	Unit	Quantity (Qty)	Cost Estimate (INR Lakh)
PART A -PSDF FUNDING					
A	METERS				
1.1	ABT meters(including AMR Facilities) 0.25 Class				
(a)	GEN-TRANS	36000	Nos	353	127.08
(b)	EHT Consumers	36000	Nos	94	33.84
(c)	Inter-State Drawl/Injection points of Kerala State	36000	Nos	54	19.44
(d)	OA consumers &Generators	36000	Nos	46	16.56
(e)	STU-Distribution	36000	Nos	700	252
(f)	Gen-Distribution	36000	Nos	59	21.24
(g)	Licencees	36000	Nos	20	7.2
	Subtotal			1326	477.36
(h)	Projection of meter quantity for future expansion	36000	Nos.	132	47.52
	Total(ABT Meters)			1458	524.88
1.2	Conventional meter with AMR facility				
(a)	S/s aux	25000	Nos	289	72.25
(b)	Gen Aux	25000	Nos	133	33.25
	Subtotal (Conventional meter with AMR facility)			422	105.5
	Projection of meter quantity for future expansion	25000	Nos	25	6.25
	Total				111.75
	Total (1.1+1.2)				636.63
1.3	Installation & Testing of meters			7.50%	47.75
	Sub-total (METERS)				684.4
B	Hardware Components				
	Servers & Storage				
1	Main Database Server	1000000	Nos	2	20
2	LDC Application Server	800000	Nos	2	16
3	LDC Web Server	500000	Nos	2	10
4	MDAS, API & Backup Server	1000000	Nos	2	20
5	SAN Switch	600000	Nos	2	12
6	All flash SAN Storage System	6500000	Nos	1	65
7	42U OEM Rack	200000	Nos	3	6
8	Tape Library	1000000	Nos	1	10
9	Backup software	800000	Nos	1	8

10	KVM Console Switch with LED monitor (Server OEM)	150000	Nos	2	3
					170
Active Networking Components					
11	Firewall with UTM (in HA mode)	800000	Nos	2	16
12	24 port 10G Distribution Switches	500000	Nos	2	10
13	24 Port 1G Access Switch with 2x10G Uplink Ports	80000	Nos	4	3.2
14	10G Multimode Modules for the above switches	25000	Nos	15	3.75
					32.95
Passive Network Components – Rack					
16	12U Racks with Horizontal Cable Manager , 1 PDU with accessories	8000	Nos	4	0.32
					0.32
Passive Network Components -Fiber					
17	12 Core Indoor Multimode Fibers	250	Mtrs.	500	1.25
18	24 Core Fiber LIU loaded with Pigtails and Duplex Adapters	15000	Nos	8	1.2
19	3 Mtrs Multimode Fiber Patch cord	1000	Nos	15	0.15
					2.6
Passive Network Components -Copper					
20	24 Port Loaded Patch Panel - CAT6	6000	Nos	5	0.3
21	1 Mtrs Copper Patch Cord (Considered full utilization)	200	Nos	80	0.16
22	CAT6 Cabling (For end users)	22	Mtrs.	915	0.2013
					0.66
Passive Components - PVC /HDPE Pipes					
23	32MM HDPE Pipes	70	Mtrs.	500	0.35
Implementation Services					
24	Installation & Commissioning of Server and network components	500000	Nos	1	5
Laptops and Desktops					
25	Laptops	45000	Nos	5	2.25
26	Desktops	35000	Nos	15	5.25
					7.5
GPS					
27	GPS with display for time synchronisation	300000	Nos	1	3
28	20KVA UPS (12hrs backup)	1000000	Nos	1	10
29	Precision Temperature control arrangement for Data Centre for SAMAST Scheme with N+1 redundancy .	3000000	Nos	1	30
					43

Cloud based hosting for DR/BCP from MeitY-empanelled CSP for 5 years with Cyber Security features					
3.1	Main Database Server(AWS EC2 (db.r4.8xlarge equivalent) -32vCPU,244GB RAM,10 Gbps with 5TB storage		Nos	1	80.00
3.2	Applicaion Server (AWS r5.4xlarge equivalent) 16vCPU/128GB /Linux/10 Gbps/100GB SSD		Nos	1	
3.3	Web Server (AWS r5.4xlarge equivalent) 16vCPU/128GB /Linux/10 Gbps/100GB SSD		Nos	1	
3.4	MDAS, API & Backup Server (AWS r5.4xlarge equivalent) 16vCPU/128GB /Linux/10 Gbps/100GB SSD)		Nos	1	
3.5	Storage - (AWS S3 equivalent)		TB	5	
3.6	NewGeneraion Firewall Service (AWS NGFW equivalent)		Nos	1	
3.7	AWS Support (Business) +100GB in+100GB out data traffic				
3.8	One time Manage Services	150000	Nos	1	1.5
	Sub-total (Cloud based Hosting-DR/BCP)				81.5
Hardware components (Total)					343.88
D	Software component				
1	Scheduling and DespachSoftware module development	15000	Hrs	300	45
2	Load forecasting with geographical weather network data,energy exchage & Marketing operation interface Module	15000	Hrs	300	45
3	RE forecasting & Monitoring Module	5000	Hrs	300	15
4	Open Access Software Module development	15000	Hrs	100	45
5	Web portal, Web applications and payment gateways	5000	Hrs	300	15

6	Energy Accounting(incl.REC accounting) Software module development etc, module both inter state & intra state	15000	Hrs	300	45
7	Billing ,collection and disbursement module development	15000	Hrs	300	45
8	Financial Accounting &Statutory Compliance Module development	15000	Hrs	300	45
9	MIS reporting module	15000	Hrs	300	45
10	Big Data & decision support Module	5000	Hrs	100	15
11	Testing and Trial runs and third party security audit	15000	Hrs	80	12
12	Subtotal				372
Sub-total (Software Component)					372
D	Communication component				
5.1	Private APN GSM/LTE data connectivity charges for 1600 SIMs including 10Mbps aggregation point at Data Centre for 5 years including installation and testing.	1	Nos	50,00,000	50
5.3	1:1 internet connectivity charges for Webserver through existing PGCIL ISP for 5 years	1	Nos	300000	3
5.4	Modems/Converter/Interfacing modules for communication with meters through GPRS/LTE/broadband or OFC network.interstate points etc.)	500	Nos	10000	50.00
5.5	Installation & testing for Modems/Converters			10%	5
Sub-total (Communication Component)					108

Summary of Key Cost Components				
9.1	METERS			684.377
9.2	Hardware component			343.88
9.3	Software component			372
9.5	Communication component			108
9.6	GRAND TOTAL			1508.26
	COST ESTIMATE without taxes(GRAND TOTAL)			1508.26
	COST ESTIMATE withGST@18% on GRAND TOTAL			1779.75
PART -B 100% KSEBL FUNDING				
1.(a)	Instrument transformers -EHT (CT/PT)(0.2S/0.2 class accuracy)	117000	1536	1797.12
(b)	Instrument transformers - HT (CT/PT)(0.2S/0.2 class accuracy)	48100	Nos 875	420.9
	Total			2218.0
(c)	Installation & Testing of Insrument Transformers		7.50%	166.35
(d)	HighResolutionWatthour(3phase4wire)reference meter of 0.1 accuracy class, True RMS or better with clipon CTs, DBmeter, High Accuracy micro Ammeter (DC&AC)& other requisite testing instruments	1500000	Nos 1	15
	Total			2399.35
(e)	Infrastructural arrangements	1500000	Nos 1	15
(f)	Support service for software		10.00%	37.2
				52.2
	PART -B COST ESTIMATE without taxes(TOTAL)			2451.55
	PART B COST ESTIMATE withGST@18% on GRAND TOTAL			2892.82
	TOTAL (PARTA +PART B)			4672.57

Forwarded by order



Assistant Executive Engineer