

SCHEDULE ‘A’ NOTES

1. **SCOPE OF WORK:** - The work required to be completed under said tender is all as described in Schedule ‘A’ items and all as specified in particular specifications, drawings and general specifications.
- (i) The subject work shall be executed under **GE (AF) Jamnagar No 2 , GE (AF) Jaisalmer, GE(AF) Bhuj, GE(AF) Thane, GE(AF) Uttarlai, AGE(I) Jaipur and GE (AF) Chilloda. GE (AF) Chilloda** shall be the Nodal agency for this work. Work order shall be placed by **GE (AF) Chilloda after submission of Performance Security of adequate value by the contractor and accepted by Accepting Officer.**To streamline the execution of work according to their jurisdiction, (GE-Wise) breakdown details of quantities have been included in **Annexure I of Schedule ‘A’ notes** enclosed here-in-after. **GE (AF) Chilloda** will be considered as GE for their work and shall be responsible for overall administration and payment of RAR’s and Final Bills. Respective GEs shall be responsible for recording entries of executed works in MBs and supervision of their part of work. **GE (AF) Jamnagar No 2 , GE (AF) Jaisalmer, GE(AF) Bhuj, GE(AF) Thane, GE(AF) Uttarlai, AGE(I) Jaipur and GE (AF) Chilloda** submits the MBs, abstracts and other relevant details / data duly signed by all concerned to **GE (AF) Chilloda** for payment purpose.

(ii) The respective GE shall forward MBs & Abstracts of work done to **GE (AF) Chilloda** duly technically checked of MBs and Abstracts by their JE QS&C/ AE QS&C duly complying the provisions of contract. A certificate to this effect shall be enclosed by respective GE.

(iii) Sample of materials and testing of materials shall be carried out by respective GE separately. Respective concerned GE deputes the Engineer-in-charge and JE to supervise the work.
2. The quantities shown in column 3 of BOQ are approximate and are inserted as a guide only. These shall, however not be varied beyond the limits laid down in condition 7 of IAFW-2249, General conditions of Contract. This contract comprises full, final and entire completion of the works given in Schedule ‘A’, specifications, special conditions and other items required for satisfactory completion of works.
3. **PERIOD OF COMPLETION:** -

The Entire work under this contract is to be completed in three Phases i.e. Phase-I, Phase-II & Phase-III. The period of completion for each phase is as given below from the date of commencement of work:

Phase	Scope Covered	Period of completion from the date of commencement
I	Supply, installation, testing Advanced Metering Infrastructure (AMI) and associated works against item No 01 to 13 of BOQ/Sch ‘A’(except 2.24 & 2.25).	12 (Twelve) month
II	Comprehensive operation of AMI system including consumables and materials required for smooth functioning of system complete, with periodic charges of telecom operator, smart meter billing from completion of work till the completion of defect liability period of 2 years i.e during defect liability period. BOQ Item No 2.24 of BOQ/Sch ‘A’	24 (Twenty four) months from the date of completion of Phase-I
III	Comprehensive operation and maintenance of AMI system including project implementation upto 8 years, BOQ item No 2.25 of BOQ/Sch ‘A’	96 (Ninety six) month for Phase-III from the date of completion of Phase-II i.e after expiry of defect liability period

- (a) **For Phase-I:** The period of completion of the main project work covered under Schedule ‘A’ shall thus be **12 (Twelve) months** as mentioned in Work Order No 1 (to be issued by **GE (AF) Chilloda** after acceptance of contract and submission of performance security as per Condition 19 of General Conditions of Contract (IAFW-2249). Work order for Phase-II & Phase III shall be issued separately only after completion of Phase I by respective GEs of each station.
- (b) **For Phase-II:** The entire work under this contract shall be completed within **2 (Two) years** from the date of commencement of work for Ph-II. Compensation for delay shall be worked out based on contract value of Phase-II in terms of condition 50 shall of IAFW-2249.

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- (c) **For Phase-III:** The entire work under this contract shall be completed within **08 (Eight) years** from the date of commencement of work for Ph-III. Compensation for delay shall be worked out based on contract value of Phase-III in terms of condition 50 shall of IAFW-2249.
- (d) Separate completion certificate shall be issued for Phase I, II & III. Completion of Phase I shall be issued by the Nodal GE and consolidated Final Bill (Phase I) shall be submitted by the contractor to the Nodal GE ie. **(GE (AF) Chilloda)**. Work Order for Phase II & Phase III including completion certificate shall be issued separately by the respective Stn/GEs,. Final Bill for Phase II & Phase III shall be submitted by the contractor to the respective GE.
- (e) The Retention money of each phase I & II shall be released after completion of the respective phase as per General condition 64 of IAFW: 2249
4. **Visit of site is mandatory prior to making offer. As such bidders are advised to visit the site taking prior appointment of respective GE's before submission of tender. However, if the bidders fail to visit site prior to making offer, bidders shall have no claim what so ever on this account at a later stage whether he has actually inspected the work site or not.**
5. **UNIT RATES :-**
- (a) The contractor shall calculate his own details and insert unit rates **in column 5 in figures only in BOQ**". The aforesaid unit rates shall be based on description of items in Schedule 'A', drawings (where mentioned in Schedule 'A' or specifications), specifications and other general specifications attached herewith. It is an express condition of the contract that the rates quoted by the Contractor for various items in Schedule 'A' shall be inclusive of all labour and material required for completion of work specified hereinafter in particular specifications/special conditions/requirements detailed in particular specifications and full and final completion thereto, irrespective of whether these are mentioned in the description of Schedule 'A' or not and the contractor will not be paid any extra for the same. The Govt. shall not entertain any claim whatsoever on account of inaccuracies, misunderstanding, if any, in the aforesaid unit rates.
- (b) Tendered rates shall be deemed to include for the provision of all material, processes, operations and special requirements detailed in the particular specification irrespective of whether these appear as specific items or not and the contractor will not be paid extra for the same.
- (c) Unless specifically mentioned otherwise such as labour only/fixing only, the unit rates for all items of works shall be deemed to be including cost of all materials, labour, tools and plants, testing and commissioning work in position complete as required for entire completion of work.
- (d) Special conditions given in SSR Part-II and preambles to items given in MES Schedule Part-II under respective trades/items shall be applicable. If any provisions in the description of Schedule 'A' and/or in particular specifications is/are at variance with the provisions of special conditions in MES Part II and preambles to SSR items, the provisions in description of Schedule 'A' items and provisions in particular specifications shall taken precedence there over.
- (e) Method of measurements for all items listed in Schedule 'A' shall be as given in MES Standard Schedule of Rates Part II unless specifically stated otherwise here-in-after for any particular item(s) of work.
- (f) All materials as required for incorporation in work should be of reputed makes as given in these documents. In case of makes not mentioned in the contract agreement the item shall be ISI marked as approved by GE.
6. The total amount arrived at the end of BOQ is not firm but will be treated as the "CONTRACT SUM" referred in IAFW-2249.
7. **SCOPE OF WORK :**
- 8.1 Guidelines for Selection of Smart Meters** - Provisions of IS 16444:2015 (Reaffirmed 2020) are to be adhered to while formulating technical specifications for Smart Meters. It is brought out that Central Electricity Authority (CEA) in Feb 2020 has also issued technical specifications for Single Phase and Three Phase Smart Meters that are to be complied with while framing specifications for smartmeters. As MES provides single source of electric supply to smart meters, dual source metering system will not be used.

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8.2 **Communication System for Smart Meters-** Guidelines for communication system of smart meters (PLC, RF, Cellular network) has been issued by CEA in 2018. These guidelines are to be followed while deciding the communication mode(s) for Smart Meters. Three types of communication technology, namely, Power Line Communication (PLC), Radio Frequency (RF) Communication and Cellular network technology have been included. However, V-Sat mode of communication may also be considered.

8.3 Smart Meter being placed should have prepaid/ post-paid feature. The configuring of Smart Meters will be through software and such software will be compatible with all makes of Smart Meters: Software has to be audited by CERT-India empanelled firm/ CERT Auditor of Armed Forces and all its vulnerabilities be removed. Cost of audit is to be borne by the supplier. Recharging of meters should be software based through App (IOS/Android)/ Link and communication shall be directly with the server as per mode of communication laid down by CEA

8.4 Capacity of application server should be commensurate with total number of smart meters being installed in a project. It shall be preferably located near to a secured installation in the station. The software provided by the firm should be user friendly, its capacity commensurate with the number of installed smart meters and also compatible for up-gradation.

9. **Cyber Security** -The following guidelines/ strategies shall be taken care of by the AMISP /Contractor for making the entire AMI system including the service provider immune to Cyber Attacks.

- (a) All the hardware, OS and application software shall be hardened.
- (b) Application, scanning and hardware scanning tools shall be provided to identify vulnerability & security threats.
- (c) Data shall be encrypted at system/device/ technology level.
- (d) While procuring cyber security items testing must be done and the system must be secure by design.
- (e) Residual information risk shall be calculated by Contractor and same shall be submitted for perusal of cyber audit teams.
- (f) Penetration & vulnerability assessment test from certified auditors during Field Acceptance Test (FAT), Site Acceptance Test (SAT) & Operations and Maintenance period.

10. **Cloud Security**: - (In case server not being provided)

- (a) The following basic security features should be ensured by any Cloud Service Provider (CSP):-
 - (i) Strong encryption capabilities for data in transit or at rest.
 - (ii) **Identity and Access Management (IAM)**:- This controls users access to cloud services create and manage users and groups, and grant or deny access.
 - (iii) **Managed Threat Detection**: - This service provides a more accurate and easy way to continuously monitor and protect cloud accounts and workloads.
 - (iv) **Managed DDoS Protection**: - This protection service that safeguards web applications running on cloud.
 - (v) **Web Application Firewall**: - It helps protects web applications from common web exploits that can affect application availability, compromise security or consume excessive resources.
 - (vi) **Key Management Service (KMS)**:- This service makes it easy to create and control the encryption keys used to encrypt data.
 - (vii) **Certificate Manager**: - This manage and deploys Secure Sockets Layer/ Transport Layer Security (SSL/TLS) certificates.
 - (viii) **Cloud Hardware Security Module (HSM)**:- This meets regulatory compliance requirements for data security by using dedicated HSM appliances within the Cloud.

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(b) CSPs also offer access to additional third-party security tools (e.g., IDS / Intrusion Detection System (IDS), Intrusion Prevention System (IPS), System Information and Event Management (SIEM) to complement and enhance the consumers operations in the Cloud. The third-party security tools complement existing Cloud services to enable consumers to deploy comprehensive security architecture. These security tools on cloud are equivalent and identical to the existing controls in an on-premises environment.

(c) The Contractor needs to review and validate the security configurations, review the notifications and patches released by the CSP and validate that the same is being taken into consideration during operations, confirm that the audit trails (e.g., who is accessing the services, changes the configurations etc.) are captured for supporting any downstream audits of the projects by the finance or audit organization such as Standard Testing & Quality Certificate (STQC), **MEITY Govt of India**.

11. **Payment/Recharge System:** - System should be compatible with all possible payment/ recharge modes i.e. through App (IOS/Android)/ Link and through IT Peripheral in BSO office to recharge the smart meter.

12. **DO'S**

- (i) User IDs must not reveal identity and locations.
- (ii) User ID to be kept in confidentiality by GE/AGE (I) maintaining the overall system.
- (iii) Any breach of information from server/ cloud should immediately be reported to Local Military Authority.
- (iv) Syslogs by installing SIEM log collectors should be in place to maintain records
- (v) Regular change of passwords is imperative. System driven periodic change of passwords to be ab-initio built into the applications.

13. **DON'TS**

- a. No Personal Identifiable Information (PIIs) be used in the system.
- b. Tampering of meter.
- c. Disclosure of information of consumer to anybody other than the consumer.
- d. Access to servers by only authorized person.

14. -BLANK-

15. Site for execution of work will be available as soon as the work is awarded. In case it is not possible to make the entire site available on the award of work, the contractor will have to arrange his working programme accordingly. No claim whatsoever, for not giving entire site on award of work and for giving site gradually, will be tenable.

16. **DEFECTS LIABILITY PERIOD:**

Refer amendment No. 48 & 49 to the GCC (IAFW-2249) defect liability period for the subject contract shall be as under:-

Phase	Scope Covered	Defect Labiality Period from the date of completion
I	<u>Design</u> , Supply, installation, testing of Advanced Metering Infrastructure (AMI) and associated works against all Item of BOQ/Sch 'A'.	02 (Two) years after completion of Phase-I
II	Comprehensive operation of system including <u>support</u> and materials required for smooth functioning of system complete with periodic charges of telecom operator, smart meter billing from completion of work till the completion of defect liability period of 2 years i.e during defect liability period,	30 (Thirty) days after completion of Phase-II
III	Comprehensive operation and maintenance of AMI system including project implementation upto 8 years, after completion of Phase II, it shall be inclusive of periodic charges of telecom operator, smart meter billing and other consumables etc	30 (Thirty) days after completion of Phase-III

Note:- Performance Security shall be Released after Successful completion of Phase-III and after defect liability of Phase –III is over

17. PAYMENT SCHEDULE AND TIME FRAME APPLICABLE TO BOQ ITEM NO 2

S I N o	Stage/Yard stick	Likely time frame from work order No.01	Stage Payment	Stn wise Percentage of stage Payment		Stage wise penalty for delay per week
<u>Phase I Ser Item No 2.00 to 2.23</u>						
1	Submission of site survey details, and proposal for approval of makes, communication system etc for Approval by Accepting Officer.	D+05 Weeks	3.6%	-		0.25%
2	Material at site for meters of more than one makes.	D+17 Weeks	10.8%	-		1%
3	Commencement and completion of Installation of meters, communication network	D+41 Weeks	14.4%	-		0.5%
4	Installation of servers/ Hosting on GCC and interconnections	D+45 Weeks	10.8%	-		0.5%
5	Development of open software and applications including installation and cyber security clearance.	D+48 Weeks	14.4%	-		1%
6	Testing and Commissioning of system.	<u>D+52 Weeks</u>	7.2%	-		1%
<u>Phase II Ser BOQ Item No 2.24</u>						
7	Payment after successful completion and end of two years of defect liability periods (after completion of Phase-II).	104 Weeks after completion certificate of Phase-I	(Total 10.8%) ie 5.4 % per year	Jamnaga r	2.64%	1% per week for delay in completion, 0.5% per week for delay in training and other infirmities as decided by Accepting Officer
				Jaismal mer	1.25%	
				Chilloda	2.55%	
				Uttarlai	0.66%	
				Bhuj	2.68%	
				Madh Island	0.35%	
				Mumbai	0.57%	
Jaipur	0.10%					
<u>Phase III Ser BOQ Item No 2.25</u>						
8	Payment after successful completion and end of eight years of comprehensive maintenance (after completion of Phase-III).	416 Weeks after completion certificate of Phase-II	(Total 28%) ie 3.5% per year (proporti onately 3.5/12 = 0.29166 67 % per month) for eight years	Jamnaga r	7.89%	1% per week for delay in completion, 0.5% per week for delay in training and other infirmities as decided by Accepting Officer
				Jaismal mer	3.29%	
				Chilloda	7.63%	
				Uttarlai	1.86%	
				Bhuj	4.99%	
				Madh Island	1.01%	
				Mumbai	1.01%	
Jaipur	0.32%					

Note:-

- (i) ‘D’ shall be the date of commencement of work as per Work Order no. 01.
- (ii) Total amount of compensation/ penalty for Phase -I of the project shall not exceed 10% (ten percent) of the quoted amount against items covered under Phase-I of the work as per condition 50 of IAFW-2249.
- (iii) The amount for Phase I, II & III shall be as per percentage shown above for the BOQ Item 2.00 to 2.25. The respective amount for payment towards RAR and Final Bill under Phase II & III corresponding to different station's shall be as shown above.

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18. - **BLANK-**

19. **TAXES, DUTIES & LEVIES ETC. (REFER SPECIAL CONDITION NO. 13):**

- (a) The rate quoted by the tenderer shall be inclusive of all types of taxes levies including GST, Labour Welfare Cess etc. as prevailing on the bid submission end date. It may be noted that conditional tender regarding this aspect and/or on any other account will not be considered and shall be liable to be **REJECTED**.
- (b) Certain taxes such as central excise duty, service tax, additional custom duty, state level value added tax, octroi and other levies which were applicable on interstate transportation of goods are subsumed by GST, thus special condition No. 13 for Reimbursement/refund on variation in prices in taxes directly related to contract value of tender shall be deemed to be amended incorporating GST in lieu of taxes mentioned in the condition but subsumed by GST.

20. **SPECIAL CONDITIONS:** Special Condition in MES Schedule and preambles to items given in MES Schedule Part-II under respective trades shall be applicable. If any provision in the description of items of Schedule 'A' and/or in particular specification(s) is at variance with the provision in special conditions and preambles to MES Schedule items, the provision as per description of Schedule 'A'/ BoQ and provisions in particular specifications shall take precedence.

21. The description of items of Schedule 'A'/ BoQ is brief. These shall be deemed to be amplified and read in conjunction with Special conditions, particulars specifications, contract drawings including notes there in, Specifications contained in the relevant trade sections of MES Standard Schedule of Rates (SSR) and all these documents taken together shall be mutually explanatory to one another.

22 **NOTES FOR SPECIAL (STAR) RATE**

- (a) In case of any deviation, mode of pricing shall be decided by Accepting Officer in terms of Condition 62 of IAFW-2249.
- (b) In the event of a deviation order involving fixation of Special (Star) Rate, Draft Rate shall be prepared by GE (within a maximum period of 30 days) while initiating the proposal for deviation seeking approval of Accepting Officer and notified to contractor. While notifying the Draft Rate, it will be clearly stipulated that the same is merely an estimated rate and firm rate shall be fixed based on actuals and receipt of supporting documents from contractor such as vouchers/literature of product/test certificates etc (as applicable) on completion of the work involving Star Rate. Any objection to the method of fixing Star Rate will be dealt as per Condition 7 of IAFW-2249.
- (c) Draft Star Rate shall be made based on market enquiry through telephonic enquiry/quotations/e-mail/rate lists/internet based sources, material & labour constants available in various Civil Engg books and record available in respect of Star Rates approved in the past for similar items of work etc. Contractor may also assist GE's office in preparation of draft Star Rate.
- (d) The Draft Star Rate shall be purely a draft rate and shall not be used for claiming final payment during execution of work. However GE shall allow part payment to the tune of 80% during execution to avoid any financial hardship to contractor.
- (e) After completion of the item of work involving Star Rate, contractor shall submit the vouchers/literature of product/test certificates (as applicable, decision of GE being final in case of any disagreement) for finalisation of Star Rate. The Star Rate shall be technically checked by DCWE (C) / Director (C) depending upon the financial effect & approved by competent authority within a period of one month from submission of the relevant documents by contractor as mentioned above.
- (f) The star rate as approved by competent authority after technical check by DCWE(C) / Director (C) depending upon the financial effect shall be referred as "the rate decided by GE" under Para 62(G) of IAFW-2249.

SCHEDULE 'A' NOTES CONTD :-**23 PAYMENT OF WAGES TO THE WORKMEN AND IN TURN PAYMENT OF RARs/FINAL BILLS (REFER RELEVANT CLAUSES OF GENERAL CONDITIONS OF CONTRACTS (IAFW-2249), SPECIAL CONDITIONS AND 'SCHEDULE OF MINIMUM FAIR WAGES':**

- (a) Payment of wages to the workmen shall be made by cheque or to be credited to 'bank accounts of the employed workmen. Unless proof of payment of wages submitted by the Contractor, no payments to contractor will be made in the RAR / Final Bill.
- (b) In case payments are made in current coin or currency notes, certificate shall be submitted by the Contractor / Firm alongwith undertaking by the concerned workmen asking for payment other than by cheque or by crediting the bank account.
- (c) The Contractor shall enter the details in the EPFO portal after award of contract and GE shall ensure the same.
- (d) The Contractor shall also provide the details of individual's EPF and ESI account number to claim the payment and GE shall ensure verification of the same from time to time.

24. MINIMUM REQUIREMENT OF T&P, MACHINERY & TRANSPORT: all as per manufacturer's instructions**25 PERFORMANCE EVALUATION: To discuss and earn decisions in a collegiate manner for timely completion of the work, monitoring of works will be carried out at under mentioned stages as 'Performance Evaluation': -**

- (a) First Evaluation : Within 02 months from the date of Commencement of work
- (b) Second / Intermediate Evaluations : Every six months from the date of commencement of work
- (c) Pre completion Evaluation : One month prior to original/ extended date of completion
- (d) Final Evaluation : One month after actual date of completion
- (e) At each stage of 'Performance Evaluation', contractor shall give on site presentation to the Accepting Officer himself in the presence of GE, Engineer-in-Charge, PMG and any other Officers AS DECIDED BY the Accepting Officer. Minutes of such meetings shall be circulated by the GE as office record.

26 Electrical Licence: Contractor will either obtain valid Electrical Licence of required class in name of firm/proprietor/partner or engage an agency having valid Electrical Licence of required class through proper agreement/MOU for execution of all electrical works to the extent Rule 29 under Part III of Central Electricity Authority (Measures Relating to safety and Electric Supply) Regulation, 2010 is applicable forming either in full or part of the scope of work of contract awarded. All such works shall be executed through such agency only (either yourself or other agency) having valid Electrical Licence of required class. Such Electrical Licence shall be obtained from the concerned authorities of State Government. Any violation of this condition shall be sufficient reason for taking such disciplinary action as deemed fit by Registering Authority apart from other recourse/remedy available to the Department under the conditions of contract for such lapse.**27 LIST OF MEITY EMPANELED CSP's BASIC CLOUD SERVICES****Attached as per Appendix A**

(Signature of Contractor)

AAD (Contracts)
For Accepting Officer

SCHEDULE ‘A’ NOTES CONTD :-

ANNEX “A” of Schedule A Notes

UNIT WISE BREAK DOWN DETAIL

S L N o	Description of Item	Unit	33WG JAMN AGAR	41 WG JAIS ALM ER	Bhuj	VSN CHILOD A	Madh Island	Jaipur	AF stn Mumb ai	Uttarl ai	Total Qty
1	Single Phase Meter	Each	971	424	650	1027	113	45	118	176	3524
2	Three Phase Meter	Each	129	90	48	37	28		141	84	557
3	2 run of 4.0Sqmm cable	RM		6612							6612
4	2 run of 6.0Sqmm cable	RM	11467		11770	150	372		505	3200	27464
5	4 run of 4.0Sqmm cable	RM		1672			1562				3234
6	4 run of 6.0Sqmm cable	RM	2280		1232	480			1512	84	5588
7	Desktop Computer	Each	1	1	1	1	1	1	1	1	8
8	Printer	Each	1	1	1	1	1	1	1	1	8

Note : The Item to be executed by respective GE is shown in the above table. The quantity of these item except Sub main wiring shall not be varied without prior approval of the Accepting officer.

(Signature of Contractor)

AAD (Contracts)
For Accepting Officer