Date: November 15, 2019

Amendment No. 2

to

Request for Proposal (RfP)

for

Selection of AMI Implementing Agency for Implementation of Smart Metering in Shimla and Dharamsala City in Himachal Pradesh

Volume – I

Reference Clause	Existing Provision	Amended Provision
Volume-I Notice Inviting Tender	Last date and time for online bidding – 21.11.2019 upto 15:00 hrs Last date and time for receipt of RFP - 21.11.2019 upto 15:00 hrs Technical Bid Opening - 21.11.2019 at 15:30 hrs	Last date and time for online bidding – **5.12.2019** upto 15:00 hrs Last date and time for receipt of RFP – **5.12.2019** upto 15:00 hrs Technical Bid Opening – **5.12.2019** at 15:30 hrs
Volume-I Clause 3.2.2 (About the AMI Project - Table 7: Key Performance Indicators of the Project Area (Commercial + Operations))	Average Billing Rate (Shimla) • Rs. 0.65 Kwh (FY 2017-18) • Rs. 0.66 Kwh (FY 2018-19) Average Billing Rate (Dharamsala) • Rs. 93.08 Kwh (FY 2017-18) • Rs. 91.83 Kwh (FY 2018-19)	**Average Billing Rate (Shimla)** • **Rs. 6.52 Kwh (FY 2017-18)** • **Rs. 6.63 Kwh (FY 2018-19)** **Average Billing Rate (Dharamsala)** • **Rs. 5.31 Kwh (FY 2017-18)** • **Rs. 5.56 Kwh (FY 2018-19)**
Volume-I Clause 3.2.2 (About the AMI Project - Information on Dharamsala Town - Table 2, 5, 7, 8 & 9)	The Unit for Energy Sales and Billed values has been mentioned as “MU”	**The Unit for Energy Sales and Billed values may be treated as “Unit” instead of “MU”**
Volume-I Clause 4.2.6 (General Terms for Bidding)	PFCCL may, at its sole discretion, ask for additional information/ document and/ or seek clarifications from a Bidder after the Bid Submission Deadline, inter alia, for the purposes of removal of inconsistencies or infirmities in its Bid. However, no change in the substance of the Financial Bid shall be permitted by PFCCL, unless specifically sought by PFCCL as per Clause 4.15.9	PFCCL may, at its sole discretion, ask for additional information/ document and/ or seek clarifications from a Bidder after the Bid Submission Deadline, inter alia, for the purposes of removal of inconsistencies or infirmities in its Bid. However, no change in the substance of the Financial Bid shall be permitted by PFCCL~~**, unless specifically sought by PFCCL as per Clause 4.15.9**~~
Volume-I Clause 4.3.1 (Qualifying Requirement)	**Refer Annexure-1**	
Volume-I	In case a bid is submitted by a consortium of two or more firms (No. of members shall not be more than 3) as consortium members, the members of consortium shall	In case a bid is submitted by a consortium of two or more firms (No. of members shall not be more than 3) as consortium members, the members of consortium shall meet the following

Clause 4.3.2.1 (Consortium Bids)	meet the following requirements: a. All the members of the consortium shall meet individually the financial requirement criteria given at 4.3.1.D.1 (a) above. b. The Lead Consortium Member shall meet not less than 50% of the minimum financial requirement criteria given at clause no. 4.3.1.D.1 (b) above. c. Each of the other Consortium Member(s) individually shall meet not less than 25% of the minimum financial requirement criteria given at clause no. 4.3.1.D.1 (b) above.	requirements: a. All the members of the consortium shall meet individually the financial requirement criteria given at ~~**4.3.1.D.1 (a)**~~ **4.3.1.E.1 (a)** above. b. The Lead Consortium Member shall meet not less than 50% of the minimum financial requirement criteria given at clause no. ~~**4.3.1.D.1 (b)**~~ **4.3.1.E.1 (b)** above. c. Each of the other Consortium Member(s) individually shall meet not less than 25% of the minimum financial requirement criteria given at clause no. ~~**4.3.1.D.1 (b)**~~ **4.3.1.E.1 (b)** above.
Volume-I Clause 5.9.7 (Award of Contract)	The successful Bidder shall provide an undertaking that the key staff identified for the project (as submitted in its Technical Bid) shall be available for the respective proposed work requirement, anytime during the duration of the Project, till its successful completion.	The successful Bidder shall provide an undertaking that the key staff identified for the project (as submitted in its Technical Bid) shall be available for the respective proposed work requirement, anytime during the duration of the Project, till its successful completion. **If due to any circumstances the key staff is not available for the project, a similar experienced key staff will be replaced with approval of PFCCL**.
Volume-I Clause 6.11.3 (Settlement of Disputes)	All disputes or differences in respect of which the decision, if any, has not become final or binding as aforesaid shall be settled by arbitration in the manner hereinafter provided. The arbitration shall be conducted by three arbitrators, one each to be nominated by Contractor and Owner and the third to be appointed as an umpire by both the arbitrators in accordance with the Indian Arbitration Act. If either of the parties fails to appoint its arbitrator within sixty (60) days after receipt of a notice from other party invoking the Arbitration clause, the arbitrator appointed by the party invoking the arbitration clause shall become the sole arbitrator to conduct the arbitration	All disputes or differences in respect of which the decision, if any, has not become final or binding as aforesaid shall be settled by arbitration in the manner hereinafter provided. The arbitration shall be conducted by three arbitrators, one each to be nominated by Contractor and Owner and the third to be appointed as an umpire by both the arbitrators in accordance with the Indian Arbitration Act. ~~**If either of the parties fails to appoint its arbitrator within sixty (60) days after receipt of a notice from other party invoking the Arbitration clause, the arbitrator appointed by the party invoking the arbitration clause shall become the sole arbitrator to conduct the arbitration**~~
Volume-I Clause 6.19 (Payment Schedule)	**Refer Annexure-2**	
Volume-I	Within fourteen (14) days of the notification of Contract award, provide a Performance Security for project	Within fourteen (14) days of the notification of Contract award, provide a Performance Security ~~**for project implementation**~~ in

Clause 6.21.1.1 (Performance Security)	implementation in the form of an irrevocable Bank Guarantee valid up to a period of six months after one (1) year from the date of Operational Acceptance of the project, or extended thereafter, to the tune of 10% of the Contract Value excluding FMS Cost for the due performance of the Contract in the amounts and currencies specified in the RFP based on the format prescribed in Annexure 13. If Contract Performance Security has not been submitted within 30 days from issuance of Letter of Award, then penalty @0.35% per week or part thereof of the value of Performance Security amount will be recovered from firm which will be calculated from due date of submission of Performance Security till the actual date of submission of Performance Security	the form of an irrevocable Bank Guarantee valid up to a period of six months **from date of completion of seven year FMS** ~~**after one (1) year from the date of Operational Acceptance**~~ of the project, or extended thereafter, to the tune of 10% of the Contract Value ~~**excluding FMS Cost**~~ for the due performance of the Contract in the amounts and currencies specified in the RFP based on the format prescribed in Annexure 13. If Contract Performance Security has not been submitted within 30 days from issuance of Letter of Award, then penalty @0.35% per week or part thereof of the value of Performance Security amount will be recovered from firm which will be calculated from due date of submission of Performance Security till the actual date of submission of Performance Security
Volume-I Clause 6.21.1.2 (Performance Security)	Also submit a separate Performance Security for FMS in form of an irrevocable Bank Guarantee with value of 10% Contract Value excluding FMS Cost plus 10% of FMS cost, valid for period of 6 months from date of completion of seven year FMS or extended thereafter . This Performance Security for FMS needs to be submitted as per format prescribed in Annexure 14 prior to discharge of Performance Security BG for project implementation. If Performance Security for FMS has not been submitted within 30 days from date of Operational Acceptance of project, then penalty @0.35% per week or part thereof of the value of Performance Security for FMS amount will be recovered from firm which will be calculated from due date of submission of Performance Security for FMS till the actual date of submission of Performance Security for FMS	**Deleted**
Volume-I Clause 6.21.1.3 (Performance Security)	The above Performance Securities would be assigned to HPSEB Ltd. and shall be valid as per clause 6.21.1.1 and 6.21.1.2 and shall be extended time to time	The above Performance Securit~~**ies**~~ would be assigned to HPSEB Ltd. and shall be valid as per clause 6.21.1.1 ~~**and 6.21.1.2**~~ and shall be extended time to time
Volume-I Clause 6.21.5.1 (Performance Security)	***Performance Security for Project Implementation*** – not later than six months and thirty (30) days after one (1) year from the date of Operational Acceptance of the project, unless specified otherwise in the RFP and only upon submission of Performance security for FMS.	***Performance Security*** ~~***for Project Implementation***~~ – not later than six months and thirty (30) days **following the date of completion of the Contractor's performance obligations under the Contract, including any warranty and FMS obligations, unless specified otherwise in the RFP** ~~**after one (1) year from the date of Operational Acceptance of**~~

		~~**the project, unless specified otherwise in the RFP and only upon submission of Performance security for FMS**~~.
Volume-I Clause 6.21.5.2 (Performance Security)	***Performance Security for FMS*** - not later than thirty (30) days following the date of completion of the Contractor's performance obligations under the Contract, including any warranty and FMS obligations, unless specified otherwise in the RFP	**Deleted**
Volume-I Annexure A (Tender Evaluation Methodology)	**Refer Annexure-3**	
Volume-I Annexure 10 (Format of Bill of Quantities)	**Refer Annexure-4**	
Volume-I Annexure - Quoted Prices for the Financial Bid	**Refer Annexure-5**	
Volume-I Annexure 17 (Price Bid Format)	**Refer Annexure-6**	
Volume-I Annexure 13 (Format of Performance Security to be provided by Selected Bidder for Project Implementation)	**Refer Annexure-7**	
Volume-I Annexure 14 (Format of Bank Guarantee to be provided by Selected Bidder for 10% of FMS cost)	**Deleted**	

Volume – II

Reference Clause	Existing Provision	Amended Provision
Volume-II Clause 1.4.1(iii) (Scope of Work)	CT operated three phase Smart Meter (with/without net-metering) with Pre-paid configuration and with suitable communication technology (Smart Meters proposed shall be able to work in pre-paid as well as post-paid configuration as per the HPSEB's Needs. There should not be restriction in case HPSEB wants to use some Smart Meters in Pre-Paid and some in Post-Paid mode)	CT operated three phase Smart Meter (with/without net-metering) ~~**with Pre-paid configuration and**~~ with suitable communication technology ~~**(Smart Meters proposed shall be able to work in pre-paid as well as post-paid configuration as per the HPSEB's Needs. There should not be restriction in case HPSEB wants to use some Smart Meters in Pre-Paid and some in Post-Paid mode)**~~
Volume-II Clause 1.4.1(x) (Scope of Work)	Integration of IT System with the existing system of HPSEB or to facilitate or provide full support for any new future integration requirement of HPSEB	**Seamless** ~~**I**~~**i**ntegration of IT System with the existing system of HPSEB ~~**or**~~ **and** to facilitate or provide full support for any new future**/ new application/ equipment** integration requirement of HPSEB **by providing whatever data required by HPSEB at that time. Further, if required, the Contractor has to switch all Smart Metering application and submit database in other Cloud Service Provider with details of each and every process to be followed.**
Volume-II Clause 1.4.1(xxiv)(h) (Scope of Work)	Installation of Smart Meters for new connections, disconnection & replacement of faulty meter on request of HPSEB	Installation of Smart Meters **and DCUs/ Routers, if required,** for new connections, disconnection & replacement of faulty meter on request of HPSEB.
Volume-II Clause 1.4.1(xxxi) (Scope of Work)	-	**Cyber security audit of complete system from Cert-In certified agencies:** **a. Before making system live; and** **b. Annually during FMS period.**
Volume-II Clause 2.4.1(22) (Contractor's Responsibilities and Obligations)	Prepare and submit all documentation and drawings in hard copy as well as soft copy.	Prepare and submit all documentation and drawings in hard copy as well as soft copy. **The documents have to be submitted in serial orders with depiction of Serial Number on it.**
Volume-II Clause 3.3 (AMI Specifications – Smart Meters)	….. After meter installation, customer identification no., meter ID, its hardware & software configuration, name plate details, make, type i.e. 1 Phase or 3 Phase shall be updated in DCU/HES/MDM. The information would	….. After meter installation, customer identification no., meter ID, its hardware & software configuration, name plate details, make, type i.e. 1 Phase or 3 Phase**, DTR No., Feeder No., Multiplying factor etc.** shall be updated in DCU/HES/MDM. The information would also be updated on the portal/app for providing information to

	also be updated on the portal/app for providing information to consumers……..	consumers……..
Volume-II Clause 3.3.4.1.1 (Type tests and test certificates)	Single phase and three phase whole current Smart meter shall be type tested for all the type tests as per IS: 16444 (latest version) and three phase CT operated Smart Meter shall be type tested for all the type tests as per IS: 16444 Part-2 (latest version) in a government approved laboratory. The number of sampling for testing of meters and criteria for conformity would be as per IS 16444 and IS 16444 Part-2. The supplier shall have to submit all type test certificates along with the bid.	Single phase and three phase whole current Smart meter shall be type tested for all the type tests as per IS: 16444 (latest version) and three phase CT operated Smart Meter shall be type tested for all the type tests as per IS: 16444 Part-2 (latest version) in a government approved laboratory. The number of sampling for testing of meters and criteria for conformity would be as per IS 16444 and IS 16444 Part-2. The supplier shall have to submit **Single Phase (of at least 1 current rating) & Three Phase Smart Whole Current Meter Type Test Reports along with the Bid and the Type Test Reports of other variant meters before commencement of supply in line with the specifications mentioned under Volume II, Clause 3.3** ~~**all type test certificates along with the bid**~~
Volume-II Clause 3.3.5(c) (General and Constructional Requirements for Meters)	In Home Display (IHD) shall be optional and the specifications of the same would be as per agreement between the bidder and the utility	**Deleted**
Volume-II Clause 3.3.5.9.1 (Meter Box)	**Refer Annexure-8**	
Volume-II Clause 3.4(g)(x) (AMI Specifications – Communication Infrastructure)	The communication network shall ensure secure communication of data to HES	The communication network shall ensure secure communication of data to HES. **The communication between Router/ DCU and Smart Meters should be encrypted.**
Volume-II Clause 3.4(g)(xi) (Communication	The equipment shall be weatherproof, dustproof and constructed for outdoor installation on poles (minimum rating: IP-55). A suitable mounting provision shall be made for the equipment	The equipment shall be weatherproof, dustproof and constructed for outdoor installation on poles (minimum rating: IP-~~**55**~~ **65**). A suitable mounting provision shall be made for the equipment

Infrastructure)		
Volume-II Clause 3.4.3.1 (Data Concentrator Unit (DCU) based Communication Network)	The Data Concentrator Unit is a gateway for communication of data between the Smart Meters and the HES. The Data Concentrator Unit receives information from the Smart Meter on a scheduled/ need basis and stores the data, which can be accessed by HES for onward transfer to MDM. The DCU provides the central link between Smart Meters and HES, enabling continuous/periodic meter read and control. DCU shall exchange data from smart meters on RF / PLC communication and with HES on WAN.	The Data Concentrator Unit is a gateway for communication of data between the Smart Meters and the HES. The Data Concentrator Unit ~~receives~~ **supports** information **exchange** from the Smart Meter on a scheduled / need basis ~~and stores the data, which can be accessed by~~, **to** HES for onward transfer to MDM. The DCU provides the central link between Smart Meters and HES, enabling continuous/periodic meter read and control. DCU shall exchange data from smart meters on RF ~~/ PLC~~ communication and with HES on WAN.
Volume-II Clause 3.4.3.1.1 (Data Concentrator Unit (DCU) based Communication Network - Hardware & Power Supply of DCU)	• Enclosure/box of DCU shall be minimum IP55 or better compliant. A suitable mounting arrangement required for DCU installation shall also be provided. • A suitable and optimum power supply shall be provided keeping in view that even in case of outage in one or two phases, DCU can be powered. DCU should be capable of withstanding surges & voltage spikes of 6KV as per IEC 61000-4-5 standards. Power supply shall be terminated on suitable sized MCB to facilitate isolation during on-site maintenance. • DCU shall have battery with backup for 5 hour for normal meter reading, to push tamper event, carry out on demand reading and the network health status/ connectivity continuity & check. DCU should have the suitable feature to send power outage and restoration message to the HES. The battery shall have a guaranteed life of 5 years…..	• Enclosure/box of DCU shall be minimum **IP65** ~~55~~ or better compliant. A suitable mounting arrangement required for DCU installation shall also be provided. • A suitable and optimum power supply shall be provided keeping in view that even in case of outage in one or two phases, DCU can be powered. DCU should be capable of withstanding surges & voltage spikes of 6KV as per IEC 61000-4-5 standards. Power supply shall be terminated on suitable sized MCB to facilitate isolation during on-site maintenance. • DCU shall have battery with backup for **8** ~~5~~ hour for normal meter reading, to push tamper event, carry out on demand reading and the network health status/ connectivity continuity & check. DCU should have the suitable feature to send power outage and restoration message to the HES. The battery shall have a guaranteed life of 5 years…..
Volume-II Clause 3.4.3.1.2 (Data	….It shall pull data from the field devices and push the data at configured intervals to the HES. It should also support the HES in pulling data from the field	…It ~~pull data~~ **shall support data transportation** from the field devices ~~and push the data at configured intervals~~ **to the HES as part of push data mechanism**. It should also support the HES in pulling data from the field devices/meters. The data acquisition

Concentrator Unit (DCU) based Communication Network - Configuration, Functionality & Interface of DCU)	devices/meters. The data acquisition (Push/Pull) frequency shall be programmable. DCU shall be capable to prioritize control commands	(Push/Pull) frequency shall be programmable. DCU shall be capable to prioritize **data** ~~**control commands**~~ …
	…… DCU shall ensure a secure communication to HES and shall have internal memory for storing interval data for at least 5 days…	…… DCU shall ensure a secure communication to HES ~~**and shall have internal memory for storing interval data for at least 5 days**~~
	…..The equipment shall be weatherproof, dustproof and constructed for outdoor installation on poles (minimum rating: IP-55). A suitable mounting provision shall be made for the equipment….	…..The equipment shall be weatherproof, dustproof and constructed for outdoor installation on poles (minimum rating: IP-~~**55**~~ **65**). A suitable mounting provision shall be made for the equipment….
Volume-II Clause 3.4.3.2.1(j) (Data Concentrator Unit (DCU) based Communication Network - Router based RF Mesh Network - General Requirement of Router based RF Mesh Network)	The equipment shall be weatherproof, dustproof and constructed for outdoor installation on poles (minimum rating: IP-55). A suitable mounting provision shall be made for the equipment	The equipment shall be weatherproof, dustproof and constructed for outdoor installation on poles (minimum rating: IP-~~**55**~~ **65**). A suitable mounting provision shall be made for the equipment
Volume-II Clause 3.4.3.2.1(m) (Data Concentrator Unit (DCU) based Communication Network - Router based RF Mesh Network - General Requirement of Router based RF Mesh Network)	Routers / Access Points shall have suitable power supply arrangements. Provision of battery backup for at least 5 hour shall be there to continue operation in case of power supply failure. The life expectancy of battery shall be 5 years or more	Routers / Access Points shall have suitable power supply arrangements. Provision of battery backup for at least **8** ~~**5**~~ hour shall be there to continue operation in case of power supply failure. The life expectancy of battery shall be 5 years or more
Volume-II	It shall periodically monitor meter reads/ downstream commands and shall retry and reconnect in case of	It shall periodically monitor **communication network downstream and shall retry and reconnect in case of communication failure**

Clause 3.4.3.2.2.1(f) (Data Concentrator Unit (DCU) based Communication Network - Router based RF Mesh Network - Configuration, Functionality & Interface)	failed events/ reads	**to any node in the network ~~meter reads/ downstream commands and shall retry and reconnect in case of failed events/ reads~~**
Volume-II Clause 3.4.3.2.3 (Data Concentrator Unit (DCU) based Communication Network - Router based RF Mesh Network - Testing of the DCU /Access Point)	……. The bidder shall provide IP-55 compliance test certificate for DCU/Access Point.	……. The bidder shall provide IP-**~~55~~ 65** compliance test certificate for DCU/Access Point.
Volume-II Clause 3.5(e)(xvi) (AMI Specifications – Head End System (HES))	-	**To automatically request first breath message from Smart Meters in case the Smart Meter is communicating after last gasp message**
Volume-II Clause 3.5(e)(xvii) (AMI Specifications – Head End System (HES))	-	**Signal Strength monitoring of devices on which GPRS SIMs are installed**
Volume-II Clause 3.5.3.1(f) (AMI Specifications – Head End System (HES) - Critical Reporting)		**Signal Strength monitoring of devices on which GPRS SIMs are installed.**

Volume-II Clause 3.5.3.1(g) (AMI Specifications – Head End System (HES) - Critical Reporting)	-	**Last Gasp message and First Breath message monitoring**
Volume-II Clause 3.5.3.2.2 (Head End System (HES) - Monitoring and Reporting Capability - Non Critical Reporting)	…… HES shall have feature to send email/SMS notification of configured alarms & events to selected users.	…..HES shall **send all notification to MDM and MDM should ~~have feature to~~** send email/SMS notification of configured alarms & events to selected users
Volume-II Clause 3.6.1(a) (AMI Specifications – Asset Management)	MDM shall maintain information and relationships between the current installed meter location (apartment, shop, industry/ address etc.), Consumer information (Name etc.), Consumer account no, Meter ID, Type of Meter (type of consumer, 1 phase/ 3phase, with or without relay, etc.), Meter configuration (Demand integration period, Load profile capture period etc.), GIS supplied information (longitude, latitude, connection with feeder/ transformer/ pole etc.) etc.	MDM shall maintain information and relationships between the current installed meter location (apartment, shop, industry/ address etc.), Consumer information (Name etc.), Consumer account no, Meter ID, Type of Meter (type of consumer, 1 phase/ 3phase, with or without relay, etc.), Meter configuration (Demand integration period, Load profile capture period etc.), GIS supplied information (longitude, latitude, connection with feeder/ transformer/ pole etc.), **Pole No., DTR No., Feeder No. and Substation Number** etc.
Volume-II Clause 3.6.1(e) (AMI Specifications – Asset Management)	-	**New meter should first fetch the Consumer ID, DTR No., Feeder No. etc. from the CRM application of HPSEB.**
Volume-II Clause 3.6.1(f) (AMI Specifications – Asset Management)	-	**MDM should also check for any duplicate meter no. that may exist in the CRM before its updation into system.**
Volume-II Clause 3.6.3(k) (AMI Specifications – Meter	-	**In case of meter change, MDM should record last reading of old meter and initial reading of new meters and should, accordingly, maintain the proper accounting of Consumer ID wise energy consumption.**

Data)		
Volume-II Clause 3.6.3(l) (AMI Specifications – Meter Data)	-	**Hierarchy should be maintained Consumer ID wise**
Volume-II Clause 3.6.5.5 (Customer Service Support)	MDM shall have the ability to properly account for special metering situations such as check metering, sub metering, prepaid metering and net metering when calculating billing determinants and sending them to billing and other systems	MDM shall have the ability to properly account for special metering situations such as **~~check metering, sub metering,~~** prepaid metering and net metering when calculating billing determinants and sending them to billing and other systems
Volume-II Clause 3.6.5.5.1 (AMI Specifications – Billing Determinants Calculations)	MDM shall have the ability to properly account for special situations including, but not limited to, curtailment requests, demand response scenarios when calculating billing determinants and sending them to billing software	MDM shall have the ability to properly account for special situations including, but not limited to, curtailment requests, demand response scenarios when calculating billing determinants and sending them to billing software. **A process needs to be defined and implemented after approval from HPSEB that any meter change will not have any effect on the TODs of a particular consumer.**
Volume-II Clause 3.6.10(m) (AMI Specifications – Analytics)	-	**Ability to keep track of meters from which first breath message is not received and to request meter to resend first breath message in case the meter did not send it after it started communicating.**
Volume-II Clause 3.6.14.3(e) (AMI Specifications – Integration with other Systems)	Support of interface with HHU or manual reading system etc.	**Deleted**
Volume-II Clause 3.6.14.5 (AMI Specifications – Integration with other Systems)	Contractor should provide suitable number of HHUs to read and update the data in MDM to meet contingency requirement in case of communication failure between meter and HES/MDM	**Deleted**
Volume-II	-	**When a Pre-Paid consumer recharges his account, estimation should be done in such a way that he should be informed that**

Clause 3.7.1(i) (AMI Specifications – Customer Portal)		**in how many days he will exhaust his consumption. Accordingly, logic should be developed that consumer should be informed through email and SMS to recharge his account (10 day, 5 day, 2 day, 1 day) before the expiry of his Pre-Paid consumption which should be calculated based on his previous consumptions and current balance.**
Volume-II Clause 3.7.1(j) (AMI Specifications – Customer Portal)	-	**Consumer should be able to get his hour, day-wise Pre-Paid Consumption and balance remaining.**
Volume-II Clause 3.7.1(k) (AMI Specifications – Customer Portal)	-	**Provision to be made that client should be registered first before giving access of Smart Metering project Dashboard/ Applications/ Modules. The clients that are not registered should not be able to access the Smart Metering project Dashboard/ Applications/ Modules.**
Volume-II Clause 3.7.1(l) (AMI Specifications – Customer Portal)	-	**The communication between Client and Smart Grid Dashboards/ Applications/ Modules should be encrypted.**
Volume-II Clause 3.8.11(c) (Web Application Firewall as Service)	CSP WAF should be able to perform packet inspection on every request covering all 7 layers	CSP WAF should be able to perform packet inspection on every request ~~**covering all 7**~~ **on 7th (Application layer of OSI)** layer~~**s**~~
Volume-II Clause 3.8.13(j) (AMI Specifications – Cyber Security)	-	**Cyber security audit of complete system from Cert-In certified agencies:** **a. Before making system live; and** **b. Annually during FMS period.**
Volume-II Clause 4.4 (Service Level Agreements)	**Refer Annexure-9**	
Volume-II	The Contractor shall provide all necessary software tools …. The product should have facility to export and	**Clause Deleted**

<table>
<tr><td>Clause 7.3.2 (System Software Requirements - Database – Development Tools)</td><td>import databases from different vendors applications</td><td></td></tr>
<tr><td>Volume-II

Clause 9.13.2 (Maintenance - Payment of FMS Charges)</td><td><table><tr><th>Availability of AMI System per Month</th><th>% Deduction</th></tr><tr><td>> 99%</td><td>NIL</td></tr><tr><td>Less than 99%</td><td>Penalty will be 1% of the FMS Charges per month for every 1% or part there of decrease in availability under 99%). Penalty will be calculated separately for Hardware and Software Availability. The maximum deduction shall be limited to FMS charges paid for that particular period.</td></tr></table></td><td><table><tr><th>Availability of AMI System per Month</th><th>% Deduction</th></tr><tr><td>> 97% <s>99%</s></td><td>NIL</td></tr><tr><td>Less than 97% <s>99%</s></td><td>Penalty will be 1% of the FMS Charges per month for every 1% or part there of decrease in availability under 97% <s>99%</s>). Penalty will be calculated separately for Hardware and Software Availability. The maximum deduction shall be limited to FMS charges paid for that particular period.</td></tr></table></td></tr>
<tr><td>Volume-II

Clause 9.16(8) (Responsibility Matrix)</td><td>Manual Meter Read through HHU in case of non-communication of Smart Meters</td><td>Deleted</td></tr>
<tr><td>Volume-II

Annexure A (A3) (Whole Current A.C. Single Phase Two Wire Smart Energy Meter Of Accuracy Class 1.0 (with/ without net-metering) – Other Specifications - Real Time Clock(RTC))</td><td>As per IS 16444/ IS 15884
The clock day/ date setting and synchronization shall only be possible through password/ Key code command from one of the following:
• From remote server through suitable communication network.
• Hand Held Unit (HHU) or Meter testing work bench and this shall need password enabling for meter;
The methodology for the synchronization would be as per requirement of Utility</td><td>As per IS 16444/ IS 15884
The clock day/ date setting and synchronization shall only be possible through password/ Key code command <s>from one of the following:</s>
• From remote server through suitable communication network.
• <s>Hand Held Unit (HHU) or Meter testing work bench and this shall need password enabling for meter;</s>
The methodology for the synchronization would be as per requirement of Utility</td></tr>
<tr><td>Volume-II

Annexure B (B3) (Whole Current A.C. Three Phase Four Wire Smart Energy Meter Of Accuracy Class 1.0</td><td>… Current month MD in kVAh…</td><td>… Current month MD in kVA<s>h</s>…</td></tr>
</table>

(with/ without net-metering) – Other Specifications - Data Display Facility (Manual/ Automatic))		
Volume-II Annexure B (B3) (Whole Current A.C. Three Phase Four Wire Smart Energy Meter Of Accuracy Class 1.0 (with/ without net-metering) – Other Specifications - Real Time Clock(RTC))	As per IS 16444/ IS 15884 The clock day/ date setting and synchronization shall only be possible through password/ Key code command from one of the following: • From remote server through suitable communication network. • Hand Held Unit (HHU) or Meter testing work bench and this shall need password enabling for meter; The methodology for the synchronization would be as per requirement of Utility	As per IS 16444/ IS 15884 The clock day/ date setting and synchronization shall only be possible through password/ Key code command ~~**from one of the following:**~~ • From remote server through suitable communication network. ~~• **Hand Held Unit (HHU) or Meter testing work bench and this shall need password enabling for meter;**~~ The methodology for the synchronization would be as per requirement of Utility
Volume-II Annexure C (Three phase CT operated alternating current smart meter Of Accuracy Class 0.5S (with/ without net-metering) – General Standards Applicable for Meter	General	**The specifications of this Annexure shall also be applicable for Three phase CT-PT operated alternating current smart meter Of Accuracy Class 0.5S .** **For CT-PT operated meter,** **Reference Voltage - /110V phase to phase** **Current Rating - /5A** **Meters shall be programmable in primary values at the time of installation** **For CT operated meter,** **Reference Voltage – 3x240V phase to phase** **Current Rating - /5A**
Volume-II Annexure C (C1) (Three phase CT operated alternating current smart meter Of Accuracy Class 0.5S	IS 15959 Part 1 & Part 2 with latest amendments	IS 15959 ~~**Part 1 &**~~ Part 3 ~~**2**~~ with latest amendments

(with/ without net-metering) – General Standards Applicable for Meter		
Volume-II Annexure C (C3) (Three phase CT operated alternating current smart meter Of Accuracy Class 0.5S (with/ without net-metering) – Other Specifications - Parameters With net-metering)	Instantaneous parameters: As per category C1 meters according to IS 15959: Part-3: 2017. Billing parameters: As per category B meters according to IS 15959: Part-3: 2017 Load survey / Interval data parameters: As per category B meters according to IS 15959: Part-3: 2017. 35 (Power ON) days data to be recorded with 15 minutes integration period. The register shall automatically rollover the data after 35 days based on first in first out (FIFO). Instantaneous Voltage, Instantaneous Current and Instantaneous Power Factor have to read for every 15 minutes as part of Interval data. The billing parameters shall be retained in the meter for 6 months and should automatically rollover.	Instantaneous parameters: As per category C1 meters according to IS 15959: Part-3: 2017. Billing parameters: As per category B meters according to IS 15959: Part-3: 2017 Load survey / Interval data parameters: As per category B meters according to IS 15959: Part-3: 2017. 35 (Power ON) days data to be recorded with 15 minutes integration period. The register shall automatically rollover the data after 35 days based on first in first out (FIFO). Instantaneous Voltage, Instantaneous Current and Instantaneous Power Factor have to read for every 15 minutes as part of Interval data. The billing parameters shall be retained in the meter for 6 months and should automatically rollover.
Volume-II Annexure C (C3) (Three phase CT operated alternating current smart meter Of Accuracy Class 0.5S (with/ without net-metering) – Other Specifications - RTC & time synchronization)	Meter shall have RTC with 20 years calendar programmed in the memory and provision for time synchronization, The maximum drift shall not exceed +/- 300 Seconds per year. The clock day/date setting and synchronization shall only be possible through password/Key code command from one of the following: • Hand Held Unit (HHU) or Meter testing work bench and this shall need password enabling for meter • From remote server through suitable communication network. Contractor shall submit the methodology for the synchronization of RTC.	Meter shall have RTC with 20 years calendar programmed in the memory and provision for time synchronization, The maximum drift shall not exceed +/- 300 Seconds per year. The clock day/date setting and synchronization shall only be possible through password/Key code command ~~from one of the following:~~ ~~• Hand Held Unit (HHU) or Meter testing work bench and this shall need password enabling for meter~~ • From remote server through suitable communication network. Contractor shall submit the methodology for the synchronization of RTC.
Volume-II	LED indicator for pulse/kWh. LED/ LCD indicator for	LED indicator for pulse/kWh. LED/ LCD indicator for tamper,

Annexure C (C3) (Three phase CT operated alternating current smart meter Of Accuracy Class 0.5S (with/ without net-metering) – Other Specifications - LED/ LCD Indicators)	tamper, disconnection, current reversal (not for net-metering).	~~**disconnection,**~~ current reversal (not for net-metering).
Volume-II Annexure C (C3) (Three phase CT operated alternating current smart meter Of Accuracy Class 0.5S (with/ without net-metering) – Other Specifications - Tamper/Event recording)	As per IS 15959 Part-I. 200 events shall be stored in local memory of meters	As per IS 15959 Part-**3** ~~**I**~~. 200 events shall be stored in local memory of meters
Volume-II Annexure C (C3) (Three phase CT operated alternating current smart meter Of Accuracy Class 0.5S (with/ without net-metering) – Other Specifications - Alarm)	Alarm for power on/ off (on restoration of power), Under Voltage, Over Voltage, Over Current, malfunctioning of diagnostic events shall be generated and communicated to the HES immediately	Alarm for power on/ off (on restoration of power), Under Voltage, Over Voltage, Over Current, malfunctioning of ~~**diagnostic**~~ events shall be generated and communicated to the HES immediately
Volume-II Annexure C (C3)	Meter should have four measuring elements - three in phases and one in neutral path.	Meter should have four measuring elements - three in phases and one in neutral path **for sensing**.

(Three phase CT operated alternating current smart meter Of Accuracy Class 0.5S (with/ without net-metering) – Other Specifications - Measuring Elements)		
Volume-II Annexure C (C3) (Three phase CT operated alternating current smart meter Of Accuracy Class 0.5S (with/ without net-metering) – Other Specifications - Anti-Tamper features)	The meter shall continue recording energy under any tamper condition and would log the event and send alarm at Head End System after detection of the defined theft features as per IS 15959 Part 2. Optional test as per requirement of utility: The Meter shall be immune under external magnetic influences as per CBIP 325. Meter shall be tested for high voltage discharge (Spark) up to 35 KV as per CBIP 325.	The meter shall continue recording energy under any tamper condition and would log the event and send alarm at Head End System after detection of the defined theft features as per IS 15959 Part **3** ~~**2**~~. Optional test as per requirement of utility: The Meter shall be immune under external magnetic influences as per CBIP 325. Meter shall be tested for high voltage discharge (Spark) up to 35 KV as per CBIP 325.
Volume-II Annexure F (F1) (Data Requirement Sheet - Single Phase Whole Current Smart Meter - Real Time Clock(RTC))	As per IS 16444/ IS 15884 The clock day/date setting and synchronization shall only be possible through password/Key code command from one of the following: • From remote server through suitable communication network. • Hand Held Unit (HHU) or Meter testing work bench and this shall need password enabling for meter; The methodology for the synchronization would be as per requirement of utility	As per IS 16444/ IS 15884 The clock day/date setting and synchronization shall only be possible through password/Key code command ~~**from one of the following:**~~ • From remote server through suitable communication network. • ~~**Hand Held Unit (HHU) or Meter testing work bench and this shall need password enabling for meter;**~~ The methodology for the synchronization would be as per requirement of utility
Volume-II Annexure F (F2) (Data	… Current month MD in kVAh…	… Current month MD in kVA~~**h**~~…

Requirement Sheet - Three Phase Whole Current Smart Meter - Data Display Facility (Manual/ Automatic))		
Volume-II Annexure F (F2) (Data Requirement Sheet - Three Phase Whole Current Smart Meter - Real Time Clock(RTC))	As per IS 16444/ IS 15884 The clock day/date setting and synchronization shall only be possible through password/Key code command from one of the following: • From remote server through suitable communication network. • Hand Held Unit (HHU) or Meter testing work bench and this shall need password enabling for meter; The methodology for the synchronization would be as per requirement of utility	As per IS 16444/ IS 15884 The clock day/date setting and synchronization shall only be possible through password/Key code command ~~from one of the following:~~ • From remote server through suitable communication network. • ~~Hand Held Unit (HHU) or Meter testing work bench and this shall need password enabling for meter;~~ The methodology for the synchronization would be as per requirement of utility
Volume-II Annexure F (F3) (Data Requirement Sheet - Three Phase CT Operated Smart Meter - RTC & time synchronization)	Meter shall have RTC with 20 years calendar programmed in the memory and provision for time synchronization, The maximum drift shall not exceed +/- 300 Seconds per year. The clock day/date setting and synchronization shall only be possible through password/Key code command from one of the following: • Hand Held Unit (HHU) or Meter testing work bench and this shall need password enabling for meter • From remote server through suitable communication network. Contractor shall submit the methodology for the synchronization of RTC.	Meter shall have RTC with 20 years calendar programmed in the memory and provision for time synchronization, The maximum drift shall not exceed +/- 300 Seconds per year. The clock day/date setting and synchronization shall only be possible through password/Key code command ~~from one of the following:~~ • ~~Hand Held Unit (HHU) or Meter testing work bench and this shall need password enabling for meter~~ • From remote server through suitable communication network. Contractor shall submit the methodology for the synchronization of RTC.
Volume-II Annexure F (F3) (Data Requirement Sheet -	LED indicator for pulse/kWh. LED/LCD indicator for tamper, disconnection, current reversal (not for net-metering).	LED indicator for pulse/kWh. LED/LCD indicator for tamper, ~~disconnection,~~ current reversal (not for net-metering).

Three Phase CT Operated Smart Meter - LED/LCD Indicators)		
Volume-II Annexure F (F3) (Data Requirement Sheet - Three Phase CT Operated Smart Meter - Tamper/Event recording)	As per IS 15959 Part-I. 200 events shall be stored in local memory of meters	As per IS 15959 Part-**3** ~~I~~. 200 events shall be stored in local memory of meters
Volume-II Annexure F (F3) (Data Requirement Sheet - Three Phase CT Operated Smart Meter - Tamper/Event recording)	The meter shall continue recording energy under any tamper condition and would log the event and send alarm at Head End System after detection of the defined theft features as per IS 15959 Part 2…	The meter shall continue recording energy under any tamper condition and would log the event and send alarm at Head End System after detection of the defined theft features as per IS 15959 Part **3** ~~2~~…
Volume-II Annexure F (F6) (Data Requirement Sheet - Data Concentrator Unit (DCU) (If Applicable))	..... The DCU shall ensure the appropriate backhaul for secure transfer of data to HES either via GPRS 3G/4G or Fiber Optic communication. In case of GPRS/3G/4G backhaul, it shall support SIM card with dynamic IP from any service provider. It shall have Wide Area Network (WAN) connectivity to the HES through suitable means	The DCU shall ensure the appropriate backhaul for secure transfer of data to HES either via GPRS 3G/4G or Fiber Optic communication. In case of GPRS/3G/4G backhaul, it shall support **APN based** SIM card ~~**with dynamic IP**~~ from any service provider. It shall have Wide Area Network (WAN) connectivity to the HES through suitable means
	….. DCU shall be able to communicate with meters either on RF mesh (Unlicensed or Licensed frequency band as permitted by WPC) or PLC	….. DCU shall be able to communicate with meters either on RF mesh (Unlicensed or Licensed frequency band as permitted by WPC) ~~**or PLC**~~
General	-	**In case of any discrepancy or any issue related to interpretation of any technical aspects with respect to Smart Meters, the requirements as per relevant IS will prevail.**

Annexure-1

Volume-I, Section 4.3.1: Modified Qualifying Requirement

Amended Provision

A. QR For Meter Manufacturing (In case of a Consortium, this requirement has to be met individually by one of the Consortium Members in its entirety)

S.No	Description	Qualifying Criteria	Evaluation Documents Required
1	Technical Experience	a) The Bidder or any Consortium Member must have 1. Manufactured and supplied minimum 40,000 nos. (cumulative) AMI Meters (AMI meters should be configurable with the software for switching to or over Pre-paid and Post-paid functionality) along with required hardware, software and other associated accessories etc. and successfully integrated with its own or Third Party software and with the existing system of Indian Power Distribution Utility(ies) in the last 7 years (i.e. FY 2012-13 onwards) till the date of submission of bid	i. Copies of Contract/ Purchase Order (PO)/ Work Order (WO) indicating client name, scope of work, period of supply etc. ii. The Bidder to submit a Certificate from the client on successful integration with its own or Third Party software and with the existing systems of Indian Power Distribution Utility(ies) iii. The Bidder to submit a Certificate from the client if available on switching to or over Pre-paid and Post-paid functionality or to submit the documentary evidence of such experience with self-certification from authorized signatory of Bidder
		b) The Bidder/ Consortium Member must have manufacturing facility in India with an in-house NABL accredited lab on the date of submission of bid	i. Valid Registration Certificate of Manufacturing Unit and details of facility ii. Valid NABL Accreditation Certificate
2	Quality Certification	a) The Bidder/ Consortium Member should be ISO 9001:2015 certified OR Bidder should have CMMI Level 3 (minimum) certification. b) Bidder/ Consortium Member should have ISO 14001 and OHSAS18001/ OHSAS45000 series certifications.	A valid ISO and OHSAS certificate on or before the date of submission of bid

A. QR for Communications Network Provider (CNP) (Any Bidder can use credentials of same CNP as a Sub-Contractor for meeting Qualifying Requirement. However, the CNP, if desires, can participate as a Consortium Member only in one (1) Consortium and in such a case, the CNP cannot be a Sub-Contractor of any other Bidder)

S.No.	Description	Qualifying Criteria	Evaluation Documents Required
1.	Technical Experience	a) The CNP should have implemented project(s) with at least 40,000 (cumulatively) communication module/ endpoints (manufacturing, supply, installation, integration, maintenance & management) involving Radio Frequency (RF) mesh in Licensed frequency band as permitted by WPC, Ministry of Communication, Govt. of India or in Unlicensed frequency band in India in the last 7 years (i.e. FY 2012-13 onwards) till the date of submission of bid. b) The CNP must have successfully integrated their NIC/ Communication module with meters of at least 3 manufacturers in India till HES and/or MDMS.	i. Certificate of Incorporation and Registration certificate along with Memorandum & Articles of Association. ii. Copy of valid Licenses (In case of RF, Valid certificate issued by Wireless Planning & Coordination (WPC) Wing of Ministry of Communications, GOI) iii. Contract/ Purchase Order (PO)/ Work Order (WO) indicating client name, scope of work, period of work etc. iv. Certificate from client on successful implementation of project v. Signed agreements/ MoUs for integration of NIC module or Certificate of successful integration
2	Quality Certification	a) CNP should be ISO 9001:2015 certified or Bidder should have CMMI Level 3 (minimum) certification. b) CNP should have ISO 14001 and ISO 27001 certifications.	A valid ISO/CMMi certificate on or before the date of submission of bid.

C1. QR For System Integration (SI) - Integration with MDM (Any Bidder can use credentials of same SI as a Sub-Contractor for meeting Qualifying Requirement. However, the SI, if desires, can participate as a Consortium Member only in one (1) Consortium and in such a case, the SI cannot be a Sub-Contractor of any other Bidder)

S.No.	Description	Qualifying Criteria	Evaluation Documents Required
1	Technical Experience of Integration with MDM	a) The SI must have experience of integration of HES with MDM on standard interfaces and data exchange models (CIM/XML) for at least 40,000 consumers (cumulatively) in Indian Power Distribution Utility(s) in the last 7 years (i.e. FY 2012-13 onwards) till the date of submission of bid.	i. Contract/ Purchase Order (PO)/ Work Order (WO) indicating client name, scope of work, period of work etc. ii. Certificate from the client on successful implementation and operation of the project. iii. In case the SI is a Power Distribution Utility which is having an in house experience, it should submit the documentary evidence of such experience with self-certification from authorized signatory of the System Integrator.

C2. QR for Cloud Service Provider (CSP) (Any Bidder can use credentials of same CSP as a Sub-Contractor for meeting Qualifying Requirement. However, the CSP, if desires, can participate as a Consortium Member only in one (1) Consortium and in such a case, the CSP cannot be a Sub-Contractor of any other Bidder.)

S.No.	Description	Qualifying Criteria	Evaluation Documents Required
1	Technical Experience as Cloud Service Provider	a) CSP must be Empaneled Cloud Service Provider by MEITY (Ministry of Electronics and Information Technology) for Public cloud, Virtual Private Cloud and Community Government Cloud b) CSP Member must have at least 3 Data Centers in at least two different seismic zones in India c) CSP should have at least 5 different Internet Carrier Terminating d) CSP should be having the capability to provide Hybrid Cloud services, i.e. a combination of Private Cloud and Public Cloud infrastructure from each availability zone. e) CSP should have at least two (2) Work Orders from Central Government/ State Government/ PSU /Semi- Government of India in the last 7 years (i.e. FY 2012-13 onwards) till the date of submission of bid.	i. For S.No (a), Bidder should provide valid certificates ii. For S.No (b), (c) and (d), Bidder should submit self-experience certificate duly signed by the Authorized Signatory who is authorized to sign the Bid document iii. For S.No. (e), Contract/ Purchase Order (PO)/ Work Order (WO) indicating client name, scope of work, period of work etc.
	Quality Certification	a) CSP should have the following Quality Certifications: i. ISO/IEC 27001 certified for Information Security with well-planned and structured escalation procedures ii. Certified ISO/IEC 20000-1 for DC service quality and delivery iii. Certified for minimum of Tier III level against TIA-942 specifications iv. Must have Government Community Cloud running audited and successfully audited by STQC.	A valid certificate on or before the date of submission of bid.

D. QR For Meter Data Management Provider (MDMP) (Any Bidder can use credentials of same MDMP as a Sub-Contractor for meeting Qualifying Requirement. However, the MDMP, if desires, can participate as a Consortium Member only in one (1) Consortium and in such a case, the MDMP cannot be a Sub-Contractor of any other Bidder)

S. No.	Description	Qualifying Criteria	Evaluation Documents Required
1	Data handling Capability	a) The MDMP should have successfully implemented and integrated with HES for at-least 40,000 (cumulatively) numbers of smart meter/ AMI system with connect/ disconnect features (i.e. configurable with the software for switching to or over Pre-paid and Post-paid functionality) with two-way communication in any Indian Power Distribution Utility in the last 7 years (i.e. FY 2012-13 onwards) till the date of submission of bid.	i. Contract/ Purchase Order (PO)/ Work Order (WO) indicating client name, scope of work, period of work etc. ii. Certificate from the client on successful implementation on and operation of the project.
2	Ease of integration with HES/ MDAS and Billing	a) The Proposed MDM should have been integrated with minimum 3 different Head End Systems/ MDAS system and 2 different billing system in any Indian Power Distribution Utility in the last 7 years (i.e. FY 2012-13 onwards) till the date of submission of bid.	i. Contract/ Purchase Order (PO)/ Work Order (WO) indicating client name, scope of work, period of work etc. ii. Certificate from the client on successful implementation on and operation of the project.
3	Quality	a) The MDMP should be a 9001:2015 certified.	A valid ISO/ CMMi certificate on or before the date of submission

	Certification	b) MDMP should have CMMI Level 3 (minimum) certification. c) MDMP should have ISO 27001 certification	of bid.

E. QR - Financial Criteria

S.No.	Description	Qualifying Criteria	Evaluation Documents Required
1	Financial Requirement	a) Net Worth in best Three Financial Years out of the last five years (i.e. FY 2014-15 onwards) should be positive. Net worth shall be as defined under the Companies Act, 2013. b) Minimum Average Annual Turnover (MAAT) of the bidder (Average of best Three Financial Years out of the Last Five Financial Years i.e. FY 2014- 15 onwards) should not be less than INR 100 Cr. MAAT means annual total income as incorporated in the profit & loss account except non-recurring income e.g. sale of fixed assets.	Audited Annual financial statements, Balance Sheet and P&L Account for the respective financial years.

Annexure-2

Volume-I, Clause 6.19.1 – Modified Payment Schedule

Amended Provision

The payment terms for AMI system establishment and related services milestones in sequence are given below:

S No	Milestone	Payment (%of Contract Value Excluding FMS Charges)
1	Acceptance of Letter of Award (LoA), submission of Performance Security as per clause 6.21.1.1, execution of Agreement between PFCCL and the Contractor and updation of PFC web portal regarding award details by PFCCL and approval of survey reports of the entire project area.	2%
2	i. Delivery of first lot of 5% of total quantity of smart meters (i.e. 5% of total quantity of smart meters in Shimla and 5% of total quantity of smart meters in Dharamshala) with related hardware, software and equipment at Project site after Factory Acceptance Test (FAT). ii. The quantity may vary depending upon the electrical control area to be covered under this pilot scheme in both the cities to be decided in consultation with HPSEB.	23% of Total Cost as per Schedule A of the Price Bid of the respective city + 23% of Total Cost as per Schedule B of the Price Bid
3	i. Site installation and integration of first lot of 5% of total quantity of smart meters (i.e. 5% of total quantity of smart meters in Shimla + 5% of total quantity of smart meters in Dharamshala) with related hardware, software and equipment and successful completion of Field Installation and Integration Test (FIIT). ii. The quantity may vary depending upon the electrical control area to be covered under this pilot scheme in both the cities to be decided in consultation with HPSEB.	23% of Total Cost as per Schedule C of the Price Bid of the respective city
4	i. Delivery of smart meters along with related hardware, software and equipment etc at Project site after Factory Acceptance Test (FAT). ii. The payment shall be released on lot basis considering delivery of each of 14 lots of having 10000 smart meters in each lot and the balance no. of smart meters in the 15th lot with related hardware, software & equipment. iii. However, payment against delivery of subsequent lot would be released only after successful installation, integration and completion of Field Installation and Integration Test (FIIT) of meters delivered against the previous lot site iv. The delivery of smart meters along with related hardware, software and equipment is to be carried out at Shimla and Dharamshala in parallel.	40% of Total Cost as per Schedule A of the Price Bid of the respective city + 40% of Total Cost as per Schedule B of the Price Bid
5	i. Payment on lot basis on site installation and integration of each of 14 lots of having 10000 smart meters in each lot and the balance no. of smart meters in the 15th lot with related hardware, software & equipment and successful completion of Field Installation and Integration Test (FIIT) of each lot. ii. The installation and integration of smart meters is to be carried out at Shimla and Dharamshala in parallel.	40% of Total Cost as per Schedule C of the Price Bid of the respective city
6	Installation, commissioning and integration of all AMI Hardware, Software, field material in Project Area and Site Acceptance test (SAT) in both the cities	10%
7	3 months of Successful operation of AMI System in both the cities as per SLA/ Guaranteed Performance Test (GPT) and operational acceptance.	5%
8	Completion of 1st year FMS	2.5% every quarter for 1 Year or Entire 10% to be paid on Operational Acceptance of the Project on submission of an additional Bank Guarantee of equivalent amount (valid for 12 months after operational acceptance of the project) by the Bidder to PFCCL.
9	Completion of balance 6 years Facility Management Services (FMS) period	Yearly payments for FMS Period Year 2 to Year 7 (Total 10%) as per below: 1%, 1%, 2%, 2%, 2% & 2%
	Total	100%
10	Charges towards FMS during FMS period of 7 years* *(Total FMS charges for the period of 7 years should be minimum 20% of the Contract Value Excluding FMS Charges)*	On Quarterly basis on satisfactory completion of FMS.

FMS period for a particular lot of meters would commence from the date of Operational Acceptance of that lot and would continue for a period of 84 months from that date.

Annexure-3

Volume-I, Annexure A – Modified Tender Evaluation Methodology

Amended Provision

S. No	Description	Qualifying Criteria	Max Score
1	**Manpower Experience**	Strength of the team proposed for undertaking the assignment including the qualification, experience and time proposed on field as well as on support & maintenance. (Bidders need to provide names of the team members proposed to be deployed along with their relevant experience and Curriculum Vitae signed by the respective person and counter signed by the Authorized Signatory signing the Bid. PFCCL may ask for suitable substitution in place of the proposed manpower, if it is found that the manpower is not suitable as per the requirements of the assignment)	20
2	**Meter Manufacturing Experience**	The Bidder or any Consortium Member must have 1. Manufactured and supplied minimum 40,000 nos. (cumulative) AMI Meters (AMI meters should be configurable with the software for switching to or over Pre-paid and Post-paid functionality) along with required hardware, software and other associated accessories etc. and successfully integrated with its own or Third Party software and with the existing system of Indian Power Distribution Utility(ies) in the last 7 years (i.e. FY 2012-13 onwards) till the date of issuance submission of bid	15
3	**Experience in Integration with MDM**	The System Integration (SI) must have experience of integration of HES with MDM on standard interfaces and data exchange models (CIM/XML) for at least 40,000 consumers (cumulatively) in Indian Power Distribution Utility(s) in the last 7 years (i.e. FY 2012-13 onwards) till the date of submission of bid.	10
4	**Experience as Cloud Service Provider**	Cloud Service Provider (CSP) should have at least two (2) work orders from Central Government / State Government/ PSU /Semi- Government of India in last 7 years (i.e. FY 2012-13 onwards)	10
5	**Experience in Communication**	The Communication Network Provider (CNP) should have implemented project(s) with at least 40,000 (cumulatively) communication module/ endpoints (manufacturing, supply, installation, integration, maintenance & management) involving Radio Frequency (RF) mesh in Licensed frequency band as permitted by WPC, Ministry of Communication, Govt. of India or in Unlicensed frequency band in India in the last 7 years (i.e. FY 2012-13 onwards) till the date of submission of bid.	10
6	**Experience as Meter Data Management (MDM) Provider**	The Meter Data Management Provider (MDMP) should have successfully implemented and integrated with HES for at-least 40,000 (cumulatively) numbers of smart meter/ AMI system with connect/ disconnect features (i.e. configurable with the software for switching to or over Pre-paid and Post-paid functionality) with two-way communication in any Indian Power Distribution Utility in the last 7 years (i.e. FY 2012-13 onwards) till the date of issuance submission of bid.	10
7	**Approach & Methodology**	Bidder to submit a brief on Approach & Methodology for executing the Project	10
8	**Financial Criteria**	Minimum Average Annual Turnover (MAAT) of the bidder (Average of best Three Financial Years out of the Last Five Financial Years i.e. FY 2014- 15 onwards) should not be less than INR 100 Cr	15
		Total	**100**

The proposed core team shall comprise of the following experts:

Requirement	Criteria	Score
Expert 1: Team Leader/ Project Manager	Expert in AMI Implementation including metering and related aspects, installation and management of smart meters, communication network, last mile connectivity, head end system and MDMS. He should have minimum 10 years of relevant experience.	**5**
Expert 2	Expert in System Integration covering application software, hardware and network installation, integration design and ability to manage multiple partners with different skill sets in different technology domains. He should have minimum 5 years of relevant experience.	**5**
Expert 3	Expert in cyber security related aspects covering planning & implementing high level system security requirements, managing data privacy & confidentiality, information flow through adequate authorizations, threat modelling & security testing. He should have minimum 5 years of relevant experience.	**5**
Expert 4	Expert in communication protocols and in implementing applications using different communication technologies and ensuring communication inter-operability across applications/functionalities. He should have minimum 5 years of relevant experience.	**5**

Above core team shall not be allowed to be replaced during project execution. In exceptional cases same maybe done with prior approval

Requirement	Criteria	Score
Bidder or any Consortium Member must have manufactured and supplied minimum 40,000 nos. (cumulative) AMI Meters (AMI meters should be configurable with the software for switching to or over Pre-paid and Post-paid functionality) along with required hardware, software and other associated accessories etc. and successfully integrated with its own or Third Party software and with the existing system of Indian Power Distribution Utility(ies) in the last 7 years (i.e. FY 2012-13 onwards) till the date of issuance submission of bid.	>=80,000	15
	>= 60,000 and <80,000	10
	>= 40,000 and <60,000	5

Requirement	Criteria	Score
The Communication Network Provider (CNP) should have implemented project(s) with at least 40,000 (cumulatively) communication module/ endpoints (manufacturing, supply, installation, integration, maintenance & management) involving Radio Frequency (RF) mesh in Licensed frequency band as permitted by WPC, Ministry of Communication, Govt. of India or in Unlicensed frequency band in India in the last 7 years (i.e. FY 2012-13 onwards) till the date of submission of bid.	>=80,000	10
	>= 60,000 and <80,000	7
	>= 40,000 and <60,000	5

Requirement	Criteria	Score
Cloud Service Provider (CSP) should have at least two (2) work orders from Central Government / State Government/ PSU /Semi- Government of India in last 7 years (i.e. FY 2012-13 onwards)	>= 4	10
	=3	7
	=2	5

Requirement	Criteria	Score
The Meter Data Management Provider (MDMP) should have successfully implemented and integrated with HES for at-least 40,000 (cumulatively) numbers of smart meter/ AMI system with connect/ disconnect features (i.e. configurable with the software for switching to or over Pre-paid and Post-paid functionality) with two-way communication in any Indian Power Distribution Utility in the last 7 years (i.e. FY 2012-13 onwards) till the date of issuance submission of bid.	>=80,000	10
	>= 60,000 and <80,000	7
	>= 40,000 and <60,000	5

Requirement	Criteria	Score
The System Integration (SI) must have experience of integration of HES with MDM on standard interfaces and data exchange models (CIM/XML) for at least 40,000 consumers (cumulatively) in Indian Power Distribution Utility(s) in the last 7 years (i.e. FY 2012-13 onwards) till the date of submission of bid.	>=80,000	10
	>= 60,000 and <80,000	7
	>= 40,000 and <60,000	5

Requirement	Criteria	Score
Minimum Average Annual Turnover (MAAT) of the bidder (Average of best Three Financial Years out of the Last Five Financial Years i.e. FY 2014- 15 onwards) should not be less than INR 100 Cr. MAAT means annual total income as incorporated in the profit & loss account except non-recurring income e.g. sale of fixed assets	>= Rs 200 Cr	15
	>= Rs 150 Cr and < Rs 200 Cr	10
	>= Rs100 Cr and < Rs 150 Cr	5

Annexure-4

Volume-I, Annexure 10: Format of Bill of Quantities (Revised Quantities)

Table 1: Bill of Materials for AMI Components

S. No.	Item Description	Unit	Quantity	
			Shimla	Dharamsala
1.	Single Phase Whole current Smart Meter 10-60 A with Box	Nos.	81020	22291
2.	Single Phase Whole current Smart Meter 20-80 A with Box	Nos.	34723	9553
3.	Three Phase Whole current Smart Meter 10-60 A with Box	Nos.	1577	870
4.	HT Meters (110 V, 5 A)	Nos.	135	40
5	LT-CT Meters for Consumers/ DTR (3x240 V, 5 A)	Nos.	1126	405
6.	Modular RF Mesh Module (for installation with each meter)	Nos	118581	33159
7.	Data Concentrator Units/Gateway/Router for forming RF Mesh Canopy *(Data Concentrator Units/Gateway/Router should take care of any future consumer growth as per HPSEB)*	Lumpsum	1	1
8.	IT Infrastructure over cloud & Connectivity, system Integration (Including application License fees) and any other hardware equipment/ software as defined in the Technical Specifications of RfP			
a	Head End System (HES) licenses	Lumpsum		1
b	Meter Data management System and Android &/ IOS Mobile App and web portal	Lumpsum		1
c	System Implementation	Lumpsum		1
d	Advisory Services on system operation till 1 year after operational acceptance	Lumpsum		1
9.	**Control Center Infra**			
a.	Work Station Dual TFT Monitor -	Nos	4	2
b.	LED Display 50"	Nos	2	2
c.	Network Switch	Nos	1	1
d.	Network Printer	Nos	1	1
e.	Work Station Desk [3'5" X 2'.0] Type - Modular	Nos	4	2
f.	Work Station Chairs	Nos	6	4
g.	3KVA Online UPS with 1 hour back up and required electrical accessories	Nos	1	1
10.	Training & Development – Providing training of identified personnel of PFCCL and HPSEB on operation and maintenance of AMI Infrastructure (at least 2 times a year during first 3 years for 6 persons per batch)	Lumpsum		1
11.	Backhaul Connectivity (SIM/MPLS/Optic Fibre) for RF Mess canopy	Nos.	1	1

Table 2: Bill of Materials and Services for FMS

S. No.	Item Description	Unit	Quantity	
			Shimla	Dharamsala
1.	Field Maintenance services for meters of all category and modular RF mesh Module (for installation with each meter)	Nos.	118581	33159
2.	Field Maintenance services for complete canopy of the project area.	Lot	1	1
3.	AMC-System Integrated, application maintenance support and advisory services.	Lot	1	1
4.	Cloud services (Annual hosting fee) Including Bandwidth charges	Lot	1	1
5.	Software Licence AMC for HES, MDM, or if any	Lot	1	1
6.	Backhaul connectivity (SIM/MPLS/Optic fibre) for RF Mesh Canopy	Nos	1	1

Annexure-5

Volume-I, Annexure - Quoted Prices for the Financial Bid (Revised)

Table: Bill of Materials and Services

Table 1: Schedule A - Price Schedule for Supply of Items

Shimla

S. No.	Particulars	HSN/ SAC Code	Unit	Total Tender Quantity	Ex-Works Price (Rs./Unit)	Freight & Insurance Charges (Rs./Unit)	Total (Rs. /Unit)	GST Total						Total GST Amount (Rs./Unit)	Total for Destination Price inclusive of Ex-Works Freight & Insurance (Rs./Unit)	Grand Total (Rs.)
								CGST		SGCT		IGST				
								%	(Rs./Unit)	%	(Rs. /Unit)	%	(Rs./Unit)			
1	2	3	4	5	6	7	8=6+7	9	10=8x9	11	12=8x11	13	14=8x13	15=10+12+14	16=8+15	17=16x5
1	Single Phase Whole current Smart Meter 10-60 A with Box		Nos.	81020												
2	Single Phase Whole current Smart Meter 20-80 A with Box		Nos.	34723												
3	Three Phase Whole current Smart Meter 10-60 A with Box		Nos.	1577												
4	HT Meters (110 V, 5 A)		Nos.	135												
5	LT-CT Meters for Consumers/ DTR (3x240 V, 5 A)		Nos.	1126												
6	Modular RF Mesh Module (for installation with each meter)		Nos	118581												
7	Data Concentrator Units/Gateway/Router for forming RF Mesh Canopy *(Data Concentrator Units/ Gateway/Router should take care of any future consumer growth as per HPSEB)*		Lumpsum	1												
8	**Control Center Infra**															
a	Work Station Dual TFT Monitor -		Nos.	4												
b	LED Display 50"		Nos.	2												
c	Network Switch		Nos.	1												
d	Network Printer		Nos.	1												
e	Work Station Desk [3'5" X 2'.0] Type - Modular		Nos.	4												
f	Work Station Chairs		Nos.	6												
g	3KVA Online UPS with 1 hour back up and required electrical accessories		Nos.	1												
9	Backhaul Connectivity (SIM/MPLS/Optic Fibre) for RF Mess canopy		Nos.	1												
Total																

Dharamsala

S. No.	Particulars	HSN/ SAC Code	Unit	Total Tender Quantity	Ex-Works Price (Rs./Unit)	Freight & Insurance Charges (Rs./Unit)	Total (Rs. /Unit)	GST Total						Total GST Amount (Rs./Unit)	Total for Destination Price inclusive of Ex-Works Freight & Insurance (Rs./Unit)	Grand Total (Rs.)
								CGST		SGCT		IGST				
								%	(Rs./Unit)	%	(Rs. /Unit)	%	(Rs./Unit)			
1	2	3	4	5	6	7	8=6+7	9	10=8x9	11	12=8x11	13	14=8x13	15=10+12+14	16=8+15	17=16x5
1	Single Phase Whole current Smart Meter 10-60 A with Box		Nos.	22291												
2	Single Phase Whole current Smart Meter 20-80 A with Box		Nos.	9553												
3	Three Phase Whole current Smart Meter 10-60 A with Box		Nos.	870												
4	HT Meters (110 V, 5 A)		Nos.	40												
5	LT-CT Meters for Consumers/ DTR (3x240 V, 5 A)		Nos.	405												
6	Modular RF Mesh Module (for installation with each meter)		Nos	33159												
7	Data Concentrator Units/Gateway/Router for forming RF Mesh Canopy *(Data Concentrator Units/Gateway/Router should take care of any future consumer growth as per HPSEB)*		Lumpsum	1												
8	**Control Center Infra**															
a	Work Station Dual TFT Monitor -		Nos.	2												
b	LED Display 50"		Nos.	2												
c	Network Switch		Nos.	1												
d	Network Printer		Nos.	1												
e	Work Station Desk [3'5" X 2'.0] Type - Modular		Nos.	2												
f	Work Station Chairs		Nos.	4												
g	3KVA Online UPS with 1 hour back up and required electrical accessories		Nos.	1												
9	Backhaul Connectivity (SIM/MPLS/Optic Fibre) for RF Mess canopy		Nos.	1												
Total																

Schedule B - Price Schedule for Supply of Common Items (Shimla & Dharamsala)

S. No.	Particulars	HSN/ SAC Code	Unit	Total Tender Quantity	Ex-Works Price (Rs./Unit)	Freight & Insurance Charges (Rs./Unit)	Total (Rs. /Unit)	GST Total						Total GST Amount (Rs./Unit)	Total for Destination Price inclusive of Ex-Works Freight & Insurance (Rs./Unit)	Grand Total (Rs.)
								CGST		SGCT		IGST				
								%	(Rs./Unit)	%	(Rs. /Unit)	%	(Rs./Unit)			
1	2	3	4	5	6	7	8=6+7	9	10=8x9	11	12=8x11	13	14=8x13	15=10+12+14	16=8+15	17=16x5
1	IT Infrastructure over cloud & Connectivity, system Integration (Including application License fees) and any other hardware equipment/ software as defined in the Technical Specifications of RfP															
a	Head End System (HES) licenses		Lumpsum	1												
b	Meter Data management System and Android &/ IOS Mobile App and web portal		Lumpsum	1												
c	System Implementation		Lumpsum	1												
d	Advisory Services on system operation till 1 year after operational acceptance		Lumpsum	1												
2	Training & Development – Providing training of identified personnel of PFCCL and HPSEB on operation and maintenance of AMI Infrastructure (at least 2 times a year during first 3 years for 6 persons per batch)		Lumpsum	1												
Total																

Table 2: Schedule C - Price Schedule for Erection, Site Installation & integration of items along with related hardware, software & equipment after successful completion of Field Installation and Integration Test (FIIT)

Shimla

S. No.	Particulars	HSN/ SAC Code	Unit	Total Tendered Quantity	Erection Price* (Rs./Unit)	GST						Total GST Amount (Rs./Unit)	Total Price inclusive of GST (Rs./Unit)	Grand Total (Rs.)
						CGST		SGCT		IGST				
						%	(Rs./Unit)	%	(Rs./Unit)	%	(Rs./Unit)			
1	2	3	4	5	6	7	8=7x6	9	10=9x6	11	12=11x6	13=8+10+12	14=13+6	15=14x5
1	Single Phase Whole current Smart Meter 10-60 A with Box		Nos.	81020										
2	Single Phase Whole current Smart Meter 20-80 A with Box		Nos.	34723										
3	Three Phase Whole current Smart Meter 10-60 A with Box		Nos.	1577										
4	HT Meters (110 V, 5 A)		Nos.	135										
5	LT-CT Meters for Consumers/ DTR (3x240 V, 5 A)		Nos.	1126										
6	Data Concentrator Units/ Gateway/ Router for forming RF Mesh Canopy		Lumpsum	1										
Total														

*** Erection Price is inclusive of erection, Site Installation & integration of items along with related hardware, software & equipment after successful completion of Field Installation and Integration Test (FIIT)**

Dharamsala

S. No.	Particulars	HSN/ SAC Code	Unit	Total Tendered Quantity	Erection Price (Rs./Unit)	GST						Total GST Amount (Rs./Unit)	Total Price inclusive of GST (Rs./Unit)	Grand Total (Rs.)
						CGST		SGCT		IGST				
						%	(Rs./Unit)	%	(Rs./Unit)	%	(Rs./Unit)			
1	2	3	4	5	6	7	8=7x6	9	10=9x6	11	12=11x6	13=8+10+12	14=13+6	15=14x5
1	Single Phase Whole current Smart Meter 10-60 A with Box		Nos.	22291										
2	Single Phase Whole current Smart Meter 20-80 A with Box		Nos.	9553										
3	Three Phase Whole current Smart Meter 10-60 A with Box		Nos.	870										
4	HT Meters (110 V, 5 A)		Nos.	40										
5	LT-CT Meters for Consumers/ DTR (3x240 V, 5 A)		Nos.	405										
6	Data Concentrator Units/ Gateway/ Router for forming RF Mesh Canopy		Lumpsum	1										
Total														

*** Erection Price is inclusive of erection, Site Installation & integration of items along with related hardware, software & equipment after successful completion of Field Installation and Integration Test (FIIT)**

Table 4: Schedule D - Price Schedule for FMS

Shimla

S. No.	Particulars	HSN / SAC Code	Unit	Total Tender Qty	FMS Charge Rate/Year/unit item or equipment in Rs.							FMS Charge Rate/Year in Rs.							Total FMS Charges for 7 years in Rs.	GST on total FMS Charges for 7 years						Total GST Amount (Rs.)	FMS Charges for 7Years in Rs.
																				CGST		SGCT		IGST			
					Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6	Yr 7	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6	Yr 7		%	(Rs./ Unit)	%	(Rs./ Unit)	%	(Rs./ Unit)		
1	2	3	4	5=5a+5b	6	7	8	9	10	11	12	13=6x5	14=7x5	15=8x5	16=9x5	17=10x5	18=11x5	19=12x5	20=13+14+15+16+17+18+19	21	22=20x21	23	24=20*23	25	26=20*25	27=22+24+26	28=20+27
1	Field Maintenance services for meters of all category and modular RF mesh Module (for installation with each meter)		Nos.	118581																							
2	Software Licence AMC for HES, MDM, or if any		Lot	1																							
3	Backhaul connectivity (SIM/MPLS/Optic fibre) for RF Mesh Canopy		Nos	1																							
Total																											

Dharamsala

S. No.	Particulars	HSN / SAC Code	Unit	Total Tender Qty	FMS Charge Rate/Year/unit item or equipment in Rs.							FMS Charge Rate/Year in Rs.							Total FMS Charges for 7 years in Rs.	GST on total FMS Charges for 7 years						Total GST Amount (Rs.)	FMS Charges for 7Years in Rs.
																				CGST		SGCT		IGST			
					Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6	Yr 7	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6	Yr 7		%	(Rs./ Unit)	%	(Rs./ Unit)	%	(Rs./ Unit)		
1	2	3	4	5=5a+5b	6	7	8	9	10	11	12	13=6x5	14=7x5	15=8x5	16=9x5	17=10x5	18=11x5	19=12x5	20=13+14+15+16+17+18+19	21	22=20x21	23	24=20*23	25	26=20*25	27=22+24+26	28=20+27
1	Field Maintenance services for meters of all category and modular RF mesh Module (for installation with each meter)		Nos.	33159																							
2	Field Maintenance services for complete canopy of the project area.		Lot	1																							
6	Backhaul connectivity (SIM/MPLS/Optic fibre) for RF Mesh Canopy		Nos	1																							
Total																											

Schedule E - Price Schedule for FMS of Common Items

S. No.	Particulars	HSN / SAC Code	Unit	Total Tender Qty	FMS Charge Rate/Year/unit item or equipment in Rs.							FMS Charge Rate/Year in Rs.							Total FMS Charges for 7 years in Rs.	GST on total FMS Charges for 7 years						Total GST Amount (Rs.)	FMS Charges for 7Years in Rs.
																				CGST		SGCT		IGST			
					Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6	Yr 7	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6	Yr 7		%	(Rs./ Unit)	%	(Rs./ Unit)	%	(Rs./ Unit)		
1	2	3	4	5=5a+5b	6	7	8	9	10	11	12	13=6x5	14=7x5	15=8x5	16=9x5	17=10x5	18=11x5	19=12x5	20=13+14+15+16+17+18+19	21	22=20x21	23	24=20*23	25	26=20*25	27=22+24+26	28=20+27
3	FMS-System Integrated, application maintenance support		Lot	1																							
4	Cloud services (Annual hosting fee) Including Bandwidth charges		Lot	1																							
5	Software Licence AMC for HES, MDM, or if any		Lot	1																							
Total																											

Table 5 – Total Price

1	Schedule "A"	**Total Quoted Rate Against price schedule "A (Supply)" in Rs.:**	**Shimla**	
			Dharamsala	
			Total	
2	Schedule "B"	**Total Quoted Rate Against price schedule "B (Supply of Items Common for Shimla and Dharamsala)" in Rs.:**	**Total**	
3	Schedule "C"	**Total Quoted Rate Against price schedule "C (Erection, Site Installation & Integration)" in Rs.:**	**Shimla**	
			Dharamsala	
			Total	
4	Schedule "D"	**Total Quoted Rate Against price schedule "D (FMS)" in Rs.:**	**Shimla**	
			Dharamsala	
			Total	
5	Schedule "E"	**Total Quoted Rate Against price schedule "E (FMS of Items Common for Shimla and Dharamsala)" in Rs.:**	**Total**	
6	A+B+C+D+E	**Total Quoted Rate in Rs. (Schedule A+B+C+D+E):**		

Annexure-6

Volume-I, Annexure 17 (Price Bid Format) (Revised)

Attached as excel sheet

Annexure-8

Format of Performance Security to be provided by Selected Bidder

[To be on non-judicial stamp paper of Rupees One Hundred Only (INR 100/-) or appropriate value as per Stamp Act relevant to place of execution, duly signed on each page. Foreign entities submitting Bid are required to follow the applicable law in their country]

Reference No. ……. Bank Guarantee No. ……. Dated: …….

To:
[Employer]
[Address]

Dear Sir/ Madam,

WHEREAS……. *[Insert name of the Lead Consortium Member]* with address ……. [Insert address of the Lead Consortium Member] having its registered office at ……. [Insert address of the Lead Consortium Member] (hereinafter, the "Contractor"), subsequent to participation in Tender No. **Smart_Metering/Himachal_Pradesh/A136** (the "RFP") issued by PFCCL (hereinafter, the "Beneficiary") for Appointment of AMI Implementation Agency for implementation of Smart Metering in Shimla and Dharamsala City in Himachal Pradesh under Himachal Pradesh State Electricity Board Ltd. (HPSEB Ltd.), have been issued the Letter of Award as the Selected Bidder.

And WHEREAS a Bank Guarantee for Rupees ……. *[Insert amount in words]* (…….) *[Insert amount in figures]* valid till……. [Insert date four years from the date of issue of this Performance Security] is required to be submitted by the Contractor as per the terms and conditions of the RFP.

We,…….*[Insert name of the Bank and address of the Branch giving the Bank Guarantee]* having our registered office at …….[Insert address of the registered office of the Bank] hereby give this Bank Guarantee No. …….[Insert Bank Guarantee number] dated …….[Insert the date of the Bank Guarantee], and hereby agree unequivocally and unconditionally to pay immediately on demand in writing from the Beneficiary any officer authorized by it in this behalf any amount not exceeding Rupees ……. [Insert amount in words] (…….) [Insert amount in figures] to the said Beneficiary on behalf of the Contractor.

We ……. *[Insert name of the Bank]* also agree that withdrawal of the Bid or part thereof by the Bidder within its validity or non-submission of Performance Security by the Bidder within the stipulated time of the Letter of Award to the Bidder or any violation to the relevant terms stipulated in the RFP would constitute a default on the part of the Bidder and that this Bank Guarantee is liable to be invoked and encashed within its validity by the Beneficiary in case of any occurrence of a default on the part of the Bidder and that the encashed amount is liable to be forfeited by the Beneficiary.

This agreement shall be valid and binding on this Bank up to and inclusive of ……. [Insert the date of validity of the Bank] and shall not be terminable by notice or by Guarantor change in the constitution of the Bank or the firm of the Bidder Or by any reason whatsoever and our liability hereunder shall not be impaired or discharged by any extension of time or variations or alternations made, given, conceded with or without our knowledge or consent by or between the Bidder and the Beneficiary.

NOTWITHSTANDING anything contained hereinbefore, our liability under this guarantee is restricted to Rupees (10% of the order value). Our Guarantee shall remain in force till ……. *[Insert date six months from date of completion of seven year FMS of the project]*. Unless demands or claims under this Bank Guarantee are made to us in writing on or before……. [Insert date *six months and one month after one (1) year from the date of Operational Acceptance of the project*], all rights of the Beneficiary under this Bank Guarantee shall be forfeited and we shall be released and discharged from all liabilities there under.

[Insert the address of the Bank with complete postal branch code, telephone and fax numbers, and official round seal of the Bank]

[Insert signature of the Bank's Authorized Signatory]

Attested:

……. [Signature] (Notary Public)

Place: ……. Date: …….

INSTRUCTIONS FOR SUBMITTING BANK GUARANTEE

1. Bank Guarantee to be executed on non-judicial stamp paper of appropriate value as per Stamp Act relevant to place of execution. Foreign entities submitting Bids are required to follow the applicable law in their country.
2. The Bank Guarantee by Bidder shall be given from Bank which is recognized or notified by the Finance Department, Government of India from time to time
3. The full address along with the Telex/Fax No. and e-mail address of the issuing bank to be mentioned.

Annexure-8

Volume-II, Clause 3.3.5.9.1 (Meter Box)

TECHNICAL SPECIFICATIONS FOR 1 IN 1 DEEP DRAWN METAL METER BOX FOR SINGLE PHASE METERS OF DIFFERENT RATINGS AND MAKES

1. SCOPE

These specifications cover the Design, Manufacturing, Testing, Pre-dispatch inspection by purchaser and Supply of CRCA M.S. Sheet Deep Drawn Metal Meter boxes (MMBs) for housing single phase energy metes for electric connections of different categories.

2. STANDARDS

Unless otherwise specified in this specification the enclosure box shall comply with **IS: 14772** amended up to date.

3. CONSTRUCTIONAL AND TECHNICAL PARTICULARS:

3.1 The MMBs shall be dust and vermin proof for housing, Single Phase energy meters of any make. The internal dimensions of MMB shall be 250mmx220mmx135mm (i.e. height x width x depth)

3.2 The MMB shall be made from 20 SWG CRCA M.S sheet by Deep Drawn method. The base cover of the MMB shall be individually in one piece without any welding except for fixing of the accessories like hinges, clamps, handle etc. which shall be spot welded. The cover of MMB shall be fixed on two tamper proof inside hinges not visible from outside. Hinges shall be made from 1.6mm CRCA M.S sheet. The door of MMB shall open from right to left by minimum 90º. The collar of the door (cover) in closed position shall rest on the collar of body (Base) of MMB and shall overlap the collar of the body of MMB. The collar of the body shall be provided with good quality rubber gasket lining of min. 3mm thickness. Thickness of rubber lining shall be such that it provides proper sealing between the cover and base of MMB to avoid penetration of dust and ingress of water. The box shall comply with requirement of IP 33. Rubber lining should be fixed with suitable adhesive so that the same does not get removed by itself on opening of the door.

3.3 A viewing window of the size 110mm x 120mm shall be provided about 35mm below top edge of MMB to facilitate taking of meter readings. Viewing window shall be provided with toughened glass of 5mm thickness. Glass shall have “HPSEBL” logo of minimum 12mm height on the right side top corner of the glass. This glass shall be fixed from inside of the cover of MMB with powder coated single piece drawn metal frame (Glass Holder) made of 20 SWG CRCA M.S sheet fixed with min. four welded screws and nuts. Glass holder screws and nuts shall be inside the cover, so that it cannot be opened from outside. Glass holder shall have rectangular cuttings. The size of toughened glass shall be

130mmx140mm so as to provide minimum overlap of 10mm. This glass has to be fitted with a wrap around single piece rubber ring without joint having minimum depth of 8mm made from good quality rubber so that it can with stand weather effect.

3.4 A handle of minimum 60mm length 10mm width of 20 SWG sheet thickness should be provided for opening and closing of the cover.

3.5 The mounting arrangement of the meter should be raised from the base of MMB body by 15mm. The zinc plated or powder coated adjustable strip shall be provided on meter mounting arrangement for fixing of the meter. The supplier shall supply three mounting MS screws, one for upper (M4 threads x length 12mm) and two (M4 threads x 35 mm length) in moving slotted flat.

3.6 Four Nos. fixing holes of 6.5mm diameter at the back of surface of MMB shall be provided to fix the MMB at flat wall or surface. For fixing of MMB 4 nos. 5mm diameter 40mm long pan head self taping screws and washers shall be provided by the supplier with every MMB 4 Nos. plastic fixing plugs of 50mm length suitable for self tapping screws shall also be provided.

3.7 2 Nos. holes with superior quality plastic/rubber cable glands shall be provided at the bottom of MMB. Internal diameter for incoming/outgoing gland shall be 30mm. Glands shall be made such that internal diameter of glands provided for cables should be closed with the firm of minimum 1mm thickness. Cable will go through the cable glands by cutting the film of the glands.

3.8 Louvers for ventilation shall be provided on the sidewalls of the box 20SWG perforated sheet shall be welded from inside of the louvers.

3.9 MMB shall be adequately protected against rust, dust water and corrosion both from inside and outside. The MMB shall have Light Admiralty grey shade (IS:1993,COLOUR NO-697) on outside and white on inside. The MMB shall be powder coated only. The surface of the MMB shall be properly pre-treated and cleaned and shall be applied with a powder coating of suitable thickness on outer side and inside. The facility for Phosphating and powder coating shall be in-house of the tenderer to ensure proper quality, since these boxes are for outdoor applications.

3.10 Earthing screw of diameter M6 threads with washer shall be provided in the threads of L-shape clamp welded to main body on left side.

3.11 All the screws and washers shall be properly zinc coated.

3.12 The tolerance permissible on the overall dimensions and weight of the MMB shall be (+/-) 2%. However, the tolerance for the fittings shall be (+/-) 3%. The actual weight of sample shall be mentioned while quoting and shall be ensured as guaranteed technical particular.

3.13 There should be proper arrangement inside the box for holding the incoming and outgoing cables so that in case of any accidental pull on either of incoming or out-going , the pull's tensile impact should not be transferred to meter terminal but should be dampened by the pull-obstructing mechanism.

4. MARKINGS: The following should be suitably marked /printed on the meter box indelibly.

Manufacturer Name:
Year of manufacturing:
HPSEBL Logo:
Electrical Danger mark as per IE rules (Red in Colour):
P.O. No. :

4.1. Climatic conditions: The meter box shall be suitable for following conditions:-

i) Minimum Ambient temperature: (-) 35°C.
ii) Maximum Ambient temperature: 55°C.
iii) Relative humidity : 26%
iv) Maximum relative humidity : upto 95%
v) Average Annual Rain fall: 150cm

5. The box shall comply with requirement of IP 33. The box shall be fully type tested for IP 33 with dimensions as per IS 13947 (Part-I). The type test shall be carried out from the Govt. approved NABL accredited laboratories or ERDA Vadodara and shall be submitted along with the tender failing which the tender of the firm shall not be opened. Government approved laboratories should be accredited by the National Board of Testing and calibration Laboratories (NABL) of Govt. of India. **The type test report shall not be older than 3 years**.

6.0 GUARANTEED TECHNICAL PARTICULARS:

Guaranteed Technical particulars are as per the following:

S. No.	Description	Specifications Parameters	To be filled up by the Bidder
1	Material	CRCA (Cold rolled M.S. Sheet)	
2	Manufacturer Name		
3	Manufacturing Process	Deep Drawn	
4	Size of Deep Drawn Metal Meter Box (Internal Dimension)	250mmx220mmx135mm (Tolerance±2%)	
5	Sheet Thickness (in SWG)	20 SWG (Tolerance as per relevant IS)	
6	Hinge Sheet Thickness	1.6mm (Tolerance as per relevant IS)	
7	Glass Holder	Single piece drawn frame	
8	Sheet Thickness of Glass holder	20 SWG (Tolerance as per relevant IS)	
9	Window size	110mm x 120mm	

	Fixing of toughened glass	Fitted from inside in such a way that it cannot be replaced without opening door(with plastic frame all around)	
10	Earthing Arrangement		
	Earthing bolt	One No. of zinc passivated earthing bolt of MS with 2 nuts and 2 washers and spring washer. Irremovable earthing sign has to be provided near to earthing bolt	
	Dia & length of earthing bolts	Dia. 6mm length 25 mm	
11	Door locking	For holding of door with base one no. "U" shaped clamps to be provided, which should be ultrasonically welded from inside of the box.	
12	Marking : As per clause No. 4.0	To be provided on the front side of the box indelibly/embossed	
13	Sealing arrangement	Holes for wire seal	
14	Wire entry and exit	30 mm dia hole from bottom fitted with long life rubber grommets	
15	Colour of meter box	Outside: Grey Inside : white	
16	Meter Mounting arrangement	Universal type to suit mounting of any make of meter broadly as per the drawing to be supplied by the manufacturer at bidding stage for approval.	

Bidder shall submit the data in given Performa. Non-submission of GTP's may lead to the rejection of bid out rightly.

7.0 TYPE TEST CERTIFICATE:

The bidder shall submit type test report as per IS-14772 from ERDA, Vadodara or any other NABL approved lab along with the offer. Type Test Certificate should not be older than **Three years** as on the date of tender opening.

8.0 ROUTINE & ACCEPTANCE TESTS:

Manufacturer has to carryout routine test during production to check the essential requirements that are likely to vary during production. Manufacture has to keep records of the same and to be produced for verification of inspector when asked at the time of inspection of lot. The lot wise production variation if any should be as minimum as possible. The acceptance tests shall be carried out on randomly selected samples. It shall be obligatory on the part of manufacturer to get the routine/acceptance tests witnessed by the authorized representative of HPSEB Ltd.

9.0. TYPE TEST:

From the first offered lot, 3 nos. samples shall be picked up randomly at the discretion of HPSEBL for type test as per IS: 14772 at manufacturer cost, at ERDA, Vadodara or any other NABL approved lab. For subsequent lot, purchaser, at his discretion, may ask the manufacture /supplier to get the type test conducted at purchaser's cost irrespective of size of offered lot. However, the charges for the Type Test shall be borne by bidder in respect of samples selected against the 1st lot. On passing the type test successfully, the lot shall be accepted. In case, the boxes do not confirm to type test, another samples from the lot shall be selected and tested again. On receipt of unsatisfactory results, the lot shall be rejected and new lot shall be offered for inspection keeping aside old lot offered and rejected earlier by the HPSEBL. The type tests shall be witnessed by the authorized inspector of HPSEBL for their conformity with governing standards and technical specifications of HPSEBL. On receipt of material in HPSEBL stores , the HPSEBL , if desire , can get the material type tested at purchaser's cost and if type test fails the cost of type test will be recovered from the bidder /supplier and whole of the lot shall be rejected and the bidder /supplier shall lift the same at his risk and cost within 30 days after receipt of intimation from HPSEBL, failing which the unauthorized space utilization charges @3% per month shall be charged subject to a maximum of 5% of the value of supplied defective supplied material lying un-authorizedly in consignee(s) stores

10.0 RAW MATERIAL:

Test certificate for the virgin material used in the lot offered and relevant documents for purchase of raw material should be maintained by manufacturer and produced to inspector as and when required.

11.0 FACILITY:

The bidder shall have facility to test the box for routine tests and acceptance as per IS: 14772 at their works. The bidder has to submit list of Machinery & Equipment/ Testing instruments etc. along-with latest calibration certificates issued by the authority concerned.

12.0 INSPECTION AND TESTING:

The bidder has to offer the boxes for inspection at his works before dispatch. The bidder shall give minimum 14 days' notice about readiness of material at his works. The material shall be inspected for conformity with HPSEBL specification before the same is accepted. HPSEBL may also carry out stage inspection of metallic meter boxes. The bidder /supplier will offer all facilities to inspector without any charge.

13.0 DISPATCH:

The meter boxes shall be so dispatched as to ensure that no damage occurs during transport, loading and unloading at destinations stores.

14.0 TENDER SAMPLE

A **tender sample** as per specifications will have to be submitted with the bid. The tender/bid of the bidder shall only be accepted if sample of Deep Drawn MMB is submitted with the bid. In case order is placed on firm the Deep Drawn MMB shall be supplied as per sample and no change in design shall be allowed in supplies. <u>The tender sample shall be supplied on non-returnable basis and its cost shall not be included in the supply</u>.

TECHNICAL SPECIFICATIONS FOR 1 IN 1 DEEP DRAWN METAL METER BOX FOR THREE PHASE METERS OF DIFFERENT RATINGS AND MAKES

1. SCOPE

This specification covers the design, manufacturing, testing and supply of MS sheet, Deep Drawn Metal Meter Box (MMBs). MMBs shall be used for housing Three phase energy meter for electric connections of General category i.e. Domestic & Commercial connections.

2. CONSTRUCTIONAL AND TECHNICAL PARTICULARS

2.1 The Deep Drawn Metal Meter Box (MMBs) shall be for housing Three Phase energy meter of any make. The internal dimensions of MMB shall be 400mmx300mmx160mm (i.e. height x width x depth).

2.2 The MMB shall be made from 20 SWG MS sheet by Deep Drawn Method. The base and cover of the MMB shall be individually in one piece without any welding except for fixing of the accessories like hinges, clamps, handle etc. which shall be spot-welded. The cover of MMB shall be fixed on two-tamper proof inside hinges not visible from outside. The hinge pin diameter should be 3mm. Hinges shall be made from 1.6mm MS sheet. The pin of hinges shall have head on top so that it does not fall down after wear & tear. The door of MMB shall open from right to left by minimum 90º. The collar of the door (cover) in closed position shall rest on the collar of body (Base) of MMB. The collar of the door shall overlap the collar of the body of MMB by minimum 8mm. The collar of the body shall be provided with good quality rubber gasket lining of min. 3mm thickness. Thickness of rubber lining shall be such that it provides proper sealing between the cover & base of MMB to avoid penetration of dust & ingress of water. Rubber lining should be fixed with the best quality adhesive so that the same does not get removed by itself on opening of the door. Two numbers 'U' shaped latch arrangement shall be provided to Seal the cover with. 2.5mm & 8mm diameter hole shall be provided in U-shaped latch for sealing wires & padlock. U-latch shall be joined with stainless steel rivet. Holes provided for sealing & padlock should be aligned when latch is in closed position. 'U' shaped latch arrangement shall be made from 1.6 mm thick MS sheet and shall be welded from inner side of the box.

2.3 A viewing window opening of the size 90mmx100mm shall be provided about 50mm below top edge of MMB to facilitate taking of meter readings. Viewing window shall be provided with toughened glass of 5mm thickness. This glass shall be fixed from inside of the cover of MMB, with powder coated single piece drawn metal frame (Glass Holder) made of 20 SWG MS sheet fixed with min. four welded studs & nuts. Glass holder studs & nuts shall be inside the cover so that it cannot be opened from outside. Glass holder shall have rectangular cuttings. The size of toughened glass shall be 110mmx120mm. This glass has to be filled with a wraparound single piece rubber ring without joint having minimum depth of 8mm made from good quality rubber so that it can with stand weather effect.

2.4 A handle of minimum 70mm length and 10mm width and 20 SWG sheet thicknesses should be provided for opening and closing of the cover at the place.

2.5 The mounting arrangement of the meter shall be. It should be raised from the base of MMB body by 15mm (minimum). Zinc Plated adjustable strip shall be provided on meter mounting arrangement for fixing of the meter. The supplier shall supply three mounting MS screws, one for upper (M4 threads x length 12mm) & two (M4 threads x 35mm length) in moving slotted strip.

2.6 Four Nos. fixing holes of 6.5mm diameter at the back of surface of MMB shall be provided to fix the MMB at flat wall. For fixing of MMB on wall, 4 Nos. Plastic fixing plugs of 50mm length and 4 Nos. 5mm diameter 40mm long pan head self-taping screws and washers shall be provided with every MMB.

2.7 2 Nos. holes with superior quality rubber cable glands shall be provided at the bottom of MMB. Glands shall be properly fixed such that the same does not get removed from the box. Internal diameter for incoming/outgoing gland shall be suitable for 4Cx25mm² Aluminum conductor PVC cable. Glands*shall be made such that internal diameter of glands provided for cables should be closed with the film of minimum 1mm thickness. Cable will go through the glands by piercing the film of the glands. Overlapping of glands from outer side should be approximately 5mm, such that the gland is not removed when cable is inserted inside the box.

2.8 Louvers for ventilation shall be provided on the sidewalls of the box. 20 SWG perforated sheet shall be welded from inside of the louvers.

2.9 MMB shall be adequately protected against rust, dust, water and corrosion both from inside and outside. The MMB shall have Light Admiralty Grey shade (IS-5:1993 Colour No. 697) on outside & inside. The MMB shall be powder coated. The surface of the MMB shall be properly pre-treated and cleaned in 7-tank process and shall be applied with a powder coating of about 40 micron thickness on outer side and inside. The facility for 7-Tank Phosphating & powder coating shall be in house of the tenderer / MMB manufacturer to ensure proper quality.

2.10 Earthing screw of diameter M6 threads with washer shall be provided in the threads of L-shape clamp welded to main body on left side. There should be no powder coating on earthing screws. Earth marking shall be duly embossed near the earth clamp.

2.11 All the screws, studs and washers shall be properly Zinc Plated. The tolerance permissible on the overall dimensions shall be (±) 3%.

2.12 Each box shall be supplied with proper packing in 3ply- corrugated box.

2.13 **Name Plate:** The Purchase order No. & Date, Month & Year of manufacture and the word **"DANGER"** (with red color) shall be engraved/printed or marked on the top cover of the box. The manufacturer's name &"Property of HPSEBL" shall be engraved/printed or marked on the bottom half of the box such that it shall not be removed easily. Nameplate will be made of Aluminum sheet & fixed through rivets.

3. The box shall comply with the requirement of IP-33. The box shall be fully type tested along with dimensional drawing as per requirement of

IS 13947 (Part-1):1993 with latest amendment, from the govt.-approved laboratories. Government approved laboratories should be accredited by the National Board of Testing & Calibration Laboratories (NABL) of Govt. of India.

*(*Rubber cable gland shall mean rubber grommet and it should be made such that internal diameter provided for cables should be closed with the film of minimum 1mm thickness.)*

4. ACCEPTANCE TESTS:

Following acceptance tests shall be carried out at manufacturer's premises during the inspection of material before dispatch:

a) Visual Examination:
The MMB will be inspected visually, externally and internally for proper Powder Coating layer, fitting of all the components in accordance with technical Specification.

b) Verification of dimensions:
Verification of dimensions, external / internal clearances will be carried out as per technical specifications.

c) Verification of fittings:
Components like Glass, 'U' shaped latch arrangement, glands, clamps, hinges etc will be verified as per technical specification and usage requirement.

d) Verification of Deep Drawn Facility, 7-Tank Phosphating, Powder Coating Process:
Deep Drawn, 7-Tank Phosphating & Powder coating facilities shall be verified at the place of inspection.

Annexure-9

Volume-II, Clause 4.4 (Service Level Agreements) (Revised)

Data Type	Performance Requirement
1. Scheduled Interval data readings at a fixed periodicity during the day as decided by utility	
Periodic collection of the 15/30 minute interval load profile data after every 15/30/60/120 minutes	From 95% of meters within 5 minutes
	From 98% of meters before next periodic packet is scheduled.
2. Scheduled daily meter readings (as per IS 16444/15959)	
Daily collection of the previous day's interval energy data and total accumulated energy	From 95% of meters within 8 hours after midnight; and
	From 99.5% of meters within 24 hours after midnight
3. Scheduled billing/ load profile data for bill period	
Collection of billing/load profile data for the bill period for entire installed population	From 95% of meters within 24 hours after midnight; and
	From 99.5% of meters within 48 hours after midnight
4. On-Demand Remote reads of meters	
Collection of 7 days of interval energy data and the current total accumulated energy from a group of 1000 AMI meters	Action performed at 90% of meters within 1 Hour; and
	Action performed at 99% of meters within 2 hours; and
	Action performed at 99.5% of meters within 6 hours
Collection of 7 days of interval energy data & current total accumulated energy from a selected individual meter	Action performed within 30 seconds
5. Updating of data on consumer portal/ app	
Updating of individual consumer data on portal/ app after receiving the data in MDM	Action performed for active consumers within 5 minutes after receiving the data in MDM
	Action performed at 99.5% of meters within 2 hours after receiving the data in MDM.
6. Ping Response with acknowledgement/ response for selected meters	
For a group of 1000 meters	Action performed at 99.5% of meters within 1 minute; and
For an individual meter	Action performed within 3 seconds
7. Remote load control commands for selected meters with acknowledgement/ response for selected meters	
For a group of maximum of 5000 AMI meters	Action performed at 95% of meters within 5 minutes; and
	Action performed at 99% of meters within 10 Minutes
For an individual meter	Action performed within 5 seconds
8. For remote connect/disconnect with acknowledgement/ response for selected meters	

Data Type	Performance Requirement
For a group of maximum of 5000 AMI meters	Action performed at 90% of meters within 5 minutes; and
	Action performed at 99% of meters within 10 minutes; and
	Action performed 99.5% of meters within 20 minutes
For an individual meter	Action performed within 30 seconds
9. Meter loss and restoration of supply	
Receiving of alert for all affected AMI meters	Alert to be received within 3 minutes for 60% of meters
10. Meter Tamper Alerts	
Receiving of alert for an individual meter	Alert to be received within 3 minutes
11. Power Quality Alerts	
Receiving of alert for an individual meter	Alert to be received within 5 minutes
12. Remotely altering settings in meter/ firmware upgrade with acknowledgement/ response for selected meters	
For a group of 1000 AMI meters	Action performed at 99% of meters within **24 hours** ~~**30 minutes**~~; and
	Action performed at 99.5% of meters within **36** ~~**1**~~ hour**s**
13. Remotely read events logs	
For reading the full event log for a group of 1000 AMI meters	Action performed at 90% of meters within 30 minutes; and
	Action performed at 99% of meters within 1 hour; and
	Action performed at 99.5% of meters within 6 hours.
14. **AMI Network (all hardware, software, smart meters, Cloud Infrastructure and field equipment) Uptime**	**97%** ~~**99%**~~ on Monthly basis. Penalty will be 1% of the FMS Charges per month for every 1% or part there of decrease in availability under **97%** ~~**99%**~~). Penalty will be calculated separately for Hardware and Software Availability. The maximum deduction shall be limited to FMS charges paid for that particular period.
15. Cloud Infrastructure uptime	99%
16. Recovery Point Objective for AMI MDM and HES System	**RPO shall strictly be as per MEITY Guidelines**
17. Recovery Time Objective for AMI MDM and HES System	**RTO shall strictly be as per MEITY Guidelines**
18. SLA in respect of Pre-Paid recharge, Pre-Paid meter disconnection, Pre-Paid balance updation etc	To be decided mutually between HPSEB, PFCCL and the Contractor after Award of Contract