

Ref. No.: CC-CS/TWT/Amend-4 & Clar-3

Date: 26.05.2022

<< TO ALL THE BIDDERS THROUGH PORTAL >>

**Sub: Package for procurement of Smart Meters including associated Communication Infrastructure, Head End System (HES), Meter Data Management system (MDM) for implementation of Advanced Metering Infrastructure Project(s) in Central & Western India; Specification No.: RTN1001566/OTHERS/DOM/A02; GeM Bid Number: GEM/2022/B/2006757 dated 08.03.2022**

**...Reg. Amendment No. 4 and Clarification No 3 to the Bidding Documents**

Dear Sir(s),

- 1.0 This has reference to the bidding documents for the subject package uploaded on Government e-Marketplace (GeM) Portal [GeM Bid No. GEM/2022/B/2006757 dated 08.03.2022] and subsequently issued Corrigendum/Amendments/Clarifications.
- 2.0 **Amendment No. 4 and Clarification No. 3** to the bidding documents enclosed herewith are uploaded on the GeM Portal.
- 3.0 Save and Except for the changes brought-out in the above-mentioned amendments, all other terms and conditions of the original bidding documents shall remain unaltered.

Thanking you,

**For and On behalf of**  
**Power Grid Corporation of India Limited**

5/26/2022

**X** Aakash Khandelwal

Aakash Khandelwal  
Manager (CS)  
Signed by: AAKASH KHANDELWAL

**Encl: As above**

**Amendment No.-4 (Technical Part) dated 26/05/2022** to the Bidding Documents for Package for procurement of Smart Meters including associated Communication Infrastructure, Head End System (HES), Meter Data Management system (MDM) for implementation of Advanced Metering Infrastructure Project(s) in Central & Western India; Specification No.: RTN1001566/OTHERS/DOM/A02; GeM Bid Number: GEM/2022/B/2006757 dated 08.03.2022

S. No.	Clause Ref.	Existing Provision	Amended Provision
1.	Volume II, Section 2, Clause 1	<p><b>1. Qualification Requirements for Smart Meter OEMs</b></p> <p><b>Smart Meter OEMs, wherever applicable, shall meet the following requirement:</b></p> <p><b>Qualifying Requirement% for Smart Meter OEMs</b></p> <p><b>A. Technical Experience: The Smart Meter OEM</b> must have manufactured, supplied and installed at least one lakh (1,00,000) Nos. Automated Meter Reading (AMR) Meters@ or 50,000 Nos. of Smart Meters* cumulatively in last five (5) years <b>and these must have been integrated in the system of any Indian or Global Power Utility(ies)</b> and must have been under operation for at least one (1) year as on the originally scheduled date of Bid Opening</p> <p style="text-align: center;"><b>AND</b></p> <p><b>B. Manufacturing Facilities: The Smart Meter OEM(s) must have its own manufacturing facility(ies) in India for Smart Meters* and shall be having minimum manufacturing capacity^ of 15 Lacs meters per annum (cumulative capacity in case of more than one Smart Meter OEM is proposed by the bidder) as on originally scheduled date of bid opening.</b></p> <p><b>N.B:</b> (@) Energy (kWh) Meter with Communication port            (*) Smart Meters conforming to IS:16444 or equivalent International Standard            (^) Bidder shall submit certificate from Chartered Accountant certifying the manufacturing capacity            (%) Additionally, bidder's End-to-End Solution (involving above Smart Meter OEM(s), along with other items) shall have to successfully pass Pre-Qualification Demonstration Requirement as per ITB 24.1 (i).</p>	<p><b>1. Qualifying Requirement for Smart Meter Subcontractors</b></p> <p><b>The contractor may propose subcontractor(s) of Smart Meter during project implementation, to meet the timelines of the project. Each subcontractor shall meet following Qualification Requirement:</b></p> <p>1. <b>The subcontractor</b> must have manufactured and supplied at least one lakh (1,00,000) Nos. Automated Meter Reading (AMR) Meters@ or 50,000 Nos. of Smart Meters* cumulatively in last five (5) years and these must have been under operation for at least one (1) year as on the re-scheduled date of Bid Opening' i.e. 07/06/2022.</p> <p>2. <b>A "Joint Deed of Undertaking" as per the format enclosed at Section-VI (Sample Forms &amp; Procedures), Volume-I of the Bidding Documents, to be jointly executed by the Bidder and all the Sub-Contractor(s) above shall be submitted by the Bidder along with bid. Each Sub-Contractor shall furnish performance guarantee for an amount of 5% of cost of equipment/services offered by such Sub-Contractor. This performance guarantee shall be in addition to contract performance guarantee to be submitted by the Bidder.</b></p> <p>(@) Energy (kWh) Meter with Communication port            (*) Smart Meters conforming to IS:16444 or equivalent International Standard</p>

**Amendment No.-4 (Technical Part) dated 26/05/2022** to the Bidding Documents for Package for procurement of Smart Meters including associated Communication Infrastructure, Head End System (HES), Meter Data Management system (MDM) for implementation of Advanced Metering Infrastructure Project(s) in Central & Western India; Specification No.: RTN1001566/OTHERS/DOM/A02; GeM Bid Number: GEM/2022/B/2006757 dated 08.03.2022

S. No.	Clause Ref.	Existing Provision				Amended Provision																					
2.	Volume-II Section 9, Clause-1.5.5.2 Sample Routine & Acceptance Tests for Smart Meters	The sample Routine and Acceptance tests as per IS 13779 and IS 14697 shall be performed in a third-party accredited laboratory.				The sample Routine and Acceptance tests as per IS 13779 and IS 14697 <b>for any one lot</b> shall be conducted in third Party <b>NABL</b> accredited laboratory.																					
3.	Volume-II, Section 9, Clause-1.5.7 Field Installation and Integration Test (FIIT)	a) The Sample Routine and Acceptance tests for the Meters at the discretion of employer on the lots received in the warehouse of the contractor at site in third-party accredited laboratory.				a) The Sample Routine and Acceptance tests for the Meters at the discretion of employer on <b>any one lot</b> received in the warehouse of the contractor at site in third-party <b>NABL</b> accredited laboratory.																					
4.	Volume-II Section 11: Documents & Deliverables, Clause-1.3.9	<table border="1"> <thead> <tr> <th>Sr. No</th> <th>Documentation to be submitted</th> <th>Frequency</th> <th>Purpose</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>Pre-Operational Go-Live Phase (from the date of execution of the Contract till the date of achievement of the Operational Go-Live of the AMI system)</td> <td></td> <td></td> </tr> <tr> <td># 9</td> <td>Data Exchange Protocol Test Certificate <b>[one per one lakh]</b> smart meters</td> <td>Once</td> <td>I</td> </tr> </tbody> </table>	Sr. No	Documentation to be submitted	Frequency	Purpose	A	Pre-Operational Go-Live Phase (from the date of execution of the Contract till the date of achievement of the Operational Go-Live of the AMI system)			# 9	Data Exchange Protocol Test Certificate <b>[one per one lakh]</b> smart meters	Once	I	<table border="1"> <thead> <tr> <th>Sr. No</th> <th>Documentation to be submitted</th> <th>Frequency</th> <th>Purpose</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>Pre-Operational Go-Live Phase (from the date of execution of the Contract till the date of achievement of the Operational Go-Live of the AMI system)</td> <td></td> <td></td> </tr> <tr> <td># 9</td> <td>Data Exchange Protocol Test Certificate</td> <td>Once</td> <td>I</td> </tr> </tbody> </table>	Sr. No	Documentation to be submitted	Frequency	Purpose	A	Pre-Operational Go-Live Phase (from the date of execution of the Contract till the date of achievement of the Operational Go-Live of the AMI system)			# 9	Data Exchange Protocol Test Certificate	Once	I
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**Amendment No.-4 (Technical Part) dated 26/05/2022** to the Bidding Documents for Package for procurement of Smart Meters including associated Communication Infrastructure, Head End System (HES), Meter Data Management system (MDM) for implementation of Advanced Metering Infrastructure Project(s) in Central & Western India; Specification No.: RTN1001566/OTHERS/DOM/A02; GeM Bid Number: GEM/2022/B/2006757 dated 08.03.2022

S. No.	Clause Ref.	Existing Provision	Amended Provision
	s & Deliverables, Clause-1.2 Hardware Documentation Requirements		
6.	Volume-II, Section 14, LTCT: Technical Parameters	<p>Applicable Standards: Unless Otherwise modified in this Specification, LTCT shall comply with the IS 2705 Part I &amp; II Standard Specification( latest version)</p> <p>LT CT: Technical Parameter ix) Max. ratio error: As per IS:2705/1992 x) Max. phase angle error: As per IS:2705/1992 xi) Max. temp. rise over max. ambient temp. of 50 deg. C at rated continuous thermal current at rated frequency and with rated burden.: As per IS:2705/1992</p> <p>3.3.1 Type Testing: The reports for all type tests and additional type tests as per technical specification / requirement of relevant IS standard (IS-2705-1992, IS:3156-1992 with latest amendments) shall be furnished by the Contractor along with equipment/material drawings.</p>	<p>Applicable Standards: Unless Otherwise modified in this Specification, LTCT shall comply with the IS 2705 Part I &amp; II /<b>IS 16227</b> Standard Specification( latest version)</p> <p>LT CT: Technical Parameter ix) Max. ratio error: As per <b>IS:2705-1992 / IS16227</b> x) Max. phase angle error: As per <b>IS:2705-1992 / IS16227</b> xi) Max. temp. rise over max. ambient temp. of 50 deg. C at rated continuous thermal current at rated frequency and with rated burden.: As per <b>IS:2705-1992 / IS16227</b></p> <p>3.3.1 Type Testing: The reports for all type tests and additional type tests as per technical specification / requirement of relevant IS standard (IS-2705-1992 / <b>IS16227/</b> IS:3156-1992 with latest amendments) shall be furnished by the Contractor along with equipment/material drawings.</p>
7.	Volume-II, Section 2 Smart Meters, Clause- 3	<p>3 Single Phase Whole Current Smart Energy Meter 3.6 Data display facility (auto/manual) ..... The display parameters shall be: ▪ Auto Scroll</p>	<p>3 Single Phase Whole Current Smart Energy Meter 3.6 Data display facility (auto/manual) ..... The display parameters shall be: ▪ Auto Scroll</p>

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S. No.	Clause Ref.	Existing Provision	Amended Provision
		<ul style="list-style-type: none"> <li>• Display Check</li> <li>• Date and Time</li> <li>• Last Recharge Amount</li> <li>• Last Recharge Time</li> <li>• Current Balance Amount</li> <li>• <b>Current Balance days left</b></li> <li>• Cumulative Active Energy kWh with legend.</li> <li>• Current calendar month MD in kW with legend.</li> <li>• Instantaneous voltage</li> <li>• Instantaneous Phase current</li> <li>• Instantaneous Load kW</li> <li>• Instantaneous average Power Factor</li> </ul>	<ul style="list-style-type: none"> <li>• Display Check</li> <li>• Date and Time</li> <li>• Last Recharge Amount</li> <li>• Last Recharge Time</li> <li>• Current Balance Amount</li> <li>• Cumulative Active Energy kWh with legend.</li> <li>• Current calendar month MD in kW with legend.</li> <li>• Instantaneous voltage</li> <li>• Instantaneous Phase current</li> <li>• Instantaneous Load kW</li> <li>• Instantaneous average Power Factor</li> <li>• <b>Total amount at last recharge</b></li> </ul>
8.	Volume-II, Section 2 Smart Meters, Clause- 3	<p>4 Three Phase Whole Current Smart Energy Meter</p> <p>4.6 Data display facility (auto/manual)</p> <p>.....</p> <p>The display parameters shall be:</p> <ul style="list-style-type: none"> <li>▪ Auto Scroll <ul style="list-style-type: none"> <li>• Display Check</li> <li>• Date and Time</li> <li>• Last Recharge Amount</li> <li>• Last Recharge Time</li> <li>• Current Balance Amount</li> <li>• <b>Current Balance days left</b></li> <li>• Cumulative Active Energy kWh with legend.</li> <li>• Cumulative Apparent Energy kVAh with legend.</li> <li>• Current month MD in kW with legend.</li> <li>• Current month average Power Factor</li> <li>• Instantaneous voltage VRN</li> <li>• Instantaneous voltage VYN</li> <li>• Instantaneous voltage VBN</li> <li>• Instantaneous current IR</li> <li>• Instantaneous current IY</li> </ul> </li> </ul>	<p>4 Three Phase Whole Current Smart Energy Meter</p> <p>4.6 Data display facility (auto/manual)</p> <p>.....</p> <p>The display parameters shall be:</p> <ul style="list-style-type: none"> <li>▪ Auto Scroll <ul style="list-style-type: none"> <li>• Display Check</li> <li>• Date and Time</li> <li>• Last Recharge Amount</li> <li>• Last Recharge Time</li> <li>• Current Balance Amount</li> <li>• Cumulative Active Energy kWh with legend.</li> <li>• Cumulative Apparent Energy kVAh with legend.</li> <li>• Current month MD in kW with legend.</li> <li>• Current month average Power Factor</li> <li>• Instantaneous voltage VRN</li> <li>• Instantaneous voltage VYN</li> <li>• Instantaneous voltage VBN</li> <li>• Instantaneous current IR</li> <li>• Instantaneous current IY</li> <li>• Instantaneous current IB</li> </ul> </li> </ul>

**Amendment No.-4 (Technical Part) dated 26/05/2022** to the Bidding Documents for Package for procurement of Smart Meters including associated Communication Infrastructure, Head End System (HES), Meter Data Management system (MDM) for implementation of Advanced Metering Infrastructure Project(s) in Central & Western India; Specification No.: RTN1001566/OTHERS/DOM/A02; GeM Bid Number: GEM/2022/B/2006757 dated 08.03.2022

S. No.	Clause Ref.	Existing Provision	Amended Provision
		<ul style="list-style-type: none"> <li>• Instantaneous current IB</li> <li>• Instantaneous current IN</li> <li>• Instantaneous Load kW and kVA</li> <li>• Instantaneous average Power Factor</li> </ul>	<ul style="list-style-type: none"> <li>• Instantaneous current IN</li> <li>• Instantaneous Load kW and kVA</li> <li>• Instantaneous average Power Factor</li> <li>• <b>Total amount at last recharge</b></li> </ul>
9.	Volume-II, Section-5, Clause 2	<p>The Bidder on its own or through its Sub-Contractor(s) shall meet the qualifying requirement for Head End System (HES) and Meter Data Management System (MDMS):</p> <p><b>Qualifying Requirement% for HES Provider</b> Head End System (HES) Provider must have experience of integration of at least 50,000 nos. Smart meters* (cumulatively) with its own HES in Indian/ Global Power Utility(ies) in the last 5 (five) years which are in operation for at least 1 (one) year as on the originally scheduled date of bid opening.</p> <p><b>Qualifying Requirement% for MDMS Provider</b> Meter Data Management System (MDMS) Provider must have experience of integrating its own MDMS with HES of at least 50,000 Smart meters* (cumulatively) in Indian/ Global Power Utility(ies) in last 5 (five) years which are in operation for at least 1(one) year as on the originally scheduled date of bid opening</p> <p><b>N.B:</b> (*) <i>Smart Meters conforming to IS:16444 or equivalent International Standard</i></p> <p><b>(%) Additionally, bidder's End-to-End Solution (involving above HES provider, MDMS Provider along with other items) shall have to successfully pass Pre-Qualification Demonstration Requirement as per ITB 24.1 (i).</b></p>	<p>The Bidder on its own or through its Sub-Contractor(s) shall meet the qualifying requirement for Head End System (HES) and Meter Data Management System (MDMS):</p> <p><b>Qualifying Requirement for HES Provider</b> Head End System (HES) Provider must have experience of integration of at least 50,000 nos. Smart meters* (cumulatively) with its own HES in Indian/ Global Power Utility(ies) in the last 5 (five) years which are in operation for at least 1 (one) year as on the re-scheduled date of Bid Opening' i.e. 07/06/2022.</p> <p><b>Qualifying Requirement for MDMS Provider</b> Meter Data Management System (MDMS) Provider must have experience of integrating its own MDMS with HES of at least 50,000 Smart meters* (cumulatively) in Indian/ Global Power Utility(ies) in last 5 (five) years which are in operation for at least 1(one) year as on the re-scheduled date of Bid Opening' i.e. 07/06/2022.</p> <p><b>N.B:</b> (*) <i>Smart Meters conforming to IS:16444 or equivalent International Standard</i></p>
10	Volume-II, Section 8, Clause 1.25	<p><b>1.25 Service Level Agreement (SLA)</b> Service Level Agreement (SLA) shall be monitored as mentioned in the following table. It is expected that the Advanced Metering Infrastructure Project(s) shall meet the minimum threshold of service defined against each level. Any degradation below this minimum threshold will attract penalties as per bands of service level met. The idea is that it triggers a proper review of any defect /</p>	<p><b>1.25 Service Level Agreement (SLA)</b> Service Level Agreement (SLA) shall be monitored as mentioned in the following table. It is expected that the Advanced Metering Infrastructure Project(s) shall meet the minimum threshold of service defined against each level. Any degradation below this minimum threshold will attract penalties as per bands of service level met. The idea is that it triggers a proper review of any defect / failure /</p>

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S. No.	Clause Ref.	Existing Provision	Amended Provision
		<p>failure / performance that had been agreed upon for the project, and to find resolutions in keeping with the highest standards of service excellence.</p> <p>For ease of operation of this Contract, Notional Monthly Service Charge shall be calculated which shall be applicable on all types of meters. SLA penalty for Contractor shall be levied on this Notional Monthly Service Charge.</p> <p>Notional Monthly Service Charge shall be calculated as follows,  <i>N1 - Total quantity of meters allocated to the contractor</i>  <i>C1 - Total Contract Price</i>                      Then,</p> <p><i>Notional Monthly Service charge per meter for contractor = C1 / (N1 x 90 months )</i></p> <p>Further,                      If M1 is the total nos. of meter accrued during any particular month                      Where, M1= Total nos. of meters operational during the Month x 1 month</p> <p><i>Notional Monthly Service Charge corresponding to the contract (D)=C1 x M1 / (N1 x 90 months)</i></p> <p>The total penalties during the month under SLA categories are capped at [20%] of Notional Monthly Service Charge.</p> <p>After Go-Live, Total SLA Penalty Deduction in each month shall be as follows:</p> <p style="text-align: center;"><b>Total Percentage Penalty incurred on account of SLA Non-Performance</b>                      X  <b>Notional Monthly Service Charge (D)</b></p>	<p>performance that had been agreed upon for the project, and to find resolutions in keeping with the highest standards of service excellence.</p> <p>For ease of operation of this Contract, Notional Monthly Service Charge shall be calculated which shall be applicable on all types of meters. SLA penalty for Contractor shall be levied on this Notional Monthly Service Charge.</p> <p>Notional Monthly Service Charge Per Meter shall be calculated as per <b>APPENDIX- Notional Monthly Service Charges Per Meter</b></p> <p>Further if M1, M2, M3, M4 is the total nos. of meter-months accrued during any particular month for Single Phase, Three Phase, LTCT and HT Meters respectively                      Where, M1= Total nos. of Single Phase meters operational during the month x 1 month                      M2= Total nos. of Three Phase meters operational during the month x 1 month                      M3= Total nos. of LTCT meters operational during the month x 1 month                      M4= Total nos. of HTCT meters operational during the month x 1 month</p> <p>Notional Monthly Service Charge corresponding to the contract shall be calculated as follows,                      For Single Phase, D1= B1 x M1                      For Three Phase, D2= B2 x M2                      For LTCT Meters, D3= B3 x M3                      For HTCT Meters, D4= B4 x M4                      Where B1, B2, B3, B4 are Notional Monthly Service Charges Per Meter for Single Phase, Three Phase, LTCT and HTCT meters respectively calculated as per APPENDIX mentioned above.</p>

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			<p>The total penalties during the month under SLA Categories are capped at 20% of Notional Monthly Service Charge.                      After Go-Live, Total SLA Penalty deduction in each month shall be as follows:</p> <p style="text-align: center;"><b>Total Percentage Penalty incurred on account of SLA Non-Performance</b>  <b>X</b>  <b>Notional Monthly Service Charge (D1 or D2 or D3 or D4 as applicable)</b></p>



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S. No.	Clause Ref.	Existing Provision	Amended Provision
11	Volume-II, Section 9, Clause 1.1	<p><b>1.1 Pre-Qualification Requirement Testing (Implementation of Advanced Metering Infrastructure)</b>            Bidders shall have to demonstrate their solution to demonstration/pre-qualification committee constituted by Ministry of Power without any additional financial implication to the Employer.            The demonstration should be able to satisfy requirements specified by the demonstration committee, inter alia amongst others following</p> <p>i) Interoperability across various types of meters (At least 3 makes of meters in India) in any communication infrastructure either based on RF / RF mesh network / PLCC /cellular network or a combination of these</p> <p>ii) Seamless connectivity between Smart Meters and HES; HES and MDM; and MDM and any billing solution with prepaid facility.</p> <p>iii) Automatic disconnection on exhaustion of consumer credit and automatic reconnection on recharge without human intervention with a minimum success rate 99.5%.</p>	DELETED
12	Volume-II, Section 9, Clause 1.8 (i)	(i) For direct connected Smart Meters, the Data Exchange Protocol Tests shall follow IS 16444 (Part 1) read in conjunction with IS 15959 (Parts 1 & 2). <b>The sampling criteria for running these tests shall be [one per one lakh] smart meters under production.</b>	(i) For direct connected Smart Meters, the Data Exchange Protocol Tests shall follow IS 16444 (Part 1) read in conjunction with IS 15959 (Parts 1 & 2).
13	Volume-II, Section 9, Clause 1.8 (j)	(j) For transformer operated Smart Meters, the Data Exchange Protocol Tests shall follow IS 16444 (Part 2) read in conjunction with IS 15959 (Parts 1 & 3). <b>The sampling criteria for running these tests shall be [one per one lakh] smart meters under production.</b>	(j) For transformer operated Smart Meters, the Data Exchange Protocol Tests shall follow IS 16444 (Part 2) read in conjunction with IS 15959 (Parts 1 & 3).

**APPENDIX- Notional Monthly Service Charges Per Meter**

Notional Monthly Service Charges per Meter shall be calculated separately for each type of Meter (i.e Single Phase, Three Phase, LTCT Three Phase and HTCT Meters)

Notional Monthly Service Charges per Meter shall have 3 (three) nos. of components

- i. Equitably Distributed Overhead Component (denoted by H)
- ii. Supply Component (denoted by X)
- iii. Installation Component (denoted by Y)

Let, N1- Total quantity of meters allocated under the Contract,  $N1 = \sum_{i=1}^{11} \text{Price Schedule 1 Part A Qty of Item No } (i)$

C1- Total Contract Price

**i. Equitably Distributed Overhead Component (H)**

For determining equitably distributable Overhead component, Meter supply and installation cost shall be subtracted from Overall Contract Price. This cost then shall be equally distributed on total nos. of meters for obtaining Overhead Component on meter.

Overhead Component per Meter per month (**H**) shall be calculated as follows,

$$C1 - \frac{\sum_{i=1}^{11} \text{Price Schedule 1 Part A Qty of Item No } (i) \times \text{Unit Rate of Item No } (i) - \sum_{i=1}^{11} \text{Price Schedule 2 Part A Qty of Item No } (i) \times \text{Unit Rate of Item No } (i)}{N1 \times 90 \text{ months}}$$

**ii. Supply Component (X)**

Supply Component of Meters shall be calculated for each type of meter (i.e Single Phase, Three Phase, Three Phase LTCT and HTCT Meters) separately. In case, of Single Phase, Three Phase and HTCT Meters there are subcategories in terms of rating and/or accuracy class. Therefore, weighted average Supply rates shall be used for calculation of Supply Component of Notional Monthly Service Charges per Meter

<b>Type of Meter</b>	<b>Supply Component of Notional Monthly Services Charges per Meter</b>
<b>Single Phase</b>	$X_1 = \frac{\sum_{i=1}^4 \text{Price Schedule 1 Part A Qty of Item No (i)} \times \text{Unit Rate of Item No (i)}}{90 \text{ months} \times \sum_{i=1}^4 \text{Price Schedule 1 Part A Qty of Item No (i)}}$
<b>Three Phase</b>	$X_2 = \frac{\sum_{i=5}^8 \text{Price Schedule 1 Part A Qty of Item No (i)} \times \text{Unit Rate of Item No (i)}}{90 \text{ months} \times \sum_{i=5}^8 \text{Price Schedule 1 Part A Qty of Item No (i)}}$
<b>LTCT Meters</b>	$X_3 = \frac{\text{Price Schedule 1 Part A Qty of Item No (9)} \times \text{Unit Rate of Item No (9)}}{90 \text{ months} \times \text{Price Schedule 1 Part A Qty of Item No (9)}}$
<b>HTCT Meters</b>	$X_4 = \frac{\sum_{i=10}^{11} \text{Price Schedule 1 Part A Qty of Item No (i)} \times \text{Unit Rate of Item No (i)}}{90 \text{ months} \times \sum_{i=10}^{11} \text{Price Schedule 1 Part A Qty of Item No (i)}}$

**iii. Installation Component (Y)**

Installation Component of Meters shall be calculated for each type of meter (i.e Single Phase, Three Phase, Three Phase LTCT and HTCT Meters) separately. In case, of Single Phase, Three Phase and HTCT Meters there are subcategories in terms of rating and/or accuracy class. Therefore, weighted average Installation rates shall be used for calculation of Installation Component of Notional Monthly Service Charges per Meter

<b>Type of Meter</b>	<b>Installation Component of Notional Monthly Services Charges per Meter</b>
<b>Single Phase</b>	$Y_1 = \frac{\sum_{i=1}^4 \text{Price Schedule 2 Part A Qty of Item No (i)} \times \text{Unit Rate of Item No (i)}}{90 \text{ months} \times \sum_{i=1}^4 \text{Price Schedule 2 Part A Qty of Item No (i)}}$
<b>Three Phase</b>	$Y_2 = \frac{\sum_{i=5}^8 \text{Price Schedule 2 Part A Qty of Item No (i)} \times \text{Unit Rate of Item No (i)}}{90 \text{ months} \times \sum_{i=5}^8 \text{Price Schedule 2 Part A Qty of Item No (i)}}$
<b>LTCT Meters</b>	$Y_3 = \frac{\text{Price Schedule 2 Part A Qty of Item No (9)} \times \text{Unit Rate of Item No (9)}}{90 \text{ months} \times \text{Price Schedule 2 Part A Qty of Item No (9)}}$
<b>HTCT Meters</b>	$Y_4 = \frac{\sum_{i=10}^{11} \text{Price Schedule 2 Part A Qty of Item No (i)} \times \text{Unit Rate of Item No (i)}}{90 \text{ months} \times \sum_{i=1}^{11} \text{Price Schedule 2 Part A Qty of Item No (i)}}$

Subsequently, Notional Monthly Service Charge Per Meter shall be calculated as follows:

<b>Type of Meter</b>	<b>Notional Monthly Service Charge per Meter</b>
<b>Single Phase</b>	$B_1 = X_1 + Y_1 + H$
<b>Three Phase</b>	$B_2 = X_2 + Y_2 + H$
<b>LTCT Meters</b>	$B_3 = X_3 + Y_3 + H$
<b>HTCT Meters</b>	$B_4 = X_4 + Y_4 + H$

**Clarification No.-3 (Technical Part) dated 26/05/2022** to the Bidding Documents for Package for procurement of Smart Meters including associated Communication Infrastructure, Head End System (HES), Meter Data Management system (MDM) for implementation of Advanced Metering Infrastructure Project(s) in Central & Western India; Specification No.: RTN1001566/OTHERS/DOM/A02; GeM Bid Number: GEM/2022/B/2006757 dated 08.03.2022

S. No.	Clause Ref.	Provisions of Existing Bidding Documents	Bidder's Query/ Comments	POWERGRID's Reply/ Clarification
1.	Volume II, Section 2, Clause 1	<p>The Smart Meter OEM must have manufactured, supplied and installed at least one lakh (1,00,000) Nos. Automated Meter Reading (AMR) Meters.</p> <p>OR</p> <p>50,000 Nos. of Smart Meters cumulatively in last five (5) years and these must have been integrated in the system of any Indian or Global Power Utility(ies) and must have been under operation for at least one (1) year as on the originally scheduled date of Bid Opening.</p>	<p>We request that the experience of only manufactured &amp; supplied quantity be considered &amp; installation experience be made optional.</p> <p>Deployment of Smart Meters in India is a new concept &amp; therefore we request that the operation for at least one year be deleted from the last line of this clause and also the experience of private projects (multi storied / group housing societies for power distribution from single point bulk load connection of discom) be considered.</p> <p>OR</p> <p>The quantity of 50,000 nos. be reduced to 20,000 nos. &amp; also the experience of private projects (multi storied / group housing societies for power distribution from single point bulk load connection of discom) be considered.</p>	Refer Amendment No.-4 (Technical Part) Sr. No.1
2.	Volume-II, Section-3, Clause 1.	Contractor can provide communication module based on single communication technology or Hybrid of Two as per site conditions	But inadvertently in Annexure affixed to section-14, 'indicative list for 25 lacs of smart meters as well as to volume-3, attachment 28, the BoQ for 1 Cr. smart meters have been made specifically allocating 50% quantity to GPRS module & 50% to RF module, which we request to align with the section -3 of the tender document and BoQ	Refer Amendment No.- 2 (Technical Portion) Sr. No. 2

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S. No.	Clause Ref.	Provisions of Existing Bidding Documents	Bidder's Query/ Comments	POWERGRID's Reply/ Clarification
			<p>may be revised for 100% quantity mentioning smart meters with GPRS module / RF module.</p> <p>In addition, the Smart Meter Manufacturer must comply following qualification requirements also:</p> <ol style="list-style-type: none"> <li>1. BIS License: The Meter manufacturer must have valid BIS License for Single Phase, Three Phase and LTCT Smart Meters as per 1S:16444 (Part-1 &amp; Part-2) from Bureau of Indian Standards.</li> <li>2. Type Test Reports: The meter manufacturer must have valid type test reports for Single phase, Three Phase and LTCT Smart meters as per applicable BIS standard i.e. IS:16444 (Part-1) and 1S:16444(Part-2) not older than 5 years issued from any NABL. accredited Govt. Lab.</li> <li>3. CMMI Level-3 Certificate: The meter manufacturer must have valid CMMI Level 3 Capability Maturity Model Integration (CMMI) certification for Energy Meters as per standard.</li> <li>4. NABL Accredited Laboratory: The meter manufacturer must have their own "NABL" accredited Laboratory in their manufacturing works.</li> </ol>	

**Clarification No.-3 (Technical Part) dated 26/05/2022** to the Bidding Documents for Package for procurement of Smart Meters including associated Communication Infrastructure, Head End System (HES), Meter Data Management system (MDM) for implementation of Advanced Metering Infrastructure Project(s) in Central & Western India; Specification No.: RTN1001566/OTHERS/DOM/A02; GeM Bid Number: GEM/2022/B/2006757 dated 08.03.2022

S. No.	Clause Ref.	Provisions of Existing Bidding Documents	Bidder's Query/ Comments	POWERGRID's Reply/ Clarification
			<p>5. DSIR Certification: The meter manufacturer must have DSIR (Department of Science &amp; Industrial Research) Certification from Govt. of India, Ministry of Science &amp; Technology for its R&amp;D Department (Research &amp; Development).</p>	
3.	-	-	<p>The Smart Meter Manufacturer must comply following qualification requirements also:</p> <p>1. BIS License: The Meter manufacturer must have valid BIS License for Single Phase, Three Phase and LTCT Smart Meters as per IS:16444 (Part-1 &amp; Part-2) from Bureau of Indian Standards.</p> <p>2. Type Test Reports: The meter manufacturer must have valid type test reports for Single phase, Three Phase and LTCT Smart meters as per applicable BIS standard i.e. IS:16444 (Part-1) and IS:16444(Part-2) not older than 5 years issued from any NABL accredited Govt. Lab.</p> <p>3. CMMI Level-3 Certificate: The meter manufacturer must have valid CMMI Level 3 Capability Maturity Model Integration (CMMI) certification for Energy Meters as per standard.</p>	<p>In this regard, provisions of the Bidding Documents shall remain unchanged.</p>

**Clarification No.-3 (Technical Part) dated 26/05/2022** to the Bidding Documents for Package for procurement of Smart Meters including associated Communication Infrastructure, Head End System (HES), Meter Data Management system (MDM) for implementation of Advanced Metering Infrastructure Project(s) in Central & Western India; Specification No.: RTN1001566/OTHERS/DOM/A02; GeM Bid Number: GEM/2022/B/2006757 dated 08.03.2022

S. No.	Clause Ref.	Provisions of Existing Bidding Documents	Bidder's Query/ Comments	POWERGRID's Reply/ Clarification
			<p>4. NABL Accredited Laboratory: The meter manufacturer must have their own "NABL" accredited Laboratory in their manufacturing works.</p> <p>5. DSIR Certification: The meter manufacturer must have DSIR (Department of Science &amp; Industrial Research) Certification from Govt. of India, Ministry of Science &amp; Technology for its R&amp;D Department (Research &amp; Development).</p> <p>6. ISO Certifications: The meter manufacturer must have ISO 9001:2000 (Quality Management System); ISO 14001:2004 (Environment Management System) and ISO 27001:2005 (Information Security Management System) certifications.</p>	
4.	Volume-II Section 3, Clause-1.4 Communication Module	The General requirements for common pluggable module for smart meters as per Appendix-I envisage a universal interface and a particular size irrespective of the choice of communication technology that defines the dimensions of the communication slot as well as physical placement and location of connectors. The same shall be adopted in all smart meters mandatorily for deployment w.e.f. 1 Jan	Smart Meters have been designed by the manufacturers uniquely to provide the desired performance. The communication module requirements vary w.r.t their operating voltage, power requirement and other features including physical dimensions and pin configurations for each type of communication technology & their make. Hence specifying a common dimension for Communication module is restrictive.	In this regard, provisions of the Bidding Documents shall remain unchanged



**Clarification No.-3 (Technical Part) dated 26/05/2022** to the Bidding Documents for Package for procurement of Smart Meters including associated Communication Infrastructure, Head End System (HES), Meter Data Management system (MDM) for implementation of Advanced Metering Infrastructure Project(s) in Central & Western India; Specification No.: RTN1001566/OTHERS/DOM/A02; GeM Bid Number: GEM/2022/B/2006757 dated 08.03.2022

S. No.	Clause Ref.	Provisions of Existing Bidding Documents	Bidder's Query/ Comments	POWERGRID's Reply/ Clarification
		2023 or one year after BIS certification, whichever is later, and BIS certification taken accordingly as per IS 16444 for the same.	The requirement of common pluggable module with a universal interface as given in the tender specifications does not allow innovation in design & manufacture of Smart Meters as it restricts/limits the efforts in cost reduction of the Meters.	
5.	Volume-II, Section-3, Appendix-I to Section 3	General requirement for common pluggable communication module for Smart Meters	<p>Also once the meters are redesigned, type tests are to be carried out in third party laboratories which are already running full. The timeline for deployment will be beyond 12 months.</p> <p>Request note that plugging in a different make/model of communication module does not guarantee that the Meter &amp; module combine will meet the specification &amp; standard and this will void the warranty of the Meter as well.</p> <p>In view of these multiple reasons, request remove this requirement of common dimensions/pin-out details of the communication module to ensure hassle-free rollout of the AMI solution.</p>	
6.	Volume-II Section 9, Clause-1.1 Pre-Qualification Requirement Testing (Implementation of	Bidders shall have to demonstrate their solution to demonstration/ pre-qualification committee constituted by Ministry of Power without any additional financial implication to the Employer.	This requirement is addressed by REC and only empaneled parties should quote. Why a demonstration is required again.	Refer Amendment No.-4 (Technical Part) Sr. No.11

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S. No.	Clause Ref.	Provisions of Existing Bidding Documents	Bidder's Query/ Comments	POWERGRID's Reply/ Clarification
	Advanced Metering Infrastructure)			
7.	Volume-II, Section 9, Clause- 1.5.5.2 Sample Routine & Acceptance Tests for Smart Meters	The sample Routine and Acceptance tests as per IS 13779 and IS 14697 shall be performed in a third-party accredited laboratory.	Routine tests are carried out on all Meters, as part of manufacturing process & Acceptance tests are carried out on selected samples and carried out in presence of Customer, at Manufacturer premises, before dispatch. These are as per the governing standard. For all practical purposes it is suggested to carry out these tests at Manufacturers laboratory itself. Powergrid may specify NABL certification for the Manufacturer's laboratory. This would help avoid the queue in Third party laboratories and thus save project time.	Refer Amendment No.-4 (Technical Part) Sr. No.2
8.	Volume-II, Section 9, Clause-1.5.7 Field Installation and Integration Test (FIIT)	a) The Sample Routine and Acceptance tests for the Meters at the discretion of employer on the lots received in the warehouse of the contractor at site in third-party accredited laboratory.	Smart Meters are dispatched to Contractor's Warehouse from factory after successful clearance of Acceptance tests, in presence of Customer representatives. There is no valid requirement to carry out Acceptance tests again, after receipt of these meters at Contractor Warehouse. Also Acceptance tests at Third party laboratory will add process time due to queuing at lab, thus adding to delay in Project execution. Request remove this condition.	Refer Amendment No.-4 (Technical Part) Sr. No.3
9.	Volume-II, Section 11: Documents &	9. Data Exchange Protocol Test Certificate [one per one lakh] smart meters. Frequency-Once	Data exchange protocol for Smart Meters is governed by IS 16444 and is validated by Type test reports. The protocol will remain same for the Smart Meters throughout the	Refer Amendment No.-4 (Technical Part) Sr. No.4

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S. No.	Clause Ref.	Provisions of Existing Bidding Documents	Bidder's Query/ Comments	POWERGRID's Reply/ Clarification
	Deliverables, Clause-1.3.9		project. Hence submission of type test report for each meter, once before commencement of supply, shall suffice. Request amend the requirement as "Data Exchange Protocol Test Certificate for smart meters ( Type test certificate as per IS 16444)- Once"	
10.	Volume-II, Appendix-I to Section 3 Part II b) Communication Interface	The meter shall provide a 14-pins Female socket connector (2*7pin, 2.54mm)	In this regard, kindly note that in our meter, we provide 12 pins Female socket which is adequate for meeting the requirement. We request to accept the same.	In this regard, provisions of the Bidding Documents shall remain unchanged.
11.	Volume- II, Section 4, Clause-3. Minimum Technical Requirements for NOMC Hardware	i) 2 Gbps internet connectivity	For operation of NOMC center, maximum of 1 Gbps internet connectivity is suitable. Request to amend the same.	In this regard, provisions of the Bidding Documents shall remain unchanged.
12.	Volume- II, Section 4: Design Parameters for Firewall	4. Minimum number of concurrent sessions- min 7,50,000	7,50,000 concurrent sessions for a firewall is a very high quantity. Please confirm the no. of concurrent users.	In this regard, provisions of the Bidding Documents shall remain unchanged.
13.	Volume –II, Section 11, Clause-1.2	27. Data Exchange Protocol Test Certificate [one per one lakh] smart meters	The requirement is not clear. Please elaborate.	Refer Amendment No.-4 (Technical Part) Sr. No.5
14.	Volume-II, Section 5, Clause 2. Qualifying Requirement of HES and MDMS provider	Head End System (HES) Provider must have experience of integration of at least 50,000 nos. Smart meters* (cumulatively) with its own HES in Indian/ Global Power Utility(ies) in the last 5 (five) years which are in operation	As you have allowed the Meter Manufacturer experience for Meters with AMR Facility & Smart Meters both, we request to please allow the companies who have experience of Implementation of MDAS for AMR system also for HES provider.	In this regard, provisions of the Bidding Documents shall remain unchanged.

**Clarification No.-3 (Technical Part) dated 26/05/2022** to the Bidding Documents for Package for procurement of Smart Meters including associated Communication Infrastructure, Head End System (HES), Meter Data Management system (MDM) for implementation of Advanced Metering Infrastructure Project(s) in Central & Western India; Specification No.: RTN1001566/OTHERS/DOM/A02; GeM Bid Number: GEM/2022/B/2006757 dated 08.03.2022

S. No.	Clause Ref.	Provisions of Existing Bidding Documents	Bidder's Query/ Comments	POWERGRID's Reply/ Clarification
		for at least 1 (one) year as on the originally scheduled date of bid opening. N.B: (*) Smart Meters conforming to IS:16444 or equivalent International Standard	We request to please modify the clause as below to enable more participation – Head End System (HES) Provider must have experience of integration of at least 50,000 nos. Smart meters* / AMR system (cumulatively) with its own HES / MDAS respectively in Indian/ Global Power Utility(ies) in the last 5 (five) years which are in operation for at least 1 (one) year as on the originally scheduled date of bid opening.	
15.	Volume II, Section 7, Clause- 1.2 d) Portability & Interoperability	The system shall be designed for hardware independence and operation in a network environment that facilitates interoperability and integration of third-party applications. Implementation of Advanced Metering Infrastructure applications should support multiple Relational Database Management Systems (RDBMS) including Oracle, Microsoft SQL Server and MySQL.	In AMI space, capturing, storing & performing analytics on interval data is very critical requirement and for that Timescale databases are more relevant. We suggest to also include the timescale database such as Postgres SQL etc. as HES collects the interval data every 15-30 minutes and Timescale DBs supports high speed writing & Improve performance for analytics.	Refer Amendment No.-2 (Technical Part) Sr. No.8
16.	Volume-II, Section 1, Clause-1.1.3: Project Area	The Project shall be implemented in the Central & Western Part of India. Project Area shall comprise of contiguous and non-contiguous electrical locations. Contiguous locations shall be ring-fenced with boundary meters where all consumers, DTs, feeders shall be smart metered to enable complete energy accounting with zero manual intervention. Whereas, non-contiguous	The Project shall be implemented in the Central & Western Part of India. Project Area shall comprise contiguous (which will be ring fenced with boundary meters) where all direct connected consumers, shall be smart metered and consumers beyond current carrying capacity as specified in IS 16444 part 1, <del>DTs, feeders</del> shall be Smart Meters as per IS 16444 part 2 or meters with automatic meter reading (AMR) facility	In this regard, provisions of the Bidding Documents shall remain unchanged.

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S. No.	Clause Ref.	Provisions of Existing Bidding Documents	Bidder's Query/ Comments	POWERGRID's Reply/ Clarification
		electrical locations shall include dispersed metering for certain Industrial, Commercial and Government consumers.	<p>complying to relevant IS to enable complete energy accounting with zero manual intervention and non-contiguous electrical locations where dispersed metering for certain Industrial, Commercial and Government consumers shall be done.</p> <p>Tender shall provide provision for AMR metering for HT/LT-CT/DT/Feeder as following documents –</p> <ol style="list-style-type: none"> <li>1. RDSS base document - which mentions communicable meters for DT and Feeder Meterings.</li> <li>2. BEE Regulations for (Manner and Intervals for Conduct of Energy Audit (Accounting) in Electricity Distribution Companies) Regulations, 2021</li> <li>3. REC Guidelines version - 2 for RDSS</li> <li>4. CEA Metering Regulations Amendments 2022.</li> </ol>	
17.	Volume II Section 1, Clause 2: Scope of work, B (xv.)	Integration of DLMS/COSEM based new smart meters to be installed in future in the provided HES/MDM system till the system is under Operation, Maintenance and Support period.	<p>xv. Integration of DLMS / COSEM based new smart meters to be installed in future by the AMISP in the provided HES/MDM system till the system is under maintenance period.</p> <p>We understand that AMISP shall be responsible for provisioning of meter in the project area for entire contract period so</p>	The future requirement of smart meter within the scope and duration of the contract shall be the responsibility of the bidder as per the provisions of the bidding document.

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S. No.	Clause Ref.	Provisions of Existing Bidding Documents	Bidder's Query/ Comments	POWERGRID's Reply/ Clarification
			integration should be limited to the meters provided by the AMISP.	
18.	Volume-II, Section 1, Clause 4: Physical and other parameters	The location of site(s) will be furnished during placement of the award. However, project area is Central and Western part of India.	<p>Please provide project area details like state, Electrical administrative area, consumer categories &amp; metering points</p> <p>The project implementation depends on multiple factors like geography &amp; demography of the project area. So the project area details are required for bidding and other project commitments like technology selection, timelines, resource deployment plan and project implementation schedules.</p>	<p>As brought-out in the Bidding Documents, POWERGRID intends to implement various Advanced Metering Infrastructure ("AMI") Project(s) ("Project(s)") for different DISCOMs/ Power Departments {"Utility (ies)"} in Central and Western India.</p> <p>The details of Utility (ies) for which AMI Project(s) are to be implemented shall be shared with the pre-selected bidders in the event of award.</p>
19.	Volume-II, Section 2, Clause 3.5 & 4.5	The Plug-In module shall be field swappable/ replaceable.	<p>The Plug-In module shall comply as per IS 16444 Part1</p> <p>Provision of communication module as defined in IS 16444 includes option for both pluggable (of same technology and make) and built-in module. Also a separate Panel 6 with members from BIS, CPRI, CEA, NSGM and industry participants has been constituted under BIS</p>	In this regard, provisions of the Bidding Documents shall remain unchanged.

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S. No.	Clause Ref.	Provisions of Existing Bidding Documents	Bidder's Query/ Comments	POWERGRID's Reply/ Clarification
			ETD 13 committee to analyse the feasibility of the pluggable & swappable communication module.	
20.	Volume-II, Section 2, Clause-3.6 & 4.6	Meter display should go into the sleep mode during Power- On condition in case the push button is not operated for more than 10 minutes.	May be deleted.  Meter's default display mode is "continuous auto scroll" mode which is required in tender, so the requirement of sleep mode after 10 min of inactivity is contradicting with continuous auto scroll mode requirement.	It shall be finalised during detailed engineering based on the utility requirement.
21.	Volume-II, Appendix-I to Section 3	General requirement for common pluggable communication module for Smart Meters	A separate panel 6 with members from BIS, CPRI, CEA, NSGM and industry participants has been constituted under BIS ETD 13 committee to analyse the feasibility and way forward for the same. Please delete the requirement till a common specification is decided by the committee.	In this regard, provisions of the Bidding Documents shall remain unchanged.
22.	Volume-II, Section 4, Clause 3.: Minimum Technical Requirements for NOMC Hardware	c) Internet router with at least 48 no's 1 Gbps LAN ports and redundant at least 2 Gbps internet ports supporting IPsec, and SSLVPN capability	SECTION -NETWORK OPERATION CUM MONITORING CENTRE c) Internet router and redundant appropriate internet ports supporting IPsec, and SSLVPN capability  AMISP is responsible for data delivery and successful running of the project as per defined SLA.  So, the AMISP shall be left independent for these technical specs.	In this regard, provisions of the Bidding Documents shall remain unchanged.



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S. No.	Clause Ref.	Provisions of Existing Bidding Documents	Bidder's Query/ Comments	POWERGRID's Reply/ Clarification
23.	Volume –II, Section 4, Clause 3. Minimum Technical Requirements for NOMC Hardware	i) 2 Gbps internet connectivity	SECTION -NETWORK OPERATION CUM MONITORING CENTRE i) Appropriate internet connectivity	In this regard, provisions of the Bidding Documents shall remain unchanged.
24.	Volume-II, Section 4, Clause 3.: Minimum Technical Requirements for NOMC Hardware	c) Internet router with at least 48 no's 1 Gbps LAN ports and redundant at least 2 Gbps internet ports supporting IPsec, and SSLVPN capability	This shall be changed as; Internet router with redundant connectivity to operate NOMC smoothly and supporting IPsec, and SSLVPN capability  Routers usually come with 4 or max 8 WAN ports. 48 port router is extremely difficult to get and there is no significant use case for NOMC IT infra requirements	In this regard, provisions of the Bidding Documents shall remain unchanged.
25.	Volume –II, Section 4, Clause-3. Minimum Technical Requirements for NOMC Hardware	i) 2 Gbps internet connectivity	This shall be changed as; 2 Gbps internet connectivity  2 Gbps link is too much for a facility like NOMC. For such use case a 20 Mbps redundant link form ISP would suffice the purpose	In this regard, provisions of the Bidding Documents shall remain unchanged.
26.	Volume-II, Section 5, Clause 3: Head End System (HES)	The scalability shall ensure the ability to handle applicable workloads including the following: .... b) 5/15 minutes interval meter reads .... Head End System is the core application for integrating meters. The HES shall perform following functions:	b) Interval meter data configurable supported as per IS 15959 and HES shall support scheduled as well as on-demand data reads as per applicable use cases.  o) Device management functionality to get periodic updates from devices on health check, hardware & firmware version	In this regard, provisions of the Bidding Documents shall remain unchanged.



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S. No.	Clause Ref.	Provisions of Existing Bidding Documents	Bidder's Query/ Comments	POWERGRID's Reply/ Clarification
		<p>....</p> <p>o) Device management functionality to get periodic updates from devices on health check, hardware &amp;firmware version, location mapping etc.</p>	<p>Interval meter data supports as per IS 15959.</p> <p>Location mapping can be done at the time of meter installation through other application.</p> <p>Kindly accept the same and amend the clause.</p>	
27.	Volume-II, Section 14, LTCT Technical Parameters	<p>ix) Max. ratio error: As per IS:2705/1992</p> <p>x) Max. phase angle error: As per IS:2705/1992</p> <p>xi) Max. temp. rise over max. ambient temp. of 50 deg. C at rated continuous thermal current at rated frequency and with rated burden.: As per IS:2705/1992</p> <p>3.3.1 Type Testing: The reports for all type tests and additional type tests as per technical specification/requirement of relevant IS standard (IS-2705-1992 , IS:3156-1992 with latest amendments) shall be furnished by the Contractor along with equipment/material drawings.</p>	<p>ix) Max. ratio error: As per IS:2705/1992 / IS16227</p> <p>x) Max. phase angle error: As per IS:2705/1992 / IS16227</p> <p>xi) Max. temp. rise over max. ambient temp. of 50 deg. C at rated continuous thermal current at rated frequency and with rated burden.: As per IS:2705/1992 / IS16227</p> <p>3.3.1 Type Testing: The reports for all type tests and additional type tests as per technical specification/requirement of relevant IS standard (IS-2705-1992 / IS16227, IS:3156-1992 with latest amendments) shall be furnished by the Contractor along with equipment/material drawings.</p> <p>Standard is revised, Kindly accept the same and amend the clause.</p>	Refer Amendment No.-4 (Technical Part) Sr. No.6

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S. No.	Clause Ref.	Provisions of Existing Bidding Documents	Bidder's Query/ Comments	POWERGRID's Reply/ Clarification
28.	Volume-II, Section 14, GENERAL TECHNICAL DESCRIPTION OF LT CT	GENERAL TECHNICAL DESCRIPTION OF LT CT: ii) The Ring Type/Wound Type LT Current Transformers shall be Resin Cast suitable for metering purpose.	ii) The Ring Type/Wound Type LT Current Transformers shall be Resin Cast suitable for metering purpose. Provided that wound type CT shall be used for current range upto 50A only.  Due to constraints of the design of LT CT Wound type CTs can be provide for 50/5A rating only, for current rating above 50A requirement Ring type CTs should be accepted.  Kindly accept the same and amend the clause.	In this regard, provisions of the Bidding Documents shall remain unchanged.
29.	Volume-II, ANNEXURE: INDICATIVE ITEM LIST FOR 25 LACS OF SMART METERS ALONG WITH ASSOCIATED INFRASTRUCTURE	53. Single Phase Wound type LTCT with 0.5S accuracy class (100/5 A): No. 100,000  54. Single Phase Wound type LTCT with 0.5S accuracy class (200/5 A): No. 100,000	53. Single Phase Ring type LTCT with 0.5S accuracy class (100/5 A): No. 100,000  54. Single Phase Ring type LTCT with 0.5S accuracy class (200/5 A): No. 100,000  Due to constraints of the design of LT CT Wound type CTs can be provide for 50/5A rating only, for current rating above 50A requirement Ring type CTs should be accepted.	In this regard, provisions of the Bidding Documents shall remain unchanged. BOQ requirement is in order
30.	Volume-II, Section 1: Projects, Clause 1.1.3 Project Area	The Project shall be implemented in the Central & Western Part of India. Project Area shall comprise of contiguous and non-contiguous electrical locations.	We request you to please share the Discom/Utility details along with quantity and GIS coordinate details. This will ensure Bidder to quote/estimate appropriate cost and resulting competitive bid.	As brought-out in the Bidding Documents, POWERGRID intends to implement various Advanced Metering

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				<p>Infrastructure ("AMI") Project(s) ("Project(s)") for different DISCOMs/ Power Departments {"Utility (ies)"} in Central and Western India.</p> <p>The details of Utility (ies) for which AMI Project(s) are to be implemented shall be shared with the pre-selected bidders in the event of award.</p>
31.	Volume-II, Section 1: Projects, Clause 2. Scope of Work	A. i. b. Reliable Communication Infrastructure to ensure the desired performance levels	We assume that the communication technology selection has to be done by Bidder to meet the desired performance levels which can be RF/ Cellular etc Kindly clarify.	Refer Bidding document Volume-II (Technical Specifications), Section 3 for communication infrastructure requirement.
32.	Volume-II, Section 2: Smart Meter, Clause 1	<p>1. Qualification Requirements for Smart Meter OEMs</p> <p>A. Technical Experience: The Smart Meter OEM must have manufactured, supplied and installed at least one lakh (1,00,000) Nos. Automated Meter Reading (AMR) Meters@ or 50,000 Nos. of Smart Meters* cumulatively in last five (5) years and these must have been integrated in the system of any Indian or Global Power Utility(ies) and must have been under operation for at</p>	Please delete the clause in line with AMISP Standard Bidding Document published by REC& MoP, to enable wider OEM participation.	In this regard, please refer Amendment No.-4 (Technical Part) Sr. No.1

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		least one (1) year as on the originally scheduled date of Bid Opening		
33.	Volume-II, Section-2 Smart Meters, Clause 3	3 Single Phase Whole Current Smart Meter 3.6 Data display facility (auto/manual) The display parameters shall be: • Display Check • Date and Time • Last Recharge Amount.....	We request you to remove the said parameter "Current Balance Days left". And as per IS 15959; it is requested to add below parameters: - Total amount at last recharge - Current balance Amount - Current balance date	Refer Amendment No.-4 (Technical Part) Sr. No.7
34.	Volume-II, Section-2 Smart Meters, Clause 4	4 Three Phase Whole Current Smart Meter 4.6 Data display facility (auto/manual) The display parameters shall be: • Display Check • Date and Time • Last Recharge Amount.....	We request you to remove the said parameter "Current Balance Days left". And as per IS 15959; it is requested to add below parameters: - Total amount at last recharge - Current balance Amount - Current balance date	Refer Amendment No.-4 (Technical Part) Sr. No.8
35.	Volume-II, Section-2 Smart Meters, Clause 3.6 and 4.6	Meter display should go into the sleep mode during Power-On condition in case the push button is not operated for more than 10 minutes.	Kindly clarify the requirement of sleep mode and what shall be the behaviour of LCD during sleep mode.	It shall be finalised during detailed engineering based on the utility requirement.
36.	Volume-II, Section-2 Smart Meters, Clause 5.3	5. Three Phase CT Operated alternating current Smart Meter of Accuracy Class 0.5S (DT Meter, LT-CT Meter etc.)  5.3 Communication Meter shall have the ability to communicate with Head End System (HES) on Cellular communication technology in a secure manner.	The communication requirement should be made technology agnostic.  Kindly amend the clause as below"  Meter shall have the ability to communicate with Head End System (HES) on any one of the communication technologies mentioned in this document (RF /Cellular) in a secure manner.	In this regard, provisions of the Bidding Documents shall remain unchanged.

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37.	Volume-II, Section-2 Smart Meters, Clause 6	6. Three phase CT/PT operated alternating current Smart Meter of Accuracy Class 0.5S/ 0.2S (as applicable) 6.3 Communication Meter shall have the ability to communicate with Head End System (HES) on GPRS communication technology in a secure manner.	The communication requirement should be made technology agnostic.  Kindly amend the clause as below"  Meter shall have the ability to communicate with Head End System (HES) on any one of the communication technologies mentioned in this document (RF /Cellular) in a secure manner	In this regard, provisions of the Bidding Documents shall remain unchanged.
38.	Volume-II Section 3, Clause-1.4 Communication Module	The General requirements for common pluggable module for smart meters as per Appendix-I envisage a universal interface and a particular size irrespective of the choice of communication technology that defines the dimensions of the communication slot as well as physical placement and location of connectors. The same shall be adopted in all smart meters mandatorily for deployment w.e.f. 1 Jan 2023 or one year after BIS certification, whichever is later, and BIS certification taken accordingly as per IS 16444 for the same. The Network Interface Card (NIC) / Communication Module should be integrated with at least 3 (three) makes of meters in India to enable the respective meters to seamlessly integrate with proposed HES and/or	Universal communication module specification not specified in IS standard so all meter manufactures have their own design and not compatible with other OEM. So universal communication module completable to all OEM can't be provided at this stage . You are requested to kindly delete this clause.	In this regard, provisions of the Bidding Documents shall remain unchanged

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		MDM thus enabling interoperability of the system.		
39.	Volume-II, Appendix-I to Section 3	<p><i>General requirement for common pluggable communication module for Smart Meters</i></p> <p>Considering that the new Smart Meters may use different types of communication technologies (RF/Cellular, etc.), thus in order to enable different communication modules to be used in the same meter, it is necessary to use a universal interface and a particular size irrespective of the choice of communication technology that defines the dimensions of the communication slot as well as physical placement and location of connectors.</p>	Universal communication module specification not specified in IS standard, so all meter manufactures have their own design and not compatible with other OEM. So universal communication module completable to all OEM can't be provided at this stage. You are requested to kindly delete this clause.	In this regard, provisions of the Bidding Documents shall remain unchanged.
40.	Volume-II, Section 5, Clause-2	<p>Qualifying Requirement% for HES Provider</p> <p>Head End System (HES) Provider must have experience of integration of at least 50,000 nos. Smart meters* (cumulatively) with its own HES in Indian/ Global Power Utility(ies) in the last 5 (five) years which are in operation for at least 1 (one) year as on the originally scheduled date of bid opening.</p> <p>Qualifying Requirement% for MDMS</p>	It is submitted that this clause shall cause participation from limited number of OEMs thereby limiting competition and discovery of effective pricing. Since the smart metering program is at very crucial stage in which participation from more and more players should be promoted, it is suggested to eliminate this requirement. Moreover, the SBD also does not envision any such condition. Hence the qualification requirements should be aligned with the AMISP SBD.	In this regard, provisions of the Bidding Documents shall remain unchanged.

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		Provider Meter Data Management System (MDMS) Provider must have experience of integrating its own MDMS with HES of at least 50,000 Smart meters* (cumulatively) in Indian/ Global Power Utility(ies) in last 5 (five) years which are in operation for at least 1(one) year as on the originally scheduled date of bid opening		
41.	Volume-II, Section 5, Clause 3	Head End System i) Store raw data for defined duration (minimum 45 days). HES shall hold the data before it is transferred to the MDM	Kindly align as per SBD published by REC and MoP:  Store raw data for defined duration (minimum 3 days). HES shall hold the data before it is transferred to the MDM	In this regard, provisions of the Bidding Documents shall remain unchanged.
42.	Volume-II, Section 9, Clause-1.1 Pre-Qualification Requirement Testing	1.1 Pre-Qualification Requirement Testing (Implementation of Advanced Metering Infrastructure) Bidders shall have to demonstrate their solution to demonstration/ pre-qualification committee constituted by Ministry of Power without any additional financial implication to the Employer.	We assume that this will be covered under REC test bed.	Refer Amendment No.-4 (Technical Part) Sr. No.11
43.	Volume-II, ANNEXURE: INDICATIVE ITEM LIST FOR 25 LACS OF SMART METERS ALONG WITH	-	The BOQ defined is contradictory to the Bid requirement as the quantity of smart meters required are categorized into Cellular and RF based communication while tender specifies Technology agnostic solution, on any deployed technology.	In this regard, provisions of the Bidding Documents shall remain unchanged.



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	ASSOCIATED INFRASTRUCTURE		Kindly clarify and align the same as per SBD and amend the BOQ accordingly.	
44.	Volume-II, Section 2, Clause-1	Technical Experience: The Smart Meter OEM must have manufactured, supplied and installed at least one lakh (1,00,000) Nos. Automated Meter Reading (AMR) Meters or 50,000 Nos. of Smart Meters* cumulatively in last five (5) years and these must have been integrated in the system of any Indian or Global Power Utility(ies) and must have been under operation for at least one (1) year as on the originally scheduled date of Bid Opening	<p>Technical Experience: The Smart Meter OEM must have manufactured and supplied at least one lakh (1,00,000) Nos. Automated Meter Reading (AMR) Meters or 50,000 Nos. of Smart Meters* cumulatively in last five (5) years and these must have been integrated in the system of any Indian or Global Power Utility(ies) and must have been under operation for at least one (1) year as on the originally scheduled date of Bid Opening.</p> <p>Rationale: Smart Meter manufacturers will not have installation experience as it falls under the scope of Lead Bidder/AMISP</p>	Refer Amendment No.-4 (Technical Part) Sr. No.1
45.	Volume-II, Section 2, Clause 3.3 - Communication	Meter shall have the ability to communicate with Head End System (HES) on any one of the communication technologies mentioned in this document (RF /Cellular) in a secure manner.	<p>&gt; Recommendation: - "Meter shall have the ability to communicate with Head End System (HES) on any one of the communication technologies mentioned in this document (RF/Cellular/PLC) in a secure manner.</p> <p>&gt; Justification: - "As per the SBD, the choice of communication technology has been left to the AMISP to achieve the required Service Level Agreements mentioned in the RFP. Request to keep the choice of communication technology open as the communication is completely location</p>	In this regard, provisions of the Bidding Documents shall remain unchanged.



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			<p>specific. The choice i.e PLC, RF or GSM will depend on the location and topology of the locations where the Smart Meters are being deployed. We have deployed the world's largest smart metering projects, the largest being 35 Million Smart Meters based on PLC &amp; GSM technology then, under deployment 5 Million in India on GSM technology. Currently, the Service Level Agreements were achievable based on combination of communication infrastructure for example – PLC+RF or RF+GSM etc.</p>	
46.	Volume II, Section-9, Clause 1.1	i) Interoperability across various types of meters (At least 3 makes of meters in India) in any communication infrastructure either based on RF / RF mesh network / PLCC /cellular network or a combination of these	<p>&gt; Recommendation: - "Interoperability shall be established at device level and communication level. The Smart Meters shall be interoperable with minimum three RF communication providers, Minimum three PLC Communication providers, and GSM technologies of 2G,3G, 4G and NBiOT. In case of RF solution, the offered RF OEM solution should be interoperable with minimum two other RF providers. Incase of PLC, the module offered should be interoperable with minimum 3 Smart Meters."</p> <p>&gt; Justification: - "In order to remove dependency on OEMs, the offered hardware and communication systems should be interoperable. Such a solution will not be dependent on only one OEM and hence will</p>	In this regard, provisions of the Bidding Documents shall remain unchanged.

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			avoid any system downtime or solution changes.”	
47.	-	-	<p>There is no specific qualification criteria from a CSP perspective in the RFP. Here in we request Powergrid to look into Qualification criteria points and if the same can be included in the RFP:</p> <ul style="list-style-type: none"> <li>a. The Cloud Service Provider (CSP) should have been offering cloud services (IaaS/PaaS) in India from at least last 3 financial years with average annual turnover of more than 400 Cr in last 3 FY</li> <li>b. Meity Empaneled CSP for at least last 4 years</li> <li>c. CSP should own and operate DC</li> <li>d. The Cloud Service Provider (CSP) should offer Tier -4 Data for DC-DR Cloud Hosting.</li> <li>e. Uptime offered by the CSP from India Data Centres - Uptime offered on a single VM instance is more than or equal to 99.9 %</li> <li>f. The DC-DR offered by the Cloud Service provider should be in two different seismic zones</li> <li>g. The CSP should have atleast one project completed/ongoing deployed on GCC - Document proof - WO and self declaration of project status</li> </ul>	In this regard, provisions of the Bidding Documents shall remain unchanged.

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			h. The CSP should provide GCC as the deployment model for DC-DR Cloud Hosting	
48.	Volume II, Section 5, Clause 2. Qualification Requirement of HES and MDMS Provider	Qualifying Requirement% for MDMS Provider	1. Please correct our understanding that the Meter Data Management System (MDMS) Provider can be either MDM OEM and/or MDM OEMs implementation partner	Meter Data Management Provider must have its own MDM. Refer Volume II, Section 5, Clause 2.
49.	Volume II, Section 5, Clause 2. Qualification Requirement of HES and MDMS Provider	<p>The Bidder on its own or through its Sub-Contractor(s) shall meet the qualifying requirement for Head End System (HES) and Meter Data Management System (MDMS):</p> <p><b><u>Qualifying Requirement% for HES Provider</u></b> Head End System (HES) Provider must have experience of integration of at least 50,000 nos. Smart meters* (cumulatively) with its own HES in Indian/ Global Power Utility(ies) in the last 5 (five) years which are in operation for at least 1 (one) year as on the originally scheduled date of bid opening.</p> <p><b><u>Qualifying Requirement% for MDMS Provider</u></b></p> <p>Meter Data Management System (MDMS) Provider must have experience of integrating its own MDMS with HES of</p>	Our recommendation as follows: Meter Data Management System (MDMS) Provider must have experience of integrating of proposed MDMS with HES of at least 1,000,000 Smart meters* (cumulatively) in Indian/ Global Power Utility(ies) in last 7 (seven) years which are in operation for at least 1(one) year as on the originally scheduled date of bid opening	In this regard, provisions of the Bidding Documents shall remain unchanged.

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		<p>at least 50,000 Smart meters* (cumulatively) in Indian/ Global Power Utility(ies) in last 5 (five) years which are in operation for at least 1(one) year as on the originally scheduled date of bid opening</p> <p><b>N.B:</b> (*) <i>Smart Meters conforming to IS:16444 or equivalent International Standard</i></p> <p>(%) <i>Additionally, bidder's End-to-End Solution (involving above HES provider, MDMS Provider along with other items) shall have to successfully pass Pre-Qualification Demonstration Requirement as per ITB 24.1 (i).</i></p>		
50.	-	-	As MDMS deployed globally and end customer signed NDA with MDM OEMs. Hence we request Powergrid should allow MDM OEMs provide the self signed MDM OEMs letters with OEM contact details to connect end clients to validate the information. Please confirm.	In this regard, the provisions of the Bidding Documents are amply clear and shall remain unchanged.
51.	-	-	The proposed MDM solution should have been successfully implemented of proposed MDMS in at least two (2) global/indian utilities in last seven (7) years and out of these smart meters, and data is being	In this regard, provisions of the Bidding Documents shall remain unchanged.

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			collected at a frequency ranging from 15 min to 24 hours at Head End System (HES).  Each project should have minimum 1,000,000 smart meters and should be in successful operation as on bid submission date Self-signed reference letters by MDM OEM to be submitted.	
52.	-	-	The proposed MDM solution should have been integrated with any CIS/Billing (SAP/Oracle/legacy) in at least two (2) global/indian utilities in last seven (7) years. Self-signed reference letters by MDM OEM to be submitted.	In this regard, provisions of the Bidding Documents shall remain unchanged.
53.	-	-	The proposed MDM solution should have been integrated with atleast five (5) different AMI HES in global/indian utilities in last seven (7) years. Self-signed reference letters by MDM OEM to be submitted.	In this regard, provisions of the Bidding Documents shall remain unchanged.
54.	-	-	The proposed MDM solution must be listed in Gartner's Magic Quadrant and Gartner's market guide for Meter Data Management (MDM) Products for consecutive five (5) years (for the year 2016 to 2020)	In this regard, provisions of the Bidding Documents shall remain unchanged.
55.	Volume II, Section 7, Clause-3.2 MeitY's Guidelines	e) ISO 22301 certification- Complying to Business Continuity Management standard requirements.	We request the removal of this certification - ISO 22301, which specifies requirements to plan, establish, implement, operate, monitor, review, maintain and continually improve a documented management system to protect against, reduce the likelihood of occurrence,	Refer Amendment No.- 2 (Technical part) Sr.No. 9

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			<p>prepare for, respond to, and recover from disruptive incidents when they arise.</p> <p>Our Business Continuity Policies and Plans have been developed and tested in alignment with ISO 27001 standards. Our data centers incorporate physical protection against environmental risks. Our physical protection against environmental risks has been validated by an independent auditor and has been certified as being in alignment with ISO 27002 best practices. Our equipment is protected from utility service outages in alignment with ISO 27001 standard. We have been validated and certified by an independent auditor to confirm alignment with ISO 27001 certification standard. Our SOC reports provide additional details on controls in place to minimize the effect of a malfunction or physical disaster to the computer and data center facilities. Our backup and redundancy mechanisms have been developed and tested in alignment with ISO 27001 standards. For more details on Our policies, a separate note has been provided at the end of the document.</p> <p>Also, importantly, MeITY has not specified this certification as part of the CSP</p>	

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			<p>empanelment exercise. Furthermore, even the Standard Bid Document for Advanced Metering Infrastructure or AMISBD doesn't specify this certification (refer page 148 &amp; Section 2.7.3.2 MeitY's Guidelines). We have several public tender references from other comparable national level initiatives from PSUs and State Discoms, wherein this certification is not stated/required for their similar cloud empanelment initiative.</p> <p>This ISO certification is available with only one hyperscaler CSP empaneled with MeitY; hence, this clause restricts competition.</p>	
56.	Volume II, Section 7, Clause. 3.2 MeitY's Guidelines	(f) TIA 942 A/B &/or Uptime Tier III or higher – Telecommunication infrastructure standard for Data Centre	On Pg. No 138 of 12_Volume-ii_technical specifications Comments under section 3.3.4 Cloud Data Center Specifications Point d – The requirement is “The Data Centre should conform to at least Tier III standard (preferably certified Uptime Institute certifications by a 3rd party) and implement tool-based processes based on ITIL standards.” This requirement is in line with the MeitY RFP for empanelment of CSP " Inviting Application for Empanelment of Cloud Service Offerings of Cloud Service Providers" - Please refer to Section 6.2.1 Point III, page 25 of the MeitY website.	In this regard, provisions of the Bidding Documents shall remain unchanged.

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			<p>On Pg. no 135 12_Volume-ii_technical specifications Comments under section 3.2 MeitY Guidelines point f – The requirement is CSP facilities/services certified for “ TIA 942 A/B &amp;/or Uptime Tier III or higher – Telecommunication infrastructure standard for Data Centre</p> <p>Requesting customer to clarify if CSP can submit a Self-declaration signed by Authorized Signatory confirming Conformance to at least Tier III standard (preferably certified Uptime Institute certifications by a 3rd party).</p>	
57.	Volume II, Section 7, Clause- 1.2 (d) - Portability & Interoperability	The system shall be designed for hardware independence and operation in a network environment that facilitates interoperability and integration of third-party applications. Implementation of Advanced Metering Infrastructure applications should support multiple Relational Database Management Systems (RDBMS) including Oracle, Microsoft SQL Server and MySQL.	Our assumption is in addition to the mentioned databases, other industry leading relational and NoSQL databases like - Mariadb, PostgrSQL can be considered in the solution.	Refer Amendment No.- 2 (Technical Part) Sr.No. 8
58.	Volume II, Section 7, Clause -1.2: Applications (f) & 1.3: Operating System	<b>1.2 (f) Licenses:</b> All application-level licenses shall be valid perpetually and ownership of such licenses shall be with POWERGRID during the contract period. In case of deployment of the lot	Cloud platform will offer subscription based license for the Operating System, Database and Software as part of various services which will not be transferable. Software	Software licenses for NOMC software, HES and MDM shall be perpetual.



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		<p>in multiple utilities, contractor shall provide Utility Specific licenses. At the end of the contract/termination such licenses shall be handed over to utility(ies).</p> <p><b>1.3 Operating System</b> All licenses for Operating System and other application software shall be supplied by the Contractor and shall be valid perpetually. Contractor shall transfer the licenses to Utility at the end of contract period/ termination of the contract.</p>	license for HES, MDMS and NMS can be transferred at the end of the contract.	
59.	Volume II, Section 7, Clause -2 Network Communication	NOMC shall have provision to monitor network of hardware architecture provided in the cloud through this software.	Cloud infrastructure will be based on virtual machines and software defined networking. Hardware monitoring will not be applicable in case of cloud resources. However Network traffic monitoring will be possible through the native monitoring service provided by the CSP	In this regard, provisions of the Bidding Documents shall remain unchanged.
60.	Volume II, Section 7, Clause - 3.3.2 Compatibility Requirements	(d) CSP/MSP platform should support multiple operating systems, at a minimum Windows, Red Hat Linux , Cent OS and Ubuntu.	Are the other supported versions of Linux also allowed e.g. SUSE ?	In this regard, provisions of the Bidding Documents shall remain unchanged.
61.	Volume II, Section 7, Clause 3.3.4 Cloud data centre specifications	f) CSP/MSP should be able to provide physical separation of infra as per requirement from Utility.	CSP/MSP should be able to provide logical separation of infra as per requirement from Utility. Logical separation using Virtual Private Cloud is MeitY approved deployment approach.	In this regard, provisions of the Bidding Documents shall remain unchanged.

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S. No.	Clause Ref.	Provisions of Existing Bidding Documents	Bidder's Query/ Comments	POWERGRID's Reply/ Clarification
62.	Volume II, Section 7, Clause 3.3.10: Disaster Recovery Management	(n) CSP/MSP should offer dashboard to monitor RPO and RTO of each application and database.	RTO/RPO monitoring dashboard is not offered as a service or as a software, Please specify the expectations from such monitoring. Service availability monitoring, alarm and notification will be available as part of the cloud monitoring service which can also be customized for workload or service	In this regard, provisions of the Bidding Documents shall remain unchanged.
63.	-	-	One of features of the cloud platform is the automation of processes for the management of resources and other services. This bring efficiencies and reducing errors by removing manual interventions.	In this regard, provisions of the Bidding Documents shall remain unchanged.
64.	Volume II, Section 2, Clause 3.6	Meter display should go in to sleep mode during Power-On condition in case the push button is not operated for more than 10 minutes	Requested Deviation  Comments:- This feature can confuse the Field team. They can misinterpret as Display defective.  Remarks:	It shall be finalised during detailed engineering based on the utility requirement.
65.	Volume II, Section 2, Clause 4.6	Meter display should go in to sleep mode during Power-On condition in case the push button is not operated for more than 10 minutes	Requested: Deviation  Comments:- This feature can confuse the Field team. They can misinterpret as Display defective.  Remarks:	It shall be finalised during detailed engineering based on the utility requirement.

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S. No.	Clause Ref.	Provisions of Existing Bidding Documents	Bidder's Query/ Comments	POWERGRID's Reply/ Clarification
66.	Volume II, Section 2, Clause 5.3 Communication	Meter shall have the ability to communicate with Head End System (HES) on Cellular communication technology in a secure manner.	Comments:-...technology ( RF/PLCC/ 4G Fall back 2G) with the Smart Meters, leading.. Remarks: Presently all telecom providers offering 4G service for under cellular umbrella  Requested Clarification	In this regard, please refer Amendment no. 2 (Technical part) Sr. No. 3.
67.	Volume II, Section 2, Clause 6.3 Communication	Meter shall have the ability to communicate with Head End System (HES) on GPRS communication technology in a secure manner.	Requested-Clarification  Comments:- ...technology ( RF/PLCC/ 4G Fall back 2G) with the Smart Meters, leading..  Remarks: Presently all telecom providers offering 4G service for under cellular umbrella	In this regard, please refer Amendment no. 2 (Technical part) Sr. No. 3.
68.	-	-	Comments:-...technology ( RF/PLCC/ 4G Fall back 2G) with the Smart Meters, leading..  Remarks: Presently all telecom providers offering 4G service for under cellular umbrella  Requested Clarification	In this regard, please refer Amendment no. 2 (Technical part) Sr. No. 3.
69.	Volume II, Section 3, Appendix-I to Section 3,	<i>General requirement for common pluggable communication module for Smart Meters</i>	Requested- Deviation  Comments:- Common Pluggable module should be removed	In this regard, provisions of the Bidding Documents shall remain unchanged.

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S. No.	Clause Ref.	Provisions of Existing Bidding Documents	Bidder's Query/ Comments	POWERGRID's Reply/ Clarification
		Considering that the new Smart Meters may use different types of communication technologies (RF/Cellular, etc.), thus in order to enable different communication modules to be used in the same meter, it is necessary to use a universal interface and a particular size irrespective of the choice of communication technology that defines the dimensions of the communication slot as well as physical placement and location of connectors.	Remarks:	
70.	Volume II, Section 3, Appendix-I to Section 3, Part II	a) <b>AC power interface:</b> In the event of PLC communication being chosen as the only or one of the choices, the following arrangement of connector and pinouts need to be provisioned on the communication module.....	Requested- Deviation  Comments:- Common module View & connector should be removed  Remarks:	In this regard, provisions of the Bidding Documents shall remain unchanged.
71.	Volume II, Section 3, Appendix-I to Section 3, Part III, 1. Module 3-D views & B. Module Dimensions	-	Requested- Deviation  Comments:- Common module View & connector should be removed  Remarks:	In this regard, provisions of the Bidding Documents shall remain unchanged.
72.	Volume -II, Section 2, Clause 9.	All the meters shall be supplied with meter box, specification of the same shall be as under:	Requested-Specification  Comments:- Please provide meter Box	Refer Amendment No.-2 (Technical Part) Sr. No. 1

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S. No.	Clause Ref.	Provisions of Existing Bidding Documents	Bidder's Query/ Comments	POWERGRID's Reply/ Clarification
		-----	specs ( Poly / SMC / external CT ratio ) if required  Remarks:	
73.	Volume II, Section 1, Clause.1.1.3	The Project shall be implemented in the Central & Western Part of India.	Requested-Clarification  Comments:- Please Clarify Project Area. Remarks:	As brought-out in the Bidding Documents, POWERGRID intends to implement various Advanced Metering Infrastructure ("AMI") Project(s) ("Project(s)") for different DISCOMs/ Power Departments {"Utility (ies)"} in Central and Western India.  The details of Utility (ies) for which AMI Project(s) are to be implemented shall be shared with the pre-selected bidders in the event of award.
74.	Volume II, Section 1, Clause 5. General Requirement	h. A suitable NMS shall be built to monitor the performance of the communication network round the clock. The NMS shall provide viewing of all the networking elements deployed at site and enable configuration & parameterization of the networking devices and the nodes. In case of public	Requested-Clarification  Comments:- We understand, In case of cellular SIM management (Activation / Deactivation / Nw availability etc.) Provided by Airtel / Vodafone/ etc. via APIs which will be integrated in HES. Please confirm.	In this regard, provisions of the Bidding Documents shall remain unchanged.

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		network such as cellular, the web-based portal (for example Open Network platform) should be provided to have the network view at location of installed devices. The portal shall have connectivity & subscription management.	Remarks: it has been seen that telecom companies do not share these details.	
75.	Volume II, Section 3, Appendix-I to Section 3	General requirement for common pluggable communication module for Smart Meters	Requested-Deviation  Comments:-We request to remove the Appendix-I to Section 3  Remarks: AMI SP will be the designated entity to select vendors and provide FMS for complete project duration and meet the stipulated SLAs. Hence specifying common pluggable module specs, will complicate meter design ,even put extra burden from cost point of view too.	In this regard, provisions of the Bidding Documents shall remain unchanged.
76.	Volume II, Section 4, Clause 3. Minimum Technical Requirements for NOMC Hardware	c) Internet router with at least 48 no's 1 Gbps LAN ports and redundant at least 2 Gbps internet ports supporting IPsec, and SSLVPN capability	Requested-Alternate  Comments:- It should be as per system requirement hence request you to amend the clause as " Internet router with required no's with 1 Gbps LAN ports and redundant at least 2 Gbps internet ports supporting IPsec, and SSLVPN capability"  Remarks:	In this regard, provisions of the Bidding Documents shall remain unchanged.

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S. No.	Clause Ref.	Provisions of Existing Bidding Documents	Bidder's Query/ Comments	POWERGRID's Reply/ Clarification
77.	Volume II, Section 4, Clause 3. Minimum Technical Requirements for NOMC Hardware	i) 2 Gbps internet connectivity	Requested-Alternate  Comments:- Kindly amend 2 Gbps to max bandwidth availability at respective NOMC.  Remarks:	In this regard, provisions of the Bidding Documents shall remain unchanged.
78.	Volume II, Section 5, Clause 3. Head End System (HES)	i) Store raw data for defined duration (minimum 45 days). HES shall hold the data before it is transferred to the MDM	Requested-Clarification  Comments:-Kindly suggest the data retention period at HES after transferring to MDM.  Remarks:	In this regard, provisions of the Bidding Documents shall remain unchanged.
79.	Volume II, Appendix-B to Section 5- HES and MDM	Future Demand Response Program Use Cases for Reference	Requested- Deviation  Comments:-We request to keep these as out of scope for present tender requirements  Remarks: The clause mentioned the use cases which can be adopted in future, once system is stabled and project is in Go-Live stage.	In this regard, provisions of the Bidding Documents shall remain unchanged.
80.	Volume II, Section 7, Clause 4.7 Cyber Security – General Guidance	b) Application scanning and hardware scanning tools shall be provided to identify vulnerability & security threats.	Requested- Deviation  Comments:-Request you to amend as "Network & O/S scanning tools shall be provided to identify vulnerability & security threats  Remarks:	In this regard, provisions of the Bidding Documents shall remain unchanged.

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S. No.	Clause Ref.	Provisions of Existing Bidding Documents	Bidder's Query/ Comments	POWERGRID's Reply/ Clarification
81.	Volume II, ANNEXURE: INDICATIVE ITEM LIST FOR 25 LACS OF SMART METERS ALONG WITH ASSOCIATED INFRASTRUCTURE		Requested-Clarification  Comments:- Please clarify region wise quantity of Smart meters.  Remarks:	As brought-out in the Bidding Documents, POWERGRID intends to implement various Advanced Metering Infrastructure ("AMI") Project(s) ("Project(s)") for different DISCOMs/ Power Departments {"Utility (ies)"} in Central and Western India.  The details of Utility (ies) for which AMI Project(s) are to be implemented shall be shared with the pre-selected bidders in the event of award.
82.	Volume II, Section I, Clause.1.1.3	The Project shall be implemented in the Central & Western Part of India.	Requested-Clarification  Comments:-Please confirm the place where meters to be installed. This information is required to carryout survey and do better costing.  Remarks:	As brought-out in the Bidding Documents, POWERGRID intends to implement various Advanced Metering Infrastructure ("AMI") Project(s) ("Project(s)") for different DISCOMs/ Power Departments {"Utility (ies)"} in Central and Western India.



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				The details of Utility (ies) for which AMI Project(s) are to be implemented shall be shared with the pre-selected bidders in the event of award.
83.	Volume II, Section 13, Clause 2	2. Consumer Engagement <ul style="list-style-type: none"> <li>Contractor along with employer shall develop media campaign to raise awareness and counter myths around smart metering prior to installations etc.</li> <li>Awareness program shall be under taken at utilities, Headquarter, division and sub division level.</li> </ul>	Requested-Clarification  Comments:-Please clarify who will bear the cost for media campaign.  Remarks:	In this regard, the provisions of the Bidding Documents are amply clear and shall remain unchanged.
84.	Volume II, Section 4 - Network Operation Cum Monitoring Center	-	Requested-Clarification  Comments:-Please clarify, what will be guarantee period of NOMC Hardware  Remarks:	NOMC hardware shall be covered under Comprehensive Maintenance during entire contract period. Contractor shall arrange back to back warranty with OEMs accordingly.
85.	Volume II, Section 7, Clause. 1.2 (f)	f) Licenses: All application-level licenses shall be valid perpetually and ownership of such licenses shall be with POWERGRID during the contract period. In case of deployment of the lot in multiple utilities, contractor shall provide Utility Specific licenses. At the end of the contract/termination such	Our HES and MDM are on SAAS pay-as-you-go model (subscription based). Request you to please consider it similar to cloud services as it is not perpetual license and ownership transfer may not be possible..	In this regard, provisions of the Bidding Documents shall remain unchanged.

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S. No.	Clause Ref.	Provisions of Existing Bidding Documents	Bidder's Query/ Comments	POWERGRID's Reply/ Clarification
		licenses shall be handed over to utility(ies)		
86.	Volume II,Section - 2, clause 1	<p>Qualifying Requirement for Smart Meter OEMs</p> <p>A. Technical Experience: The Smart Meter OEM must have manufactured, supplied and installed at least one lakh (1,00,000) Nos. Automated Meter Reading (AMR) Meters@ or 50,000 Nos. of Smart Meters* cumulatively in last five (5) years and these must have been integrated in the system of any Indian or Global Power Utility(ies) and must have been under operation for at least one (1) year as on the originally scheduled date of Bid Opening</p> <p>AND</p> <p>B. Manufacturing Facilities: The Smart Meter OEM(s) must have its own manufacturing facility(ies) in India for Smart Meters* and shall be having minimum manufacturing capacity^ of 15 Lacs meters per annum (cumulative capacity in case of more than one Smart Meter OEM is proposed by the bidder) as on originally scheduled date of bid opening.</p>	<p>The Smart Meter OEM must have manufactured, supplied at least one lakh (1,00,000) Nos. Automated Meter Reading (AMR) Meters@ or 50,000 Nos. of Smart Meters* cumulatively in last five (5) years and these must have been integrated in the system of any Indian or Global Power Utility(ies) and must have been under operation for at least one (1) year as on the originally scheduled date of Bid Opening</p> <p>In AMI tenders, the scope of meter manufacturer is limited to manufacture and supply of Smart Meters, Installation of meter is in the scope of AMISP/EPC Contractor.</p>	Refer Amendment No.-4 (Technical Part) Sr. No.1

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S. No.	Clause Ref.	Provisions of Existing Bidding Documents	Bidder's Query/ Comments	POWERGRID's Reply/ Clarification
		<p>N.B: (@) Energy (kWh) Meter with Communication port</p> <p>(*) Smart Meters conforming to IS:16444 or equivalent International Standard</p> <p>(^) Bidder shall submit certificate from Chartered Accountant certifying the manufacturing capacity</p> <p>(%) Additionally, bidder's End-to-End Solution (involving above Smart Meter OEM(s), along with other items) shall have to successfully pass Pre-Qualification Demonstration Requirement as per ITB 24.1 (i).</p>		
87.	-	-	<p>As per RDSS SBD document, Communication technology choice has been left to System Integrators. Request PGCIL to leave the technology choice to SI's and not mandate for 50% GPRS and 50% RF Mesh. This will ensure that tomorrow, the pricing commitment issue from the SI's bidding now for each technology ,will not be binding on PGCIL. For example, if an SI bids for 50 lakhs RF mesh points, and tomorrow when execution happens, only 10 Lakhs are supposed to be installed on RF Mesh, then pricing for 50 lakhs RF mesh numbers will</p>	<p>In this regard, provisions of the Bidding Documents shall remain unchanged.</p>

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			not be applicable for 10 lakhs Points. Hence, PGCIL will have to take the burden for that.	
88.	Volume II, Section 1, Clause 1.1.2	The project envisages implementation of end-to-end smart prepaid metering in the selected AMI Project area, operating the AMI System for 'Total Meter-months' as defined in this Contract and thereafter transferring the ownership of the entire AMI system including all the meters, communication system (including SIM cards, router etc), all the hardware, software along with its valid licenses, and any data collected during the Project to the Utility at the end of the Contract Period to facilitate seamless operation of Utility businesses. Total volume of Smart Meters under single lot (25 lacs) may be deployed across multiple utilities.	Across how many utilities these 25 lacs meters will be deployed? What will be the deployment phasing (across months or years) of smart meters in each utility? The system will need to have separate instances for each utility to meet business process and compliance needs.	Each lot of 25 lacs Smart Meters may be deployed across single/multiple utilities. For each utility, separate instances shall be needed.
89.	Volume II, Section 13, Clause 1.3	Man-Weeks requirement for the AMI training	There is a complete schedule of trainings for specific team members. Will you require a training solution to allocate, track and store completion data to keep a complete overview of training program progress?	Training requirements shall be as per Bidding document Volume-II (Technical Specifications), Section 13-Training & Consumer Engagement Plan
90.	Volume II, Section 7, Clause. 1.2 (f)	f) Licenses: All application-level licenses shall be valid perpetually and ownership of such licenses shall be with POWERGRID during the contract	The current trend in the industry is to have the SAAS approach vs perpetual license model. There are significant advantages to the SAAS approach where the OEM	In this regard, provisions of the Bidding Documents shall remain unchanged.

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		<p>period. In case of deployment of the lot in multiple utilities, contractor shall provide Utility Specific licenses. At the end of the contract/termination such licenses shall be handed over to utility(ies)</p>	<p>provides security, patches, upgrade support, SLA availability at application level (99.7% availability), compliance etc. The biggest advantage to PSPCL to go for SAAS model is that when PSPCL takes over the entire software system from the contractor it will be in a top operating condition at the time of handover and for next many years. SAAS approach allows PSPCL team to focus on running billing process rather than spending huge effort in maintaining an old software system after takeover.</p> <p>Please confirm that SAAS is the preference as per current industry standards? Please mention the availability SLAs for prod and non-prod servers?</p>	
91.	Volume II, Section 5, Clause 2	<p>2. Qualification Requirement of HES and MDMS ProviderThe Bidder on its own or through its Sub-Contractor(s) shall meet the qualifying requirement for Head End System (HES) and Meter Data Management System (MDMS):Qualifying Requirement% for HES Provider Head End System (HES) Provider must have experience of integration of at least 50,000 nos. Smart meters* (cumulatively) with its own HES in Indian/ Global Power Utility(ies) in the last 5 (five) years which are in operation</p>	<p>For maximum participation and for more qualified parties to get empaneled with your prestigious organization, we request your good office to kindly aligned these QRs as defined in Standard Bidding Document (SBD), and amend the clause as below i.e "HES provider/Bidder/Any Consortium member must have experience of integration of head-end system with MDM on standard interfaces and data exchange models for at least [20,000] consumers (cumulatively) in an Indian/ Global Utility (power/ water/ natural gas/telecom) in the last 5 (five) years</p>	<p>In this regard, please refer Amendment No.-4, Sr.No. 9</p>

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		<p>for at least 1 (one) year as on the originally scheduled date of bid opening. Qualifying Requirement% for MDMS Provider Meter Data Management System (MDMS) Provider must have experience of integrating its own MDMS with HES of at least 50,000 Smart meters* (cumulatively) in Indian/ Global Power Utility(ies) in last 5 (five) years which are in operation for at least 1(one) year as on the originally scheduled date of bid opening</p> <p>N.B: (*) Smart Meters conforming to IS:16444 or equivalent International Standard</p> <p>(%) Additionally, bidder's End-to-End Solution (involving above HES provider, MDMS Provider along with other items) shall have to successfully pass Pre-Qualification Demonstration Requirement as per ITB 24.1 (i).</p>	<p>which are in operation for at least 1 (one) year.</p> <p>OR</p> <p>HES provider/Bidder/Any Consortium member should have installed, integrated, tested and commissioned control centre hardware and application software for at least [50,000] endpoints (cumulatively) in an Indian/ Global Utility (power/ water/ natural gas/ telecom) in last 5 (five) years which are in operation for at least 1(one) year.</p> <p>"Further, since Empanelment with REC will be mandatory to participate in the upcoming tenders under Revamped Distribution Sector Scheme (RDSS), we request that AMISP with a valid Empanelment Certificate from REC to be auto-qualified for this empanelment and need not to go through an additional Pre-Qualification Demonstration Requirement as per ITB 24.1 (i)- this will help to reduce the empanelment process time.</p>	
92.	Volume II, Section 2, Clause 1	<p>Qualifying Requirement% for Smart Meter OEMs</p> <p>A. Technical Experience: The Smart Meter OEM must have manufactured, supplied and installed at least one lakh (1,00,000) Nos. Automated Meter Reading (AMR) Meters@ or 50,000 Nos. of Smart</p>	<p>For maximum participation and for more qualified parties to get empaneled with your prestigious organization, we request your good office to kindly remove these QRs and follow the QRs as mentioned in the Standard Bidding Document (SBD).</p>	Refer Amendment No.-4 (Technical Part) Sr. No.1

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		<p>Meters* cumulatively in last five (5) years and these must have been integrated in the system of any Indian or Global Power Utility(ies) and must have been under operation for at least one (1) year as on the originally scheduled date of Bid Opening</p> <p>AND</p> <p>B. Manufacturing Facilities: The Smart Meter OEM(s) must have its own manufacturing facility(ies) in India for Smart Meters* and shall be having minimum manufacturing capacity^ of 15 Lacs meters per annum (cumulative capacity in case of more than one Smart Meter OEM is proposed by the bidder) as on originally scheduled date of bid opening.</p> <p>N.B: (@) Energy (kWh) Meter with Communication port  (*) Smart Meters conforming to IS:16444 or equivalent International Standard  (^) Bidder shall submit certificate from Chartered Accountant certifying the manufacturing capacity</p>	<p>Further, since Empanelment with REC will be mandatory to participate in the upcoming tenders under Revamped Distribution Sector Scheme (RDSS), we request that AMISP with valid Empanelment Certificate from REC to be auto-qualified for this empanelment.</p>	



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S. No.	Clause Ref.	Provisions of Existing Bidding Documents	Bidder's Query/ Comments	POWERGRID's Reply/ Clarification
		(%) Additionally, bidder's End-to-End Solution (involving above Smart Meter OEM(s), along with other items) shall have to successfully pass Pre-Qualification Demonstration Requirement as per ITB 24.1 (i).		
93.	Volume II, Section 3, Clause 1.2 Network Security	The network shall be horizontally and vertically scalable to accommodate future meter installations. Utility/Employer will define the scalability level required for the network at the time of implementation.	Network up-scaling will also require up-sizing security components accordingly. Request to provide upper limits on scaling requirements. Scaling beyond those limits may require additional purchase orders.	In this regard, please refer Bidding document, Volume-II (Technical specification) Section 5, Clause 3.
94.	Volume II, Section 7, Clause 3.1 General Conditions	c) Contractor need to ensure that the CSPs facilities/services are compliant to various security standards as mentioned in this section and should be verified by third party auditors	It is understood that this refers to an Annual Security Audit from CERT-In listed auditors. Please confirm?	In this regard, provisions of the bidding documents are amply clear and shall remain unchanged.
95.	Volume II, Section 7, Clause 3.4 Security	CSP/MSP to demonstrate third party audit at the time of Factory Acceptance Test (TEST)	It is understood that this refers to a one-time Security Audit from CERT-In listed auditors at the time of Factory Acceptance Test. Please confirm?	In this regard, provisions of the bidding documents are amply clear and shall remain unchanged.
96.	Volume II, Section 7, Clause 4.7 Cyber Security – General Guidanc	(j) Penetration & Vulnerability assessment test from CERT-IN certified auditors during FAT, SAT & Operations and Maintenance period.	Please specify the frequency and scope of Penetration & Vulnerability assessment (VAPT) mentioned in this clause.	In this regard, provisions of the bidding documents are amply clear and shall remain unchanged.
97.	Volume II, Section 3, Clause 1.2 Network Security	The network shall be horizontally and vertically scalable to accommodate future meter installations.	Network up-scaling will also require up-sizing security components accordingly. Request to provide upper limits on scaling	In this regard, please refer Bidding document, Volume-II (Technical



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S. No.	Clause Ref.	Provisions of Existing Bidding Documents	Bidder's Query/ Comments	POWERGRID's Reply/ Clarification
		Utility/Employer will define the scalability level required for the network at the time of implementation.	requirements. Scaling beyond those limits may require additional purchase orders.	specification) Section 5, Clause 3.
98.	Volume II, Section 7, Clause 3.1 General Conditions	Contractor need to ensure that the CSPs facilities/services are compliant to various security standards as mentioned in this section and should be verified by third party auditors	It is understood that this refers to an Annual Security Audit from CERT-In listed auditors. Please confirm?	In this regard, provisions of the bidding documents are amply clear and shall remain unchanged.
99.	Volume II, Section 7, Clause 3.4 Security	CSP/MSP to demonstrate third party audit at the time of Factory Acceptance Test (TEST)	It is understood that this refers to a one-time Security Audit from CERT-In listed auditors at the time of Factory Acceptance Test. Please confirm?	In this regard, provisions of the bidding documents are amply clear and shall remain unchanged.
100.	Volume II, Section 7, Clause 4.7 Cyber Security – General Guidance (j)	Penetration & Vulnerability assessment test from CERT-IN certified auditors during FAT , SAT & Operations and Maintenance period.	Please specify the frequency and scope of Penetration & Vulnerability assessment(VAPT) mentioned in this clause.	In this regard, provisions of the bidding documents are amply clear and shall remain unchanged.
101.	Volume II, Section I, Clause 2. Scope of work 2 (A)	i. Supply, installation, integration, testing and commissioning of following as technical specification in the tender document: a. Smart pre-paid metering b. Reliable Communication Infrastructure to ensure the desired performance levels c. NMS (Network Management System) system for monitoring of communication network d. Head End System (HES) and deployment on cloud	As this project involves huge scope of work, we request you to kindly separate into 2 different packages:Package 1: Supply, installation, integration, testing and commissioning of Smart Meters and associated accessoriesPackage 2 :Supply, installation, integration, testing and commissioning of the following: b. Reliable Communication Infrastructure to ensure the desired performance levels c. NMS (Network Management System) system for monitoring of communication network d. Head End	In this regard, provisions of the Bidding Documents shall remain unchanged.

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S. No.	Clause Ref.	Provisions of Existing Bidding Documents	Bidder's Query/ Comments	POWERGRID's Reply/ Clarification
		<p>e. Meter Data Management system (MDM) with prepaid functionality (as a part of MDM or through a separate pre-payment application) and deployment on cloud</p> <p>f. Consumer portal &amp; mobile application and its integration</p> <p>g. Establishment of Network Operation cum Monitoring Centre (NOMC) with suitable backend communication infrastructure, hardware and power supply</p> <p>h. All the other necessary hardware &amp; software along with valid licenses required for successful operation of the project</p>	<p>System (HES) and deployment on cloud. Meter Data Management system (MDM) with prepaid functionality (as a part of MDM or through a separate pre-payment application) and deployment on cloud. Consumer portal &amp; mobile application and its integration. Establishment of Network Operation cum Monitoring Centre (NOMC) with suitable backend communication infrastructure, hardware and power supply. All the other necessary hardware &amp; software along with valid licenses required for successful operation of the project</p>	
102.	Volume II, Section I, Clause-2. Scope of work 2 (A)	<p>i. Supply, installation, integration, testing and commissioning of following as technical specification in the tender document:</p> <p>a. Smart pre-paid metering</p> <p>b. Reliable Communication Infrastructure to ensure the desired performance levels</p> <p>c. NMS (Network Management System) system for monitoring of communication network</p> <p>d. Head End System (HES) and deployment on cloud</p> <p>e. Meter Data Management system (MDM) with prepaid functionality (as a</p>	<p>We request you to kindly allow us to propose multiple makes of meters for this project as the quantities are very high and a single meter manufacturer might not be able to deliver such high quantities.</p>	<p>In this regard, please refer Amendment No.-4 (Technical Part) Sr. No.1</p>

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S. No.	Clause Ref.	Provisions of Existing Bidding Documents	Bidder's Query/ Comments	POWERGRID's Reply/ Clarification
		part of MDM or through a separate pre-payment application) and deployment on cloud f. Consumer portal & mobile application and its integration g. Establishment of Network Operation cum Monitoring Centre (NOMC) with suitable backend communication infrastructure, hardware and power supply h. All the other necessary hardware & software along with valid licenses required for successful operation of the project		
103.	Volume II, Section 7, Clause 1.2	f) Licenses: All application-level licenses shall be valid perpetually and ownership of such licenses shall be with POWERGRID during the contract period. In case of deployment of the lot in multiple utilities, contractor shall provide Utility Specific licenses. At the end of the contract/termination such licenses shall be handed over to utility(ies).	In case of SaaS model, contractor shall continue to provide services to the utility for a perpetual time period or till the time utility wants to avail the services. The contractor shall charge only for cloud infrastructure and AMC.	In this regard, provisions of bidding documents are amply clear and same shall remain unchanged.
104.	Volume II, Section 5, Clause 3	a) On power up after installation, Smart Meter shall register itself automatically into the HES along with its metering profile. The HES shall store meter profile status by meter type, hardware &	Currently as per IS16444, smart meters do not support self registration itself with HES on Power up. Meters only send power on message to HES. IF meter is not registered in the HES then this message gets lost.	For successful self-registration of Meters, resource-mapping in System is a pre-requisite. Please refer Bidding document, Volume-II

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S. No.	Clause Ref.	Provisions of Existing Bidding Documents	Bidder's Query/ Comments	POWERGRID's Reply/ Clarification
		software versions, device IDs, logged in / logged out details etc.	We request you to change this clause as per IS16444 P1 standard.	(Technical Specification), Section 5 Clause No. 4.1.2 (AMI Installation Support).
105.	Volume II, Section 5, Clause 3.3.2	HES shall have feature to send email/SMS notification of configured alarms & events to selected users	This should be a part of the MDMS. HES will provide data to third party application such as MDMS, Field force etc., where the notification on E-Mail/SMS will go to users.	Bidder's understanding is in line with the requirement
106.	Volume II, Section 6, Clause 2	HES should conform to IEC 61968-9 as well as support CIM 2.0 / MultiSpeak v3.0 standards	There are other open standards also available for integration. We request you to include standards such as REST API, Kafka topics and JSON Format.	In this regard, provisions of the Bidding Documents shall remain unchanged.
107.	-	-	We would like to submit that the specification provided for the communication module with standard NIC card, It is already a topic of discussion between the Industry and Ministry of Power, our request is that the discussion should be revisited so that there is clarity and consensus on the same, because as of now there is no clarifications around the same. Further adding to the discussion, us and many of our esteemed colleagues and industry partners have already developed and deployed the plug and play type field deployable communication modules in the Smart Meters for any given technology and the field results of which have been satisfactory. Hence, our suggestion is to have a discussion with the Industry so as to address our queries before taking a firm outlook on this matter as given	In this regard, provisions of the Bidding Documents shall remain unchanged.

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S. No.	Clause Ref.	Provisions of Existing Bidding Documents	Bidder's Query/ Comments	POWERGRID's Reply/ Clarification
			the advancement in technology and mass rollout which is happening and the type of results being generated, we all have to take an informed decision after reaching a consensus as without which the entire activity may turn futile.	
108.	Volume II, Section 2, Clause 3.6	<p>The meter's display should return to default display mode (continues auto scroll) if push button is not operated for more than 10 seconds. (The order of display may be revised as per requirement of the utility). Meter display should go into the sleep mode during Power-On condition in case the push button is not operated for more than 10 minutes.</p> <p>Since, the mentioned project may be implemented in more than one utility. Therefore, the above requirements may be changed as per the requirement of particular utility.</p>	In reference to the Technical Specification of the reference tender, it is mentioned in Section 2 : Smart Meters, under Data Display facility that the " Display of meter is required to be in SLEEP mode even if the meter is MAINS powered." We would like to submit that it is in contradiction to the BIS regulatory guidelines, Hence we request you to amend the same accordingly.	It shall be finalised during detailed engineering based on the utility requirement.
109.	Volume-II, ANNEXURE: INDICATIVE ITEM LIST FOR 25 LACS OF SMART METERS ALONG WITH ASSOCIATED INFRASTRUCTURE	Maintenance of 10 nos. of Retail Outlets including recurring charges for 1 gbps internet connectivity in each retail outlet	Who will give the space & building for the Retail Outlet. Human Resources for the retail outlet will be on whose scope??	The space, building for the Retail Outlet & Human Resources for the retail outlet will be in the scope of Employer/Utility.

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S. No.	Clause Ref.	Provisions of Existing Bidding Documents	Bidder's Query/ Comments	POWERGRID's Reply/ Clarification
110.	Volume-I, Section-I, IFB Clause 2.2 & Volume-II, Section -1, Clause 1.1.2	<p>2.2 Total Quantity of 1 Crore Smart Meters shall be divided in four Lots, with each Lot comprising of 25 lakhs Smart Meters alongwith associated Supply/Services. Corresponding to each Lot, a bidder shall be pre-selected and considered for award of Smart Meter quantity upto 25 lakhs alongwith associated Supply/Services, as per the provisions of the Bidding Documents inter-alia at ITB Clause 31.1.</p> <p>1.1.2 Total volume of Smart Meters under single lot (25 lacs) may be deployed across multiple utilities</p>	<p>In each of the lot of 25 lacs</p> <p>a. how many instances of HES is required is not defined.</p> <p>b. How many HES-MDM integration is required is not defined in the RFP.</p> <p>c. How many types of meters to be integrated is not mentioned.</p> <p>d. In how many states the quantity will be distributed not mentioned in RFP.</p> <p>e. How much will be the consumer density i.e. will Utility install on specific category of consumers or certain type of meters only.</p>	<p>Each lot of 25 lacs Smart Meters may be deployed across single/multiple utilities. For each utility, separate instances shall be needed.</p> <p>Provisions of existing bidding document are amply clear and same shall remain unchanged.</p>
111.	Volume-II, ANNEXURE: INDICATIVE ITEM LIST FOR 25 LACS OF SMART METERS ALONG WITH ASSOCIATED INFRASTRUCTURE	-	<p>The bidder shall be allowed to select the communication technology based on actual site survey during implementation. It seen from calculation that cellular communication is always costlier than RF mesh communication, hence, we request to please consider as 100% RF solution with cellular as infills and will depend upon the actual site survey.</p>	<p>In this regard, provisions of bidding documents shall remain unchanged</p>
112.	Volume-II, ANNEXURE: INDICATIVE ITEM LIST FOR 25 LACS OF SMART METERS ALONG WITH	-	<p>Gateway / Access point / DCU quantity depends upon the field conditions and smart meters availability in vicinity of Gateway / DCU / Access point, hence, quantity cannot be defined in BoQ.</p>	<p>In this regard, provisions of bidding documents shall remain unchanged</p>

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S. No.	Clause Ref.	Provisions of Existing Bidding Documents	Bidder's Query/ Comments	POWERGRID's Reply/ Clarification
	ASSOCIATED INFRASTRUCTURE			
113.	Volume-II, ANNEXURE: INDICATIVE ITEM LIST FOR 25 LACS OF SMART METERS ALONG WITH ASSOCIATED INFRASTRUCTURE	-	We request to please amend the clause as Data Concentrator Unit / Access Point for communication of RF Mesh shall have WAN / ethernet backhaul with priority on ethernet / fibre. In case of nonavailability of ethernet gateway shall act as a simple RF node to transfer data to nearest RF node to maintain the connectivity of the network	In this regard, provisions of bidding documents shall remain unchanged
114.	Volume-II, Section 2, Clause 3.3	Meter shall have the ability to communicate with Head End System (HES) on any one of the communication technologies mentioned in this document (RF /Cellular) in a secure manner.	Communication should be kept open & We Request to add PLC communication in the specification, because PLC is most favourable /proven communication for AMI in global market and same is more suitable for a clustered environment. PLC is cost effective with respect to RF/GPRS communication, hence restricting its participation is only favouring limited RF/cellular players in India.	In this regard, provisions of bidding documents shall remain unchanged
115.	Volume-II, Appendix-I to Section 3, Part II Communication Interface	b) The meter shall have a slot of an appropriate size to allow for the pluggable communication module (such as but not limited to NAN /WAN, dual mode RF, Dual Technology, cellular etc.) to be fit in to the meter. The meter shall provide a 14-pins Female socket connector (2*7pin, 2.54mm). The socket shall be selected and positioned to ensure that the male pins on the	We Request you to give flexibility for module design. all manufacture has different design. it is not standardized as IS 16444 does not define any detail regarding sizing & pin configuration of communication module. Concern is need to design module & meter again according to specification	In this regard, provisions of bidding documents shall remain unchanged



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		communication module can connect reliably and easily connect with the female contactors on the meter.		
116.	Volume-II, Section 5, Clause 3	The HES shall be cloud enabled and support deployment with high availability clustering and automatic load balancing that ensure hardware as well as application failover. Adequate data base and security features for storage of data at HES need to be ensured	We request for amend to add Head End System should have advanced features of Grid analytics Load Balancing, EV Integration, Renewable Integration, Energy Storage Integration etc.	In this regard, provisions of bidding documents shall remain unchanged
117.	Volume-II, Section 7, Clause 2	The network communication software shall include network security, security management, patch management and network services of the Advanced Metering Infrastructure project	We request for amendment to add Grid Analytics, Grid Watch will help to security event indications which are provided by every secured smart meter deployment. It applies sophisticated correlation and pattern matching rules, based on the topology of network	In this regard, provisions of bidding documents shall remain unchanged
118.	Volume-II, Section 1, Clause 3.	h) As such, Service cable including electrical neutral connectivity to the transformer, wherever applicable is excluded from Scope of the contractor. Same shall be provided by Utility and laid by the contractor without any extra cost.	There is a conflict to the scope defined under 2.0 Scope of work where the service cable laying is in scope of contractor. Kindly clarify	In this regard, provisions of bidding documents are amply clear and same shall remain unchanged.
119.	Volume-II, Section-1, Clause 5.0	The cabling and all associated hardware and accessories shall be provided and installed by the Contractor. The Contractor shall be responsible for necessary integration with existing	1. Kindly clarify whether cable installation is in Contractor scope. 2. If yes, pls share the list of accessories and hardware required.	In this regard, the cabling and all associated hardware and accessories shall be provided and installed by the Contractor.



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S. No.	Clause Ref.	Provisions of Existing Bidding Documents	Bidder's Query/ Comments	POWERGRID's Reply/ Clarification
		system including hardware, software and cabling.		
120.	Volume-II, Section-1, Clause 1.1.2	Total volume of Smart Meters under single lot (25 lacs) may be deployed across multiple utilities	Please clarify on below points: 1. How many NOMC will be operational when smart meters got deployed across multiple utilities?	The number of NOMC will be same as the no of utilities
121.	Volume-II, Section-3, Clause 1.1	g) In case more than one technology of AMI (example RF between Smart Meter & DCU for Smart Meters and GPRS between Smart Meter and HES for some Smart Meters) deployed in the field, it shall maintain statistics on the performance and availability of node being delivered per AMI technology.	We understand that there will be separate HES for RF and GPRS. Please clarify.	Please refer bidding document Volume-II (Technical specification), Section 2, Clause 3.3 and 4.3.
122.	Volume-II, Section-5, Clause 1	HES & MDMS software should have capability to run multiple instances. In case, the solution is provided to more than one utility the HES & MDMS software should have the capability to virtually isolate HES & MDMS solutions for different utilities without any extra cost	1. To achieve this there must be separate Infra environment and deployment for each utility. 2. It is important to assume the number of Utilities to size up cloud infra as well the cost to deploy application and integration.	1. Each lot of 25 lacs Smart Meters may be deployed across single/multiple utilities. For each utility, separate instances shall be needed. 2. The details of Utility (ies) for which AMI Project(s) are to be implemented shall be shared with the pre-selected bidders in the event of award.
123.	Volume-II, Section-6, Clause 2	HES shall export all meter data to MDM and pass control commands from MDM. HES should conform to IEC 61968-9 as	Since most of the HES do not meet this requirement. Will a self-certification suffice? Please clarify	In this regard, provisions of the bidding documents shall remain unchanged

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S. No.	Clause Ref.	Provisions of Existing Bidding Documents	Bidder's Query/ Comments	POWERGRID's Reply/ Clarification
		well as support CIM 2.0 / MultiSpeak v3.0 standards		
124.	Volume-II, Section-9, Clause 1.5.8	The first SAT test will be subjected to consist of the complete cloud data center and its hardware and software components along with supply, installation & integration of a minimum 5% of Smart Meters/DCU along with its related hardware and software	As multiple DISCOM will be onboarded, will the SAT will be conducted after 5% of 25 Lacs are installed? Please clarify	In case of Multiple utilities, the SAT will be conducted for <b>respective utility</b> .
125.	Volume-II, Section 14 TECHNICAL SPECIFICATION OF CABLE	(Bidder to quote rate for supply of different size of cables which will be inclusive of installation and F&I charges)	As there is no price line item related to installation of service cables (refer to supply schedule), please clarify whether installation is in scope of contractor, if yes pls amend the BOQ and price schedule accordingly.	Please refer bidding document Volume-II (Technical specification), Section 1, Clause 2.B.(xxiii)
126.	-	-	<p>Please clarify if a bidder/SI can propose multiple OEMs for each solution component including HES, MDMS, CSP</p> <p>As this is a critical project, PGCIL should evaluate the solution based on one single integrated stack (HES, MDMS, CSP) that is proposed by the SI. In a single integrated stack SI will evaluate all integration scenarios and the corresponding sizing requirements of CSP to arrive at an optimum solution before bidding. Having option to quote multiple OEMs for each solution component may undermine the overall solution as the SI may not have</p>	In this regard, provisions of the bidding documents shall remain unchanged

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S. No.	Clause Ref.	Provisions of Existing Bidding Documents	Bidder's Query/ Comments	POWERGRID's Reply/ Clarification
			considered an integrated approach based on which he would have arrived at a price	
127.	Volume -II, Section 7, Clause 3.5	j) Summary of alerts with respect to security configuration gaps such as overly permissive access to certain compute instance ports and storage buckets, minimal use of role segregation using Identity and Access Management (IAM), and weak password policies	The following customized Feature is available with few CSPs. Hence to have healthy competition and more CSP options, we request authority to not make the following feature mandatory or amend clause as "Summary of alerts with respect to security, certain compute instance ports and storage buckets, minimal use of role segregation using Identity and Access Management (IAM), and weak password policies"	In this regard, provisions of the bidding documents shall remain unchanged
128.	Volume-II, Section-1, Clause 10	All future services, protocol emulations and configuration support for integration of Smart Meters/ nodes, routers, access points, network devices, web services, integration with other offline applications etc. shall be the responsibility of Contractor and shall be part of the maintenance charges	Any revisions/changes made till design phase of the project are acceptable and easy to implement for the shortlisted bidders. The clause here is open-ended as it is not possible to envisage all the future services/integrations for the engagement period of 10 years. Therefore, it is suggested to restrict the scope of integration with other existing/upcoming solutions till the project design/implementation phase, post which additional requirements will be considered through separate change requests only.	In this regard, provisions of the Bidding Documents shall remain unchanged.
129.	Volume-II, ANNEXURE: INDICATIVE ITEM LIST FOR 25 LACS OF SMART METERS	-	We would request you to ask for SLAB wise rates for SIMs/Mobility Connectivity for Smart Meters. Since the proportion of Mobility Communication to RF mesh communication is mentioned as 1:1 (50% for	In this regard, provisions of the Bidding Documents shall remain unchanged.

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	ALONG WITH ASSOCIATED INFRASTRUCTURE		<p>each) in the tender, it is subject to change when actual implementation happens on ground. Hence, we sincerely and humbly request you to ask for SLAB wise rates for Mobility SIMs e.g. For 2.5 lacs, for 5 lacs, for 7.5 lacs, for 10 lacs, for 12.5 lacs, for 15 lacs, for 17.5 lacs, for 20 lacs, for 22.5 lacs and for 25 lacs SIMs.</p> <p>It will help PGCIL/System Integrators to avoid any rate confusions due to quantity change at the time of actual implementation.</p>	
130.	-	-	<p>PGCIL has added NBIOT as an option via latest amendment. We sincerely request PGCIL to reconsider NBIOT as a viable option for cellular communications for smart meters due to following reasons:</p> <p>Based on our global experience and observation, for Smart Meters/AMI applications use case, NBIOT as a technology is not suitable and there are multiple reasons attributable to that. Few of them are as follows for your perusal:</p> <ul style="list-style-type: none"> <li>• NB-IOT &amp; 4G operate in the same spectrum and hence technically 4G is not a fall back to NBIOT in terms of technology Latency is very high and is in the range of 1600 milliseconds to 10000 milliseconds due</li> </ul>	In this regard, provisions of the Bidding Documents shall remain unchanged.

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S. No.	Clause Ref.	Provisions of Existing Bidding Documents	Bidder's Query/ Comments	POWERGRID's Reply/ Clarification
			<p>to which adherence to Standard SLA's will be a challenge.</p> <ul style="list-style-type: none"> <li>• NBIOT supports less than 10 Kbps Speed. SMS support is not available.</li> <li>• It is a low power technology for once in while communication and is not suitable for AMI- smart metering where data transfer is as high as every 15 mins or even less than that in case of real time or instantaneous data.</li> <li>• Real time projects and POC's done on NBIOT for AMI projects have not been successful in INDIA as due to high latency meters were not getting registered on HES during commissioning. Further, due to support of less than 10Kbps speed, Firmware over the Air upgrade (FOTA) is not possible which is a mandatory requirement in case of Smart meters to avoid huge operational costs on site visits due to challenges arising out of firmware issues in the communication module of smart meters. <ul style="list-style-type: none"> <li>o One of the big government tenders for multi-million smart meter AMI project had to include 4G as a prime WAN communication technology rather than NB-IoT and it was merely a fall back mechanism like 2G which is already proven</li> </ul> </li> </ul> <p>Further, fall back mechanism should provide a distinctive technology as a back-up e.g. 4G</p>	

**Clarification No.-3 (Technical Part) dated 26/05/2022** to the Bidding Documents for Package for procurement of Smart Meters including associated Communication Infrastructure, Head End System (HES), Meter Data Management system (MDM) for implementation of Advanced Metering Infrastructure Project(s) in Central & Western India; Specification No.: RTN1001566/OTHERS/DOM/A02; GeM Bid Number: GEM/2022/B/2006757 dated 08.03.2022

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			can fall back on 2G. Mentioning frequency band as a contingency is misleading since any technology (4Gor 2G) works on a single frequency band/spectrum eg.,900 MHz or 1300 MHz and a fixed frequency band/spectrum is allocated to a telecom service provider for a particular telecom circle/state and can't be changed further on. Additionally, NBIOT works in the same Spectrum as that of 4G.	
131.	Volume-II, Section 2, Clause 1	The Smart Meter OEM must have manufactured, supplied and installed at least one lakh (1,00,000) Nos. Automated Meter Reading (AMR) Meters@ or 50,000 Nos. of Smart Meters* cumulatively in last five (5) years and these must have been integrated in the system of any Indian or Global Power Utility(ies) and must have been under operation for at least one (1) year as on the originally scheduled date of Bid Opening	Requirement of smart meter installation by Smart Meter OEM may be removed to enable more participation of Smart Meter OEMs.	Refer Amendment No.-4 (Technical Part) Sr. No.1
132.	Volume-II, Section 5, Clause 2	Head End System (HES) Provider must have experience of integration of at least 50,000 nos. Smart meters* (cumulatively) with its own HES in Indian/ Global Power Utility(ies) in the last 5 (five) years which are in operation	Following modification may be made to enable more participation: Head End System (HES) Provider must have experience of integration of at least 50,000 nos. Smart meters* /AMR system (cumulatively) with its own HES/MDM in	In this regard, provisions of the bidding documents shall remain unchanged

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		for at least 1 (one) year as on the originally scheduled date of bid opening	Indian/Global Power Utility(ies) in the last 5 (five) years which are in operation for at least 1 (one) year as on the originally scheduled date of bid opening	
133.	Volume-II, Section 1, Clause 10	"Network Connectivity The Contractor shall provide Internet and MPLS bandwidth (over VPN) at Data Centre (DC) and Data Recovery Centre (DR) of Cloud Service Provider, POWERGRID/Utility Offices. Network connectivity shall be provided at all three locations from two different service providers for redundancy."	No. of Utility offices may be defined (e.g. 3 or 5) for enabling common assumption by all the bidders	Each lot of 25 lacs Smart Meters may be deployed across single/multiple utilities.
134.	Volume-II, Section 2, Clause 8.4 Circuitry	Each fully assembled and finished meter shall undergo 'burn-in' test process for 12 hrs. at 55 degree Celsius (Max. temperature not to exceed 60 degree Celsius) under base current (Ib) load condition.	This requirement is beyond IS requirement and carrying out 'burn-in' test process on each meter will impact the planned project implementation schedule and may be done on sample basis to be defined in the QAP at the time of award of Contract	In this regard, provisions of the bidding documents shall remain unchanged
135.	Volume-II, Section 5, Clause 1	HES & MDMS software should have capability to run multiple instances. In case, the solution is provided to more than one utility the HES & MDMS software should have the capability to virtually isolate HES & MDMS solutions for different utilities without any extra cost.	To enable common assumption by Bidders to size up cloud infra as well the cost to deploy application and integration, the number of Utilities may be clarified ( e.g. 3 or 5).	Each lot of 25 lacs Smart Meters may be deployed across single/multiple utilities.

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