

Corrigendum 2 - Amendments

Dated: 03/05/2021

Reference - This corrigendum has been issued for **NIT NO: AEML/MDB/2021-22/20**

With Reference to the above, the corrigendum 2 to the aforementioned Tender is hereby issued and relevant modification (s) / addition (s) / deletion (s) / clarification (s) are follows:

S.No	Clause No / Page No	Existing Clause	Amended/Added Clause/ justification
1	5.16	Discrimination of Upstream/downstream event (harmonics)	The Discrimination of Upstream/downstream event for harmonics is optional.
2	A2	POWER QUALITY Meters should have conformal coating	Power Quality meter should have necessary certification to ensure its functioning in harsh environmental conditions viz. gaseous (Sulphur etc.) released from marshy land.
3	D2	Max Surge Protection of 6kV	Surge protection referred in IEC-61000-4-30 will supersede the requirement.

4	D11	<p>Should Support</p> <ol style="list-style-type: none"> 1. Remote configuration of parameters - Web /Window application-based configuration. 2. Locally/ Remote Firmware Upgrade 	<p>The remote access, control, PQ diff automatic export and visualization of data fetched from Bidders PQ meter should be through single GUI.</p>
5	5.17	<p>Sampling Frequency above 10kHz</p>	<p>The sampling frequency should meet accuracy requirement as per IEC 61000-4-30 edition 3, IEC 62586-1 and IEC 62586-2 standard. It should be complied through necessary certification. Moreover, it should be able to capture Voltage Transients.</p>
6	IS 14697	<p>AC static transformer operated Watt-Hour and VAR-Hour meters, class 0.2 S, 0.5 S and 1.0 S —</p>	<p>The Power Quality standards supersede said revenue metering standard.</p>
7	5.7	<ul style="list-style-type: none"> • Selectable pre-trig $20\text{ms} < T < 5\text{s}$ for All Event capture (Voltage and current waveform) • Selectable post-trig $1\text{s} < T < 10\text{s}$ for All Event capture (Voltage and current waveform) 	<p>The time duration specified is maximum range available for user configuration.</p>
8	5.8	<p>Communication Standard for Data Exchange</p> <ul style="list-style-type: none"> • Support TCP/IP for data exchange • Support IEC 61850 protocol for data exchange as and when available (Optional) 	<p>The communication protocol should be suitably considered as per Bidders calling software and PQ meters supplied.</p>

9	7 & 4	<ul style="list-style-type: none"> System requirement Power Quality Metering System Architecture 	<p>Clauses can be used to understand enterprise software.</p>
10	A.24	TDD current based on user set Peak load current	<p>The Enterprise software will consider the calculation. However, TDD computation at meter end will be considered as specified in standards IEC61000-4-30 ed3 and IEC 62586-2.</p>
11	B.3	Each Phase V10 flicker --1 minute	<p>It is optional requirement</p>
12	Annexure C	Triggered Events (that must be triggered) with Threshold setting.	<p>The parameters for threshold settings to initiate trigger and subsequently voltage/ current waveform capture are necessary.</p> <ol style="list-style-type: none"> Voltage Voltage transients & Current <p>However other triggering parameters are optional.</p>
13	5.19	Front cover & base should be with IP65 grade enclosure	<p>The PQ meter should have protection suitable for 11kV Panel or cabinet installation. Thus, suitable IP4x shall be considered. In case, PQ meter is not in panel, then necessary external protection (cabinet) should be provided. The PQ meter front panel should have IP54, and rear should be IP20.</p>
14	Section III Scope of Work	4. Power Quality Metering System Architecture	<p>Added as: technical specification</p> <p>4.9 IT & Cybersecurity related requirement from Meter supplier software:</p>

IT & Cybersecurity related requirement from Meter supplier software:

- 1.1 Bidder shall adhere to all security / cyber policy mandated by AEML for complete solution before Go-Live.
- 1.2 Bidder shall provide all security related software updates and solution free of cost during warranty and AMC period.
- 1.3 Secure Access Controls: System shall have access control management where different roles and rights shall be created and assigned to the user logins of applications for authorized access. The system shall also include mechanisms for defining and controlling user access to the operating system environment and applications. Measures such as password strength, password aging, password history and reuse prevention must be implemented.
- 1.4 Authorization Controls: A least-privilege concept such that users are only allowed to use or access functions for which they have been given authorization shall be available.
- 1.5 System shall have SSO (Single-Sign-on) feature for user authentication to access all modules of software system using single username and password.
- 1.6 System shall have support for both LDAP based and database based authentication mechanism to authenticate users.
- 1.7 Logging: Logs must be maintained for all attempts to log on (both successful and unsuccessful), any privilege change requests (both successful and unsuccessful), user actions affecting security (such as password changes), attempts to perform actions not authorized by the authorization controls, all configuration changes etc.
- 1.8 System shall support auditing for all logical data entities.
- 1.9 System audit log shall provide a mechanism to easily search and review entries.
- 1.10 System shall not allow users to edit or update entries in the audit log.
- 1.11 System shall allow super-users to copy or archive an audit log.
- 1.12 System shall have the ability to self audit to ensure possible errors or regulatory / rule violations do not occur, or when violations have occurred to have the ability to notify users.
- 1.13 System shall have audit trail functionality for managing all the records of activities performed by users. This module shall be designed with adequate Cyber Security and Controls.
- 1.14 The system shall align to Indian Guidelines for Smart Grid Cyber Security

- 1.15 The system shall support end-Users and Administrator security, including:
 - a. Individual, named accounts for each end-user and administrator
 - b. Role-based security
 - c. Administration privileges provided only through specific authorization
 - d. Configurable, fine-grained access by service delivery point
 - e. LDAP v3 compliant integration
 - f. SSL secured communications
- 1.16 The system shall support system integration security, including:
 - a. Web-services/ SOAP protocol require username/password authentication
 - b. Keystore used to manage certificates and access credentials
 - c. Support for Mutual or 2-Way authentication
 - d. SSL secured communications
- 1.17 The system's underlying data shall support the following security mechanisms:
 - a. Role-based security for database and application administration, application operations and execution, ad-hoc read-only privileges
 - b. AES-256 bit encryption for persisting sensitive data at rest
 - c. Keystore to manage certificates and access credentials
 - d. SSL secured communications
- 1.18 Hardening - All unnecessary packages must be removed and/or disabled from the system. Additionally, all unused operating system services and unused networking ports must be disabled or blocked. Only secure maintenance access shall be permitted and all known insecure protocols shall be disabled.
- 1.19 Malicious Software Prevention - Implementation of anti-virus software and other malicious software prevention tools shall be supported.
- 1.20 Network Security: The network architecture of the PQMS must be secure with support for firewalls and encryption. The system shall also allow host-based firewalls to be configured, as an additional layer of security if the network firewall were to fail.
- 1.21 Bidder shall provide detailed about open source components, usage and free of cost support to all componets.
- 1.22 Bidder shall provide perpetual license for meter software and license points.
- 1.23 Bidder shall provide Software capability for other make of meters integration in their proposed if available.
- 1.24 Bidder shall provide IT infrastructure sizing (including hardware, software etc) for entire solution and same to be provided in tender bid for the approval.
- 1.25 System shall support on-prime and cloud based hosting environment
- 1.26 System shall support latest operating systems version on Windows at multiple hypervisors/virtual machine.
- 1.27 System shall support database platforms latest MS SQL version only.

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- 1.28 System shall have configurable Frequency for Data Collection from meter based type of event data, long time data energy data etc.
 - 1.29 System shall have backup and archival features for system.
 - 1.30 Schedule & On demand read of PQ meters shall be configurable.
 - 1.31 PQDIF generation shall be configurable in software.
 - 1.32 Remote configuration of meter with single administrator application.
 - 1.33 Software/firmware upgrade as per latest amendments/guidelines by mentioned meter standards, NTP requirement and configuration shall be done remotely.
 - 1.34 Web and Windows based user application for complete measurement points system data collection , monitoring and debug /remote operation.