

# Corrigendum -II

NIT No: AEML/ MDB/2019-20/39

Supply, Installation & Commissioning of SCADA & ADMS System at Adani Electricity,  
Mumbai Ltd.

Subject: Change in technical specification of Request For Proposal (RFP) Rev 01 for  
SCADA /DMS Implementation at Adani Electricity, Mumbai Ltd.

EXISTING RFP CLAUSES	REVISED RFP CLAUSES
<p><b>9.3 Essence of the Agreement</b></p> <p>The essence of the Agreement (to be entered) is to provide FMS for the designated software, with the goal of meeting the Availability as set forth herein and to provide system tuning and configuration to accommodate a growing system.</p>	<p><b>9.3 Essence of the Agreement</b></p> <p>The essence of the Agreement (to be entered) is to provide software &amp; hardware maintenance support in order to keep the system supplied under this project in live condition (as per the conditions specified in RFP).</p>
<p><b>9.4.3 Contractor Management Services</b></p> <p>vi. Since during initial warranty period, warranty is in scope of OEM vendors there will be no AMC for SCADA/DMS system. During such period, FMS Contractor shall interact with such vendors for maintenance services and spares. After warranty period, if required AEML can award the suitable AMC and FMS Contractor shall interact with Contractors as selected by AEML for providing AMC for the said system on mutually agreed terms &amp; conditions.</p>	<p><b>9.4.3 Contractor Management Services</b></p> <p>vi. During warranty period after handover of system OEM shall interact with their respective contractors for maintenance services and spares availability.</p> <p>vii. After completion of warranty period FMS shall start. OEM shall provide comprehensive AMC for the entire SCADA/DMS system during FMS period of 5 years. This shall cover all hardware and software. AEML shall not award any separate AMC to OEM for spares.</p>
<p><b>12.1 Type testing</b></p> <p>Equipment wherever mentioned in the specification for type testing shall conform to the type tests listed in the relevant chapters. Type test reports of tests conducted in NABL accredited Labs or internationally accredited labs with in last 5 years from the date of bid opening may be submitted. In case, the submitted reports are not as per specification, the type tests shall be conducted without any cost implication to employer.</p>	<p><b>12.1 Type testing</b></p> <p>Not Applicable</p>
<p><b>4.5.5 Data Access through intranet</b></p> <p>f. For the purpose of transfer of data/displays from the SCADA/DMS system to the Web server system, the SCADA/DMS system shall initiate a session with the Web server.</p>	<p><b>4.5.5 Data Access through intranet</b></p> <p>f. For the purpose of transfer of data/displays from the SCADA/DMS system to the Web server system, the SCADA/DMS system shall initiate a session with the Web server.</p>

<p>Essentially the access to external users through web server shall be view/read only. However, if required it shall be possible to extend control access to external users based on system requirement.</p> <p>g. The web server shall provide access to real time data and displays, at defined periodicity, for viewing by external clients/users. The access to each display shall be definable based on AOR of individual user. AOR shall be based on geographical area and/or assigned role (Administrator/user/power user etc.) It shall be possible to define required no of users. Further the SCADA/DMS system administrator shall exercise control over the real-time displays which can be accessed through the Web server. This shall be configurable from one user to another.</p>	<p>Essentially the access to external users through web server shall be view/read only.</p> <p>g. The web server shall provide access to real time data and displays, at defined periodicity, for viewing by external clients/users. The access to each display shall be definable based on AOR of individual user. AOR shall be based on geographical area and/or assigned role (Administrator/user/power user etc.) It shall be possible to define required no of users. Further the SCADA/DMS system administrator shall exercise control over the real-time displays which can be accessed through the Web server. This shall be configurable from one user to another.</p>
<p><b>6.4 Network Model</b></p> <p>(a) The DMS applications shall have a common model for the project area comprising of primary substation feeders, distribution network and devices with minimum 10 possible islands, which may be formed dynamically.</p>	<p><b>6.4 Network Model</b></p> <p>(a) The DMS applications shall have a common model for the project area comprising of Receiving Station, station feeders, distribution network and devices.</p>
<p><b>8. Specific Scope of work:</b></p> <p>F. The vendor shall evaluate with justification the utilization of existing hardware in the new project. The maintenance of the existing hardware after SAT shall be in the scope of vendor. The OS for this hardware shall be considered as mentioned in above point E.</p> <p>H. Integration with external systems</p> <p>(a) Integration with Existing <b>Geographical Information System (GIS)</b> from Miner &amp; Miner USA. The GIS System shall exchange data with SCADA System in PGDBA format. Refer section 6.4.1 for details on integration of SCADA/DMS with GIS</p> <p>(b) Integration with other systems for to-and-fro exchange of real-time data over CIM/XML interface.</p> <p>(c) Integration with Existing <b>ABT</b> system for real-time instantaneous power data exchange with ABT server (Real time data to be exchanged with external oracle database both to and fro along with quality flags.)</p> <p>(d) Integration with existing OMS for exchange of outage &amp; load transfer operation events.</p> <p>(e) ICCP integration with MSETCL Kalwa State Load Dispatch Centre and its backup control center at Ambazhari (MSETCL system-Siemens Sun Solaris -5.6)</p>	<p><b>8. Specific Scope of work:</b></p> <p>F. Vendor shall supply all the required hardware for proper functioning SCADA / DMS Application.</p> <p>H. Integration with external systems</p> <p>(a) Integration with Existing <b>Geographical Information System (GIS)</b> from Miner &amp; Miner USA. The GIS System shall exchange data with SCADA System in PGDBA format. Refer section 6.4.1 for details on integration of SCADA/DMS with GIS</p> <p>(b) System shall have interface available for integration with other systems for to-and-fro exchange of real-time data over CIM/XML interface.</p> <p>(c) OEM shall also provide an API for integration with other systems for to-and-fro exchange of real-time data on periodic and event basis.</p> <p>(d) Integration with Existing ABT system for real-time power data exchange with ABT server (Real time data to be exchanged with external oracle database in both directions along with quality flags.) over ODBC or web service connectivity.</p> <p>(e) Integration with existing OMS for exchange of outage &amp; load transfer operation events over ODBC or web service connectivity.</p> <p>(f) ICCP integration with MSETCL Kalwa State Load Dispatch Centre and its backup control center at Ambazhari (MSETCL system-</p>

	<p>Siemens Sun Solaris -5.6)  (g) data exchange with AMR/MDM/SAP shall be over ODBC or web service connectivity.  (h) OEM shall provide the documentation for consuming the web services developed by them.</p>
<p><b>4.7.1.5 Initial Database Generation</b>  The initial database shall contain all data required by the SCADA/DMS systems. Default values shall be used in consultation with the employer for data that is not provided by employer.  Population and maintenance of the distribution network model should be possible by using the database maintenance tools to build the database from scratch. In addition, if required data already exists within the Employer's corporate Geographic Information System (GIS), the SCADA/DMS database functions should leverage this effort by providing an interface/adaptor to extract GIS data using the CIM international standard IEC 61970/61968 and automatically generate the complete Network Operations Model. The data extracted should include network device information, connectivity, topology, nominal status and non-electrical data such as cable ducts, land base data etc. Further Land base data can be sourced from GIS in Shape files or DXF.</p>	<p><b>4.7.1.5 Initial Database Generation</b>  The initial database shall contain all data required by the SCADA/DMS systems. Default values shall be used in consultation with the employer for data that is not provided by employer.  Population and maintenance of the distribution network model shall be possible by using the database maintenance tools to build the database from scratch. In addition, if required data already exists within the Employer's corporate Geographic Information System (GIS), the SCADA/DMS database functions should leverage this effort by providing an interface/adaptor to extract GIS data using the CIM international standard IEC 61970/61968 and automatically generate the complete Network Operations Model. The data extracted should include network device information, connectivity, topology, nominal status and non-electrical data such as cable ducts, land base data etc. Further Land base data can be sourced from GIS in Shape files format.</p>
<p><b>6.4.1 GIS Data Import and Network Model Creation</b></p> <ul style="list-style-type: none"> <li>• SCADA/DMS system shall interface with the GIS system using CIM/XML adapters to fetch network topology details for creating and updating the distribution network topology within the SCADA/DMS system. SCADA/DMS shall have model aware CIM/XML adapters to read from GIS network model repository and update its own models.</li> <li>• The system shall utilize an IEC 61970 and IEC 61968 compliant interface. The system shall enable import of all data via a CIM-XML interface as per IEC 61970-452 and IEC 61970-552-4 and shall utilize modeling from IEC 61968-11 as appropriate.</li> <li>• Data exchange shall be over model neutral messaging services and CIM/XML data exchange for real-time and RDBMS data parameters.</li> <li>• The following standards as applicable will be used to achieve the above requirements: Messaging interfaces shall be based on model neutral interfaces based on the IEC 61970-40X series for access to real-time and</li> </ul>	<p><b>6.4.1 GIS Data Import and Network Model Creation</b></p> <ul style="list-style-type: none"> <li>• SCADA/DMS system shall interface with the GIS system using webservice. Adaptor shall be built to fetch network topology details for creating and updating the distribution network topology within the SCADA/DMS system. SCADA/DMS adapters shall read PGDBA format from GIS network model repository and update its own models. Adaptor shall be capable to create entire network topology from scratch for the first time and shall also identify and update the incremental network changes using complete network extract of GIS in PGDBA files.</li> <li>• GIS adaptor shall have provision to generate the report/display indicating the difference between the current network and the imported incremental network. Once user approves it, then only the changes shall be applied to the system. This shall also be demonstrated during PoC.</li> <li>• All technological addresses (TAs) shall be automatically assigned within the system to the tags linking the graphic data to the</li> </ul>

<p>historical data and use the IEC 61968-3 and IEC 61968-9 standards for messaging interfaces that are model dependent for network operations and metering respectively. The Graphic data import from a GIS system shall support native formats of GIS systems which shall be potentially used for data import. All technological addresses (TAs) shall be automatically assigned within the system to the tags linking the graphic data to the attribute data in the GIS. The attribute data shall be loaded into the SCADA/DMS database and the display diagrams shall be generated.</p> <ul style="list-style-type: none"> <li>• The Graphics exchange between GIS and SCADA should happen over IEC-61970-453 Scalar Vector Graphic based XML representation.</li> <li>• The complete network model including data of electrical network e.g. line (i.e. length, type of conductor, technical particulars of conductor &amp; transformer etc.), land-base data shall be imported from the GIS system using CIM/XML model. In case the existing GIS system doesn't support CIM/XML interface for data exchange, then a suitable GIS interface adaptor shall be provided by SCADA/DMS system implementor to enable the compatibility of SCADA/DMS system with GIS system. The GIS interface adaptor compatibility shall be in terms of data format, network model decoding and building the network topology along with all the required parameters without any manual intervention. Providing such GIS adaptor doesn't substitute the requirement of CIM/XML interface. It shall still be provided so that the SCADA/DMS system shall be ready to support it for future CIM/XML based application integration.</li> </ul>	<p>attribute data in the GIS. The attribute data shall be loaded into the SCADA/DMS database and the display diagrams shall be generated.</p> <ul style="list-style-type: none"> <li>• The complete network model including data of electrical network e.g. line (i.e. length, type of conductor, technical particulars of conductor &amp; transformer etc.) shall be imported from the GIS system using PGDBA extract from GIS. Landbase data shall be provided in shape files format. The GIS interface adaptor compatibility shall be in terms of data format, network model decoding and building the network topology along with all the required parameters without any manual intervention.</li> <li>• Providing such GIS adaptor doesn't eliminate the requirement of CIM/XML interface adaptor. OEM shall still provide the CIM/XML adaptor so that the SCADA/ DMS system shall be ready to support it for future CIM/XML based application integration. The CIM/XML adaptor shall comply all the associated IEC standards required for power distribution utility.</li> </ul>
<p><b>14. Annexure II - Details of Existing GIS AEML GIS Software include following:</b>  ESRI suite of Application: ArcSDE 9.3.1, ArcGIS 9.3.1 SP 2, ArcSchematics 9.3.1  TM&amp;M suite of applications: ArcFM 9.3.1 SP1, Conduit Manager, Responder 9.3.1 (OMS)  Database: RDBMS: Oracle 9.2.0.5 running on Sun Solaris 8  Web Application: ESRI Arc IMS, ARC GIS Server 9.3.1</p>	<p><b>14. Annexure II - Details of Existing GIS AEML GIS Software include following:</b>  GIS make : ESRI suite of Application currently using ArcGIS 10.2 which will be upgraded to 10.6.1  OMS make: ArcFM Responder Explorer. Currently we are using version 10.2 from Oct'2016 which shall be updated to 10.6</p>
<p><b>5.1 Critical &amp; noncritical functions</b></p> <p>Generally, the following are to be classified as Critical functions</p> <p>a. All SCADA applications</p>	<p><b>5.1 Critical &amp; noncritical functions</b></p> <p>Generally, the following are to be classified as Critical functions</p> <p>a. All SCADA applications</p>

<p>b. Information Storage and Retrieval (ISR)  c. All DMS applications  d. Data exchange of SCADA/DMS system with IT system, ABT, ICCP.  e. Security applications  f. MCC-BCC synchronization</p> <p>The following are Non-Critical functions</p> <p>a. Database modification and generation  b. Display modification and generation  c. Report modification and creation  d. Data exchange with Remote VDUs, if any  e. Web server applications</p>	<p>b. Information Storage and Retrieval (ISR)  c. All DMS applications  d. Data exchange of SCADA/DMS system with IT system, ABT, ICCP.  e. Security applications  f. MCC-BCC synchronization (All the servers at BCC shall be synchronized to their corresponding online servers at MCC)</p> <p>The following are Non-Critical functions</p> <p>a. Database modification and generation (DE server at BCC shall be synchronized to its corresponding online servers at MCC)  b. Display modification and generation  c. Report modification and creation  d. Data exchange with Remote VDUs, if any  e. Web server applications (It shall be possible to access webservers using common url irrespective of site location)</p>
--	---

EXISTING GCC CLAUSES	REVISED GCC CLAUSES
<p><b>11.3 Changes in Quantity</b></p> <p>11.3.2 The variation in the quantities of the items set out in the BOQ shall be paid for by the Employer in the following manner:  There shall be no variation in the rates of the items mentioned in the BOQ as a result of any increase or decrease in the quantities of such items up to twenty five percent (25%). It is clarified that the aforesaid variation limits shall apply to the Contract Value, wherever applicable, and not to individual items mentioned in the BOQ.</p> <p>b) In case the increase or decrease in the quantities of any individual item or group of items mentioned in the BOQ is more than twenty five percent (25%) then the rates for the additional or reduced quantities, as the case may be, shall be mutually agreed between the Employer and the Contractor duly accounting for all savings that may be available to the Contractor in case of increased quantities.</p>	<p><b>11.3 Changes in Quantity</b></p> <p>11.3.2 The variation in the quantities of the items set out in the BOQ shall be paid for by the Employer in the following manner:  There shall be no variation in the rates of the items mentioned in the BOQ as a result of any increase or decrease in the quantities of such items up to twenty five percent (20%). It is clarified that the aforesaid variation limits shall apply to the Contract Value, wherever applicable, and not to individual items mentioned in the BOQ.</p> <p>b) In case the increase or decrease in the quantities of any individual item or group of items mentioned in the BOQ is more than twenty five percent (20%) then the rates for the additional or reduced quantities, as the case may be, shall be mutually agreed between the Employer and the Contractor duly accounting for all savings that may be available to the Contractor in case of increased quantities.</p>