

ANNEXURE II

Implementation of DLMS COSEM protocol in RTU using Source Code Libraries

S No		Vendor's Acceptance / Deviation
1.0		Functional features to be implemented
	1.1	A portable DLMS COSEM source code product for embedding the IEC 62056 protocols in an Intelligent Electronic Device (RTU).
	1.2	Should be implemented in QNX 6.5 RTOS running on x86 hardware platform supporting an ANSI C/C++ compiler.
	1.3	<p>All the client and server functions needed to implement DLMS COSEM or its equivalent Standards: IEC62056-61, IEC62056-62, IEC62056-21, IEC62056-42, IEC62056-46, IEC62056-47, IEC62056-53.</p> <ul style="list-style-type: none"> ○ Gather data from all the smart meters under its logical group. ○ Store group data for specified period. ○ Synchronize the RTC of group meters. ○ Support for data downloading of group meters from local. ○ Upload group meter data to HES as per programmed schedule. ○ Automatically discover meters in the network at programmed interval and update METER ID to the MDAS/SGCC. ○ Under the control of SGCC shall interact with smart meters for capturing all parameters and events as well as Command dissemination. ○ Support for firmware upgrade and configuration for smart meters either selectively or group wise. ○ Provision for logging inbuilt communication lapses and transmit the same to SGCC (Number of packet failures, Retry, Missed periodic reading, Failure to connect etc.)
	1.4	Support for following Communication profiles: <ol style="list-style-type: none"> 1. High-Level Data Link Control (HDLC) 2. TCP-UDP/IP. 3. S-FSK PLC.
2.0		Scope: The scope of the work includes:
	2.1	Submitting the detailed design document in line with the requirement specifications.
	2.2	Developing the software using the libraries supplied as defined in Annex I and approved design document, integrating with BHEL application code & testing for functional performance.
	2.3	Demonstration of the implemented features at BHEL R&D.
	2.4	Supply of the software – source code of application and executables, along with the software

		documentation including data diagrams, flow charts, user's manuals etc.	
	2.5	Installing the software at BHEL R&D in their hardware.	
	2.6	Testing: Client mode software will be tested with the third party SMART meters, Server mode software will be tested with third party SCADA and internal mapping will be tested for full communication between SCADA & Meters.	
	2.7	Maintenance and Warranty for a period of one year after successful installation.	
3.0		Deliverables: The deliverables will include:	
	3.1	DLMS Server & Client software integrated with BHEL application software.	
	3.2	Final Design documentation and user manual of Implemented software.	
		General	
	4.1	The application shall be developed based on the latest DLMS source code libraries supplied along with this order.	
	4.2	The technical offer should contain vendors past experience of DLMS COSEM implementation.	
	4.3	The successful bidder shall submit a design document within 1 weeks' time from the date of Purchase Order. 1. After the design is approved by BHEL R&D, vendor shall take up the implementation. 2. BHEL R&D shall review the work at suitable stages of the development. 3. The functioning of the software shall be inspected periodically. 4. Vendor shall install the software at BHEL R&D, on the target hardware platform provided by BHEL. 5. Testing shall be conducted as per mutually agreed Acceptance criteria. This shall include modifications on the source code, compiling in the development environment and porting on to the runtime platform at BHEL R&D	
	4.4	The source code is deliverable to BHEL; the source code should be compiled and executed in the presence of BHEL in their in-house development environment for demonstration.	
5.0		Delivery	
		Within 8 weeks from the date of Purchase Order.	