

KM AMI Requirements for Developers

1- Purpose :

The purpose of this document is to describe the KM Advanced Metering Infrastructure (AMI) requirements and electricity & water meter at the Customer's facilities.

2- Definitions and Acronyms :

- a. "MoU" means this Memorandum of Understanding
- b. "Contractor" means the execution contractor of the Customer
- c. "Services" means the works and services described in this document that are to be performed by Kahramaa and/or its contractor(s) at the Customer's facilities
- d. "O&M Agreement" means the Operations and Maintenance Agreement.
- e. "Tenant" means any customer that purchases water and/or electricity from Kahramaa.
- f. MDM : Meter Data Management located at KM premises
- g. AMI : Advanced Metering Infrastructure (I.e. MDM, water & electric meter's telecom network and meters)

3- Responsibilities:

Specific services and functions are described herein but may be altered from time to time by amendment based on changing needs or requirements.

Kahramaa shall:

1. Operate and maintain the AMI as per Kahramaa Rules and Regulations, and Maintenance Code of Practice.
2. Review , comment or/and approve the AMI design and associated material submitted by customer to ensure meeting KM AMI requirements.

The Customer shall:

1. At its own cost, conduct functional test of all plant equipment & facilities in the presence of Kahramaa representative to ensure the healthy condition of individual equipment before handing over. Functional tests shall meet Kahramaa requirements.
2. In the presence of Kahramaa representative, verify at the site all As-built and Operation & Maintenance Manuals, for its correctness & accuracy before handing over to Kahramaa.

3. Provide System Database (i.e. list of virtual meters, IP addresses etc..) and incorporate in the integration process.
4. Transfer assets on completion to KM with valid warranties for 2 years minimum and sufficient spares (minimum 10%), lists for spare parts and transferable assets shall be agreed on by Kahramaa.
5. Follow KM existing regulation for service note application for connection request.
6. Provide training for Kahramaa operation & maintenance staff to be carried out by the manufacturer's experts for Electric and water meters and the telecom network.
7. Kahramaa personnel should have an unconditional access to all customer's premises where transferred assets are installed.

4- **System requirements:**

a) **Meters:**

Following are shortlisted meters, Customer shall fix only the types shortlisted below by KM :

CSD Pre-qualified Meters List as of July, 2012

Meter selected shall be submitted for KM – CSD final approval to ensure name plate, power switching device and meter behavior is as per Kahramaa requirements.

1. Electric meters:

Landis & Gyr

Elster

Itron

Iskraemeco

Any selected meter shall offer all the following functions (not limited to) :

- Flexible modular communications , Full measurement capability
- Import/Export kWh , Q1 - Q4 kvarh
- Optical communications port , Firmware download and upgrade remotely
- Load profiling (hourly, daily) , 15 Min. LP Interval registers , TOU and real time pricing.
- Power quality monitoring , Instantaneous voltage, current and frequency data monitoring , Voltage quality data monitoring (sag/ swell, average voltage, voltage loss).
- Smart grid capability , MID certified
- Integrated contactor and remote connect and disconnect
- Main & terminal cover removal monitoring
- Magnetic field detection monitoring , Extensive security data , External meter reading storage
- MBUS interface

Disconnection/connection:

All meters should have the remote connection/disconnection implemented.

For Direct Connected meters (DC) Disconnection/Connection component shall be imbedded under electric meter cover.

When Current Transformer meter is used, External Connection/Disconnection component shall be fixed.

Important notes:

Any Power meter below 100 Amps rating should have the switching (On & Off) feature functioning and impeded inside the Meter Cover, in cretin Cases where Three phase CT connection is used; an External three Phase power switching device shall be provided.

2. Water Meters :**a. Domestic:**

M/s. Hydrus-Hydrometer

M/s. Itron – Echodis Compact PLUS

M/s Badger

b. Bulk:

M/s. ABB

M/s Siemens

Important notes:

All Water Meters Shall be impeded with **wired** M-Bus connection

b) Telecommunication

1. Water to electric meters : Water meter shall be connected to Electric meter via wired M-Bus
2. Telecom PLC Network (meters to collector) : Customer to provide and install collector/Concentrator at secondary substations.
3. Communication between Electric meters and collectors shall be established using a PLC open protocol communication (DLMS cosem)
4. The meter shall offer a modular solution for both WAN/LAN and HAN communications infrastructures. (PLC OFDM , Ethernet , Others...)

c) Collectors :

Data concentrator shall be also provided and submitted for KM approval.

Collector to Centre : following are accepted methods to KM :

- 1- BPL to next primer by KM; and primary to center using KM network to be modified by KM, customer to bear the cost for BPL provided by KM
- 2- Fiber to next Primary and from primary to centre by KM, using fiber digital modems at both secondary and primary s/s provided by KM

In case of telecom difficulties, Customer to provide alternative for KM approval.

Telecom network shall be managed through KM Management System (NMS) and the same shall be modified to accommodate the new equipment , cost shall be taken care by customer.

d) Integrations to Centralized MDM:

All meters shall be integrated into KM existing system, Customer to bear the cost for licensing.. The integration of Meters into KM AMI centralized system (eMeter from SIEMENS)

e) Components (Collectors, Meters etc..) Nameplate and Behavior:

All components shall follow the accepted KM nameplate (with KM logo on it) and the accepted preset Meter Behavior, the same shall be submitted for KM approval.

5- MOU

MoU shall be signed between KM and Customer to determine if customer will :

- 1- Provide meters and connection between meters
- 2- The above in addition collector and to PLC communication to collector
- 3- All the above in addition to BPL communication to next Primary s/s
- 4- All the above in addition to Connection to KM centralized MDM.
- 5- Any cost implications