Disclosure of Smart Meter Specification (Metering Part)

October 2012

Tokyo Electric Power Company

Introduction

Tokyo Electric Power Company appreciates nearly 160 comments and proposals received from 16 companies through the Request for Comments on smart meter specification (RFC).

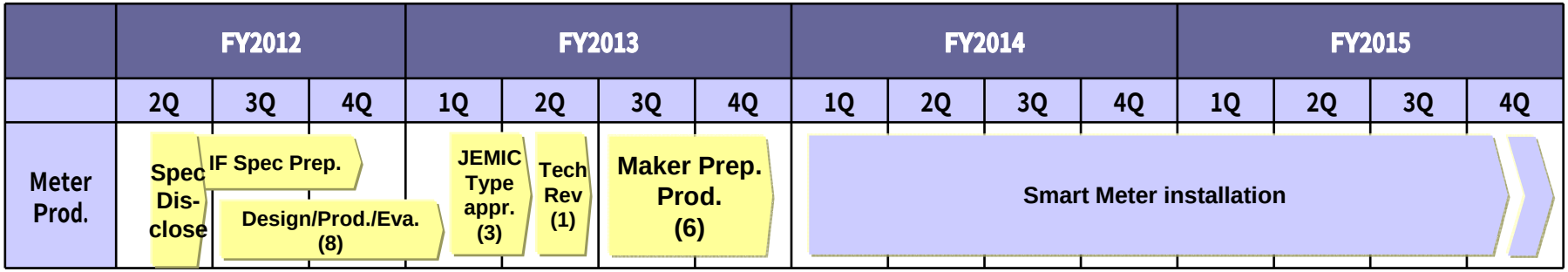
Those comments and proposals are investigated based on the three viewpoints, “achieving cost reduction, securing external connectivity, and ensuring technical extensibility” and used to establish the smart meter specification (hardware part). The specification is disclosed to the participants to the RFC.

In the comprehensive special business plan, Tokyo Power Electric Company plans to proactively pursue early introduction of the smart meter and decided this time to disclose the specification of the smart meter (hardware part) in advance so that installation of the smart meter can be started from FY2014.

Specification for software part such as data format and security functions would be disclosed around February 2013 in the Interface Specifications.

Communication systems and others would be selected within this fiscal year through RFP process.

Smart Meter development schedule



Disclosure of Smart Meter Specification (Metering Part)

- Tokyo Electric Power Company, taking into account your comments received through the Request for Comments on smart meter specification (RFC), announced on July 12 this year the "RFC-based basic concept on the smart meter specification (hereinafter, "Basic Concept").
- The Basic Concept promised to conduct the following items in and after October: (1) the disclosure of the system specification and the invitation of system developers, (2) the RFP on the communication feature, and (3) the disclosure of the smart meter specification (metering part). Out of the three items, we are ready to offer you (3) the disclosure of the smart meter specification (metering part).
- The other two items, (1) the disclosure of the system specification and the invitation of system developers, and (2) the RFP on the communication feature, will be conducted as soon as arranged.

RFC-based Basic Concept on the Smart Meter Specification (extracted from P4)

- March 13, 2012–April 13, 2012: Request for Comments on the specification for the metering part (Meter RFC)
- July 12, 2012: Announcement of the RFC-based Basic Concept on the smart meter specification
- August 2012–September 2012: More detailed review based on the Basic Concept by Tokyo Electric Power Company and Nuclear Damage Liability Facilitation Fund, with the participation of outside professionals
- October 2012 or later: With the result of detail reviews, the following three items will be conducted:

1) The disclosure of the detailed specification necessary for system development such as MDMS, and the invitation of system developers

2) The RFP (Request for Proposal) aimed to select the communication system

3) The disclosure of the new specification (metering part) associated with smart meter production

This is disclosed in ← this announcement

- In the meantime, it will take a certain period of time for suppliers, including new entrants, to be able to correspond to the new specification that derives from the RFC. This situation requires us to cancel the bidding originally scheduled for October 2012 (for the smart meter supply starting FY2013). Instead the bidding will be conducted for the smart meter starting in FY2014.

Major Changes from Original Specification

- In rethinking the specification, the Basic Concept emphasized the "three viewpoints," (1) achieving thorough cost reduction, (2) securing external connectivity, and (3) ensuring technical extensibility.
- Based on the "three viewpoints, the smart meter specification (metering part) has also been revised as follows:

Major Changes from Original Specification

Description of spec. change	Original specification	New specification	Reason
Mounted comm. device	Separate type	Separate or integrated type	Secure flexibility of design
Spec. of power supply for comm. device	2.5VA supplied from the meter (Assuming specified low-power radio system)	5VA supplied from the meter assuming various communication systems (considering Routes A&B)	Support of various communication systems
Communication protocol	Tokyo Electric's proprietary spec. The standard won't be disclosed	International standard IEC_62056-53,61,62 employed. The data format standards will be also disclosed.	Establish competitive environment by employing international standards.
Security	None	Security feature implemented Data encryption	
Firmware update function	None	Enable firmware update on condition of no influence to the metering part.	
External designs	Specified in detail such as shape, color, and display layout.	Design flexibility given for other than maximum outer dimensions and terminal block dimensions	Secure flexibility of design
Spec. of materials	Materials to use are specified	Remove material spec. Specify by performance.	Extension of material choices
Streamlined features	A fuse mounted on terminal blocks	No fuse mounted on meters with a circuit breaker and on three-phase meters	Material cost reduction
Addition of features	Only for electric power operation purposes	Output of instantaneous electric power to HEMS and others	Feature extension for the future

Reference: Adoption of IEC Standards

- The "RFC-based Basic Concept on the smart meter specification (July 12, 2012)" stated that "open international standards would be adopted for other companies trying to offer various energy-related services, and for the benefit of customers utilizing meter data and controlling energy cost."
- From the above, as the standard for communication protocol data format of meter data, we have decided to adopt IEC_62056-53, 61, 62, the international standard stipulated by the International Organization for Standardization. Reasons for adoption are as follows.

Reasons for adopting IEC_62056-53, 61, 62

1. Broadening competitive environment

- Our adoption of the standards (DLMS/COSEM) that are applied to IEC62056 would allow many domestic and international meter manufacturing companies to join our general competitive bidding, resulting in potential cost reduction.

2. Consistency with international smart grid standards

- Tokyo Electric Power Company is investigating to choose IEC standards for major specification of the smart grid and plans to make new equipment IEC compliant.
- Among them, automatic metering system under development today is intended to facilitate external connectivity by using IEC61968 as a reference model that defines the interface (API) with external systems.
- Therefore, by adopting IEC Standards to the interface of automatic metering system including smart meter, consistency with related standards can be expected even in the future.