To Australian Energy Market Commission
PO Box A2449
Sydney South NSW 1235

Response to AEMC DRAFT REPORT, Framework for Open Access and Common Communication Standards Review, dated 19 December 2013
Reference No. EMO0028

Dear Australian Energy Market Commissioner

The details in the Submission Response represents a personal view as an professional with 30 years experience working in the NEM Type1-4 and 6, Smart Metering and Smart Grid Metering Solutions Strategy and Implementation and as a Consumer.

In summary support the:

- use of international standard in the selection of meter protocols and association technologies such as telecommunications;
- architectural framework where all communications to the meter are managed via the SMP point of access and this connectivity needs to support demand management in a web connected world supported by Standards in Attachment 1 SMP Smart Meter Management System will provide a consolidated data stream supporting the data interchange concurrent for multiple Approved Participants.
- use of DLMS/COSEM as the meter protocol. The development of an Australian Companion Standard is required but should be based on development in other market. The requirements of all Approved Parties and the updating of the SMI MFS operating model need to consider the operating models elsewhere in the international market to minimize firmware and systems changes for our market to minimize costs. Whilst options such as IDIS form Europe as used they are suitable only as a subset for Australia particularly for Smart Grid Technical Data.
- role of SMP. There is a high correlation with the traditional MP role excepting asset ownership and the Meter Asset management Plan regulatory compliance and a decision is required on the amalgamation of MP and SMP with the asset ownership or MP with role only as asset owner. The SMP needs to be an active operator and not just a Regulatory role adding cost. Modern Smart Metering Management Systems blur the boundaries of the proposed MP and SMP roles. The MDP role should sit as an Approved Party upstream of the SMP and the meter access point.

Thank you for the opportunity to make a submission and the consideration of this submission. Please contact me for clarifications.

Regards

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Comments:

Clause 4.2.1. Access to meter functionality should be only via the SMP in accordance with their accredited role. The meter itself can have configuration policy where an event or exception occurs and the notification is pushed to the accredited party for that data.
AEMC should maintain a national list of basic and advanced functions and the addition of new functions to the Minimum Functionality Specification (in a framework which does not delay innovation) from which the jurisdictions can select only the functions they require to be implemented in the smart meter.

Clause 4.2. Interoperable
Preference is for interchangeable to minimize life cost of both communications interface and meter with the use of a common protocol managed through a SMP metering headend and smart meter management system. If a proprietary protocol (open and published) was of benefit, the interoperability could be maintained if the translation was managed at the SMP system.

Clause 4.3.3. Application layer communications protocols

Support the use of COSEM/DLMS. Recent assessment confirmed that the OBIS codes support all the data required for the NEM1-4 and the SmartGrid trials in Qld and the current implementation of LV Transformer monitoring including power quality data. One limitation identified is the meter and data validation alarms and events which are used in the NEM type 1-4 data collection whilst supported are user definable and are therefore not common.

Work is required to update the SMI MFS, operating models and broader meter measurement data required for all the Approved parties including MP (meter and data validation alarms and events), DSM, MDP, LNSP LV Smart Grid and the market tariffs.
For DSM control may in the future be via a Home Energy Gateway and WEB and not via meter hardware control or meter direct commands.

There are seven meter vendors (Itron, Secure, Elster, L&G, EDMI, Formway-Holley) with offices in Australia, have international product with COSEM DLMS protocol and participating in major Smart Metering Projects globally. Several vendors claim to have COSEM / DLMS product with Australian National Measurement approval or in test.

A working group is is recommended with the all the active meter vendors in Australia to determine the appropriate OBIS and part of an Australian COSEM DLMS Companion Specification consolidating their global

experience.

The selection of a meter protocol to support device interoperability and interchangeability **must** define the mac/phy layers using international standards. See Attachment1..
.
The use of proprietary protocols can be considered only if they are opened and published. This is not necessarily the case with all the current vendors in Australia and should be mandatory condition of use in the Australian Market to simplify system integration, support and enhance innovation cycle time. This still adds complexity to systems architecture but cost can be offset by other innovative system capability.

Clause 4.3.4 Point of Entry an Access
Figure 4.6
Reflects the older circuit switched data model using PSTN and GSM used in NEM Type 1-4 and not aware of it being used in this structure for IP based communications by the major Utilities. In reality the access using PSTN and GSM by AP was limited to just the MDP and MPB although NEMCO had right of access. Broader access would have presented a range of management issues which have not be resolved. Classify this architecture as obsolescent in the NEM Type 1-4 data collection.

Figure 4.7. Interpretation and clarification comment.
Is the Telecommunication Network is between the meter and SMP?
The Private SMCN can be either or a mix Private and Public IP Networks for point to point and for mesh and PLC, the Public Network is used for backhaul.
In the diagram does the Private SMCN category consider that the use of the IP Public Carrier Network via a Private APN as Private? To be clear the designation of Private SMCN should be expanded to include Private and Public SMCN.

Clause 4.3.5 Smart Meter Application

Interpretation: Assuming the Smart Meter Applications provides the same functions as currently termed Smart Metering Management System and Headend (SMMS)?
The SMMS covers the data collection (access), meter configuration, firmware and password mgt (meter asset management) and a level of data integrity validation for data interchange between the meter and he Approved Participants Systems.

Clause 5

Foot note 22: Agree but with the rider that the Telecommunications

Technology should comply with an International Standard to optimize Interoperability and Interchangeability capability. See Attachment 1.

Clause 5.1.1 Interoperability

- Support common meter protocol based on DLMS/COSEM with an Australian Companion Specification. DLMS/COSEM OBIS codes do support technical data required. Other companions specifications and standards such as IDIS used in European Smart Metering can be used as a base only support a subset of the available OBIS objects focused on revenue type data and do not cover the requirements to deliver LV based Smart Grid data and do not define the meter and data health alarm to verify data integrity in the current NEM. Adopting a common meter protocol based on DLMS/COSEM, except in Victoria where protocol translation could accommodate the metering investment.
  The existing SMP SMMS systems in Victoria to provide API interfacing to support the market protocol and implement all functions required by the jurisdiction as part of the normal management process. The SMMS systems to be upgraded to also meet the Common Meter Protocol for new and replacement sites.
- No common meter protocol is adopted and protocol translation is allowed through the NEM.
  Whilst feasible the practical implementation in end to end systems management and integration will add cost to ensure correct operation. Proprietary protocols resulting in translation could be considered but only where these are published and open to use by market participants to remove dependency on vendors and support costs. An approval process maybe required. Implemented as part of the Smart Meter Management System managed by the SMP.

Clause 5.1.2 "Open access" Architecture.

Whilst the NEM supports two different points of market point of entry practical use has been driven by communications technology and security with the meter point using obsolescent circuit switched data (PSTN and GSM) communications vs IP based communications. NEM type 1-4 and Smart Grid IP based data collection have evolved reflecting the SMP point of entry equivalence with SMMP the key configuration and data interchange point. for current NEM 1-4 and Smart Grid using Public Carrier IP Network with Private APN.
The use of a SMMS with headend functionality is essential in managing data interchange in the open access architecture

5.2. Common Market Protocol
Support the view of a common market protocol.
Comment on if there is no common market protocol. Even if there is a

standard meter protocol between the SMP and the meter why would there be any impact on the meter downstream of the SMP if there is no common market protocol? If the SMP published the API's to interface to their system for the services it would then be the responsibility of the AP to ensure that they could interface their application through API's to the SMP systems. Whilst it is always simpler to use standards for integration there should not be an impact on competition. If the SMP system API's are published there should not be barriers of entry for DSP and related services.

5.3.1 Smart grid interoperability

Agree. Assessment of DLMS/COSEM OBIS codes has confirmed that the core data requirements for LV monitoring for Smart Grid are suitable. Confirmation of OBIS codes for control requires further confirmation and definition of meter and data health alarms and events.

5.3.2 DLMS/COSEM

Endorse but consider that a Proprietary Protocol that is published and open should be permissible but again to be cost viable would had to deliver innovation and value. In the past proprietary protocols were not published limiting integration effectiveness and innovation by users. Without being published and open they should be precluded from use.

5.3.4 Areas for comment

- The current NEM type 1-4 B2B process can be used as the base and new functions can be based on the DLMS/COSEM protocol with the adoption of an Australian Companion Standard.

5.4.2 Adding new functions to the common market protocol.

For both the market protocol and the meter protocol any new functions should be fully documented including data flow and systems architecture to the level required for a pilot which includes a draft operating manual as standard for any quality based platform implementation including test cases and roll back plan. Experience in metering based product development has shown where proper documentation is skipped the project had major performance issues and project overruns delaying product delivery. The participants will requires notification. We are dealing with complex systems which require significant work even for a pilot to be successful.

Upon successful pilots the documentation should be finalized, published formally and a request to be included into the Smart Meter Functionality Specification.

5.5 Common Meter Protocol

- Should there be a common meter protocol?
  Yes but a proprietary protocol if published and open for use creates innovation and end to end system value should not be precluded but

should be approved for use for compliance. No proprietary protocol that is not published and open for use should be permitted. Further the use of a common meter protocol will allow AP to expect a standardized performance across service providers.

- If a common meter protocol is required, should it use the internationally accepted DLMS/COSEM protocol as a foundation.
  Yes. Whilst DLSM/COSEM is an international standard there are many variation often driven by local operating models which in some cases based on the associated IDIS standard. The framework around the UK SMETS 2 is complex and potentially the required Australian Companion Specification should be based on similar Companion Specification requirement from other areas including our region as a baseline, eg. Singapore. Minimising variance in firmware and software with other markets in particular the operating model reduces developing and support cost for the Australian market. Not all parameters used are formally defined as OBIS codes with some areas are still vendor specific for example in the meter and data health check areas. The Australian Companion Specification for interoperability needs to define these OBIS codes.

  Work has been done mapping the all the measurement parameters for revenue data and Smart Gird technical data required for LV monitoring in Qld showing that the standard OBIS definitions for measurement data meet requirements. The SMI MFS specification requires updating and the inclusion of the all the data parameters required for revenue data, smart grid in a LV context, monitoring and control and DSM requirements with operating models developed and then the mapped against other companion specification for compliance of functionality and the determination of an Australian variances.

  All the represented metering vendors in Australian have extensive experience in DLMS/COSEM and Australian expertise is being used in the development of the UK Companion Specification for SMETS 2 and other parts of the world. To minimize cost a working group of the Australian represented meter vendors should be formed and independently chaired. Initially the mapping of OBIS codes to the current application of data for the NEM1-4 market, LV Transformer and Network monitoring and SMI MFS ver 1.3 should be requested from the Australian based vendors to create a baseline. Ideally this will simplify the process and cost ultimately to the Australian Consumer.

- If a common meter protocol is required should existing Victorian smart meter operators be required offer a protocol translation to the new common meter protocol.
  Not for existing sites. The existing SMMS will be required to support SMI MFS functionality and changes and will need to interfaces to

common market protocol changes via the API's. There is no operational benefit and will add unnecessary cost to the consumers. The Victorian approach to be classified as obsolescent and any new meters and replacements should be required to comply with the common meter protocol.

- Without a common meter protocol do proprietary meter protocol and translation be more likely to support competition in DSP and related service?
  Unlikely if there are common implementation approval processes for both common and proprietary protocols. The work for proprietary vs standard protocol should be of minimal variance due to the need for firmware and SMMS changes of which a significant cost is compliance testing on end to end systems

5.6.4 Proposed smart meter communications

- No issue with either Figure 5.1 or Figure 5.2 and application of use. Both can be supported concurrent via the SMP systems interface. Again question the use of the Private SMCN in the diagrams and does this definition include the use of Public Carrier Private APNs for IP based communications? I am assuming that is does but this needs clarification.
- The proposed protocol that allows communication via either the meter protocol or the market protocol (Figure 5.3) be supported in the NEM. A direct access point at the meter is not supported on the information provided. Modern Smart Metering Management Systems can collect all required revenue and technical data, alarms, events, adhoc requests, near real time and in arrears plus control messaging and allow the SMP to present the data collected to be able to be sent to multiple users either scheduled or adhoc via automated B2B requests from Approved Parties. This minimizes traffic on the SMP managed system and avoids congestion and latency. With uncontrolled access at the meter access point by multiple parties congestion and latency issues will result. The SMP systems can also support a customer data portal with a near real time service.

  If there is a market segment quantified and a decision is made to proceed with access point at the meter, all the system development, implementation and support costs must be quarantined to the users of the service. Care must be taken that function desirability does not become mandatory and increase the cost to users who do not need the capability. Cost of the meter point of entry implementation if it proceeds should be quarantined to those who require the capability.

  A whole range of security and access issues are required to be addressed with the access point at the meter and would have to be

limited to read only access. As the HAN is likely to interface to the consumers wifi network this creates high level security risk. Irrespective of Point of Entry for security the use of passwords and management will unlikely be suitable for a major Power of Choice implementation and a move to symmetric keys which are supported in DLMS/COSEM required inclusion in the solution.

SMP interface would have to have priority over the use of meter resourcing due to the range of responsibilities including asset management and configuration.

The capability of future communications technology performance and SMMS capability which will be available for when an Australian Power Of Choice implementation occurs should be the reference point and not current legacy systems.

There is potential for a standard one way data stream exported direct from the meter to a HAN. .

5.7 Allocation of the SMP role.

- A separate SMP role to increase the commercial flexibility of the commercial arrangements available to the MC.
  Support a separate SMP role in lieu of modifying the MP role which in some jurisdiction was heading towards a SMP role with Smart Grid operation. The MC subject to rol,e clarification will be able to select separate MP for the supply of meters, the SMP for data collection and management service and MDP for revenue data processing for market settlement
- assigning the SMP's responsibilities to either the MP or MDP.
  The SMP responsibilities and MP have commonality in the end to end data collection and systems management with the evolution of SMMS platforms providing increased capability than was being used for the initial NEM type 1 to 4 market. The functions include:
  - Revenue data (un validated);
  - SmartGrid Technical and PQ data, including alarms and events;
  - Meter and Data Health Check events and logs;
  - Safety Monitoring;
  - Configuration to meet the needs of multiple Approved Participant and direct services to the consumer;
  - Monitoring and Control;
  - Firmware updating;
  - Near Real Time Data and Data in arrears;
  - Diagnostics of meter and communications performance;
  - System Security;
  - Access Management.

Telecommunications services are also provided.

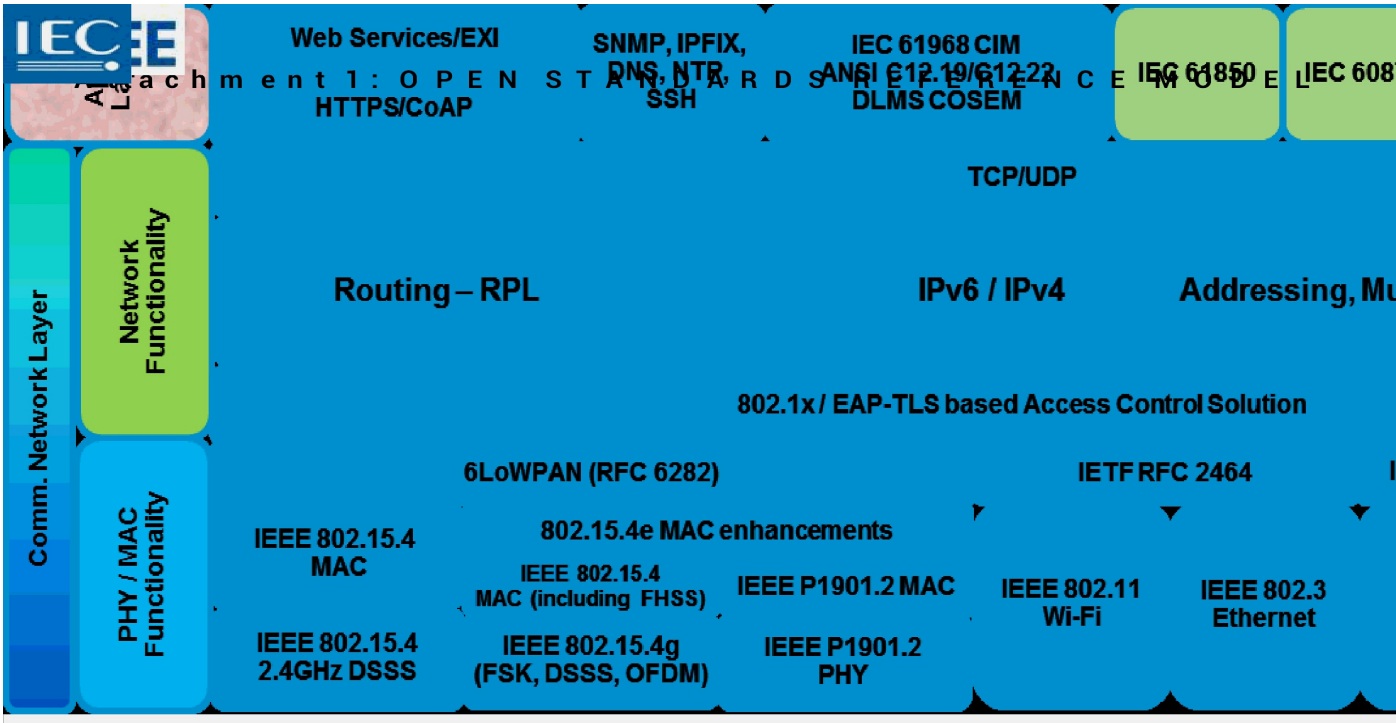
The main variance between the SMP and MP responsibility is that the MP also provides the metering asset and compliance with the Meter Asset Management Plan ensuring sample testing and accuracy compliance. The SMP provides a point of truth for all data transaction from the meter and manages the distribution to the AP based on the B2B approvals.

Whilst MDP have in the past collected revenue data rom the meter via systems such as the Itron MV90/IEE, the direction proposed is that the revenue data will be collected and exported by the SMP SMMS in addition to that required by other AP to the MDP for validation and market settlements as one of the of the Approved Participants who will provide the market data to Retailers.

If the SMP role is to exist it must perform real function and not just be another regulatory burden. Therefore further assessment is required on the combining of SMP and MP role or if the MP should become only the asset owner and the SMP the data collection and system management provider but not MDP. The MDP becomes an upstream service provider using the data provided from the SMP.
This framework is considered to provide the segmentation to support competition and systems operating efficiencies to manage overall cost.

A service provider should be able one of or up to all three roles of MP, MDP and SMP.
An assessment is required to determine and understand the operating models required to support competition and efficiency which is in part driven by the functionality of the platforms and the data interchange boundaries. At this point the MP, SMP, MDP and MC roles should be finalized and formalized into regulation.

No further comment is provided on the following sections.



- Standardization at all levels to ensure:
  - interoperability, interchageability and reduced technology tr
  - common application layer services over various communica
  - plug and play approach with protocol and comms chosen fo
  - multiple vendors support from global market