30 January 2014

Mr Rory Campbell
Australian Energy Market Commission
PO Box A2449
Sydney South NSW 1235

By electronic lodgement

Project Number EMO0028

Draft Report- Framework for open access and common communications standards review

Dear Mr Campbell

Origin Energy welcomes this opportunity to respond to the Australian Energy Market Commission's (the Commission's) draft report on the potential framework for open access and common communications standards in relation to smart metering.

Origin participated in the stakeholder working groups and our views are closely aligned with those set out in the Energy Retailer Association's (the ERAA's) response to the draft report. We summarise our position with respect to the draft report below.

Open Access via a Common Market Protocol

Origin supports a Common Market Protocol focussed on "services" delivered by the Smart Meter Provider (SMP). The SMP provides "services" to market participants (Retailers, Distributors and Third Parties where appropriate) who do not need to concern themselves with the detailed operations and functions of meters.

These services would be delivered at the market point of entry i.e. the market interface between the SMP and other market participants, including Australian Energy Market Operator (AEMO).

A market protocol based on "services" between market participants implies that protocol translation will be used to translate meter protocols to the common market "services" protocol. Protocol translation is the appropriate means of providing interoperability within the proposed framework. We consider that protocol translation in this case is desirable and an integral part of the service provided by the SMP. Included in this service, is the installation and management of meters, communication networks, and the head-end IT systems, ensuring security of the end-end system, ongoing operations and maintenance including firmware upgrades, managing congestion and contention for resources, and retransmissions. Also intrinsic to the service is checking the credentials (or access rights) of market participants to ensure they are authorised to access the given service. Protocol translation at the market point of entry allows market participants to be shielded from the complexity of the underlying systems including any changes to those systems.

An example "service" today in the NEM is the provision of validated meter data by the Meter Data Provider (MDP). The supply of meter data to the market and market participants is a service that includes meter data collection (locally or remotely), substitution and validation, rather than individual transactions with the meter. In many cases services can be delivered without requiring direct communication with the meter, if for instance the state of the meter and up-to-date meter data is stored in intermediate head-end systems.

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Origin argues that there is no technical limitation that would prevent the SMP providing "full access" to the full features of the smart meter. Any feature in the meter can be delivered as a service at the market point of entry. This includes all open access provisions suggested in the National Electricity Rules (NER). Recently, Origin have worked bilaterally with Citipower/Powercor, Jemena, and United Energy to build a web services interface for binding Home Area Network devices to smart meters in Victoria, which is a working example of market participants working together to enable advanced features in the market. This services interface is now available to all other retailers in the Victorian market.

Origin considers that DLMS/COSEM is not an appropriate protocol for use as the common market protocol. DLMS/COSEM is a protocol used to interface directly with meters, and describes transactions with meters in considerable detail. The IT department at Origin and other market participants typically have personnel who are experienced in dealing with the existing business-to-business (B2B) transactions, and with modern web services used to integrate with other organisations. There is no expertise within Origin related to DLMS/COSEM or any other meter protocol.

Common Market Protocol Governance Arrangements

Origin proposes that the Common Market Protocol is governed in a manner consistent with existing B2B Procedures i.e. via the Information Exchange Committee/Retail Market Executive Committee (IEC/RMEC) with AEMO managing the provision and delivery of the service. This provides maximum reuse of existing market processes and procedures.

It should be noted that there are enough existing services in the market to install a smart meter today and have it operate as a Type 4 meter with daily interval data and service orders for re-energisation and de-energisation as per the processes used in Victoria. As such, meters could start rolling out using existing services and new services could be introduced over time as the market matures.

Common Meter Protocol not required

Origin does not believe it is necessary to recommend or regulate a common meter protocol. The SMP should be free to choose the technology components that will deliver the required services to market participants in the most efficient and lowest cost manner. With full control of the end-end system from market interface through intermediate IT systems, communications networks, and meters, the SMP will have greater flexibility and agility to deliver services to the market. A common meter protocol will constrain that flexibility and agility.

Origin believes that the draft report overstates the benefits associated with a common meter protocol without considering the likely costs and pitfalls.

- A common protocol will require a companion specification to be developed and maintained. This will be a time consuming and complex task and require a committee of industry representatives. In the UK Smart Meter Rollout, the specification work has taken many years and is still incomplete.
- If a protocol such as DLMS/COSEM is the most efficient technology then the market will naturally select it without being required to use it. The SMP should not be prevented from choosing a more efficient and cost effective solution if it exists.
- The report states that protocol translators may increase the cost of adding new features. Origin believe that protocol translation is a desirable part of the architecture and a necessary step in delivering the services to market, and as such are a natural part of the costs of providing services. Protocol translation actually serves to shield market participants from differences in metering implementations and changes over time.

- The report states that a common meter protocol may reduce the risk of meter churn if a metering provider exist the market. This is an overly simplistic view. In practice, the protocol used to talk to the meter is only a small part of the overall operation of the end-to-end (E2E) metering services. The E2E operation of a smart meter includes the meter, the communications network and back office IT systems, the security and access mechanisms and so on. In the event of a metering provider exiting the market, rather than a new metering provider having direct access to the meters via a common meter protocol, it is more likely for the new provider to take over the complete end-end system of the failed provider. Enabling direct access via a common meter protocol is akin to full plug-and-play interoperability which Origin believe will be excessively expensive and time consuming to deliver, and is not necessary to enable open access. Such an approach would move Australia closer to the model in the United Kingdom.

DLMS/COSEM is not currently used in any local smart meter rollouts, and is not the protocol of choice for most of the smart meter vendors active in the current Australian market. Mandating the use of DLMS/COSEM will rule out a number of existing technology options in the market, and likely increase the time and cost required to enable the market for competitive smart metering.

A new role in the market is not required

Consistent with the draft report, we have used the term Smart Meter Provider (SMP) to describe the party who installs and operates the smart meters, communication systems, and head-end IT systems (Smart Meter Management System).

However, Origin does not feel it is necessary to define a new role in the market. There is significant overlap with the existing Meter Provider (MP) and Meter Data Provider (MDP) roles, and as such Origin recommends the existing roles be expanded to include the additional smart meter related responsibilities.

Regulating Access

Origin agrees that regulating access should only be considered in cases where problems impacting the efficient operation of the market have been identified.

Origin would like to see the contestable metering market be given a chance to develop without being artificially constrained by regulation. Origin believes that the right commercial incentives will be in place for the SMP to provide access to all necessary parties, to maximise the return on their investment, and to minimise unhealthy meter churn. We have maintained this view for an extended period of time and have yet to see any evidence suggesting regulation is required, or how such regulation would encourage the growth in the market for smart meters and associated services.

Transitional Arrangements for Victoria

Origin notes that there is significant alignment between the Victorian AMI Minimum Functional Specification and the National Smart Meter Program (NSMP) Smart Meter Infrastructure specification.

It is envisaged that the Victorian Distributors could adopt the common “services” based market protocol based on common services provided across the NEM, with only minor differences in some of the more advanced features. It is expected that the “rail-gauge” issues between Victoria and contestable metering services outside VIC would be much larger if a Common Meter Protocol, or a Common Market Protocol based on a Meter Protocol such as DLMS/COSEM was selected. Protocol Translation between DLMS/COSEM and the solutions rolled out in Victoria would present significant challenges.

Responses to specific matters and questions contained in the draft report (and the pages in the draft report they relate to) are set out below and Origin would welcome further discussion with the Commission. Please contact Dean Van Gerrevink on (03) 8665 7628 or myself in the first instance should you have any queries in relation to this response.

Yours sincerely

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1. Should there be a common market protocol?

Origin is supportive of a common market protocol being implemented. The arguments presented for a common market protocol are sound, and Origin agrees that it is in the best interests of consumers and the industry for the market interfaces for a minimum required functionality set to be standardised.

2. Should an internationally accepted meter protocol form the foundation of the NEM common market protocol? (page 26)

Origin does not believe an existing meter protocol should underpin any market protocol at this stage. It is highly likely that significant costs will be involved in adopting an international protocol, even if it is "off the shelf".

Furthermore, Origin considers that there are no published or accepted meter protocols currently available which meet the needs of market participants, as discussed below.

In addition, the benefits of using an internationally accepted meter protocol are overstated in the Draft Report. Specifically:

- The contention that it would "*already support all the metrology and advanced functions*" is an oversimplification of the anticipated needs of the market participants, set out below.
- The argument that it would be supported by, and would support, a consulting market, is not relevant to recommendations that will impact all participants in the market, nor does this perceived benefit add to the National Electricity Objective.

3. Is DLMS/COSEM sufficiently well developed to be used as the foundation for a market protocol, given the potentially synergies that exist with smart grid interoperability and other meter standards? (page 27)

Origin does not consider DLMS/COSEM an appropriate foundation for a market protocol.

DLMS/COSEM is a device control protocol, which is intended to provide low level control over the physical meter. Market participants, particularly those new participants in areas such as demand response and load aggregation envisaged in the *Power of Choice* review and the proposed competitive metering rule change, need a service oriented market protocol which conceals the complexity of different meter vendor implementations.

Exposing device level control through DLMS/COSEM to the market poses several significant issues not mentioned in the Draft Report:

- Different meter vendors (and even different meter models from the same vendor) may support or require different configuration and control commands and manufacturer-specific extensions. For each variant, participants would need to be aware of and take into account the differences. Each participant would need accurate and current information as to the specific model of meter and firmware revision on that meter.

- As many configuration and control commands are low level, controlling access to the right set of commands would be critical to ensure the safe and reliable operation of the network. This greatly increases the complexity of the access control requirements.
- The interoperability testing (and market participant certification) requirements are greatly increased simply because of the sheer number of possible combinations of commands.

Furthermore, Origin would note the following facts in relation to DLMS/COSEM that hamper its cost effective use as the basis for a market protocol:

- DLMS/COSEM defines 49 different interface 'classes' (49 different ways of grouping data and functions). Each class may have many different data elements and functions, some of which are mandatory and some optional.
- DLMS/COSEM defines over 460 'standard' objects specific to electricity, and over 300 generic 'standard' objects (applicable to all devices).
- It's up to each implementation to decide what objects to expose. Each implementation will expose different objects. DLMS/COSEM spec says that the only mandatory contents of a device are the device name object and the association object. The standard provides ways of discovering the capability of each device.
- Some interface classes even allow encapsulation of other standards data types, e.g. the 'Utility tables' class contains ANSI C12.19 table data.
- Manufacturer specific objects are allowed, which places a limit on real world interoperability.

The advantages of DLMS/COSEM are overstated in the Draft Report. Specifically:

- The contention that DLMS/COSEM allows "communicating with a range of meters in an unambiguous manner" is not true – most smart meter vendors do not support DLMS/COSEM today, and for those that do there is evidence of manufacturer specific deviations or extensions to the protocol.[1]

- "The protocol defines many more features than are required to meet the Australian deployment" is a disadvantage (as stated above), rather than an advantage.

Origin recommends that the common market protocol be service oriented, and leverage existing AEMO B2B gateway protocols, extended as required to meet the agreed minimum smart meter functionality.

4. Would the costs of developing an Australian specific services based common market protocol be likely to deliver sufficient benefits compared to using an internationally accepted metering protocol? (page 27)

Origin considers that the costs associated with a NEM specific market protocol with an emphasis on services will deliver sufficient benefits, exceeding those associated with adopting an international metering protocol for market purposes.

It appears this question assumes that the costs associated with developing an Australian specific common market protocol would be higher overall compared with using an internationally accepted metering protocol. Firstly, Origin believes that there are no published and/or accepted meter

[1] AEMC (2013), *Framework for Open Access and Common Communications Standards Review – Draft Report*, page 25

protocols which meet the needs of market participants, and the costs of modifying an accepted standard such as DLMS/COSEM to meet market needs would be higher than developing a standalone protocol. Secondly, implementing a standard which is not tailored specifically to the market would itself impose costs as all participants would need to comply with the additional aspects of the protocol which are not relevant to their needs. Finally, there are significant benefits of utilising a service-oriented protocol rather than a device oriented protocol, as the transactions are simpler and more aligned to Australian energy market business processes.

5. Would extensions to the B2B gateway present a viable option for the development of a services based common market protocol? (page 27)

Origin believes that extensions to the B2B gateway would be a viable approach to develop a services-focused common market protocol. Evidence supporting this view can be found in Victoria, where B2B processes have been developed to support remote de and re energisation of advanced meters and network tariff reversion for flexible pricing. These changes demonstrate that B2B can support new services to support smart metering at small customer sites, supporting access to service orders from a range of market participants.

6. Would AEMO be the most appropriate entity to develop and maintain the common market protocol? (page 28)

AEMO is well placed to coordinate the development and maintenance of the common market protocol with advice and direction from the Information Exchange Committee/Retail Markets Executive Committee (the IEC/RMEC) as standard for any B2B related changes.

7. Is there the potential for the responsible entity to adversely impact on the competitive provision of DSP and related services? (page 28)

If AEMO is the appropriate body, given its neutral position as market operator, Origin does not see any risk of adverse impact, as long as industry and interested stakeholders are able to direct the development of B2B procedures related to the common market protocol and have influence on their delivery and management (i.e. via the IEC/RMEC or its successor).

8. Would AEMO be regarded as sufficiently neutral, should the common market protocol be based on the existing B2B arrangements, as the B2B procedures are maintained by the Information Exchange Committee, established by AEMO? (page 28)

There is no other suitable entity in the market which has a more neutral position than AEMO, and establishing a new entity would simply increase costs for no identifiable benefit. While Origin notes there is a current rule change proposal relating to governance procedures and B2B procedures, we believe that AEMO, working with the IEC/RMEC would ensure participant involvement and neutrality of implementation.

9. Would requiring new functions to be fully documented before they are used stifle innovation and reduce competition in the provision of DSP and related services? (page 29)

Requiring new functions to be fully documented would slow down adoption rates significantly and remove the incentive for metering service providers to innovate and compete or for retailers, energy supply companies and distributors to propose new services. It would effectively reduce metering service provision to a commodity market, where the only competition would be on cost of service.

10. Would not requiring new functions to be documented be likely to lead to reduced levels of interoperability, and hence reduce competition in the provision of DSP and related services in the longer term? (page 29)

Whilst not standardising new functions up front may lead to reduced levels of technical interoperability, there is no evidence that this would reduce competition. We believe that utilising a service-based common market protocol would allow market participants (consumers of the 'new functions') to interface to any new services relatively cheaply, thus removing any barrier to competition. A set of core basic and advanced smart meter services will be universally available in our view (for example remote interval data delivery, remote de and re energisation and support for HANs). As such, any documentation of new functions at this stage would be premature and is not supported by experience in comparable competitive energy markets globally.

11. Should there be a common meter protocol? (page 30)

Origin does not support the introduction of a common meter protocol. The arguments presented to support a common meter protocol can be summarised as:

- Protocol conversion / proprietary protocols will increase cost of change
- Meters with proprietary protocols would need to be replaced if the vendor exits the market
- A common meter protocol could match the common market protocol, and this would be very desirable.

Origin disputes the validity of these arguments.

Firstly, what is referred to as 'protocol conversion' is, in fact (assuming that a service-based market protocol is adopted), an abstraction layer that serves to reduce the cost of change rather than increase it. The abstraction offered by a protocol conversion layer insulates the market participants from technical changes in the meters or meter protocol, and means that any changes can be implemented in a single location by the vendor most likely to understand the requirements. In addition, many of the functions implemented by the 'protocol conversion' layer likely to be implemented by the SMP are themselves value-adding (such functions as congestion management, handling re-transmits and scheduling, caching data, capturing meter traps and events).

Secondly, there is insufficient evidence that implementing a common meter protocol would result in less meter replacements if a SMP exited the market. There is a strong financial incentive for any material fleet of smart meters to remain in situ, and we would expect another SMP to take over the

operation of the fleet inclusive of any proprietary aspects upon exit. Origin notes that there are other proprietary aspects of owning and operating a meter, so enforcing a common protocol would not solve all takeover issues in any case. Rather, it is appropriate for an incoming SMP to manage the acquired fleet on a commercial basis to meet the needs of its customers (end-use consumers, retailers, distributors and ESCOs).

Finally, the proposal that a common meter protocol could be matched to the common market protocol ignores the value-adding functions (described above) that a SMP would otherwise implement in the market entry point interface, and pushes complexity to each of the market participants using the services provided by the SMP. It would in fact be a significant disadvantage if the 'processing of messages' by the SMP at the point of entry were reduced. This is a key area for the SMP to add value by solving common problems at the source, for multiple market participants.

12. If a common meter protocol is required, should it use the internationally accepted DLMS/COSEM protocol as its foundation? (page 30)

As discussed above, Origin does not consider a common meter protocol would support the NEO or the development of smart meter services for consumers.

13. If a common meter protocol is required, should existing Victorian smart meter operators be required to offer a protocol translation to the new common meter protocol? (page 30)

Again, since Origin is of the view that a common meter protocol is not required, there is no need for Victorian smart meters to support protocol translation to a common meter protocol.

Origin notes that there is significant alignment between the Victorian AMI Minimum Functional Specification and the NSMP Smart Meter Infrastructure specification.

It is envisaged that the Victorian Distributors could adopt the common "services" based market protocol based on common services provided across the NEM, with only minor differences in some of the more advanced features. It is expected that the "rail-gauge" issues between Victoria and contestable metering services outside VIC would be much larger if a Common Meter Protocol, or a Common Market Protocol based on a Meter Protocol such as DLMS/COSEM was selected. Protocol Translation between DLMS/COSEM and the solutions rolled out in Victoria would present significant challenges.

14. Without a common meter protocol do proprietary meter protocols (and protocol translations) be more likely to support competition in DSP and related services? (page 30)

In Origin's view, avoiding regulation of a common meter protocol allows for innovation and differentiation of service, and reduces costs for SMPs by allowing them to leverage existing investments and deliver the required services to market participants in the most efficient and lowest cost manner.

Regulating a common meter protocol is likely to reduce the number of players in the market, as not all will support the investment required to change their existing products for a relatively small market such as the NEM.

15. Should the proposed architecture of a protocol translation at the point of entry (Figure 5.1) be supported in the NEM? (page 33)

Yes, as per the discussion above.

16. Should the proposed architecture of a common meter and market protocol (Figure 5.2) be supported in the NEM? (page 33)

Origin supports the architecture of a common market protocol, and supports vendor choice on the meter protocol. If SMPs see a cost, efficiency, or other advantage in aligning to a common meter protocol (including but not restricted to DLMS/COSEM), then we believe that will naturally occur.

17. Should the proposed architecture of the proposed protocol that allows communication via either the meter protocol or the market protocol (Figure 5.3) be supported in the NEM? (page 33)

Origin supports allowing, but not regulating, access via the meter protocol.

Origin supports the standardised local meter access functionality proposed in the National Smart Metering Infrastructure Functional Specification v1.3.

18. Should the right of access to smart meters be enforced under the NER and, if so, to what degree (e.g. should right of access apply to all smart meter customer functions or in relation to providing certain services)? (page 34)

The matters identified in chapter 6 of the draft report contemplate access regulation for a market that does not exist in any material way in Australia outside of Victoria. Victoria is a special case due to the mandated nature of the smart meter roll out in that jurisdiction; where the *Power of Choice* recommended a market-led roll out in other regions. As such, no market failure has taken place and creating new rules in the NER to enforce access will be premature and in Origin's view, will irrepairably harm the development of smart meter deployment on a commercial basis. Access to functions and services enabled by the Victorian AMI roll out has been made possible through facilitated (or negotiated) access with distribution network operators.

In a market led roll out, Origin believes that commercial negotiation can also take place, and there are likely to be more parties with shared interest in enabling access than is the case under a mandated roll out. While not endorsing the concept of a SMP, it is clear that SMPs, vendors and existing SMP customers have an incentive to activate as many services as possible and market these to others to share the cost of smart metering infrastructure as widely as possible.

Until there is evidence of demonstrable and wide-spread market failure, regulating access in this new market would not support the NEO.

19. What are the contractual arrangements that are expected to be in place and to what extent will these contractual relationships be supported by rights under the NER? (page 34)

In the first instance, contractual arrangements that will be in place between service providers (SMPs/MPs/MDPs) and seekers (retailers, distributors and ESCOs) will be subject to commercial negotiation. A number of rights contained in the NER will also be reflected in such contracts between parties. Origin would expect where existing rights accruing to market participants are set out in the NER, these will generally be reflected in commercial arrangements.

20. How the market (the NEM as a whole or the retail energy market) would be impacted if participants are denied access to smart meters; how would different participants be impacted? (page 35)

Origin considers that denial of access to smart metering infrastructure will not take place. There will be a price offered to service seekers and these can be compared with other suppliers in the market. We believe it is in the interest of SMPs/MPs/MDPs to make services available (subject to electrical safety considerations and congestion issues). Most if not all participants will be able to bypass the smart meter for a range of services if access is not granted or not granted on reasonable terms.

21. How the existing rights and obligations relating to the use of metering infrastructure and metering data would be impacted by smart meters? (page 35)

This question is quite broad and can be answered in a number of ways. Naturally there will be changes to the existing metering market in the event of a market-led roll out. Roles and responsibilities will evolve over time along with the range of services. The nature of the impacts on existing infrastructure will depend on the speed of any roll-out and the footprint of deployment (which in turn will impact the scale economics of any deployment). In the event that a non-network meter is installed, the distribution business will still receive metrology data (as is the case currently for non-network type 1-4 meters). Third parties should be registered market participants if they seek direct access to metrology data, or alternatively, seek informed consent to receive this from their customer.

22. How the services that could be enabled by smart meters be defined and should these services be subject to regulation? (page 35)

This question overlaps somewhat with the consumer protection review component of the policy work undertaken by the Standing Committee on Energy and Resources. Origin believes that beyond the now well known core/basic smart meter services, additional services should not be defined or subject to regulatory oversight. Customers in all cases will have to provide consent to enable advanced services (in addition to opting into or out of having a smart meter installed). Given the nascent status of the market for smart meters and related services, regulatory intervention should be minimised in the medium term. If it is not, the delay in the development of this market will be

pronounced. Such an outcome would be contrary to the NEO, particularly in circumstances where customers choose to purchase smart meter enabled services but are unable to.

23. Whether there would be alternative means of providing these services other than through a smart meter? (page 35)

There are alternative means of providing some of the advanced services enabled by smart meters and such alternatives are effectively a bypass threat that will restrain the cost and terms of accessing smart meters deployed in a market-led roll out (for example, off market remote metering downstream of a market meter to support direct load control, embedded generation or electric vehicles, network enabled DLC systems etc).

While there is a lot of focus on the advanced services enabled by smart meters, significant benefits will flow to the industry and customers based on the basic smart meter services, such as daily interval data and remote re-energisation and de-energisation, as per the minimum services used in Victoria. Smart Meters are clearly the most efficient means of providing these basic smart meter services, and we should not delay getting these basic services enabled in the NEM.

24. Under a contestable market for the provision of services enabled by smart meters, could we be confident that efficient pricing outcomes for access charges would be likely to emerge? (page 36)

Origin believes that the Commission and policy makers can be confident that efficient pricing outcomes for access to smart metering infrastructure will emerge. The alternative is the regulation of smart meter pricing and access, which is inconsistent with the development of this new market and such an outcome is highly unlikely to support the interests of customers choosing smart meter services. While smart metering is one element of the electricity supply chain (which is an essential service), there are limited examples of a new market being price regulated early in its development. In the absence of market failure, the commercial determination of access charges will always result in a better outcome than regulation.

25. Whether there would be risks to efficient pricing outcomes and, if so, how the risks may be addressed? (page 36)

It is too early to comment on the potential risks to efficient pricing outcomes given the absence of a market at present. Contestable service provision should lead to efficient pricing outcomes and there is international examples available (particularly from New Zealand) that provide a benchmark for the pricing of, and access to, smart meter services.