

SCER TERMS OF REFERENCE REQUEST FOR AEMC ADVICE

Open access and common communication standards to support contestability in demand side participation (DSP) end user services enabled by smart meters.

SCER direction for advice

Pursuant to section 6(b) of the *Australian Energy Market Commission Establishment Act SA (2004)*, the Ministerial Council on Energy (MCE) may direct the Australian Energy Market Commission (AEMC) to provide advice.

In September 2011, the Council of Australian Governments (COAG) created the Standing Council on Energy and Resources (SCER), which includes Ministers responsible for Energy. These Ministers comprise the membership of the legally enduring MCE. SCER Ministers responsible for Energy are entitled to make requests under section 6(b) and have requested that the AEMC provide advice on the framework for open access and common communication standards required to support competition in demand side participation (DSP) and other end user energy services enabled by smart meters.

Background and purpose of this advice

In December 2012, the Council of Australian Governments and SCER agreed to a broad energy reform package to support investment and market outcomes in the long term interests of consumers. This included consideration of demand side participation (DSP) in the electricity market.¹

As part of the implementation of reforms, SCER agreed to progress a number of rule change proposals that were recommended by the AEMC in its Final Report for the Power of choice (PoC) review.²

The AEMC released the PoC Final Report in November 2012.³ The review was to investigate and identify the market and regulatory arrangements needed across the supply chain to facilitate the efficient investment in, operation and use of DSP in the NEM.

The PoC review identified the opportunities (information, education, and technology, and flexible pricing options) for consumers to make more informed choices about the way they use electricity. The review also addressed the market conditions and incentives for network operators, retailers and other parties to maximise the potential of efficient DSP and respond to consumers' choices. The overall objective of the review was to ensure that the community's demand for electricity services is met by the lowest cost combination of demand and supply side options.

The AEMC made a number of recommendations to facilitate the uptake of efficient DSP in the NEM. The recommendations for reform were made across nine priority areas and included changes to the electricity market rules, jurisdictional regulations and proposed action for SCER and jurisdictions to progress.

¹ SCER Communique December 2012.

² <http://www.scer.gov.au/workstreams/energy-market-reform/demand-side-participation/>

³ Australian Energy Market Commission, Power of choice review – giving consumers options in the way they use electricity, final report, AEMC, 30 November 2012.

As part of the reforms, the AEMC recommended that there should be a competitive approach for metering and data services for the residential and small business sector. The AEMC in particular recommended that:

- A new framework is introduced in the National Electricity Rules (NER) that provides for competition in metering and data services for residential and small business consumers.
- A framework is established regarding open access and common communication standards to support competition in DSP end user services enabled by smart meters.

This request for advice is in relation to the recommendation for a framework to support open access and common communication standards. The AEMC's recommendation for competition in metering is being progressed through a separate request to the AEMC. Consumer (and their agents) access to their energy consumption data is also being considered through a separate rule change request to the AEMC.

Request for advice

Advances in technologies such as smart meters and communication systems between consumers and suppliers are significantly expanding the range of DSP options available for consumers, beyond the functions that traditional meters and demand response technologies can provide (such as controlled hot water heating).

A smart meter generally includes the metering element and communication functionality (typically a chip inside the meter). This communication functionality enables data to be retrieved remotely, and allows for other smart services such as network monitoring (quality, continuity of supply) and other functions such as load management. Smart meters in this context are also able to link to devices and appliances in the home (such as an in-home display) if consumers choose, i.e. through a home area network (HAN).⁴

The communication between the smart meter and authorised parties is important to enable the smart meter functionality to be used. The appropriate communication network/link enables parties to remotely send and/or retrieve data, other information and commands.

A communications network⁵ is generally referred to as the system that facilitates communications to a smart meter at a consumer's premises. These communications convey metering data and status information between the meter and different parties (for example, the metering service provider; the network business, the retailer(s) and other parties engaged by the consumer) as well as commands, messages and software updates from parties authorised to communicate with the meter. The communications platforms for smart meters can be generally divided into two types, namely point to point⁶ and mesh networks.⁷

To date, the rollouts or pilots and trials of smart meters have used proprietary communication networks. That is, such communication networks may not enable parties other than the meter

⁴ For example, this could enable consumer's instant access to their electricity use profile.

⁵ The communications link could potentially be via a radio network, the mobile phone technology (e.g. GPRS), the internet or other similar communication medium.

⁶ Point to point communications platforms operate with an open access communications link to the metering installation such as GPRS wireless infrastructure. Authorised entities are able to communicate with the metering installation with access controlled by password. Point to point communications is used for the existing type 1 to 4 metering installations in the NEM.

⁷ Mesh communications platforms are formed when the communications modules in the metering installations securely communicate with each other to form a meshed radio network. Mesh communication platforms are generally operated by monopoly service providers (ie usually the distribution business). Third parties, such as retailers, must gain access to the metering installation through 'facilitated access' negotiated with the monopoly service provider.

provider or operator to communicate with the meters installed, and hence may not allow third party remote access to the data or the meters' functionality. This would limit those parties authorised to access data and provide DSP energy services to consumers.

In order to facilitate consumer choice and innovation of DSP products and services, and to capture the maximum benefits from the changes to metering services, it is important that there is an acceptable level of access for multiple parties⁸ to interact with the meter⁹ [and connected appliances where appropriate]. This would include a common communication standard¹⁰ across the communication networks so that:

- the remote acquisition function in the meter is designed to allow all authorised parties to access data/information;
- the minimum functionality of the meter is supported; and
- the functionality can be accessed and used by all relevant parties (transparent and well-coordinated access).¹¹

Framework for open access and common communication standards

In the context of the above, the AEMC is directed to provide advice on the requirements for a framework that supports open access and common communication standards. In developing its advice, the AEMC should provide an implementation plan that identifies necessary market and regulatory changes, and if necessary develop a draft rule change proposal for consideration by Energy Ministers.

In developing its advice, the AEMC is requested to consider:

- Arrangements/rules for open access, including:
 - access by those parties authorised to collect and receive interval metering or energy data at the connection point and non-metering data at the meter (such as the status of load control and supply contactors);
 - the ability for local distribution network service providers to access network operational data (such as monitoring of continuity and quality of supply);
 - access by those parties authorised to control smart meter functionality such as load control and supply contactors (for remote disconnection/re-connection);
 - the ability for [prioritised] commands sent to the meter to use its functionality. For example, whether emergency and real time pricing events should take priority over routine requests for metering data; and
 - appropriate, effective and efficient access security arrangements for all authorised parties. For example, whether secure access for authorised users utilises traceable 'security certificates' or similar.
 - The appropriate accreditations and authorisation needed to access the system.
 - The appropriate arrangements for the use of the home area network.

⁸ In particular, this applies to the consumer and parties that the consumer may engage to act on their behalf.

⁹ For example, to effectively integrate smart appliances into a DSP program or otherwise provide the consumer with more control of their consumption requires open access standards from the smart meter to the smart appliances.

¹⁰ The communication standard specifies the technical requirements of the communication network, in particular the form of the commands sent to the meter and the information conveyed back from the meter.

¹¹ This functionality includes the communications with external stakeholders as well as for registering devices on or sending messages to a home area network, to the extent that relies on communications via the meter.

- Common communication standards to support open access, including:
 - International developments in smart meter communications standards and whether they have converged sufficiently to recommend the adoption of common standards or, if convergence is not sufficiently well developed, then a recommended framework for adopting common communications standards when it is appropriate.
 - developing an approach for common communication standards. Considerations should include:
 - the management of communication links to and from the smart meter;
 - priority access to a communication link during an emergency event in the power system;
 - whether the choice of common communications standards is likely to restrict the choice of communication network, for example, whether the standards support public communication links (such as point to point communication networks) and proprietary communication links (such as mesh radio communication networks), plus any potential alternative such as internet based communication links;
 - the potential for the establishment of multiple communication networks to the smart meter, including the transfer to and/or exchange of information with a range of appliances and multiple independent parties, where it is commercial to do so;
 - all the functions contained in the minimum functionality specification are supported;¹²
 - whether the meter standards support interoperability of meters and devices, and to what extent; and
 - that the standards are able to evolve over time to maintain consistency with technology innovations;
- Regulation of DSP energy services enabled by smart meters (access arrangements)

The minimum functionality specification proposed for the competitive approach to metering and related services includes a number of functions that will enable provision of a suite of smart meter services to the consumer. These services can be provided by retailers, network businesses and third parties. The provision of these services should be open to competition. With a large number of functions potentially being accessible by multiple parties it is important that the following issues are considered:

- which parties are able to utilise each of the smart meter functions, including whether any functions should have limited access (such as network functions);
- arrangements for sending messages to the smart meter - how the functions should be used to maximise the benefits to the consumer available from the meter;
- arrangements for how messages should be prioritised and processed. This includes whether the use of such functions could be a risk to power system reliability or security

¹² The AEMC recommended in its Final report for the its Final Report “Power of choice review – giving consumers options in the way they use electricity” that the minimum functionality specification for smart meters be that developed by the National Smart Metering Program, which was endorsed by SCER.

(eg as the result of a critical quantity of load¹³ being turned on or off, and the protocol for controlled charging of electric vehicles¹⁴) and whether technical standards are required;¹⁵

- whether, and the circumstances where, some entities have priority access to established communication links and the meter's functions (eg during emergencies) to the extent necessary to operate those functions;
- whether access to the metering functions should be charged for and under what basis, including whether any charges should be regulated or left to competitive arrangements; and
- how arrangements could apply to the existing smart meter rollout in Victoria or to other existing smart meter installations.

Relevant considerations

The AEMC is to have regard to the following when developing this advice:

- the National Electricity Objective;
- supporting competitive neutrality;
- ensuring consumer protections;¹⁶
- that any proposed changes are proportionate to the issues identified; and
- related work including:
 - AEMC Power of choice final report, including associated consultants reports and submissions;
 - SCER Energy Market Reform Working Group smart meter consumer protection and safety review work program; and
 - Various reports prepared by the National Stakeholder Steering Committee of the National Smart Metering Program.

Establishing an advisory stakeholder working group

The AEMC should establish an advisory stakeholder working group to ensure that all relevant stakeholder views are considered. The working group should consist of:

- The Australian Energy Market Operator;
- The Australian Energy Regulator;

¹³ A critical quantity of load could be made up of a large number of small loads or a small number of larger loads or a combination of both.

¹⁴ The management of controlled charging of electric vehicles at the same geographic location was identified in the AEMC's review of 'Energy Market Arrangements for Electric and Natural Gas Vehicles' published in December 2012.

¹⁵ Specification of how much load can be turned on or off quickly at a given location in the distribution network based on the characteristics of the network. The AEMC should take account of any outcomes from the intergovernmental process considering requiring airconditioners, hot water heaters, pool pumps and electric vehicle chargers to have load control capability and interfaces that comply with the relevant part of AS 4755.

¹⁶ The SCER smart meter consumer protection and safety review work program is considering issues relating to consumer protections and application of the NECF. These issues will be addressed through that process.

- Commonwealth and Jurisdictional representatives;
- Industry groups and representatives from electricity networks, electricity generators, and electricity retailers;
- Energy user representatives; and
- Smart metering manufacturer(s) representatives.
- Third party energy service providers.

Timing and deliverables

Energy Ministers require that the AEMC:

- Undertake a formal public stakeholder consultation process;
- If considered appropriate by the AEMC, hold a workshop or public forum; and
- Provide the final advice setting out its policy conclusions and recommendations to Energy Ministers by March 2014.

The AEMC must publish a copy of their final advice on its website no later than two weeks after providing it to Energy Ministers.