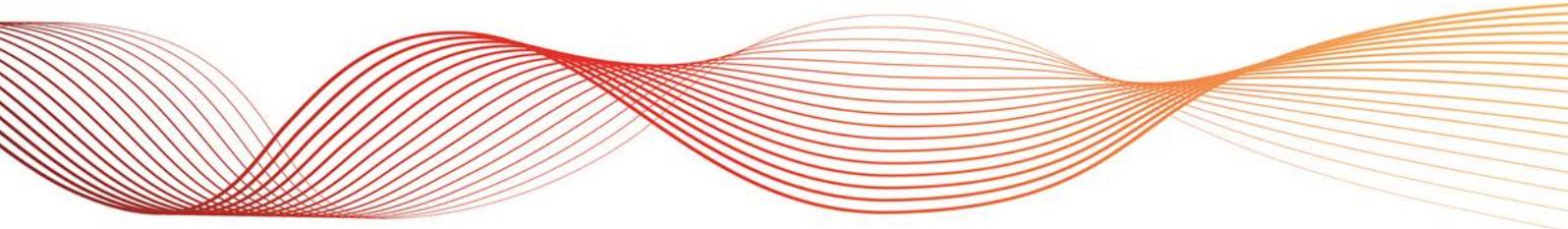


TRANSITION TO METERING COMPETITION IN VICTORIA OPTIONS PAPER: AEMO SUBMISSION



1. SUMMARY

AEMO welcomes the opportunity to provide a submission on the Department of Environment, Land, Water and Planning (the Department) options paper for the transition to metering competition in Victoria. It is understood that the Department is seeking submissions from stakeholders in consideration of the AEMC's final rule and determination for Competition in Metering and Related Services, published in November 2015 (Amending Rule).

AEMO notes the two priorities provided by the Victorian Auditor-General's Office regarding metering competition in Victoria (i.e. protecting consumers and preserving AMI benefits) and this submission seeks to address matters of technical accuracy and the achievement of societal benefits as they relate to those priorities.

AEMO has provided an assessment of the VIC AMI functional specification against the requirement of the Amending Rule, and presents AEMO's view on the four functions and features that would be required of competitive metering providers in addition to the requirements of the Amending Rule, if the Department progressed with either Option 2 or 3.

AEMO has found providing commentary regarding societal benefits of the proposed models to be problematic as a result of the lack of availability of clear quantifiable data regarding realised benefits resulting from the VIC AMI program, and more specifically how those benefits are derived from the four features and functions that are the subject of the potential mandate considered in the options. As a result this submission focuses on the opportunities or restrictions presented by each option, and the areas where costs to customers may be increased, in the case that a societal benefit can be so ascribed.

AEMO's assessment of the options in summary is as follows:

Option	Description	AEMO assessment
1	Adoption of full metering competition as provided for in the Amending Rule	<p>AEMO supports the adoption of option 1 as it provides:</p> <ul style="list-style-type: none"> Customers and market participants, including distributors, with the greatest degree of choice in the determining the type, quality and cost of the services to be delivered by the metering installation. Innovation for service delivery and ensures that Victorian customers are not left behind or otherwise disadvantaged in comparison to customers in other jurisdictions.
2	Adoption of metering competition, plus requirement to meet VIC AMI specification for all new and replacement metering installations	<p>AEMO does not support the adoption of option 2, for reasons including:</p> <ul style="list-style-type: none"> The practicality of implementing this option, given the effective date of the Amending Rule. Higher costs of operation, which are likely to lead to increased costs to customers. High investment risk, regulatory uncertainty and barriers to entry that are likely to stifle competition and innovation. The absence of quantifiable data in support of the proposed benefits of this option.
3	Requirements of Option 2 with scope of competition limited to new connections only	<p>AEMO does not support the adoption of option 3, as:</p> <ul style="list-style-type: none"> It has the disadvantages of option 2; VIC AMI replacement metering installations will be required to meet the new specifications of the Amending Rule, which may not be practical and is likely to lead to an increase in costs to customers.

Option	Description	AEMO assessment
4	Retain exclusive distributor provision of metering services for small customers	AEMO does not support the adoption of option 4 as: <ul style="list-style-type: none"> It will restrict choices for customers and market participants, which is likely to disadvantage Victorian customers in the longer term. The scope of change required to adopt option 4 would place considerable risk on implementation in line with the effective date of the Amending Rule.

2. SUBMISSION

2.1 Functionality

Question 2:

Should other considerations about respective capabilities of the metering and service levels be taken into account?

The options paper provides a high level assessment of the functionality required by the VIC AMI specification in comparison with the functional requirements of the Amending Rule. AEMO considers this assessment to be the foundation on which the benefits of one option can be considered more favourable than another, and believes that it is well placed to assist in supporting the comparison, in particular as AEMO recently performed a review of advanced metering functionality, which included an assessment of the VIC AMI requirements, in preparation for the provision of advice to the Council of Australian Governments Energy Council in November 2014¹.

For the purpose of this assessment, AEMO considered the metering device functional specification requirements of the VIC AMI specification rather than the service delivery requirements of the VIC AMI program and has compared those to the explicit and implicit functional requirements required for 'small customer metering installations' in the Amending Rule. The summary of AEMOs review is provided in Appendix A.

2.1.1 Functionality Evaluation

AEMO considers that whilst there are a number of functions required in the Amending Rule that are not required in the VIC AMI specification (e.g. temperature alarm, full 4 quadrant metering and the superior 'quality of supply' features which include full and average measurement of voltage, current and frequency) there are four VIC AMI functions that are not explicitly required in the Amending Rule:

1. Supply capacity control (load limiting)
2. Home area network connectivity (via ZigBee SEP 1.0) – direct connected meters only
3. Loss of supply detection and outage alarm (Last Gasp)
4. Auto-disconnect when load found on remote reconnection

AEMO notes that the auto-disconnect feature is currently being considered by the Standards Australia Committee EL-011, for potential inclusion as a Standards requirement for the Australian and New Zealand markets, with changes targeted for publication in the later part of 2017². Accordingly, the need to mandate the provision of this feature may be irrelevant. Whilst it is reasonable to consider that the other three features and functions may not

¹ Minimum Functionality of Advanced Meters: AEMO Advice to COAG Energy Council November 2014

² Standards Australia – Roadmap for Advanced Metering Standards report July 2016

be available in a competitive metering installation in the absence of a mandate to do so, it must be recognised that a metering installation installed as part of the VIC AMI program is not capable of meeting the specifications of the Amending Rule, as indicated above, or for that matter having the functionality and flexibility required by a provider of competitive services to mitigate the risk of technology obsolescence - a primary risk in the competitive provision of advanced metering.

ZigBee SEP 1.0 connectivity and Last Gasp functionality are likely to have a material impact on costs on any competitive metering provider if mandated. The ZigBee requirement requires specific hardware to be incorporated in the metering installation, the version (SEP 1.0) having been superseded since the original VIC AMI design in 2008. The Last Gasp feature would also require specific hardware to be provided, however AEMO considers that due to the complexities of this feature, a detailed services specification would need to accompany any functional requirement in order for parties to reasonably ensure that the function can be utilised and costs can be determined.

AEMO note that there are a number of features that are mistakenly considered to be part of the VIC AMI requirements. This includes features such as neutral integrity monitoring and temperature alarms. Mandating the VIC AMI specification will not guarantee that either of these features are available at the metering installation. In relation to these features, AEMO notes that the Amending Rule does require temperature alarms and has superior requirements with regard to quality of supply information; which is typically the source data that provides for neutral integrity monitoring.

2.1.2 Service Standards

AEMO considers that where a service, whose sole recipient is the distributor, is required to be provided by a competitive metering provider, a mandated functional specification alone is insufficient to allow the:

- distributor to have confidence in the quality, delivery format and performance standards that they can expect as a minimum regarding each service;
- distributor any cause for redress in the event that a service outcome is not achieved by the competitive provider;
- competitive provider to invest in metering equipment, communications, systems and interfaces to meet the outcomes desired by mandating VIC AMI specifications; and
- appropriate regulatory body to monitor and enforce the regulated requirements, in the case that such enforcement is required.

The provision of service requirements and performance standards against each mandated functional specification would resolve these matters.

AEMO is not in a position at this time to comment on the viability of establishing service requirements and performance standards, nor the practicality of such services being adopted by distributors, but does consider this to be a key factor in determining the benefits of regulating functional requirements as proposed in the Department's option paper.

2.2 Societal benefits

Question 1:

Do you support implementing metering competition in Victoria so that the current Victorian meter specification and/or the minimum service levels are retained?

Question 3:

Do you have any comments or views on Options 1, 3 or 4?

Question 14:

With metering competition commencing on 1 December 2017, what timing issues does the Victorian Government need to be aware of, and how might these be managed?

Providing commentary regarding societal benefits of the proposed models is problematic as a result of the lack of any clear quantifiable data regarding realised benefits resulting from the VIC AMI program.

Evidence of a demonstrable link between tangible, Victoria-wide societal benefits and the functions that are not otherwise required in the Amending Rule may be pivotal in determining the value of mandating these functions.

Without access to information of this nature as it specifically relates to the options being presented for consideration, and the identified gaps in functionality, the analysis of achieving societal benefits through these options at this time can only be speculative. AEMO commentary instead focuses on options available to distributors to acquire services, the viability and the potential increases in costs to end users under each option and the timing implications of progressing with each option.

2.2.1 Timing

On publication of the Amending Rule and other AEMC 'Power of Choice' (POC) rule changes, AEMO established a multi-faceted POC program of work to establish arrangements, change and develop market procedures, adapt systems and coordinate market readiness in preparation for the effective date.

This work is now well progressed and includes:

- Changes to AEMO's Metrology Procedures, MSATS and Service Level Procedures - published in August 2016.
- Consultation under way on AEMO Qualification Procedures and Exemption Procedures – due for publication in February 2017.
- Consultation under way on IEC B2B Procedures.
- System design in progress, supported by stakeholder workshops.
- Market readiness planning – commenced in earnest since August 2016, including a designated timeframe between 1 March 2017 and 1 December 2017 for registration and accreditation to enable operation under the Amending Rule.

AEMO notes that if either Option 2, 3 or 4 were to be progressed, it may be impractical for changes to be made to procedures and systems and for market participants to accommodate the Victorian requirements. AEMO also considers that due to the differences between the VIC AMI specification and the requirements of the Amending Rule, it is unlikely that competitive metering providers or distributors would be able to procure equipment capable of meeting the combined requirements of those specifications in advance of the effective date.

2.2.2 Option 1

This option provides distributors with the greatest range of options for the acquisition of services, which include:

1. Acquisition of services through a commercial agreement with the competitive Metering Coordinator;
2. Installation of a Network Device adjacent to the metering installation;
3. Establishment of a competitive metering provider to offer services through the contestable framework (in accordance with any ring-fencing guidelines); and
4. Retain existing VIC AMI metering installations as Network Devices for all existing metering installations (as provided for in the Amending Rule).

Views have been presented in previous workshops, including the AEMC's forums prior to the publication of the Amending Rule, that the distributor's negotiating position is weak for reasons such as:

- The competitive Metering Coordinator will only offer services at a slightly lower cost than the option to install a Network Device, regardless of the actual cost of providing the service.
- The distributor is not the principle party in appointing the Metering Coordinator and as such will have no leverage to displace the Metering Coordinator in the event that no satisfactory agreement for services can be obtained.

AEMO considers that whilst these outcomes are theoretically possible, they do not account for the natural incentives placed on the competitive metering provider by the competitive market framework. It is AEMO's view that this option provides the distributor with significant negotiating strength, primarily as a result of the many options at its disposal to acquire new services. Under a fully competitive market framework, the competitive provider's revenue is principally related to their ability to meet the market's expectations for quality, service and cost, over the useful life of the installed assets. Establishing agreements with parties other than the principle (in this case the retailer) provides opportunity for the competitive provider to lower its cost of service to its principle clients whilst maintaining or improving its profit margin, reducing its risk of displacement, and of gaining further market share in the process. Accordingly, competitive providers have a vested interest in establishing such agreements and establishing relationships with distributors that provide for further growth in the delivery of services into the future.

In addition to providing market participants with options, the competitive framework provides customers with the greatest degree of choice in determining the type, quality and cost of the services they wish to receive and establishes a framework for innovation in service delivery; Victorian customers may otherwise be disadvantaged in comparison to customers in other jurisdictions if competition is limited or additional costs imposed. AEMO considers this option to be the least likely to cause an increase in costs to the consumer.

2.2.3 Option 2

AEMO considers that rather than enabling the achievement of societal benefits, this option is the most likely to increase costs of services to end users.

This option would place an obligation for competitive metering providers to install metering capable of performing the 4 functions and features that are included in the VIC AMI specification but not in the Amending Rule, as previously stated in this submission. Unless there is some way of recovering the additional costs of facilitating these requirements from a taker of services, the costs are likely to be passed on directly to customers.

Unlike metering installed by the distributor, competitive metering has no guaranteed tenure at a connection point and it is reasonable to consider that there will be limited ability for the imposition of liquidated damages in the case that a competitive metering installation is displaced prior to the end of its useful life; as such AEMO considers that Victorian specific costs for competitive metering services would be materially higher under this option than equivalent services in other jurisdictions within the National Electricity Market.

These issues, and the risks created through uncertainty of potential imposition of access regulation at some point within the next few years, may well have the effect of preventing potential investors in competitive metering provision from entering the Victorian market.

2.2.4 Options 3 and 4

Option 3 appears to present the same problematic issues that are inherent with Option 2, but has a reduced scope of effect, with mandated functionality relating only to new connections and replacement metering being facilitated by the VIC AMI providers. AEMO does not consider this option to be any more or less favourable than Option 2.

Option 4, which establishes a continuity in framework for Victoria may appear straightforward, however as has previously been raised, AEMO is concerned primarily with the viability of establishing arrangements in procedures and systems to provide for this arrangement.

For both Options 3 and 4, AEMO notes that unless specific jurisdictional provisions in the National Electricity Rules (NER) were made to the contrary, all replacement VIC AMI metering installations, and for Option 4 all new metering installations, would need to comply with the requirements in the Amending Rule, including the minimum services specification.

2.3 Opt out arrangements

Question 11:

Should Victoria vary its current policy position that smart meters are mandatory and households and small business to opt-out of having a communicating smart meter?

On the assumption that all customers in Victoria have been provided with a VIC AMI metering installation, AEMO does not consider that any policy is required in this regard. From 1 December 2017, all VIC AMI metering installations will be type 4 metering installations in accordance with the National Electricity Rules. The Victorian requirements for reversion of metering installation types, as provided in AEMO's Metrology Procedures, do not allow for reversion to a type 6, and in any case, the provision of a new type 5 or 6 metering installation is not allowed by the Amending Rule.

In the case that an end user refused the installation of an advanced meter (where the Amending Rule allows in limited circumstances for the installation of a type 4A metering installation), AEMO can only identify one scenario where the lack of a mandate to install a communicating smart meter may reduce the level of services received by the customer, and in a sub-set of these cases, reduce the level of services obtained by the distributor.

The scenario presents as follows:

- The existing VIC AMI meter has been identified as being faulty and requiring replacement; and
- There is no telecommunication network available to the competitive metering provider (other than the VIC AMI private network, and that network is not available for the competitive metering provider to use) and an exemption is obtained from AEMO in accordance with the Amending Rule.

Services to the distributor would only be effected if in addition to the above:

- The existing VIC AMI meter fault affected its ability to operate as a Network Device; or
- The space available to install the new metering equipment was limited to the extent that the VIC AMI Network Device needed to be removed, strictly as provided for in the Amending Rule

AEMO does not consider the scenario described above to be common, and even in the case that it is, a mandate to provide communications in every case would have the effect of requiring a competitive provider to establish its own telecommunications network which in turn would lead to an increased cost to the end user.

APPENDIX A

NER Comparison to VIC AMI Functional Specification

FUNCTIONALITY COMPARISON - VICTORIA & NER			
VIC AMI SPEC.	FUNCTION	DESCRIPTION	NER Services
3.3(b), (c)	Metering Data	Half hourly consumption measurement & recording. 4 quadrant for three phase meters only.	The metering installation must be capable of measuring active energy (Wh) and leading and lagging reactive energy (varh) for both import and export energy flows, i.e. 4 quadrant for all metering. (Minimum Services Specification (NER table S7.5.1.1) and Metrology Procedure: Part A section 5.2)
3.3	Metering Data	Remote reading.	The metering installation must be capable of the retrieval and provision of: <ul style="list-style-type: none"> • Reactive and active energy metering data for both import and export of energy • Interval metering data • Accumulated metering data (Minimum Services Specification (NER table S7.5.1.1))
3.3(c), (e)	Metering Data	Local reading - hand-held device.	NER requirement – 7.10.1
3.1(b)	Metering Data	Local reading - meter display.	National measurement requirements prevail.
3.12	Metering Data	Communications and data security.	NER requirement – 7.15
3.11	Core function	Tamper detection.	The metering installation must be capable of remote retrieval of metering data including quality flags. The metering installation must be capable of providing events that have been recorded in meter log including recorded information in the tamper detection alarm, reverse energy flow and metering device temperature alarm. (Minimum Services Specification (NER table S7.5.1.1))

VIC AMI SPEC.	FUNCTION	DESCRIPTION	NER Services
3.5	Core function	Remote time clock synchronisation.	NER requirement - S7.4.3
3.6.2	Core function	Load mgmt. at meter - dedicated control circuit.	Network devices must be retained for this purpose unless the metering installation can perform the required function in accordance with the NSP network tariff requirements.
3.3(a), (b)	Metering Data	Daily remote collection of the previous trading day's energy data.	N/A – service requirement rather than function. Note: Must deliver data in accordance with the Data Delivery Calendar (currently minimum requirement is weekly - MDP Service Level Procedure)
3.2(a)2	Power factor - three phase	Half -hour reactive interval energy measurement and recording on three phase meters.	The metering installation must be capable of measuring active energy (Wh) and leading and lagging reactive energy (varh) for both import and export energy flows, i.e. 4 quadrant metering. (Minimum Services Specification (NER table S7.5.1.1) and Metrology Procedure: Part A section 5.2)
3.2(a)1, 2	Import Export	Records active energy flows both into the electricity grid and out, where the customer has installed local generation (e.g. solar cells).	The metering installation must be capable of measuring active energy (Wh) and leading and lagging reactive energy (varh) for both import and export energy flows, i.e. 4 quadrant metering. (Minimum Services Specification (NER table S7.5.1.1) and Metrology Procedure: Part A section 5.2)
3.4	Remote connect/disconnect	Allows the power to a customer's premise to be connected or disconnected remotely.	The metering installation must be capable of the remote disconnection and remote reconnection. (Minimum Services Specification (NER table S7.5.1.1)) (Note: No feature specified for auto-disconnection on identification of load)
3.9	Supply capacity control	Provides the ability to limit power to individual customers, e.g. in recovery from a blackout to manage stability and allow recovery for emergency services.	No Function Specified.

VIC AMI SPEC.	FUNCTION	DESCRIPTION	NER Services
3.1	Home Area Network	The capability to interface with an in-home display or other in-home device via a home area network (HAN) using an open standard.	No Function Specified
3.8	Quality of supply and other event recording	Enables meter to record information in relation to quality of supply and other events (e.g. outage). The event log could then be read remotely.	<p>The metering installation must be capable of providing as a minimum:</p> <ul style="list-style-type: none"> • The status of the switch used for the disconnection and reconnection service; • The voltage as measured by the metering installation, with a date and time stamp; • The power as measured by the metering installation with a date and time stamp; • The supply frequency as measured by the metering installation with a date and time stamp; • The average voltage and current over a nominated trading interval; • Events that have been recorded in meter log including recorded information in the tamper detection alarm, reverse energy flow and metering device temperature alarm. <p>(Minimum Services Specification (NER table S7.5.1.1))</p>
3.7	Loss of supply detection and outage alarm	Enable a loss of supply to the meter and system outages to be detected.	No Function Specified
3.13	Remote configuration	Meter settings can be changed remotely. Enables use of other meter functionalities, including load mgmt. (14), supply capacity control (13) and quality of supply recording (19).	<p>The metering installation must be capable of remote setting of the operational parameters of the meter, including:</p> <ul style="list-style-type: none"> • The activation or deactivation of a data stream; and • Altering the method of presenting energy data and associated information on the meter display. <p>(Minimum Services Specification (NER table S7.5.1.1))</p>
3.14	Plug and play commissioning	Allows meters to be activated and registered on the system remotely once installed, rather than manually.	Commissioning requirements are specified in the MP Service Level Procedure, although the MP is able to determine the most efficient method.