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Eamonn Corrigan
Australian Energy Market Commission
PO Box A2449
SYDNEY SOUTH NSW 1235

Lodged on-line: www.aemc.gov.au

Level 22
530 Collins Street
Melbourne VIC 3000

Postal Address:
GPO Box 2008
Melbourne VIC 3001

T 1300 858724
F 03 9609 8080

Dear Mr Corrigan

Comments on Energy Market Arrangements for Electric and Natural Gas Vehicles

Thank you for the opportunity to contribute to the review on Energy Market Arrangements for Electric and Natural Gas Vehicles.

The Australian Energy Market Operator (AEMO) operates the National Electricity Market (NEM), the Victorian Declared Wholesale Gas Market (DWGM) in Victoria and the Short Term Trading Markets (STTM) for gas at hubs in Adelaide, Sydney and Brisbane. AEMO is also responsible for the procurement and planning of the shared network and connections of electricity transmission in Victoria and has a range of national planning functions for electricity and gas transmission.

AEMO is a member of the Power of Choice stakeholder reference group, and has participated at all the public forums relating to the Power of Choice review and forums relating to metering for electric vehicles. AEMO has addressed the specific technical metering issues raised in this review and covered demand side matters in AEMO's submission to the Power of Choice Review draft report.

Please find attached AEMO's submission. If you would like to further discuss any matters raised in this submission, please contact Roy Kaplan on 03 9609 8331.

Yours sincerely

(lodged electronically)

David Swift

Executive General Manager, Corporate Development

Attachments: AEMO submission

AEMO Submission to Energy Market Arrangements for Electric and Natural Gas Vehicles

1. Electric Vehicles and pricing

Do you agree that efficient EV charging behaviour should be incentivised through network pricing signals? If so, what arrangements are necessary to implement these pricing signals?

The existing National Electricity Market (NEM) metering framework was primarily designed to support the wholesale market and has been adapted over time to meet the evolving requirements of retail competition. While the NEM design caters reasonably effectively for the supply side of the market, it is generally recognised that it has yet to deliver significant demand side participation (DSP). Clear impediments to this include the inability to provide clear market pricing signals to the mass, or small customer market. This is due, in part, to the absence of interval meters at the mass market level.

Electric Vehicle (EV) charging should be treated as any other load, and subject to incentivisation through time-of-use tariffs as used for any other load. AEMO does not believe that the energy used for a specific appliance should be treated any differently from any other usage. Efficient outcomes here though will require attention to network pricing, both for consumption and generation at the customer level.

2. Vehicle to Grid

Should clause 7.3.1(a)(7) of the NER be amended to reflect the current early status of V2G? Should interval meters be required to have bi-directional capability?

AEMO is of the view that by requiring all interval meters to be able to measure bi-directional energy flows should “future proof” these meters for a marginal additional initial cost for the meter. With all current initiatives relating to solar PV, V2G, embedded generation and the like, it is important to have a metering installation that provides maximum flexibility in functionality. This should ensure that all meters are capable of supporting net and gross feed-in tariffs and V2G without requiring a meter change or truck visit, thus reducing risk of stranded assets and uneconomic service provider visits. AEMO also agrees with the view that this while V2G technology has upcoming potential, there are currently technical issues and practical uncertainties surrounding the application of this technology, and it may be premature to enshrine this in the National Electricity Rules until there is a better understanding of these issues and their commercial impacts.

3. Changing the definition of connection point and supply point

Do you agree that changing the definition of connection point and supply point in the NER should facilitate separate metering of loads (or generation)? Does the creation of this new definition produce any unintended consequences? Please provide reasons.

AEMO supports this proposal because it considers that this will lead to a greater flexibility in metering arrangements, and to facilitate consumers having the opportunity to have relationships with more than one FRMP. AEMO also considers that that this can lead to enhanced competition both in retail market offerings available to consumers and also in service provision (metering services and data services) to deliver these products.

AEMO recommends that the AEMC reconsider the choice of the term “supply point” for this newly defined concept. The current Chapter 7 definitions relevant to connection and metering points are shown below.

metering point

The point of physical connection of the device measuring the current in the power conductor.

connection point

The agreed point of *supply* established between *Network Service Provider(s)* and another *Registered Participant, Non-Registered Customer* or *franchise customer*.

supply

The delivery of electricity.

AEMO suggests the AEMC consider calling this new point the “metering point”, following some changes to the current definition of metering point. AEMO considers that introducing a new term (supply point) is not necessary. As defined, the connection point is the agreed point of supply between the network service provider and customer/consumer. The metering point is the point of physical connection of the meter, and we read that the proposal is an attempt to separate these two points to facilitate multiple meters for a single connection point.

4. Parent/child metering arrangements

Do you agree that our proposals address existing issues with parent/child metering arrangements? If so, how should these arrangements be specified in the NER? Please provide reasons.

AEMO considers that this would be beneficial to formally recognise parent-child relationships in the National Electricity Rules. This proposal also provides certainty around the issues of:

- How the NMI for the child will be assigned,
- How losses should be dealt with; and
- How DUOS is dealt with.

AEMO notes that these arrangements are only proposed to be used for parent/child metering arrangements at a site with a single consumer. It should then be made clear the limits of application of these arrangements, and ensure that there is no ambiguity introduced into the arrangements for embedded networks proposed elsewhere in this review.

5. Multi-element meters

Do you agree that having one Responsible Person for multi-element meters is the efficient solution? Are there any other issues with multi-element meters that we should address?

The role of the Responsible Person is to provide an end-to-end assurance of the veracity of the metering installation and associated data. As such, AEMO considers that it is imperative, under the current framework, to have a single Responsible Person in place to ensure that this desired outcome is always achieved.

6. Metering in embedded networks

Do you agree that our recommendations address existing uncertainties with respect to metering in embedded networks? Please provide reasons.

Following the introduction of the Australian Energy Regulator's retail and network exemption frameworks, and embedded work done by AEMO, the key gaps that remain in the area of embedded networks:

- No recognition / clear head of power for embedded networks in the National Electricity Rules;
- Lack of clarity as to whether an embedded network child is connected to the LNSP's network; and
- Lack of clarity on the party responsible for issuing NMI to embedded network children.

By clarifying that all agreed connection points in an embedded network would be classified as Connection Points, these uncertainties are addressed, and provides the embedded network framework the necessary regulatory certainty.

7. Two (or more) FRMPs at a connection point

- 1. Do you agree that our recommendations will enable two or more FRMPs to operate effectively at a connection point? Please provide reasons*

AEMO believes that the market framework must support the concept of multiple retailing at connection points, and connection point aggregators (e.g. power and light from retailer A, electric vehicle from retailer B, solar power generated energy to retailer C). We consider, however, that this should preferably be designed as one *connection point* with multiple *metering points*. While modern metering technology already facilitates multi-element separation of energy consumption within the one metering device, we consider that minimum standards related to separation of data and the ability to separately isolate each *metering point* would be needed.

Implementing this concept will be a significant change and costs to all industry participants including AEMO, as all current systems are designed with a 1-1 relationship model with respect to FRMPs and connection points. As such, we see this as a long term vision.

There are two issues that AEMO sees an area of significant risk with this proposal. AEMO considers that this approach could facilitate a significant opportunity for fraud and theft of energy in general. It may be possible for a customer/consumer to rewire/reconnect high consumption appliances to connect to the cheapest rate connection, and for theft to be undetected between the multiple FRMPs.

- 2. In the event that one FRMP wishes to disconnect a consumer, do you agree that a FRMP should have the power to disconnect the consumer's total load, which includes the load from the other FRMP? Or do you think that each part of the load should be able to be disconnected independent of the other FRMP?*

AEMO does not agree that if one FRMP wishes to disconnect a consumer, that FRMP should have the power to disconnect the consumer's total load, which includes the load from the other FRMP. This proposal should only go ahead if there are processes and technology solutions in place to allow for separate disconnection of individual measurement element loads. It will also be important to ensure that each FRMP has full rights of access to their respective metering installation(s) while other data remains confidential. Accountabilities for the meter performance would also need to be prescribed if there were more than one party responsible for a single device.

8. EVs and retail exemptions framework

Do you agree that the AER should review its retail exemptions framework to clarify the status of EV charging at commercial EV charging stations where onselling occurs? Please provide reasons.

AEMO considers that the Australian Energy Regulator should review its retail and network exemptions framework following on from these proposals. The embedded network provisions proposed in this review need to be consistent with the AER exemption frameworks, and the National Electricity Rules and Australian Energy Regulator exemption frameworks need to be developed together to provide a robust solution to embedded networks where onselling occurs.