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Dear Mr Corrigon

Comments on Power of Choice Review Draft Report

Thank you for the opportunity to contribute to the Power of Choice Review.

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. I would like to take this opportunity to thank you and the staff involved for the high quality of stakeholder engagement and focus on the key strategic matters affecting consumer participation in the NEM.

Please find attached AEMO's submission. If you would like to further discuss any matters raised in this submission, please contact Ben Skinner on 03 9609 8769 in relation to wholesale market issues or Roy Kaplan on 03 9609 8331 in relation to metering or data issues.

Yours sincerely

(lodged electronically)

David Swift

Executive General Manager, Corporate Development

Attachments: AEMO submission

AEMO Submission to Draft Report: Power of Choice Review

1. General Comments

As recognised by the AEMC, efficient markets are characterised by effective participation of both the supply and demand side of the market. While there is some evidence of uptake of demand side, the efficiency of the National Electricity Market (NEM) can be improved by more effective use of the demand side.

Over recent times, a number of reviews have been initiated at a number of levels to consider more effective participation of the demand side. A number of these reviews have raised opportunities for wholesale market enhancements and a broad range of metering related issues. The AEMC's Power of Choice Review has to some extent drawn together some of these themes and considered, more holistically, a framework for more effective participation of the demand side, particularly in the metering framework space, to meet operational and market requirements.

AEMO supports the work of the AEMC through their Power of Choice review and considers that the consumer should be given more control of their interface to the market and the ability to select their service provider(s) and the services they wish to access. Full contestability of remotely communicated interval metering would act as an enabler of services, as opposed to a barrier, encouraging technology providers to enter the market. While AEMO is supportive of these initiatives more generally and the need for the metering framework to adapt to meet the evolving requirements of customers (as highlighted in both the Consumer of Choice Review and the Electric Vehicle review), some of these initiatives will require significant change and cost to implement. AEMO encourages the development of detailed action plans in a number of these specific areas, to not just better understand the change required but the path to get there. AEMO would be pleased to participate in this detailed working to ensure appropriate transition and implementation.

AEMO's comments relating to specific recommendations in the AEMC's draft report are provided below.

2. Wholesale Market Recommendations

2.1. Demand-Response Mechanism (DRM)

AEMO understands the concept and objectives of the proposed Demand-Response Mechanism (DRM) and is prepared to work with the AEMC and industry towards its implementation. AEMO proposes that if this recommendation is endorsed by the Standing Committee on Energy and Resources (SCER), then a period of detailed development using an expert working group will be required to structure the rule change proposal and subsequent procedure amendment. AEMO is willing to provide technical advice to such a group.

Registration

AEMO agrees the activity will require explicit recognition through a registration category. There are many potential options for doing this, with implications for administrative complexity, legal relationships, participant fees and other matters. The draft paper has suggested a sub-category of Market Generator. Another option would be to register this activity under the same category as that being proposed for the provision of unbundled ancillary services.

AEMO suggests the actual selection of registration category is a matter for detailed consideration, with AEMO assistance, but needs to be before the National Electricity Rule is drafted and submitted to the AEMC for consideration.

Settlement Design

Settlement of the DRM will require careful design. It could either be implemented within AEMO's Metering Settlements and Transfer Solution (MSATS) or through external data adjustments by Metering Data Providers. The optimal design will however depend upon the details of the mechanism, allocated roles and the expected usage level of the DRM.

These design considerations would be appropriately led by AEMO, with input from the expert working group. An implementation timeframe cannot be defined until the design is complete.

Baselining

The primary concern for the DRM will be gaining market confidence in the baselining algorithms. Care will be required to ensure retailers are not exposed to the risk that the DRM over-estimates customers' baseline consumption. It will need to avoid unintended incentives, such as artificially increased consumption during the sampling intervals.

The derivation of baselining algorithms will be unavoidably contentious. AEMO recognises that it is well placed, in terms of independence, expertise and data access, to manage a consultative process toward their preparation. However, AEMO is also concerned to ensure that the National Electricity Rules establish a robust governance arrangement for the baselining process, so that it provides clarity and certainty to the parties that will be depending on it as a basis for trading and operational decisions.

Implementation

In its final report, the AEMC might be able to assist progress by laying out an implementation plan. Subject to SCER endorsement of the concept, the key stages, in sequence, appear to be:

- Formation of an expert working group to design the mechanism.
- Scoping of the structure and likely scale of the DRM.
- Identification of the appropriate registration category and governance of baselining algorithms.
- High-level design of settlement structure.
- Preparation and submission of the National Electricity Rule Change.
- Development of baselining algorithms.
- Detailed design and implementation of settlement arrangements.

12. Participation in the wholesale market:

(a) Do stakeholders agree that the proposed demand response mechanism is likely to result in efficient consumption decisions by end-users? If not, are there any changes you recommend to the mechanism to facilitate this?

(b) On balance, is a new sub-category of market generator required for consumers providing a demand that enables aggregation? What types of issues should be considered when developing the registration process?

See discussion above. There are many design issues to be dealt with, including registration categories, which could be considered by an expert working group after SCER has indicated support but before the National Electricity Rule change is submitted.

13. Consumer baseline consumption:

(a) What factors should be taken into consideration when developing a baseline consumption method?

(b) Have we identified the correct three key principles for developing a baseline consumption method (data refresh, accuracy, metering)?

AEMO considers that the identified key principles are important. AEMO also suggests:

- Avoiding unintentional incentives to distort efficient consumption during sampling periods.
- Ensuring DRM events included in the baseline represent genuine events of demand response rather than natural variations in demand.

This second point would be logically driven by ensuring settlements of DRM events are only made where they represent genuine events of demand response. This could be implemented by requiring service providers to advise AEMO of DRM actions ex-ante or in real time. The incentive to falsely claim action in cases where the changes in consumption were solely due to natural variation would be removed if there were symmetrical charging arrangements for above and below baseline consumption during the notified period.

(c) Are there any substantial changes to metering and settlement arrangements required for this mechanism to be implemented? Can these issues be resolved through AEMO's consultation process and procedures or are broader amendments to the rules required?

There are many design issues to be dealt with, including metering and settlement arrangements, which could be considered by an expert working group. It would be best to gain a high level structure for these before the National Electricity Rule change is submitted, although the detailed design could be managed by AEMO's procedure change process.

2.2. Incorporating demand response into central dispatch processes

AEMO appreciates the AEMC's consideration of this important issue, however AEMO considers that the issues associated with the role of the demand-side in central dispatch should be considered separately from whether the proposed DRM mechanism should proceed.

AEMO already observes a significant demand side response, especially by some large industrial loads, on days of high demand and high prices. While we can observe that behaviour, no end-user who responds to wholesale price is presently participating in central dispatch. Participation in central dispatch, where possible, would lead to more efficient dispatch and pricing and hence potentially be beneficial to all participants in the market currently. Market-wide benefits include providing:

- better forecasts in all timeframes, thereby improving information to market participants allowing them to make better decisions and more efficiently deploy their resources.
- a more accurate, real-time indication as to the level of demand-side response that is currently available, assisting AEMO in its functions of managing power system security and reliability, and lessening the chance of unnecessary intervention by AEMO, and, at the extreme, unnecessary load shedding.
- a more stable price and dispatch outcome, as demand-side response participates in the process of setting the marginal price. When non scheduled load responds to a high five-minute price, the response is not observed by the dispatch engine until the next dispatch interval. This will cause the price to fall, perhaps below the level the load expected as reasonable recompense for reducing its demand. This could then cause the price to oscillate as these loads come in and out of the market.

These benefits would accrue now and would be increasingly important as more load becomes price responsive In this respect the DRM does not, of itself, bring in a new issue albeit it may exacerbate an existing one. If the scale of price responsive demand increased significantly and there were more large blocks of load response activated at the same time, it is possible that system security might be jeopardised without those service providers participating in central dispatch.

14. Incorporating demand response into central dispatch:

(a) Do you agree that similar arrangements for generation should apply to demand resources in terms of thresholds for registering as scheduled or non-scheduled basis?

For the power system and market, the role of price-responsive load and generation are identical. From a broad design perspective therefore, there is no reason for differing thresholds.

(b) What are the ways in which the regulatory arrangements can be adapted to facilitate the participation of scheduled and non-scheduled load in AEMO's central dispatch process? Are there any specific changes to reporting, telemetry and communication requirements?

It is true that the metering and registration and bidding arrangements necessary to participate as a scheduled load are significant and it is clear that loads will not voluntarily take these obligations upon themselves for negligible private benefit. The burden and cost however is no higher than that which applies to generation, much of which might similarly opt-out of central dispatch were it not mandatory.

There is clearly a relevant cost/benefit consideration as to whether price-responsive supply or demand should be obliged to participate. For example, it is not necessary to oblige a very small load, or a very small generator to become scheduled. The relevant threshold, however, is scale but not technology. That scale needs to be mapped to the actual generation or load managed as a single block.

The central dispatch process is currently well matched to the needs of generation, and was recently modified to increase its accessibility to semi-scheduled plant such as wind generation. In a similar vein, if there are specific matters that can be identified to make it more accessible to scheduled loads, then such changes could be considered. It would be important to note however, that if participation in central dispatch remains optional there is no guarantee of any changed processes being taken up. Therefore before investing in such an effort, there would need to be some certainty that the new arrangements would be mandated for some plant or in some future time.

(c) *Should both market and non-market loads above a certain size be required to provide information to AEMO regarding their controllable (and therefore interruptible) load blocks?*

The distinction of being classified as a *market* or *non-market* load should not be relevant to the question of information provision to AEMO, the key question is one of size and operation.

(d) *Should there be a trigger in the monitoring and reporting framework that requires consumers to provide greater detail regarding their demand resource to AEMO or affected DNSPs?*

There appears to be two lines of activity:

- Investigation into the scheduling arrangements in order to lower the cost burden for becoming a scheduled load followed by a mandation to become scheduled at a similar threshold to generation. Once a load has become scheduled, there would appear to be adequate information flows to AEMO.
- Improving the flow of information from non-scheduled loads, where it is not mandated or is below the threshold. For this the section below discussing obligations to provide demand-forecast information to AEMO is appropriate.

Data may be required by DNSPs in some situations and this should be addressed with them.

2.3. Reporting Requirements for Demand Forecasting

15. *How should AEMO's powers be expanded to improve demand forecasting? Should retailers and other market participants be obliged to provide information regarding DSP capabilities? Will non-obligatory requirements achieve the desired accuracy in reporting requirements?*

AEMO welcomes the draft report's consideration of these matters and supports the recommendation for a broad based provision clarifying the obligations upon AEMO to include allowances for demand-side[1] response in its forecasting processes and for the managers of demand-side response to provide such information to AEMO.

The benefits of accurate load forecasts are well laid out in the draft report's rationale[2]. It should be noted that these benefits are all public benefits, whilst the costs of providing the information are entirely private. AEMO agrees that the private costs are likely to be outweighed by the public benefits.

A useful learning through the Power of Choice review is that networks, along with retailers and aggregators, are an important source of information about non-scheduled demand and generation response, by way of their:

- Direct control of small generators and loads in order to manage network congestion.
- Impact upon consumption when invoking critical peak pricing.

It is important that this information be fed through to AEMO, as soon as a decision is made to invoke the response so it can be used to inform demand forecasting processes.

It is also important that with any obligation to provide information, there is the ability to monitor compliance. The rule should also oblige the provision of metering identifiers, and permit these to be cross referenced against all actual metered responses.

17. *Would a pre-dispatch that includes active and price-responsive DSP improve decision making processes for C&I users and aggregators? If not, do you have any other suggestions for improving the ability for AEMO to accurately forecast demand?*

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[1] In this case "demand-side response" should be read to include non-scheduled generation and non-scheduled load that is responding to wholesale prices or an instruction from an industry participant.
[2] Section 5.6.2

An effort is made to include a value for non-scheduled demand-side response in AEMO's medium and long-term forecasting derived from an annual survey, but the demand-side is presently absent from AEMO's short-term forecasts such as pre-dispatch. AEMO agrees with the AEMC's concern that AEMO should attempt to represent demand-side response across all timeframes.

To gain value from demand-side response in the short-term forecasting timeframes will also require price elasticity information, i.e. at what price is the response likely to be invoked. The "dummy bidding" process described in Box 5.3 would be a practical way for AEMO to represent such load. Note that representing the elasticity in this way will require some interpretation by AEMO, and such dummy-bids may even set price in some predispatch intervals. It however would not be used in real-time dispatch, and so should not have any effect on price. The benefits of a generally more accurate forecast would appear to outweigh any concerns regarding AEMO's role in representing customer behaviour.

2.4. New category of market participant for non-energy services

15. *Do you agree that a new category of market participant should be established for the provision of non-energy services?*
16. *What types of issues should be considered when developing the registration process, such as eligibility, obligations and liabilities?*
17. *What metering arrangements need to change to implement this mechanism?*

AEMO concurs with the draft report's recommendation that the provision of ancillary services from a load can be unbundled from energy services supplied by the load's retailer. The challenge in implementing this recommendation appears to mostly lie in deciding a practical way to register the function. At this time AEMO has not formed a view to these questions, and suggests convening an expert working group, including the market institutions, aggregators and retailers, to determine the best approach. Whilst considering a new participant category, consideration should be given to whether this new category could also be extended to the demand-response mechanism.

It may be appropriate to combine the implementation of this concept within the implementation program for the demand-response mechanism.

3. Metering and data recommendations

AEMO understands that the AEMC are proposing that ownership of energy and metering data should lie with the consumer, and that they should therefore have reasonable access to this data.

3.1. Data format

1. *What should be the minimum standard form and structure of energy and metering data supplied to consumers (or their agents)? Should these arrangements differentiate between consumer sectors (ie industrial/ commercial and residential)*

As this data is supplied to consumers, the data format should be simple and accessible enough for a broad range of consumers to be able to use it. The data format should, where possible, be based on existing data fields.

The arrangements could vary between sectors if they are purely contractual arrangements between retailers and their customers. Again, it would have to be based on existing data fields unless major data format change process happens across the industry.

Provision of data to consumers is already occurring where interval metering is in place. Either through arrangements with their energy retailer or direct agreement with the metering data provider, many consumers who have remotely read interval metering currently access detailed breakdowns of their energy consumption. This provision of data is occurring without any obligation on retailers or service providers to do so, demonstrating the service innovation created by market forces in contestable service provision. For consumers with accumulation meters, the bill from their retailer provides consumption for the current period and some historic information - reflective of the limited scope of data available to the retailer through the reading cycles. Consideration should be given to how necessary a minimum standard form and structure of energy and metering data is should the metering services market become contestable

2. *When do you think it is appropriate for a retailer (or responsible party) to charge a fee for supplying energy and metering data to consumers or their agents?*

Given the principle is that the data belongs to the customer, any charges to consumers or their agents should only reflect the cost of providing the service rather than the value of the data.

Where the retailer/responsible party is providing a service at a specific service level, they should be able to charge an appropriate fee recognising the associated costs. The AEMC might consider obtaining information on the current costs for providing detailed energy information to consumers who have remotely read interval meters.

3. *Do you agree that general market information should be published on consumer segment load profiles to inform the development of DSP products and services to consumers?*
4. *Is AEMO the appropriate body to publish such information, or should each DNSP be required to provide such information particularly where data will be at the feeder level where accumulation meters are installed?*

AEMO does not have access to all of the data required to publish this profile information. AEMO data is only referenced by NMI, and has no link to actual customers or classes of customer. As such AEMO would not currently be able to produce this profile. Retailers may be better placed to provide this information.

3.2. Meter functionality

7. *Should the minimum functionality specification for meters be limited to only those functions required to record interval consumption and have remote communication? Alternatively, should the minimum functionality include some, or all, of the additional functions specified in the SMI Minimum Functionality Specification?*

As stated in AEMO's submission to the Electric and Natural Gas Vehicles Review, AEMO is of the view that by requiring all meters to have certain specified functionality that may be used immediately may "future proof" these meters for a marginal increase in the initial cost of 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 numerous arrangements without requiring a meter change or truck visit, thus reducing risk of stranded assets and uneconomic service provider visits. However it could be argued that this position is only relevant to a mandated installation and a different position is required for a market driven meter rollout with metering service contestability.

There is a concern that increases in minimum specification have to be paid for by someone and if they are underutilised (i.e. zigbee chips in meters), consumers may end up paying for features that do not deliver benefits. Full contestability of metering service provision should in itself provide the incentives for interested parties to deploy metering technologies that have a limited risk of being technologically obsolescent. Particularly where the model deployed places the financial risk of technology obsolescence on parties other than the consumer (i.e. the metering provider / retailer). In this case, the minimum functionality mandated could be limited. In all cases, however, there should at least be standardisation in the interface requirements to provide for at least a minimum level of inter-operability.

AEMO also considers that while the new technologies have 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. Setting a level of minimum requirements that are greater than the requirements for a current remotely read metering installation and thereby increasing the cost of metering could act as a disincentive for adoption of advanced metering technology

It would thus be prudent to find a balance for the minimum functionality specified, and it should be limited to interface specifications and functions that are most likely to be used by the majority of consumer.

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3.3. Metering services

This proposal seeks to facilitate customer choice in the metering equipment they use, and in the service provision related to the metering installation.

8. *Does the separation of the provision of metering services from retail energy contracts remove the need for meter churn when a consumer changes retailer? Does this cause any unforeseen difficulties or create any material risk? Are there any alternative approaches to reducing the need for meter churn?*

The issue here is the choice is between opening up the provision of metering services to any approved provider or making the local network distribution businesses the exclusive provider. The report recommends a possible model where the retailer is mainly responsibility for metering services, and can contract with any approved metering provider. The exception to this is where the consumer has actively decided to contract directly with a metering service provider (e.g. electric vehicle or DSP provider).

The proposed framework enables the customer to retain their meter in most cases when the change retailer, reducing meter churn and stranded assets.

The report also recommends that the network business could/should continue to have the ability to do a targeted roll out of smart meters in its territory, as part of its DSP programs.

The report recommends that the:

- National Energy Customer Framework (NECF) is amended to make it clear what arrangements apply to third parties providing “DSP energy services”. The criteria could include the circumstances where accreditation (or exemptions) of parties is required and the relevant provisions of the NECF that would apply (ie marketing rules, and the relevant enforcement and monitoring provisions).

- National Electricity Rules and NECF are clarified to outline the conditions when a distribution network business can engage directly with consumers to offer DSP network management services. This may involve establishing appropriate guidelines/process for the Australian Energy Regulator to apply and outlining which elements of the NECF apply.

AEMO notes that this proposal recognises that as technology and service offerings continue to evolve, the ability for a consumer to select their service provider/s and the services they wish to access is important. AEMO considers that full contestability of remotely communicated interval metering will act as an enabler of services as opposed to a barrier, encouraging technology providers to enter the market.

Some overseas models demonstrate that where the consumer has the ability to receive metering services separately from retail contracts, the vast majority of consumers initially access enhanced metering services through arrangements with their retailer. Subsequent changes of retail contracts do not necessitate meter churn where the installed metering is able to provide the services being offered by the incoming retailer; the risk of asset and service displacement and cessation of associated revenue streams providing the commercial drivers for independent metering providers to contract for the provision of services with multiple retailers, hence negating the need to churn metering equipment. Equally, the ability for a retailer to agree a contract with a consumer would be impinged should the costs of a meter replacement need to be factored into such an arrangement. Nonetheless, in a contestable market where a meter provider is unable to meet the cost, service or quality requirements to support the consumers new arrangements, it is appropriate that the metering provision is upgraded or changed.

9. *Are there sufficient potential metering services providers to facilitate a contestable roll out of AMI? Does the proposed model mitigate all the material risks of a contestable roll out? If not, should a monopoly roll out be adopted?*

Developments in far smaller and more complex markets have demonstrated the interest and ability for multiple parties to engage in contestable smart meter service provision. The current Type 1-4 contestable metering provision market has provided the incentive for existing metering providers to determine their interest in commercial operation outside of their regulated metering arm, in addition to supporting new entrants to the market.

Additionally, the Victorian distribution network service providers have already invested in systems and processes that have the potential to be leveraged outside of their jurisdictions, should they have the opportunity to do so and evidence in overseas markets shows that tenders for smart meter service provision are well supported.

10. *What should the exit fee when a consumer upgrades it meter from one provided by the local distribution business? Is the proposed fixed 30% of the cost of a replaced meter appropriate?*

Any exit fee would need to accurately reflect the average remaining book value of the removed asset(s) and the costs of handling and disposal. However, the concept of an exit fee would only be valid where the party currently managing the legacy services was unable to compete for contestable service provision. Further to this, once the current costs of legacy metering service provision have been determined and separated from DUoS charges, moving the metering service provision into an unregulated revenue stream would provide the incentives for the current metering service providers to determine their interest in maintaining their current legacy services and developing smart metering offerings for the contestable market; similar to what has happened in the contestable Type 1-4 metering market within the NEM.

This approach would allow current providers of legacy services to consider an investment in smart metering as a replacement revenue stream for their legacy services, as opposed to a new venture start up, placing them in a position to continue to offer legacy services at a reasonable/capped cost despite material displacement of their legacy base, as their own internal resources and systems move from one model to the other over time.

Despite the implementation of an exit fee arrangement, if the legacy service provision continues to be treated as regulated revenue, the fees for providing services to consumers that are still accessing these services are likely to increase exponentially over time, as legacy assets and associated services are displaced for other consumers.

11. *Does the option of a government mandating an AMI roll out within its jurisdiction act as a strong disincentive to a commercial roll out? Should the ability for these governments to mandate an AMI roll out removed from the NEL?*

If a jurisdiction took the option to mandate a rollout in the future and that rollout program was poorly designed, it could severely impact on customers and service providers who had voluntarily installed a smart metering system. On the other hand, there may be good reasons for a jurisdiction to undertake a mandated rollout at some time in the future. Ideally any such rollout should be designed to respect the commercial decisions taken and the investments made in good faith. t.