Ref: [Reference]

31 January 2019

Mr Owen Pascoe
Director
Australian Energy Market Commission

Dear Mr Pascoe

Essential Energy response to consultation paper on regulatory sandbox arrangements

We welcome the opportunity to provide feedback on the consultation paper on regulatory sandbox arrangements to support proof-of-concept trials. The ability to trial innovative technologies and ascertain appropriate business models for scale deployment will become increasingly important over the coming decades as the pace of technological change and digitisation expands.

Essential Energy welcomes the consideration of ways to introduce more flexibility into the regulatory framework. We note that the scope of what would be covered under the proposed sandbox arrangements includes testing of new business models and broader regulatory changes or changes to market design. However, the examples provided in the consultation paper appear to be designed for proof-of-concept trials of innovative technologies.

Given the broad range of circumstances that regulatory sandboxes are expected to address, the design of the framework will need to be flexible and adaptable. In addition, consideration may be needed as to whether regulatory sandbox arrangements, as a way of assisting with transition, are suitable in all these circumstances. Other approaches and supporting mechanisms such as technical advice or transitional incentive frameworks may be needed.

Essential Energy's responses to the specific questions posed in the consultation paper are provided in Appendix A to this letter.

If you have any questions on this submission please contact Therese Grace, Regulatory Strategy Manager on 02 9249 3121 or by email at therese.grace@essentialenergy.com.au.

Yours sincerely

Chantelle Bramley
General Manager, Strategy, Regulation and Transformation

Appendix A: Essential Energy response to consultation questions

Question 1: Other sandbox examples

Are there other examples of regulatory sandbox arrangements that are relevant when considering these arrangements for the NEM?

Essential Energy response:

Essential Energy is not aware of any other examples of regulatory sandbox arrangements that would be instructive for this review.

Both the Ofgem and ASIC arrangements for regulatory sandboxes are designed for proof-of-concept testing of innovative products or services. Neither example appears to be designed to trial the roll-out of new business models or wider regulatory change.

Given this, the AEMC may need to consider the Ofgem or ASIC arrangements as a subset of the regulatory sandbox arrangements that may be required in the NEM to cover proof-of-concept trials for innovative technologies. These arrangements focus on whether the technology can achieve its stated objective and what applications the technology may be used for to address emerging issues in the market.

Further consideration and consultation are needed to design sandbox arrangements that may be suitable to test new business models and changes to market design or the regulatory framework. This is because:

- Testing new business models focuses on how established technologies can be delivered to customers in a manner that maximises benefits to all parties. This may require testing a number of different supply models, involving a range of stakeholders and comparing the results.
- Testing changes to market design or to the broader regulatory framework is likely to be led by market bodies rather than industry.

Essential Energy also supports consideration of complementary initiatives to regulatory sandbox arrangements including the provision of advice, funding of innovation and processes for knowledge sharing. From a network perspective, the issue of regulatory sandboxes should also be considered in conjunction with the work the Commission is doing on network incentives as part of the wider 2019 *Electricity network economic regulatory framework review.*[1]

Question 2: Other relevant trials

What other proof-of-concept trials are relevant when considering formal regulatory sandbox arrangements for the NEM?

Essential Energy response:

As the pace of technological change continues to increase there will be a greater need for trials to test both technology and innovative business models.

Energy companies have an incentive to innovate and use new technologies to improve efficiency and the service offering to their customers. However, as energy is an essential service, all aspects of the energy market are subject to rules and regulations to protect consumers. The regulatory framework was designed in an era of centralised generation and unidirectional flows on electricity networks and is now trying to adapt to the pace of technological change in the energy sector.

For electricity networks that are regulated monopolies and subject to economic regulation, there is an inherent tension between the need to invest in new technologies and protecting customers from undue risks and costs.

Internally many NSPs and other market participants undertake trials that are consistent with their business plans and strategy. Currently, these trials are not visible to the market and there is little

[1] The Commission approach to this review was outlined in the Approach Paper published on 17 January 2019.

transparency around what new technologies are currently being trialled and by whom. More stable and well-understood regulatory arrangements to facilitate trials may help parties to share the information gained through trials and avoid duplication.

Essential Energy has conducted several trials in recent years, these include:

'Networks Renewed' project:

In a partially-subsidised trial conducted with 30 customers in Collombatti north-west of Kempsey, Essential Energy used Reposit Power's battery software platform to bid for voltage support from participating customers with solar PV and battery storage systems.

The aim of the trial is to boost voltage support by 5.5 per cent to address the emerging constraint in the locality during times of peak load. From market stage tests to-date, local voltage was improved by 3.07 per cent and customers were credited for that support, helping to reduce their bills and pay off their home energy systems.

The market stage results have proven the potential benefit that aggregated small-scale renewables and battery storage can provide to the distribution network and, more broadly, to the National Electricity Market.

The trial has been designed around an open market approach, maximising customer choice, collaborating with emerging market participants and the potential future energy market. Subsidies have been used to reduce system costs today comparable to that likely to be seen over the next few years. Within the rapidly changing energy ecosystem, the key objectives of the project will help networks operate a best practice business in performance, efficiency, offering value to customers while maintaining downward pressure on network charges.

Stand-alone power system prototype:

Essential Energy has put in place a trial to test a stand-alone power system (SAPS) prototype. The aim of this prototype is to test the provision of energy via a SAPS to a customer in an area is subject to high rainfall and frequent storms. There are only two connection points on the line which traverses swampy and densely vegetated terrain making fault and emergency responses time-consuming and potentially dangerous.

The SAPS was commissioned on 18th May 2018 with a manual cut-over switch allowing the customer to select between grid and SAPS supplied power ensuring the customer is still connected to the grid in line with current regulations. To date, the SAPS performance has met the customer's expectations with the customer never operating the manual cut-over switch to revert to grid supplied power.

The SAPS prototype has been sized to meet an average site consumption of 8 kWh per day. This capacity exceeds the average historic load for the site however it allows Essential Energy to test the system under a wider range of simulated loads and scenarios.

While both of these trials have been successful in demonstrating the potential uses of new technologies, it is difficult to roll-out these technologies on a larger scale. The design of each trial has been tailored to the local need and much effort is taken in identifying suitable areas to test the technology in question. The issues associated with deploying new technologies at scale are provided in the answer to question 7 below.

Question 3: Barriers to proof-of concept trials

(a) Are proof-of-concept trials being inhibited by current market regulations or processes?

(b) If so, what are the potential barriers to proof-of-concept trials that might be addressed by a regulatory sandbox initiative?

Essential Energy response:

Yes, proof-of-concept trials are being inhibited by current market regulations or processes.

It is not possible to accurately quantify this as many trials do not proceed due to concerns regarding the trial being inconsistent with the current regulatory framework. The current process of applying for no-action letters from the AER is ad hoc, lacks flexibility and is opaque. This creates a regulatory risk for market participants and means that trials are not used as often as may be appropriate.

Even when a proof-of-concept trial does proceed, the current inflexibility in the regulatory framework adds costs and time to the trial process. The main costs that are incurred when conducting trials under the current regulatory framework include:

Legal advice:

The design of trials of new technologies usually involves the engagement on legal firms to provide an opinion on the legal and regulatory issues associated with the trial. This advice regularly adds over ten thousand dollars in costs to an innovation project, and sometimes in more complicated cases, considerably more.

Time taken to liaise with regulators:

As there is no agreed process to conduct proof-of-concept trials, the current framework requires multiple interactions with the regulator in order to:

- explain the intent of the trial and the technology involved;
- gain an understanding of the regulatory issues involved with the trial;
- agree on the appropriate course of action to take; a waiver, exemption or letter of no action; and
- agree on the scope and duration of the trial and have this included in the regulatory solution.

Design of the trial to fit regulatory framework:

Another issue that adds costs to designing trials is that often trials are designed to fit the current regulatory framework rather than to fully test the technology in question. This is done to avoid the need to engage with the AER to gain a waiver, exemption or letter of no action. Finding ways to test the technology in question, while complying with current regulations often takes time and adds extra cost to find an appropriate solution.

One example of this is the SAPS prototype that Essential Energy has conducted. To make this trial compliant with the regulatory arrangements currently in place a manual cut-over switch allowing the customer to select between grid and SAPS supplied power ensuring the customer is still connected to the grid. This solution added time and cost to the design of the prototype.

Question 4: Access to guidance on the regulatory framework

(a) Is there a lack of access to guidance for innovative new entrants on navigating the energy regulatory framework?

(b) If so:

- What type of guidance is needed?
- Who should provide it?
- Should guidance be coordinated across the AER, AEMO and AEMC?
- How should the provision of guidance be funded?
- Should an application be required in order to gain access to detailed guidance? If so, what criteria should apply?

(c) Is there a role for binding advice from market bodies on certain aspects of the regulatory framework to support proof-of-concept trials?

Essential Energy response:

Regulatory sandbox arrangements that provide advice to technology providers and market participants would be a welcome development in the NEM.

For new and emerging technology providers, the availability of advice may allow them to tailor their product offerings to the Australian regulatory environment. Many technology providers may be from other jurisdictions and may not be aware of the regulatory framework in the NEM. Alternatively, these technology providers may be start-up ventures that do not have regulatory knowledge or experience.

Having advice early in the development of the technology and associated product offering may allow these technology providers to partner with market participants more easily.

For existing market participants, including NSPs, the advice function may also be valuable for trials of new technologies. This is because it would identify all the regulatory issues at an early stage and this could be incorporated into the trial design and avoid the need for multiple interactions with the regulator.

Another potential advantage of the advice function is that it would allow the responsible party (and other market bodies) to gather market intelligence. The information received through requests for advice may provide insights into market trends and what technologies are currently being developed in the Australian market.

The guidance should focus on what elements of the proposed trial are inconsistent with the current regulatory framework and why.

The guidance should be provided by one body, in consultation with all relevant parties. This would avoid the need to engage with multiple parties and removes the risk that conflicting or inconsistent advice would be given.

Further detail is needed in order for Essential Energy to comment on who should provide the advice, the funding arrangements and the application criteria. This should be the subject of consultation with industry in the next round of this review.

This question is related to proof-of-concept trials of new technologies only. Further consideration will be needed as to what guidance may be appropriate for trials of new business models or regulatory change. The funding arrangements and body responsible for providing advice may also need to be different depending on the purpose of the trial. For example, if a market body wishes to trial change to market design market participants may require funding to participate.

Question 5: Trials under AER enforcement discretion

(a) Is the AER's ability to issue no action letters, provide waivers and exemptions, and use its enforcement discretion sufficient to facilitate proof-of-concept trials in the NEM? If not, why?

(b) Is there a need for a more formal process for proponents of proof-of-concept trials to seek a no action letter?

(c) Should no action letters that facilitate innovation or proof-of-concept trials be made public?

Essential Energy response:

The current arrangements whereby the AER is able to issue no action letters, waivers and exemptions is not sufficient to facilitate proof-of-concept trials going forward. As the pace of technological change continues to speed up the need for trials will only increase. This is evidenced by the number of trials currently underway in the NEM.

The current arrangements rely on the use of discretion and are case-specific. This represents a burden on both the AER and market participants. This is because there is no defined and well-understood framework that can be used to get the go-ahead from the AER to undertake a trial. The current arrangements require multiple interactions with the AER and may require the provision of information to the AER throughout the process.

There is also a lack of certainty in the current process.

- Waivers must be reapplied for regularly and can be revoked on short notice.
- Letters of no action are case specific and require a large degree of interaction and coordination with the AER to define the scope of the activities that are included under the letter of no action.
- Exemptions are rigid and are generally only used to provide exemptions for things that are not likely to change, for example the establishment of an embedded network.

Setting and agreeing the parameters of a trial, including the technology to be tested, the length of the trial and the intended outcomes and learnings at the outset would provide more confidence to market participants and incentivise the use of trials.

Question 6: The need for a formal regulatory sandbox

(a) Would formal regulatory sandbox arrangements, where some regulatory requirements are relaxed on a time-limited basis whilst appropriate safeguards remain in place, serve to better facilitate proof-of-concept trials in the NEM?

(b) What other regulatory tools are needed to facilitate proof-of-concept trials?

Essential Energy response:

Yes, formal regulatory sandbox arrangements could serve to better facilitate proof-of-concept trials in the NEM.

More formal arrangements would provide more certainty for market participants to conduct trials by providing:

- advice at an early stage to identify the regulatory issues associated with the proposed trial;
- clear and documented criteria for projects that qualify for the sandbox arrangements;
- a well-understood process for use of the sandbox arrangements; and
- clear responsibility for decision-making regarding the sandbox arrangements.[2]

This process can follow the example of that used by Ofgem for trialling of innovative technologies. Further consideration is needed as to whether the use of a regulatory sandbox is appropriate to test new business models or wider regulatory reform and changes to market design and, if so, what these sandbox arrangements should look like.

Question 7: Design of a formal regulatory sandbox arrangement, if required

(a) If required, should the objective of the formal regulatory sandbox arrangements be to facilitate further proof-of-concept trials in the NEM? If not, what should the objective be?

(b) If required, what metrics should be used to measure the success of a formal regulatory sandbox arrangement?

(c) If required, what should be the high-level criteria for accessing a regulatory sandbox arrangement?

(d) How could fairness be addressed in the case where proponents of similar trials apply to access sandbox arrangements but only a limited number of trials can be accepted?

(e) If required, what should be the key features of a formal regulatory sandbox arrangement for the NEM?

- What regulatory arrangements should be within scope for relaxation?
- What should be the safeguards for consumers?
- What obligations should be placed on the participants (e.g. knowledge sharing requirements)?

Essential Energy response:

The objective of regulatory sandbox arrangements should be to encourage innovation in the NEM. Having an objective that is focussed on increasing the number of trials being conducted may lead to a framework that does not provide value for money for consumers.

It may take some time for the results of regulatory sandbox arrangements to be seen in a measurable way. Innovation often does not produce the expected outcomes but the learnings from proof-of-

[2] Coordination between market bodies and other relevant parties may be required for the sandbox arrangements but ultimate decision-making responsibility should rest with one designated party.

concept trials can have unexpected and long-lasting impacts. Care should be taken in prescribing metrics for the success of regulatory sandboxes for these reasons.

There are a number of potential design options for the regulatory sandbox arrangements that could deal with the issue of requests for similar trials at the same time:

- Applications for the use of the regulatory sandbox could be done based on expressions of interest from industry. The body with responsibility for the sandbox arrangements would then judge each application on their merits and decide which trial should proceed.
- The body responsible for the regulatory sandbox could call for submissions in themed rounds (for example, demand response or storage), this is similar to how ARENA allocates funding.

There are advantages and disadvantage to both options.

If the arrangements were based on expressions of interest, they may not be sufficiently transparent. Market participants would not have visibility on other projects that have been submitted and the decision-making process to determine which trials go ahead would need to be explained.

If, on the other hand, the projects that get access to regulatory sandbox is through themed rounds, projects that are focused on issues or technologies that are outside the area of interest may not get to use the arrangements.

It seems reasonable that market participants that avail of the regulatory sandbox arrangements should be subject to some requirements to share the learnings from the trial with industry. These requirements should not be overly onerous or require sharing of commercially sensitive information. The knowledge sharing arrangements used by ARENA may be instructive in this regard.

Further consideration and consultation are needed to determine what the appropriate arrangements would be in a NEM context.

Sandbox arrangements that focus solely on proof-of-concept trials of new technologies may not be sufficient to provide regulatory certainty for market participants who wish to deploy new technologies on a larger scale.

As noted above the trials Essential Energy have conducted so far have been limited in scale and scope. If the aim of regulatory sandbox arrangements is to include roll-out of new business models or technologies consideration should be given to specific issues related to deployment at scale.

These include:

- costs involved in integrating a new technology into existing systems may be significant;
- it is difficult to identify areas where the technology may be suitable to meet an identified need given the lack of information available;
- additional investment may be required to deploy the technology to a wider geographic area, for example additional network monitoring or equipment may be required.

It may therefore be difficult to justify investment to deploy innovation at scale, especially for networks under the current regulatory framework. Regulatory sandbox arrangements that are sufficiently flexible to address the above issues are welcome but will require further consideration.

Question 8: Trialling innovative regulatory processes

How could formal regulatory sandbox arrangements be used to trial changes to regulatory arrangements to guide adoption of reforms across the market?

Essential Energy response:

Essential Energy encourages consideration of how regulatory or market design changes can be trialled through sandbox arrangements. However, the design of these arrangements would require further consideration.

Trials of new regulatory arrangements are likely to be different to proof-of-concept trials for the following reasons:

- they are likely to be initiated by a market body, rather than industry;
- the scope and timing of the sandbox may need to be different, depending on the regulatory change being tested a long trial period may be required;
- there should be clarity as to how the results of the trial will be evaluated and used to inform regulatory changes; and
- criteria for what market participants participate in the trial would also be required, this is required so that participants in the trial do not have undue influence on the regulatory change in question.