

12 April 2018

Mr John Pierce
Chairman
Australian Energy Market Commission

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Brisbane QLD 4122
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Dear Mr Pierce

Register of distributed energy resources

Thank you for the opportunity to comment on the Australian Energy Market Commission's (AEMC) Consultation Paper on the COAG Energy Council's Rule change request to establish a Distributed Energy Resources (DER) Register.

The energy market is undergoing a major transformation, characterised by changes that include significant and on-going growth in DER. As noted by the COAG Energy Council, Bloomberg New Energy Finance projects that 100,000 batteries could be installed by 2020, and one million by 2030. Under the current regulatory framework, AEMO would have no accurate visibility as to where this generation / load is located or how much supply it could represent in aggregate.

AEMO supports the Energy Council's proposal to improve the collection and sharing of information about DER in the National Electricity Market (NEM), in the form of a Register to be implemented and maintained by AEMO. AEMO agrees with the Energy Council that a DER Register would contribute to improved security and reliability of the power system through greater visibility of these systems.

This submission presents AEMO's views on the need for improved DER information and the data collection, provision, compliance, privacy and access regime, before addressing the need for a flexible regulatory framework. Attachment 1 presents our comments in response to each of the questions posed in the Consultation Paper.

The need for improved DER information

AEMO requires enhanced DER information to support our operational processes to manage power system security. As mentioned in the AEMC's Consultation Paper, AEMO released a [Visibility of Distributed Energy Resources report](#) (January 2017) providing AEMO's view on the importance of visible and accurate DER data. The report identified AEMO's broad data requirements including information about as DER location, capacity, and the technical characteristics of the systems, in particular in the inverters interfaced to the network.

In AEMO's view, and emphasised in the *Visibility of Distributed Energy Resources* report, the proposed DER Register would contribute to the following:

- Improved forecasting of load;
- Improved response to load;
- Better data accuracy and more accurate modelling; and
- An improved dispatch of generation at levels that balance demand and supply.

AEMO's current application of distributed solar PV information best illustrates how the broader application of DER data could be utilised in power system operational practices. This is detailed in section 4.1.1 of the *Visibility of Distributed Energy Resources* report.

Current information gaps affect all AEMO operational processes, from real-time dispatch to longer-term planning. Further detail about the need for visibility of DER data and the operational processes that require such data is available in the *Visibility of Distributed Energy Resources* report.

Collection of DER data

In AEMO's view, developing the data collection system will require close collaboration between AEMO, DNSPs and other involved/affected parties. To maximise coverage and accuracy while minimising cost, key principles in building the collection process should include:

- Harnessing existing systems and processes while embracing innovation and technology to streamline these processes. This includes DNSP data collection frameworks and potentially third-party data collection applications such as those utilised by the Clean Energy Regulator;
- National uniformity to enhance installer useability;
- Reducing burden/cost to installer/consumer;
- Potential for incentives to consumers, installers and Participants;
- Link to installer accreditation programs to drive compliance;
- Automation, such as linking to a national database of micro-generator/inverter/battery manufacturer/model specifications to minimise manual data entry.

Data provision and compliance

The integration of DER data in the form of a DER Register would represent a significant improvement over current approaches. While 100 per cent data submission and accuracy is optimal and the level of data completeness will have a proportionate impact on the forecast error applied in AEMO's models, there is still considerable value to AEMO (and DNSPs) from a less complete data set.

AEMO expects data sets to improve over time as additional parties, such as aggregators and Metering Coordinators, visit sites or become involved in the installation and installers become familiar with the data collection process. Demonstrating the value-add of having the data may also provide additional incentives to all parties. To maximise the benefit of incomplete data while the Register evolves, AEMO would look to combine the information with other data, such as metering data, and use back-casting and sampling techniques (as is applied with distributed solar).

A flexible regulatory framework

AEMO strongly supports the Energy Council's position that the principles identifying the types and capacity of DER for inclusion in the Register should be broadly established in the NER, with an AEMO Guideline specifying DER systems and data to be collected. As proposed by the Energy Council, the regulatory framework would specify with whom AEMO can share data while requiring DNSPs to collect and provide to AEMO information about DER connected to the network.

Applying such a principles-based approach in the NER would enable the DER collection framework to evolve flexibly as different types or classifications of DER systems emerge alongside new data streams, capabilities and response modes. This flexibility in the Register's framework is imperative to enable the market to keep pace with technological developments, innovation and market dynamics.

Privacy and third-party access

Rule 7.15.5(a) sets out who presently has rights to access the various types of data associated with a metering installation. The COAG Energy Council released a draft report considering how best to facilitate timely access to consumption data by third party service providers (Facilitating Access to Consumer Energy Data, March 2018). As part of that consultation, the Energy Council is considering privacy matters.

AEMO strongly favours one, consistent access framework for the DER register and broader standing and meter data by third party providers. AEMO encourages the AEMC to have regard to this work in considering privacy and third-party access matters.

A DER Register is a valuable addition to an evolving energy market and I look forward to working with you and your team as you progress this Energy Council Rule change request.

If you would like to discuss the contents of this submission further, please do not hesitate to contact Violette Mouchaileh, Group Manager Market Enhancement, on 03 9609 8551.

Yours sincerely



Peter Geers
Executive General Manager, Markets

cc:

Attachments: Table responding to AEMC Consultation Paper questions



Attachment 1 Stakeholder feedback template

The template below has been developed to enable stakeholders to provide their feedback on the questions posed in this paper and any other issues that they would like to provide feedback on. The AEMC encourages stakeholders to use this template to assist it to consider the views expressed by stakeholders on each issue. Stakeholders should not feel obliged to answer each question, but rather address those issues of particular interest or concern. Further context for the questions can be found in the consultation paper.

Organisation:

Contact name:

Contact details (email / phone):

Questions		Feedback
Chapter 4 – Assessment framework		
1.	Is the assessment framework appropriate for considering the proposed rule changes?	Yes
2.	Are there other relevant considerations that should be included in the assessing the proposed rule changes?	Refer to AEMO's submission
Chapter 5 – Section 5.1.1 – Benefits of a register		
3.	What are the likely uses of a distributed energy resources register?	Refer to AEMO's submission
4.	How, and to what extent, could the static information provided by a DER register meet the objectives outlined by the COAG Energy Council, namely:	Refer to AEMO's submission
	a) more accurate load forecasting?	

Questions		Feedback
	b) improving AEMO's ability to manage power system security during credible contingency, protected and non-credible contingency events?	
	c) improving AEMO's ability to set the bounds of the technical envelope at an efficient level?	
	d) improving efficient market and network investment?	
5.	Are there any other ways that a distributed energy resources register could benefit the National Electricity Market?	<p>By encouraging DNSPs to continue integrating DER data into their BAU practices. The ENA's Electricity Transformation Roadmap found that by 2050 \$16 billion in network infrastructure investment is avoided by management of distributed energy resources like solar and batteries; and that Networks pay distributed energy resources customers \$2.5 billion per annum for grid support services. In order to harness these opportunities visibility of DER is required.</p> <p>With the appropriate access to data and flexibility provisions built in, the Register will also support innovation and underpin new markets; in-turn delivering improved services for customers (as outlined in AEMO's submission).</p>
6.	What features does a register need to have in order to meet the objectives outlined by the COAG Energy Council?	<p>Given the rapid pace of change in the sector it is essential the framework has sufficient flexibility, while maintaining consumer protections, to capture new technologies into the database and to enable innovative applications of the data in operating the power system and maintaining security of supply.</p> <p>If AEMO or DNSPs use of the data is constrained to a specified 'list' of current power system management practices this will hinder innovation and in-turn efficiencies in the market. AEMO recommends the framework be clear that AEMO is able to apply the data for the purposes of operating the power system and maintaining security of supply.</p>
Chapter 5 – Section 5.1.2 – Expected costs		
7.	What costs do you believe would likely be involved in the collection of useful data about DER?	AEMO estimates it will cost approximately \$1.1 million to establish the DER Register, subject to final design of the collection process. On-going annual costs are estimated at \$150 000.

Questions		Feedback
8.	Do you agree with the costs identified by Jacobs for different stakeholders? If not, why?	-
9.	Are stakeholders able to provide data or case studies that would support further quantification (in monetary terms) of any of costs likely to manifest?	-
10.	How might the nature and magnitude of these potential costs change over time?	Improvements in technology should over time enhance the collection process and systems and mitigate on-going collection costs.
Chapter 5 – Section 5.2 – Governance		
11.	Please comment on the suitability of the following:	
	<p>a) Should 'small scale' systems be limited to generation systems below 5 MW? Should any further limitations be imposed (e.g. a minimum capacity or a threshold in MWh for energy storage)?</p>	<p>For 'small scale' systems the DER Register should capture generation and demand responsive load under 5MW, without specific or detailed category limitations such as those suggested imposed.</p> <p>As detailed in AEMO's submission, flexibility in the DER Register's framework is key to encouraging innovation and driving new services. As the power system evolves, AEMO and DNSPs will need to respond rapidly to change and be able to quickly integrate new types of DER, new markets or new emerging impacts of DER into operational practices. AEMO thus supports COAG's proposal the Register's framework provide sufficient flexibility to accommodate new technologies and innovation; in that principles of DER (ie generation and demand responsive load under 5MW) are outlined in NER, but AEMO is able to list the specific generation and load (the DER) captured by the Register in a guideline following industry consultation.</p> <p>Most generation above 5 MW is already captured by existing regulations. As such, the Register should not attempt to capture most plant above this capacity.</p> <p>However, AEMO also recommends information regarding larger scale, exempt generation facilities, is also gathered by the Register. AEMO notes that there are some larger systems that have been granted exemption from registration due to the fact that they export a limited amount of energy and sell to a local retailer. Given there is limited information presently available for</p>

Questions		Feedback
		these types of systems we recommend that the Register should capture this form of DER as well. This could be implemented in association with data submission obligations as discussed in question 16. Such integration is considered to be an efficient form of capturing data rather than introducing an additional register for such a purpose.
	b) Is the NER definition of 'connection point' an appropriate spatial demarcation for 'behind the meter' DER? If not, what is an appropriate spatial demarcation for 'behind the meter' DER?	<p>AEMO considers the DER Register should not be constrained to 'behind-the-meter' DER or 'connections points', but should operate under a framework designed to record the 'existence' of DER <5MW.</p> <p>As the growth of <5MW DER proliferates the systems will in aggregate be able to impact the power system in a similar manner to utility scale plant; regardless of whether or not the DER is "behind-the-meter", "co-located with consumer load" (as noted in question 11 (c) below) or at a household or business premises (as raised as a framework option in the AEMC's Discussion Paper). AEMO will thus need visibility of all DER <5MW to incorporate into operational practices, for the reasons and purposes as detailed in our submission.</p>
	c) Is a 'distributed energy resource' " <i>an integrated system of energy equipment co-located with consumer load</i> "? If not, what else could it be characterised as?	As a starting point for broader industry consultation, DER is any form of energy resource that is not formally registered as a generator, [potentially connected to a distribution network], but can be utilised to generate, consume, shift or offset load.
12.	Regarding the management of a DER register:	
	a) To what extent should the types and capacity of DER eligible for inclusion in the register be defined in the NER or in an AEMO guideline?	<p>AEMO supports the Rule change proposal as recommended by COAG; in that the NER should establish DER size thresholds and outline the principles of DER systems to be captured by the Register. AEMO should then be required to consult on and publish a guideline that specifies the exact types of DER systems included in the Register, and the specific data to be collected.</p> <p>This framework provides flexibility that is vital to the on-going operation of the Register and the power system. It will enable the Register to capture new technologies and data streams as they</p>

Questions		Feedback
		are developed, and in-turn allow power system operations to keep up with the rapid pace of change in the energy market.
	b) Should the nature of the information being collected and recorded in the register and any other requirements, such as how often parties need to report the data, be determined in an AEMO guideline?	Yes, for reasons as outlined in (a) above.
	c) What types of principles, factors or other criteria should AEMO be required to consider when developing guidelines on the collection and recording of information on DER?	<ul style="list-style-type: none"> - Flexibility - Industry consultation - DER includes generation and load under 5MW without further specified constraint (as discussed in question 11) - Capability to update guideline as required
Chapter 5 – Section 5.3 – Data collection and compliance		
13.	How often does the data need to be collected and updated to achieve the objectives of a DER register?	<p>It will be most efficient if data is collected and submitted at the time of equipment installation or modification. Depending on the implementation model, DNSPs could submit data to AEMO on a monthly basis or if the implementation framework allows the data could be sent to AEMO at the same time as it is submitted to DNSPs.</p> <p>The frequency of data collection should become an item included in any AEMO guideline, again, to allow the market to keep up with the pace of change and data becomes required on a more regular basis.</p>
14.	Do you agree that there is a need for consistency across network regions in what data should be collected?	This is imperative. Discrepancies in data sets will create inefficiencies in AEMO's ability to operate the system via the application of the data as outlined in our submission.
15.	If DNSPs' connection application processes are considered a good method of collecting data, what changes are needed to existing processes?	Close collaboration between DNSPs and AEMO is required to develop the most economic collection process. Costs in this regard must be minimised and AEMO is keen to build upon existing systems and practices, such as those applied by the Clean Energy Regulator in the collection of solar PV data, and the DNSPs existing connection processes.

Questions		Feedback
16.	Should obligations on parties other than DNSPs be considered to support data collection? If yes, which parties are best placed to collect and report this data?	<p>Yes. Any party that may have access to the DER to set or change settings must be required to update the Register. Without such obligations the data set will become out of date and over time the entire purpose of the Register will be undermined. This should include retailers, aggregators, embedded network operators and other market participants.</p> <p>Further, while beyond the scope of the NER, due to a lack of clarity and inconsistent state based regulatory frameworks, clear obligations on DER installers are also required to ensure they collect and submit data into the DNSPs connection processes. AEMO has written to all NEM state Premiers requesting each state provide this clarity via their electrical licencing regulatory frameworks. Further support from the AEMC Commission could be beneficial in driving such compliance improvements.</p>
17.	How would an obligation on the parties identified above best be applied and enforced? Please provide details.	<p>To drive compliance, this should be applied via Rules based obligations and penalties. A clear obligation on parties to pass this information on to AEMO is likely also required.</p>
18.	Will a register be beneficial if the levels of compliance in relation to providing information are similar to the low levels of compliance with the DNSP connection application processes? What levels of compliance are needed?	Refer to AEMO's submission.
19.	How else can compliance levels be improved?	Supporting state based reforms placing a clear obligation on installers to submit DER data into the Register along with an enforcement regime are recommended. Linkages to installer accreditation schemes should also be examined.
20.	How can compliance best be maintained over time as technology changes?	<p>Sufficiently clear obligations on market participants to submit data into and update the register are required.</p> <p>As noted, the regulatory framework requires sufficient flexibility for AEMO, in close consultation with industry, to update the Register's implementation guideline as necessary so as to capture new technologies or data streams.</p>
Chapter 5 – Section 5.4 – Transparency and confidentiality		
21.	Given the nature of information that may be required to be provided by registered participants under the proposed rule change, are existing regulatory arrangements (such as the protected information	Refer AEMO's submission

Questions		Feedback
	provisions under the NEL and Privacy Act 1988) regarding the collection and disclosure of information adequate to protect market participants and consumers whose DER systems are included in the register?	
22.	If not:	
	a) What are the likely nature, and magnitude, of potential consequences of insufficient protection of such information?	-
	b) Should the NER limit, on the basis of confidentiality concerns, the information that registered participants or others would be required to provide to AEMO under the DER Register Guidelines? If yes, how?	AEMO is highly considerate of privacy concerns and supports safeguards of customer information. This should occur to the extent AEMO and DNSPs are not compromised in their ability to collect and utilise the information required to forecast, operate the power system and maintain security of supply, for the benefit of customers.
	c) Should the NER limit, on the basis of confidentiality concerns, how AEMO may use or disclose information provided to it under the DER Register Guidelines? If yes, how?	As above.
23.	Are there any competition concerns raised by the establishment of the register?	-
Chapter 5 – Section 5.5 – Safety issues and emergency response		
24.	Would the sharing of data collected under a DER register be useful to emergency services, and if so, how?	DER can pose safety risks that require specific consideration in emergency situations. With strict privacy controls in place, AEMO thus sees merit in Emergency Services having restricted access to the register so as to determine whether a DER is present at a premise when responding to an emergency.
25.	Are there existing mechanisms currently in place (e.g. requisite IT systems) that could facilitate the practical	AEMO has developed a portal for Ombudsman enquiries – it allows them access to their allowed set of data via a “NMI Discovery” – like process.

Questions		Feedback
	sharing of data with emergency responders on a real time basis?	
26.	Is the proposed DER register the most practical mechanism to provide emergency services with the required information?	-If appropriate access can be arranged, it is a practical solution as the Register would be the single source of information
27.	What important features does a register need to have in order to meet the needs of emergency services?	Searchable database by address that provides information as to the type and size of DER at the premise.
28.	To what extent is energy related information already shared between relevant bodies (e.g. AEMO/CER) to emergency services for safety reasons?	AEMO does not currently have any formal process to share energy related information with emergency services. Emergency services can obtain data by request, but this is a slow manual process and would not be suitable for an emergency situation. A possible solution is to have a similar provision in 7.15 to that provided for Ombudsman access to data – in that emergency services have a portal that allows them access to the data they are allowed - that they can access on their own on an ongoing basis, ie not via a request to AEMO. The ombudsman arrangement is like a very limited NMI Discovery.
Other comments on the rule change request or consultation paper		
29.	Do you have any other comments on the rule change request or the consultation paper?	-