20 April 2018

570 George Street
Sydney NSW 2000
All mail to GPO Box 4009
Sydney NSW 2001
T +61 2 131 525
F +61 2 9269 2830
www.ausgrid.com.au

AEMC
PO Box A2449
Sydney South NSW 1235

Dear Mr. Pierce,

National Electricity Amendment (Register of distributed energy resources) Rules 2018

Ausgrid welcomes the opportunity to make a submission in response to the Australian Energy Market Commission's (**AEMC**) Consultation Paper on the *National Electricity Amendment (Register of distributed energy resources) Rule 2018*.

The national electricity market (**NEM**) is experiencing change on an unprecedented scale. As customers embrace new technologies empowering them to generate, store and trade electricity, the traditional model of one-way energy flows from large-scale generators to load centres is giving way to a more decentralised, yet still highly integrated, electricity supply chain.

Already, many customers not only draw electricity from the NEM but also store and feed it back to the grid. Among Ausgrid customers, around 120,000 currently have a solar power system installed, while up to 2,200 have either applied to connect or have actually installed a battery storage system.

With the growth in distributed energy resources (**DER**) set to increase in the coming years, we agree with the COAG Energy Council that the creation of a well-designed DER register has the potential to offer improved customer, market and policy outcomes. Among other things, it should enable more efficient market and network investment decisions by providing greater visibility of customer owned DER when forecasting demand. It should also aid the Australian Energy Market Operator (**AEMO**) in performing its role as market operator.

In designing the regulatory arrangements giving effect to the register, we encourage the AEMC to be future focused. While the majority of information initially collected is most likely to relate to small-scale batteries, the register should include mechanisms that allow for the timely incorporation of future DER technologies, as and when they emerge in a rapidly changing marketplace.

The uses to which the register can be put are likely to change over time too. In the future, we envisage Ausgrid's role in the NEM to transform from providing a physical link between supply and demand to becoming a 'platform' responsible for managing the interactions between customers who buy and sell electricity among themselves to meet their energy needs. Data on customer owned DER has the potential to facilitate this movement to a distribution system operator (**DSO**) model, and we encourage the AEMC to take into consideration how the register can be set up to facilitate this transition.

In order for its full potential to be realised, the data stored within the register must accurately reflect the population of small-scale behind-the-meter DER in the NEM. In our view, there is a risk that this may not occur if the mechanism through which data is collected principally relies on information provided in a connection application. This is because while a connection application may mean that

there is an intention to install or upgrade DER equipment, it does not necessarily mean that the device described in the application will actually be installed. Additionally, there are situations where customers are able to install battery storage and other forms of DER equipment without submitting a connection application to Ausgrid. In these cases, the only information that we receive is via a jurisdictional compliance certificate – the content of which is determined by a state-based regulator.

One of the challenges with respect to the establishment of the register involves the difficulty associated with clearly defining the boundaries of DER. Though complex, the outcome of this task is likely to have a significant impact on the scope of technologies captured by the register. For example, a narrow definition may lead to the register only including data on energy equipment capable of exporting or producing energy (e.g. generation or storage equipment) whereas a more expansive definition could include a wider set of measures such as the demand response capabilities of appliances, energy management systems and load-control equipment. We encourage the AEMC to be mindful of the implications of an overly expansive or unclear definition as it engages in the difficult task of defining DER in the national electricity rules (**NER**). These implications should also be taken into account with regard to any other terms that may need to be defined, such as 'small scale' and 'behind-the-meter'.

While we consider a well-defined register for DER has the potential to unlock considerable benefits for customers and the NEM more generally, consideration should be given to whether there are already arrangements in place that could achieve the same outcomes. For example, the Australian Energy Market Operator (**AEMO**) currently has powers under the *Demand Side Participation Information Guidelines* to collect data from distribution network service providers (**DNSP**) on customer owned DER. In our view, it would be in the long term interests of customers for the AEMC to consider whether these pre-existing arrangements could be fine-tuned or expanded in a way that delivers on the objectives of the register, at a potentially lower overall cost.

We thank the AEMC for the opportunity to comment on the regulatory arrangements giving effect to a DER register and look forward to working collaboratively with the AEMC and other stakeholders on this matter. If you have any queries or wish to discuss our submission in further detail please contact Matt Webb, Head of Asset Investment, on 02 9269 4222 or via email mwebb@ausgrid.com.au.

Yours sincerely,

Matt Webb
Head of Asset Investment

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?	We broadly support the proposed assessment framework. Among the criteria set out in the *Consultation Paper*, we are of the view that the AEMC should place particular weight on ensuring that regulatory and administrative burden of introducing a DER register is proportional to the costs of the issues that are trying to be resolved. An effective way in which this can be achieved is by considering similar regulatory requirements on market participants and gauging whether they already achieve the objectives of a standalone DER register. For example, we encourage the AEMC to assess if many of the issues raised in the *Consultation Paper* are already addressed by the information gathering powers AEMO has under the *Demand Side Participation Information Guidelines*. If they are, then it may be the case that a standalone register can be implemented by fine-tuning existing regulatory arrangements — an approach that would be in the long term interests of

Questions		Feedback
		customers if the consolidation of existing regulatory obligations can achieve the aims of the register at a reduced cost. The *Finkel Review* also expressed a preference towards 'proof of concept' testing before implementing new regulatory arrangements (recommendation 2.9). In line with this, the AEMC may consider incorporating a trial into its assessment framework. This, for example, may involve the introduction of a DER register on a smaller scale, such as single region of the NEM. Though we consider a DER register has the potential to offer significant benefits to customers, a trial of this kind may be an effective method to test its feasibility prior to broader implementation.
2.	Are there other relevant considerations that should be included in the assessing the proposed rule changes?	There should be broader consideration of who may benefit from and seek to access to the register. The *Consultation Paper* mentions a number of parties (AEMO, market participants, and customers) yet there are likely to be others (researchers, demand side response aggregators, DER manufacturers). The AEMC should anticipate the breadth of interest and establish clear rules governing third party access from a diverse range of stakeholders.
Chapter 5 – Section 5.1.1 – Benefits of a register		
3.	What are the likely uses of a distributed energy resources register?	We agree with the uses identified in the *Consultation Paper*. The register, if designed well, is likely to offer benefits in terms of power system operation, load forecasting, and network security and operation. Ausgrid also expects that the uses of a DER register may change and expand over time. The NEM is experiencing a transformation on an unprecedented scale. In the future, we expect our role to evolve to the point where we become a 'platform' responsible for managing the interactions between customers who meet their energy needs by buying and selling

Questions		Feedback
		electricity from each other. The implementation of a well-designed DER registers has the potential to facilitate this movement to a distribution system operator (**DSO**) model and would aid Ausgrid and other network operators in managing the flows of energy between customers engaging in 'peer-to-peer' trading. The AEMC should take this into consideration and consider designing the DER register in a way that allows its uses to change and expand over time, in line with technology changes and developments in the NEM.
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:	
	a) more accurate load forecasting?	High penetration of DER is likely to change customer behaviour, resulting in changes to load patterns and may make it more difficult to perform accurate forecasts. Having static information about DER would assist with load forecasting in this environment, but to be accurate it would need to be supplemented by information from other sources. Ausgrid expects that we will be able to do this by developing forecasts with data from the register in conjunction with dynamic information on customer load profiles from smart meters.
	b) improving AEMO's ability to manage power system security during credible contingency, protected and non-credible contingency events?	No specific comment, but we expect that the register is likely to assist AEMO in performing its role as the market operator.
	c) improving AEMO's ability to set the bounds of the technical envelope at an efficient level?	See response to 4(b) above.
	d) improving efficient market and network investment?	Ausgrid endeavours to use all available data of a requisite quality to make efficient network investment decisions at the lowest possible cost to the benefit of our customers. The establishment of a DER register would be a valuable

Questions		Feedback
		source of data to assist in making network investment decisions. Yet similar to our response to 4(a) above, to accurately forecast customer load the static data in the register would have to be supplemented by more dynamic information from other sources, such as smart meters.
5.	Are there any other ways that a distributed energy resources register could benefit the National Electricity Market?	The information held in a DER register has the potential to be a powerful tool for commercial enterprise in contestable markets, particularly start-ups, seeking to develop innovative products that empower customers to take control of their energy usage. The uptake of rooftop solar photovoltaic systems, battery storage, electric vehicles and other technologies at the distribution level in Australia's electricity systems is having a significant impact on the way that customers use electricity. With access to accurate information, these changes present significant opportunities for emerging commercial enterprises seeking to introduce innovative products that unlock the full potential of customer owned DER. For example, demand side response aggregators (**DSRA**) are among the new entrants into the market who with access to the information in the register would be able to better tailor their products to customers. The NEM more broadly would benefit from this, as improvements in the products DSRAs offer are likely to lead to more efficient market and network investment decisions. We encourage the AEMC to take this into consideration by striking an appropriate balance between who can access information in the register, while still maintaining the protections given to personal information under the Australian Privacy Principles.
6.	What features does a register need to have in order to meet the objectives outlined by the COAG Energy Council?	The register should at a minimum include the features outlined in the *Consultation Paper*, namely information on 'location',

Questions		Feedback
		'capacity', and 'technical characteristics'. In terms of location, we agree that it is preferable for the information is collected at the national metering identifier (**NMI**) level rather than postcodes. Having information at the more granular NMI level will provide greater scope for more useful analysis and forecasts. Collecting data on capacity will be important to forecast generation and load forecasting. We also agree that the range of generation systems in the register should be limited to non-registered, micro-embedded generators (eg. 5MW or less) since AEMO currently does not collect data on these systems. The technical characteristics collected should include the frequency and voltage trip levels of DER equipment. This is vital information to power system stability studies which is likely to assist AEMO as market operator; that said, Ausgrid remains concerned that the veracity of the data will depend on the collection mechanisms that are implemented. Importantly, the register should include features to provide meaningful data to third parties (researchers, demand side response aggregators, DER manufacturers, industry groups, non-government organisations). If this requires the information to be de-identified to be consistent with the Australian Privacy Principles, then these steps should be taken to maximise the benefits of the register.
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?	The cost of establishing the register would involve an initial capital investment from multiple parties, particularly local network service operators and AEMO, along with ongoing operating costs to collect, manage and validate data from an increasing volume of DER installations. Initially the capital costs are likely to be principally associated

Questions		Feedback
		with setting up appropriate IT systems. Over time these systems would also have to be periodically 'refreshed' to comply with changes in licencing requirements and to maintain useability. Along with data management, there are likely to be operating costs associated with engaging with stakeholders. This would be necessary to promote awareness of the register to the broad range of stakeholders who interact with and are responsible for providing data to Ausgrid and other distribution businesses. We envisage that the register could in the medium to long term form part of the platform required to transition to a DSO model in the NEM. This would require an expansion of the data capabilities of the register, and lead to additional capital and operating costs – that would nonetheless offer customers long term benefits.
8.	Do you agree with the costs identified by Jacobs for different stakeholders? If not, why?	We broadly agree with the estimated costs identified by Jacobs. Most of the costs, in our view, will be associated with the establishment of IT systems for the register and putting in place processes for the ongoing collection of data from installers, including audit, validation and follow-up costs. We also encourage the AEMC to revisit the cost estimates made by Jacobs once the design of the register is more fully developed; the design that it ultimately takes will be a key driver of the quantum of costs relating to its establishment and operation.
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?	Ausgrid does not at this stage have any case studies that are directly relevant or similar to the establishment of the register.
10.	How might the nature and magnitude of these potential costs change over time?	The magnitude of the costs associated with the register is likely to expand over time as customers take up DER. Australia's electricity system is expected to become one of the

Questions		Feedback
		most decentralised in the world. By 2040, Bloomberg forecast that around 45% of Australia's power generation capacity will be located behind-the-meter. With such a large uptake of DER expected, the administrative and regulatory costs of administering the register are likely to increase significantly compared to the present, where it is estimated that only about 2,200 residential and small business customers have a battery installed in Ausgrid's local network service area.
Chapter 5 – Section 5.2 – Governance		
11.	Please comment on the suitability of the following:	
	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)?	We agree that the range of generation systems in the register should be limited to 5MW or less. AEMO already collects data on registered generators (eg. above 5MW) so there is no need to set the threshold higher.
	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?	We broadly agree that the 'connection point' is the most appropriate spatial demarcation for 'behind the meter'. The connection point is commonly the point where responsibility for supply transfers from an electricity distributor to the customer. It therefore is a logical boundary for the end of a distribution asset and the commencement of customer owned DER. In drawing the boundary of 'behind the meter', we encourage the AEMC to ensure that the regulatory arrangements giving effect to the register are consistent with the *Contestability of Energy Services Rule*. We would have particular concerns if the rules around the register inhibited the ability of DNSPs to own, control and recover the cost of 'network devices'.
	c) Is a 'distributed energy resource' "*an integrated system of energy equipment co-*	We agree with the AEMC that it is essential for the final rule to

Questions		Feedback
	located with consumer load"? If not, what else could it be characterised as?	clearly define the meaning of 'distributed energy resources' (DER). In the absence of a clear definition, the register is likely to be highly challenging to implement and there would be a lack of regulatory certainty about the data collection and reporting obligations that must be met. In terms of the definition in the *Consultation Paper*, we have concerns about the inclusion of the words 'energy equipment'. These words without proper qualification may capture an excessively broad range of technologies over and above what is likely to be required to meet the objectives of the register. For example, 'energy equipment' may include the installation by network operators of load control devices for hot water systems or air conditioners — potentially giving rise to a regulatory obligation to collect data on equipment which the AEMC did not intend to be subject to the register. To address this, the AEMC may consider (at a minimum) expressly exempting 'network devices' as defined in *Contestability of Energy Services Rule*. Though essential, we recognise that developing a clear definition for DER will be a difficult task. We outline the complexity involved in our submission on the AEMC's *Approach Paper* on the *Distribution Market Model* dated 19 January 2017.
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?	The processes that must be followed to amend the NER are robust and require broad consultation with stakeholders. In order to promote regulatory certainty, Ausgrid would at this stage support the types and capacity of DER eligible for inclusion in the register to be defined in the NER. Ausgrid may support an AEMO guideline, but more information would have

Questions		Feedback
		to be provided about the arrangements that would apply.
	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?	We are at this stage in favour of the collection and recording of information requirements to be included in the NER. Similar to our response to 12(a) above, Ausgrid may support an AEMO guideline, but more information would have to be provided about the arrangements that would apply.
	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?	See 12(a) above.
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?	The reporting of contemporaneous data is essential to ensuring that any information collected is as accurate as possible. We are accordingly of the view that although the *Consultation Paper* outlines arrangements for a static register, installers should be placed under a regulatory obligation to report new installations as and when they occur. This will in turn require distribution businesses to continually collect data on the uptake of DER. While the reporting and collection obligations should be continuous, the costs and administrative burden of updating the static register held by AEMO could be reduced if it only occurred periodically. In our view, this could happen annually to coincide with yearly forecasts and system security studies.
14.	Do you agree that there is a need for consistency across network regions in what data should be collected?	We agree that there should be consistency, where possible, across the regions in the NEM in respect of data collection. While Ausgrid recognises that different jurisdictional schemes and requirements may need to be accounted for, at this stage

Questions		Feedback
		we not aware of any reasons why NSW or any other region should be subject to derogations.
15.	If DNSPs' connection application processes are considered a good method of collecting data, what changes are needed to existing processes?	Ausgrid has concerns about the reliability of connection applications as a method of collecting comprehensive information for the DER register. The existing connection application process covers new connections, upgrades to load capacity for existing connections, and applications for embedded generators (including micro embedded generators). Using the connection application process for the register may become problematic if the definition of DER is broad and covers integrated energy equipment and appliances. For example, the installation of a new controllable air conditioner (if defined as a DER for the purposes of the register) would not require the submission of a connection application to a DNSP for a capacity upgrade in the majority of cases. Furthermore, the lodgement of a connection application for a micro embedded generation system is related to the intention to install (or increase the capacity of) an Inverter Energy System (**IES**) or other embedded generator. However, the fact that an application has been lodged does not necessarily mean that the device described in the documentation will be installed, and the detailed information on the device may be inaccurate. This makes a connection application an unreliable source of information in some cases, particularly around the exact timing of the installed equipment and the final technical details. Compounding this, there are an increasing number of inverter products in the market that are being installed with a photovoltaic system that are “battery ready”. This gives rise to a situation where a customer might connect a battery system directly to an already installed inverter some years after the inverter is installed, when battery prices are lower. In this case an additional connection application would not need to be

Questions		Feedback
		submitted to the DNSP when the battery is connected to the existing IES, as the inverter capacity has not been upgraded. In NSW, once the system is installed by a licensed electrician the installer is required to complete and submit copies of a Certificate of Compliance for Electrical Work (**CCEW**) to the customer, DNSP and the NSW Office of Fair Trading. This is a jurisdictional requirement under consumer safety legislation and is not directly related to the connection application process under the NER. Although DNSPs in NSW should receive this information it is another potential source of unreliable information in the current process. Improvements are being made to the CCEW mechanism in NSW but the primary purpose of this requirement is certifying the safety of an electrical installation. Modifications to the CCEW information collected for DER equipment would be helpful to improve the information collected, but this is likely to be outside the remit of the AEMC. Any changes are likely to require a collaborative approach with the electrical safety regulators in each state. The limitations on the existing connection application process in collecting accurate and comprehensive information about customer owned DER needs to be addressed in the design of the register. In our view, this is the key issue for the establishment of a successful register and we look forward to working collaboratively with the AEMC to work through and resolve the issues at hand.
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?	We encourage the AEMC to consider effective methods of involving installers in the regulatory process. Installers are best placed and have the requisite technical knowledge needed to obtain and report on information about a new DER installation. Their involvement in the process is likely to be the key factor in whether the register can achieve its intended objectives.

Questions		Feedback
17.	How would an obligation on the parties identified above best be applied and enforced? Please provide details.	Ausgrid acknowledges that there may be legal limitations to the AEMC establishing effective regulatory methods for involving installers in the provision of information. We encourage the AEMC to consider alternatives to its specific rule making authority that can establish effective methods for involving installers. This could include the drafting of a model law or regulation which the AEMC co-ordinates the passage of through each jurisdiction in the NEM. Alternatively, industry enforcement through an installer accreditation program could be another suitable option (eg. Clean Energy Council installer accreditation scheme).
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?	Low levels of compliance would put at risk the costs and administrative burden of the register outweighing the benefits. To ensure that the establishment of the register is in the long term interests of customers, we recommend that a robust cost benefit analysis (**CBA**) is conducted which builds on the CBA already conducted by Jacobs but looks extensively at the likely levels of compliance and data quality.
19.	How else can compliance levels be improved?	The level of compliance would best be improved across the NEM by the introduction of a model law or regulation that directly incorporates installers in the regulatory process. Though we acknowledge that there may be legal limitations to the AEMC giving effect to this, we are of the view that alternative options to the AEMC's rule making authority under the NEL should be considered (see our response to 17 above for more detail).
20.	How can compliance best be maintained over time as technology changes?	As technology changes, installers will remain key to ensuring that compliance is maintained. Our views on how installers can be involved in the process are outlined in 16, 17 and 19 above.

Questions		Feedback
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 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?	Ausgrid collects and holds a large volume of data that is considered 'personal information' under section 6(1) of the *Privacy Act*. We take our obligations to protect personal information seriously and in our experience the *Privacy Act* puts in place robust safeguards that would be sufficient to guard against the misuse of information collected and held in the register.
	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?	See our response to 22(a) above.
	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?	See our response 22(a) above.
23.	Are there any competition concerns raised by the establishment of the register?	We agree that the AEMC should take steps to ensure that the register does not lead to any competition concerns or promote anti-competitive conduct to the detriment of customers. The AEMC may wish to consult with the Australian Competition and Consumer Commission (**ACCC**) to ensure that the information collected would not give rise to any competition concerns. Our initial view is that this is unlikely to be the case if the data which is held in the register relates to

Questions		Feedback
		non-price information.
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?	It is foreseeable that emergency responders may benefit from having access to the chemical make-up of battery storage devices or other DER equipment potentially containing hazardous materials. Ausgrid encourages the AEMC to consult with Australia's emergency services to identify their needs and assess whether their access to the register would be beneficial. We nonetheless acknowledge a more pragmatic solution, as noted in the *Consultation Paper*, may be for signage obligations at property access points. This aligns well with accepted practice for other hazardous situations and locations.
25.	Are there existing mechanisms currently in place (e.g. requisite IT systems) that could facilitate the practical sharing of data with emergency responders on a real time basis?	Our IT systems may have the potential to provide information to emergency responders on a real time basis in individual circumstances; however, this would likely require further investment and ongoing maintenance costs. We would also have significant concerns about emergency responders relying on the information that we provide given the static nature of the register and the potential unreliability of data collected via connection applications.
26.	Is the proposed DER register the most practical mechanism to provide emergency services with the required information?	As noted in our response to 25 above, we would have concerns about emergency responders relying on the data we could provide them given the static nature of the register and reliability of information collected via connection applications. Potentially a more pragmatic solution, as outlined in 24 above, is the implementation of signage obligations at property access points.

Questions		Feedback
27.	What important features does a register need to have in order to meet the needs of emergency services?	Ausgrid encourages the AEMC to consult with Australia's emergency services to identify their needs
28.	To what extent is energy related information already shared between relevant bodies (e.g. AEMO/CER) to emergency services for safety reasons?	We provide information to emergency services personnel as requested and are open to working with them and the AEMC to make improvements on the current processes, if needed.
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?	The feedback template the AEMC released with the *Consultation Paper* has sought views on a comprehensive range of topics. Ausgrid appreciates the opportunity to provide this submission and has no further comments.