19 April 2018

Mr John Pierce
Chairman
Australian Energy Market Commission (AEMC)
PO Box A2449
Sydney South NSW 1235

Dear Mr Pierce,

RE: AEMC Consultation Paper – *National Electricity Amendment (Register of distributed energy resources) Rule 2018* (Reference ERC0227)

Endeavour Energy appreciates the opportunity to provide feedback to the AEMC's consultation paper – *National Electricity Amendment (Register of distributed energy resources) Rule 2017*. This follows a rule change request from the COAG Energy Council to facilitate power system operation and network security improvements through better provision and sharing of information on small-scale distributed energy resources (DER).

The rule change request expands on the previous consultation by proposing a register that considers a range of DER beyond energy storage devices. The request is supported by cost benefit analysis that considers a register hosted by AEMO with the information collected by DNSPs would provide the largest net benefit. To give effect to this the following amendments to the NER are proposed:

- requiring AEMO to administer the DER register;
- enabling AEMO to develop a guideline specifying the types and capacity of DER that should be included in the register;
- allowing AEMO to share information in the register with third parties; and
- requiring DNSPs to collect information about DER connected to their network.

Overall, we support the establishment of a national DER register and agree that access to reliable information on DER could lead to improved power system operation and security, investment efficiency and safety outcomes. A DER register would also assist facilitate industry reforms such as those promoted by the ENA/CSIRO Electricity Network Transformation Roadmap and the Independent Review into the Future Security of the NEM.

We agree that AEMO is the most appropriate body to administer and host the register with data collection requirements specified in an AEMO guideline. Third parties who would use the information to provide a benefit to consumers should be provided access to the collected data, subject to privacy protections.

From a network perspective, the register will enable us to better capture the impact of small-scale DER devices on the network and improve our forecasting accuracy. It will also assist us to identify the potential for demand reduction, and through service aggregation, enhance the prospects of non-network options as cost-effective alternatives to traditional network investment. A clearer understanding of the capabilities and locations of DER may also help us to better plan the network to facilitate two-way energy flows.

Collectively, these improvements could help optimise network investment and reduce cost pressures for our customers. The register will ensure our investment decisions are

informed by reliable and up-to-date information and provide confidence to stakeholders that our forecasts are appropriately adjusted to incorporate the benefits of DER. We anticipate these benefits will increase as DER becomes more prevalent in the future.

The proposed rule change places the obligation of data collection on DNSPs on the basis all connections to the distribution system are covered by DNSP connection agreements. It is implied that existing connection processes could be modified to capture the appropriate DER information.

However, the connection application process is not well suited to collecting and tracking the uptake, modification or removal of DER technology by customers. Our connection application process is designed to assess a connection against the safety and technical requirements that apply in NSW. For instance, a customer with a previously installed and approved inverter system may install a battery without requiring new or additional approval from a distributor. To effectively close DER information gaps in the future, we would need to expand our connection application process with the associated additional costs that would include audit and ongoing customer reporting requirements.

We suggest installers remain best placed to collect DER data at the time of installation. For instance, NSW Fair Trading (who oversees compliance of electrical work in NSW) requires licensed contractors to complete a Certificate of Compliance for Electrical Work (CCEW) for all work relating to electrical installations. To improve the lodgement process of these mandatory reports, NSW Fair Trading is currently developing a web based portal which is expected to launch in mid-2018. This will allow electricians to complete and submit CCEWs on site and more efficiently.

Leveraging from this familiar process would avoid cost and procedural duplication and help to overcome the compliance and data quality limitations that would be encountered under the proposed rule change. It would further seek to address potential gaps in data currency over time that might otherwise arise due to limitations on the instances when customers or their providers are required to contact us. We encourage the AEMC to review arrangements in other jurisdictions to identify similar opportunities for more cost effective and accurate data collection and data maintenance processes.

Attachment 1 provides our responses to the questions raised in the consultation paper. If you have any queries or wish to discuss this matter further please contact Joe Romiti, Regulatory Analyst at Endeavour Energy on (02) 9853 6232 or via email at joseph.romiti@endeavourenergy.com.au.

Yours sincerely,

Jon Hocking
Manager Network Regulation
Endeavour Energy

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: Endeavour Energy
Contact name: Joe Romiti
Contact details (email / phone): joseph.romiti@endeavourenergy.com.au / (02) 9853 6232

Questions		Feedback
Chapter 4 – Assessment framework		
1.	Is the assessment framework appropriate for considering the proposed rule changes?	We believe the assessment framework proposed by the AEMC is appropriate.
2.	Are there other relevant considerations that should be included in the assessing the proposed rule changes?	To maximise the opportunities offered by a reliable and up-to-date DER register, it would be important that a register achieve a high level of reporting compliance/accuracy. We would encourage the AEMC to assess the potential accuracy of the register when considering alternative methods of data collection.
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 and benefits of introducing a DER register as suggested in the consultation paper. From a network planning perspective, the ability to precisely map the location, type and capacity of DER will improve our demand forecasting accuracy and further improve the efficiency of capital investment. We also expect better access to DER data will foster development of new and innovative non-network solutions (either developed by networks or the non-network market) by

Questions		Feedback
		improving the ease to which opportunities to aggregate DER services are identified. It would also improve our ability to plan and implement larger and more effective demand management programs – targeted and broad based. This will help manage peak load constraints and promote customer affordability objectives.
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?	The consultation paper outlines how AEMO's load forecasting could benefit from gaining a better understanding of load behaviour and how/when DER affects system operation and security. Similarly, we would use up-to-date DER data to determine small scale generation and energy storage penetration rates, identify DER trends and load patterns and monitor the installed kW capacity of individual systems to: • ensure the potential technical impacts can be managed efficiently ahead of time; and • provide confidence that our network plans are based on reliable forecasts that have accurately incorporated the impact of DER on the system. We consider improved solar meta data can improve forecasting accuracy. We note that tools are becoming available for highly accurate solar generation forecasting (such as those used by Solcast and other third parties). The DER register would provide an important data source to facilitate modelling and forecasting improvements.
	b) improving AEMO's ability to manage power system security during credible contingency, protected and non-credible contingency events?	It is reasonable to expect that improved visibility, particularly as DER capacities increase to significant levels in the medium to long term, would assist AEMO to manage power system security. We cannot advise the extent to which AEMO would find small scale DER data useful in managing the network during credible contingency, protected and non-credible contingency events.
	c) improving AEMO's ability to set the bounds of the	It is reasonable to expect that improved visibility, particularly as the number of DER increase, would lead to a better understanding of DER load behaviour. This would reduce

Questions		Feedback
	technical envelope at an efficient level?	current uncertainties that drive AEMO to adopt more conservative technical operating limits, thus promoting more efficient investment in and usage of the power system.
	d) improving efficient market and network investment?	Static DER information would help us to more easily identify opportunities for feasible non-network options and potential demand reduction. Understanding where distributed resources are may facilitate network constraint reduction or deferral/avoidance of network investment. It could also be useful in determining cyclic ratings resulting from shifts in peak demand and help us more accurately estimate After Diversity Maximum Demand (ADMD) values (used for planning purposes). Ultimately, customers will benefit through lower/efficient network charges. Obtaining information post DER installation (upgrades, removals etc.) would be important to help achieve these outcomes.
5.	Are there any other ways that a distributed energy resources register could benefit the National Electricity Market?	We believe increasing customer interest in DER will drive stakeholder expectation of distribution networks to act as a medium for energy exchange and trade. A DER register would be valuable to monitor customer generation/consumption trends and allow DNSPs to more proactively prepare the network to facilitate two-way power flows and avoid DER initiated technical constraints. For instance, the register would provide visibility of areas of high penetration of DER to support decisions around voltage reduction / compliance strategies to standards such as AS61000.3.100. This includes decisions such as re-tapping distribution transformers, adjusting zone substation voltage settings or application of inverter PQ response modes etc.
6.	What features does a register need to have in order to meet the objectives outlined by the COAG Energy Council?	Aside from containing the type of data that would be most useful for AEMO, networks and other third parties, it would be important that the information be held safely and securely but allow for easy amending and updating – perhaps at the end user or installer level. From a logistical view, we believe data should be easily accessible in CSV spread sheet form for personnel that have access authority.

Questions		Feedback
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 costs to the DNSP are difficult to define without a defined process or definition of the responsibilities of the Accredited Service Provider but generally costs regarding DER applications would need to be borne by the applicant and any other ancillary services such as audits would also be charged, subject to approval by the AER. We expect that application processing costs will marginally increase to cater for the additional DER data requirements. The cost of DER inspection audits (as proposed in the consultation paper to help address some of the current limitations in current application processes) will represent the most material increase in total costs. Further costs associated with the development of systems and processes for application and data management to a centralised data base could be in the order of $1m subject to the data validation complexities and requirements. These estimated costs do not include validation processes other than possible audits to determine if applicants have in fact connected. Requirements to following up connection status and requiring applications for changes or removals of equipment could increase costs significantly. DNSPs do not generally have processes for the disconnection or performance of equipment once connected and would be unable to effectively verify the data once the initial installation was accepted. To introduce processes and requirements to include DER changes and removals would be costly to enforce.
8.	Do you agree with the costs identified by Jacobs for different stakeholders? If not, why?	We have no credible reason to dispute the costs identified by Jacobs however, we note the largest cost categories involve data collection and data validation and auditing, both of which would mainly be borne by DNSPs. Notwithstanding the disproportionate cost burden on DNSPs, we also note that their analysis only considered two options. We believe there may be more cost effective opportunities to collect more accurate data from greater DER installations than would be

Questions		Feedback
		achieved by placing collection obligations on DNSPs. Refer to our response to question 16. The consultation paper correctly outlines some of the limitations in current network connection application processes that would need addressing to support the COAG's objectives for the register. The potential steps to remedy these shortcomings, as suggested in 5.3.2 of the paper, will need to be incorporated into Jacobs analysis before it can be claimed their 'preferred option' is also the most cost effective.
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?	The expected impact on costs described in our response to question 7 are based on current practices and systems associated with the application of load connections and audits undertaken on Accredited Service Providers undertaking connection services.
10.	How might the nature and magnitude of these potential costs change over time?	The initial collection of data would capture static DER information. However if maintaining data integrity is required, significant additional costs may accrue as installations would require auditing checks and the number of DER installations/upgrades increase.
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 with the proposed 5MW limit as a reasonable threshold for 'small scale' systems. An upper MWh threshold for energy storage is not required as the generation output is always limited by the peak power capability of the system <5MW in this case.
	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 consider adopting the NER definition of 'connection point' is appropriate.

Questions		Feedback
	c) Is a 'distributed energy resource' "*an integrated system of energy equipment co-located with consumer load*"? If not, what else could it be characterised as?	We note that other definitions of DER or distributed generation do not dictate a need for a system to be co-located with consumer load. Also, we believe including 'integrated' in the definition may imply a combination of actions. We propose the following alternative definition for 'distributed energy resources': "a system that is capable of generating energy, storing energy or modifying energy demand that is located at or close to where energy is consumed and typically connected to the distribution network ".
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?	We support a DER guideline developed by AEMO. The guideline should cover all major categories of DER (e.g. inverter based generation, energy storage) and require all qualifying DER equipment to be reported regardless of capacity.
	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. The guideline would need to specify collection and reporting requirements when systems are first installed and to alterations made thereafter.
	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?	AEMO should consult with the industry to develop an achievable and relevant guideline. Achieving consensus across stakeholders on the reporting and collection requirements would help to prevent inefficient reporting overlaps or information gaps and minimise any future corrective amendments. We would broadly support the simplest and most cost effective method that best meets the objectives of the register.

Questions		Feedback
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?	It would be important to capture DER when systems are first installed and when any subsequent and material alteration to that installation occurs. A material alteration may be determined by a minimum kW rating.
14.	Do you agree that there is a need for consistency across network regions in what data should be collected?	Data consistency across regions may be ideal for AEMO's purposes, but is of less importance for networks. DNSPs would benefit from improved DER visibility that captures the vast majority of DER installs within their network. Credible, cost effective data collection methods should not be dismissed on the basis that they cannot be entirely replicated in other jurisdictions.
15.	If DNSPs' connection application processes are considered a good method of collecting data, what changes are needed to existing processes?	The reliance on DNSPs to collect this data creates additional resource cost and burden on DNSPs and does not clearly align with the DNSPs main responsibilities in managing the safety, reliability or availability of the network. The additional costs associated with introducing applications and audits would prove a burden and disincentive to customers and add to resource and service constraints of DNSPs. Also DNSPs do not generally have processes for the disconnection or performance of equipment once connected and would be unable to maintain the data accurately once the initial installation was accepted. To introduce processes and requirements to include changes and removals would be prohibitive and practically difficult to enforce.
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?	Currently in NSW, Fair Trading has the prime responsibility for the collection of mandatory data associated with electrical installations work by licensed contractors. The department has developed a web based portal for Certificate of Compliance for Electrical Work (CCEW) which requires all licensed contractors to submit data relating to electrical works. It is understood that Fair Trading has communicated its intent in collecting comprehensive site information including battery storage and other equipment details. Fair Trading is also responsible for the audit inspections and carries out inspections on metering installations.

Questions		Feedback
		Therefore it is likely that the incorporation of battery storage data requirements in the CCEW and auditing could be carried out with little incremental cost increase to customers if approached in this manner. As NSW Fair Trading already collects (or has the capability to collect) much of the required DER data, we believe there is an opportunity leverage from these processes to avoid duplication and additional costs and achieve greater DER register accuracy.
17.	How would an obligation on the parties identified above best be applied and enforced? Please provide details.	The CCEW as described above is currently a mandatory requirement which is enforceable and carries a strict compliance expectation that installers verify the data including the safety and compliance of the installation.
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?	A DER register would need to capture data on a majority of DER installations otherwise it will be of limited use.
19.	How else can compliance levels be improved?	Compliance levels would be improved by combining the required submission of data to be mandated to installers with responsibility for the installation and liabilities with the works as currently exists under the CCEW process in NSW. Refer to our question 16 response.
20.	How can compliance best be maintained over time as technology changes?	Requesting all equipment connected through an inverter should cover any future equipment. Otherwise, AEMO should conduct regular reviews of its guideline and the information required to ensure it remains relevant and useful.
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	We consider customer and customer representative groups are best placed to respond to this question.

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?	We consider customer and customer representative groups are best placed to respond to this question.
	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?	We consider customer and customer representative groups are best placed to respond to this question.
	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?	We consider customer and customer representative groups are best placed to respond to this question.
23.	Are there any competition concerns raised by the establishment of the register?	We consider competitive service providers are best placed to respond to this question. Our interest in this information is from a network perspective only and we would fully comply with the AER's ring-fencing guideline in collecting, processing and utilising this 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?	We agree with COAG Energy Council that improving worker safety outcomes is a secondary objective of the register and consider access to DER information may be useful for electrical workers but may be of limited use during emergency response activities. The

Questions		Feedback
		presence of DER would be easily apparent in most locations upon arrival (usually ascertained from configuration and labelling at the main switchboard). We would support extending mandatory switchboard and device labelling to all DER installations to help make responders aware of risks.
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?	We do not have systems in place that would facilitate real-time DER information sharing.
26.	Is the proposed DER register the most practical mechanism to provide emergency services with the required information?	Information related to the existence of electrical equipment and isolation is generally communicated through the requirement of mandatory labelling as dictated by Australian Standards and in NSW the Service and Installation Rules. The main switchboard is the main location for such signage and labelling.
27.	What important features does a register need to have in order to meet the needs of emergency services?	We would expect the location of DER installations and respective isolation switches would be of most value. These would generally be apparent at or near the main switchboard.
28.	To what extent is energy related information already shared between relevant bodies (e.g. AEMO/CER) to emergency services for safety reasons?	Energy related information between Endeavour Energy and emergency services is limited. Qualified field staff attend sites at the request of emergency services to assess safety and make unstable sites electrically safe.
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?	