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Kate Degen
Australian Energy Market Commission
GPO Box 2603
Sydney NSW 2001

Dear Ms Degen

RE: Generator Registration Thresholds and Connections

ERM Power Retail Pty Ltd (ERM Power) welcomes the opportunity to respond to the Australian Energy Market Commission (AEMC) Consultation Paper (the Paper) to the two rule change requests on generator registration thresholds and connections.

About ERM Power

ERM Power (ERM) is a subsidiary of Shell Energy Australia Pty Ltd (Shell Energy). ERM is one of Australia's leading commercial and industrial electricity retailers, providing large businesses with end to end energy management, from electricity retailing to integrated solutions that improve energy productivity. Market-leading customer satisfaction has fuelled ERM Power's growth, and today the Company is the second largest electricity provider to commercial businesses and industrials in Australia by load¹. ERM also operates 662 megawatts of low emission, gas-fired peaking power stations in Western Australia and Queensland, supporting the industry's transition to renewables.

<http://www.ermpower.com.au>

<https://www.shell.com.au/business-customers/shell-energy-australia.html>

General comments

The National Electricity Market (NEM) is transitioning to a mix of smaller sized discrete generating units connected across a wide geographical area as well as increasing levels of distributed energy resources (DER) such as rooftop solar PV and retail sized battery energy storage systems. This rate of transition is far more rapid than that envisaged back in 2016 when this issue was last considered by the Commission and as noted by AEMO in various reports and submissions leading to significant challenges for AEMO in the management and secure operation of the power system. ERM Power welcomes and supports this rule change request from the Australian Energy Council. We actively participated in the previous rule change on registration thresholds for non-scheduled generation which was finalised in 2017. At that time, we argued that the benefits of the rule in the form of improved market efficiency would likely outweigh the costs on the handful of market participants who would have been affected. We still hold this view.

¹ Based on ERM Power analysis of latest published information.



Whilst the AEMC did not make the proposed rule change at the time, primarily due to concerns over the potential cost impacts on smaller sized generators as well as the small number of forecast sub-30 MW generators that might seek to connect, we believe that it is still a necessary change to the market given the increasing forecast volumes of sub-30 MW generation that is seeking to connect over the next few years. Indeed, the current threshold of 30 MW is largely an arbitrary one, having been set at the beginning of the NEM at a level which was anticipated to be the largest sized generator one would expect to see installed that would not have a potential impact on secure power system operations managed by either the Market Operator or network service providers (NSP's).

In considering the current 30 MW threshold it should also be noted that for a generating unit seeking registration as non-scheduled, the original design criteria was that the primary purpose for which the relevant generating unit operates is "local use" behind its connection point, it was intended that output from its connection point back into the distribution or transmission network would be infrequent, if at all. This is clearly not the case for much of the current and future forecast of non-scheduled generating systems in the NEM. Further, due to this restriction regarding primarily behind the meter consumption, it was presumed during the NEM design stage that there would not be a large volume of non-scheduled generation greater than 5 MW in size in the foreseeable future. Clearly, the NEM of today is a very different market to that which was considered during the original NEM design stage. Indeed, the post-2025 review of the NEM is predicated on the fact that the NEM was not designed for the current mix of generation technologies and widespread adoption of behind-the-meter generation. As such, we consider it entirely logical to reconsider the threshold for registration as a non-scheduled generator or for seeking exemption from registering as a generator.

Generator registration thresholds

The current level of non-scheduled generation in the NEM is resulting in challenges in AEMO's and NSP's management of the power system. As the level of dispatchable generation decreases, either on a temporary or permanent basis, this management of the power system will become even more challenging. It is for this reason that AEMO has released reports such as The Renewables Integration Study and requested rule changes to introduce technical standards for DER, these measures are all aimed to improve transparency and certainty of outcomes for AEMO to enable effective management of the power system. The connection of additional 5 to 30 MW sized non-scheduled generating units, the dispatch of which is not managed or scheduled by AEMO, will only make AEMO's and NSP's management of the power system more difficult. It should also be noted that in addition to the numbers and capacity of non-scheduled generating facilities set out in the Paper, there are a further 71 facilities sized between 5 and 30 MW that have been exempted by AEMO from registration as a Generator². We also urge caution in comparing the quantity of non-scheduled generation in the NEM as a percentage of total registered generation³ as the scheduled generation indicated in the Paper is often not committed whereas the volume of non-scheduled generation may remain available to respond to market outcomes. This impact of non-scheduled generation on management of the power system may be higher in real time than the presumed impact indicated in the Paper.

The commercial impact on the NEM of allowing registration of increasing levels of non-scheduled generation in the 5 to 30 MW range may be considerable. Non-Scheduled generation is not currently included on the controlled (right-hand) side of constraint equations, as this generation is not scheduled. The only mechanism available to AEMO to control output from non-scheduled generation is via the use of a Clause 4.8.9 Direction. This requirement increases the burden on AEMO staff in effectively managing the power system. Issue of a Direction to a non-scheduled generator also enables the non-scheduled generator to claim compensation which is funded by consumers. In direct contrast, a scheduled or semi-scheduled generator is simply constrained off and no compensation is payable.

² AEMO Generator and Exemptions List - <https://www.aemo.com.au/energy-systems/electricity/national-electricity-market-nem/participate-in-the-market/registration>

³ Table 2.2 – Generator registration and connection rule change pp11



Potential exists that as registration of further non-scheduled generation increases, the need for AEMO to issue Clause 4.8.9 Directions to manage secure operation of the power system will also increase and increase the costs of such Direction to consumers.

Currently, a high price in the wholesale market generally results in the non-forecast entry of market, non-scheduled generators within the current dispatch interval without receiving a dispatch instruction. This results in reductions in the AEMO measured demand for the current dispatch interval and measured demand and spot price for the subsequent dispatch interval.

This uncontrolled dispatch of non-scheduled has the potential to result in additional costs to consumers due to:

- Additional dispatch of Frequency Control Ancillary Service (FCAS) regulation services due to the larger difference between forecast and actual levels of generation and demand. The cost of procuring additional regulation FCAS is primarily borne by scheduled generators and demand;
- With the roll of mandatory narrow band primary frequency response, generating units not scheduled for regulating FCAS are reduced in output responding to the higher frequency outcomes caused by the dispatch of un-forecast non-scheduled generation. This would lead to additional costs being incurred on these units which operators will factor into their costs of operation as well as their operational decisions; and
- Fast start generators which have been triggered to start by AEMO rebidding to avoid uneconomic dispatch, due to the view that non-scheduled generation will enter the market and collapse price outcomes, which could then result in the high price outcome extending into future dispatch intervals. This outcome may become more prevalent following the commencement of the 5 minute settlement rule change on 1 October 2021.

In addition to these real time costs impacts, increased levels of non-scheduled generation has the real potential for increased use by AEMO of the Reliability and Emergency Reserve Trader (RERT) as non-scheduled generation is not fully included in pre-dispatch or the Short Term or Medium-Term Projected Assessment of System Adequacy or the Electricity Statement of Opportunity reliability assessment. This may be incurred through either increased facility(availability) charges under Long or Medium-Notice RERT or through the unnecessary activation of all forms of RERT contracts.

While the previous rule change process in 2016/2017 cited costs to smaller sized generators as being a major barrier, we consider that numerous changes have occurred in this area and there are low cost options available for non-scheduled generators such as use of service providers, including aggregators, or using default bids and having automated systems to manage the dispatch of the generator. To a great extent, the costs on participants will depend on how actively involved in the market a participant chooses to be. A passive participant using default bids and automated systems would likely incur lower costs than a participant who sought to actively bid and dispatch depending on market conditions at the time. There is also the potential for a single market participant to own and operate multiple generating units in the 5-30 MW sized range further reducing costs. Whilst the Paper indicates there are currently 144 non-scheduled generating facilities in the NEM⁴, these are controlled by approx. 50 market participants⁵. We also believe, based on AEMO information⁶ that the majority of the forecast new entry generating facilities in the 5 to 30 MW range will be controlled by existing market participants who would incur only a marginal cost for adding generating units to their existing processes.

⁴ Table 2.4 – Generator registration and connection rule change pp20

⁵ AEMO Generator and Exemptions List

⁶ AEMO Generation Information Page - <https://www.aemo.com.au/energy-systems/electricity/national-electricity-market-nem/nem-forecasting-and-planning/forecasting-and-planning-data/generation-information>



Importantly, as noted already in our submission, market incentives exist in achieving registration as a non-scheduled market generator from AEMO as this results in significant additional benefits for a project developer and generating unit controller that are not available if registered as a scheduled or semi-scheduled generator. This may result in an increase in participants or potential participants seeking to register as non-scheduled generators. In addition, the currently proposed AEMC framework for Transmission Access Reform (TAR) indicates that a non-scheduled generator would receive the Regional Reference Price (VWAP) as opposed to the Locational Marginal Price for generation output. This will be a significant benefit if TAR is introduced as part of the post-2025 market design changes.

The AEMC asks whether the current penetration of non-scheduled generation is causing difficulties in the forecasting and market scheduling process. In ERM Power's view, there is certainly an impact on AEMO's ability to forecast and schedule generation as well as efficiently manage the secure operation of the power system, as well as AEMO's ability to calculate its various reliability assessments and it is one that is growing. This latter point is most important. While the impact now may be manageable by AEMO and NSP's, it has the potential to become more material in the coming years. This is one reason to make this rule change now rather than wait until it becomes a major issue.

It is challenging to accurately assess the precise level of penetration of non-scheduled generation that would necessitate a change in the threshold levels. In practice, the challenges of greater volumes of non-scheduled generation will likely slowly emerge until a tipping point is reached, by which time it will be too late to enact change, particularly if retrospective changes are to be avoided. This is yet another reason that we consider that the AEMC should act now and make this rule change, rather than delaying it further. Worse still, a delay could create a trigger point that would encourage developers to rush to install non-scheduled generators in order to avoid more onerous obligations later, leading to a surge in such installations above normal levels.

We consider that if the rule change is made, it should not be applied retrospectively, so that existing non-scheduled generators will remain so. Although we believe there are some existing non-scheduled generators who shouldn't be classified as such, we firmly consider that it would be more damaging to pursue retrospective changes to generator classification. We consider the AEMC or the ESB as part of the post 2025 market design changes should consider additional economic incentives on currently existing non-scheduled generators to facilitate their reregistration as semi-scheduled or scheduled generators.

We believe that the 5 MW generator registration exemption threshold is an appropriate threshold for central dispatch participation given the use of this threshold in other parts of the National Electricity Rules (NER). AEMO already requires battery energy storage systems larger than 5 MW to be registered due to their potential future impact on secure operation of the power system. It would therefore be sensible to ensure that this threshold remains consistent across different types of generator.

Exemptions regime

The discussion of the exemption regime for exempting generators from scheduling obligations is slightly more complex. The two rule changes put forward by the proponents could be seen as somewhat in conflict, with one broadly seeking to tighten and increase the transparency of the exemptions regime and registration as a non-scheduled generating system and the other seeking to maintain the thresholds at which AEMO may grant an exemption from registering as a generating unit and bring forward the time at which AEMO may provide notice of an intent to exempt a generating system during the development stage. We see that there is a common thread in both rule change proposals, that is; seeking a more streamlined and transparent exemptions and registrations process. We consider that there are some changes that should be made to the exemptions and registrations process that would be consistent with both rule change proposals.



Firstly, the AEC's proposal to require AEMO to publish its explanation to grant an exemption from registration as a generator or not, or registration as a non-scheduled generator or not, appears to be a significant improvement to the current AEMO process and we support its early introduction. ERM Power agrees with the AEC's assertion that the current regime allowing AEMO to grant exemptions from the scheduling process without explanation does not sufficiently promote transparency of the decision-making process and creates a lack of clarity around generator registration requirements. Given that AEMO would presumably already have some form of assessment framework as to whether to grant an exemption from registering as a generator or not, or register the generating system as a non-scheduled generator, or not, the publication of these reasons should then be a relatively simple step once a template can be developed. This would provide both existing and future developers a transparent set of reasons to justify the decision to grant an exemption from scheduling obligations or not. In doing so, developers will better understand the approach needed to secure an exemption.

In a similar way, we consider that the approach of granting of a "conditional exemption" by AEMO earlier in the development stage of a project as outlined in Mr Vermeer's rule change would be a helpful addition to the current exemptions and registrations regime. A "conditional exemption" framework would provide project developers with clear information on what is needed to secure an exemption from registering as a generator, and as argued by the rule change proponent, make negotiations with network service providers easier. This is likely to improve outcomes for developers and for consumers who choose to invest in such embedded generating systems, without imposing wider costs on the market. However, such a "conditional exemption" should only be available for an "embedded generating system" where the load and generating system share a single physical connection point and the size of the embedded generation is less than 30 MW and no greater than the load to which the generating system is co-connected. In this case the generating system would be either exempt from registering as a generator or registered as a non-market, non-scheduled generator. Registration of a generating system of between 5 - 30 MW capacity as market, non-scheduled should only be permitted as an exception under strict criteria developed and consulted on by AEMO.

We therefore believe the AEC's proposal to reduce the scope for exemptions is a concept worth further exploration. The AEC argues that the potential for a generator to impact scheduling and dispatch should be a more important consideration than whether the primary purpose of a generating unit is for local use. ERM Power shares the concern that some larger generators have avoided being classified as scheduled or semi-scheduled generators via this weakness in the wording of the Rules. However, the AEC's proposed approach risks creating a situation where a number of smaller embedded generation units would be required to be registered as scheduled generators despite any export to the grid being largely incidental. This would be of particular concern where output from the embedded generator also provides additional support in addition to energy output to the load to which the embedded generator is co-connected. As an example, the embedded generator may provide low pressure steam or hot water to an industrial process that is dependent on this support. In considering the AEC's proposal, in this case the impact of the embedded generators output on scheduling and dispatch may be low as the embedded generators operation is aligned and managed to support the primary production focus of the industrial process. In ERM Power's view, it would be more preferable for the thresholds to be applied by AEMO as intended and for larger generators – those over 30 MW in capacity – to always be classified as scheduled or semi-scheduled generating units as a strict rule with no exemptions. Exemptions would therefore be reserved for smaller embedded generating units in the 5-30MW range, the operation of which must be demonstrated by the applicant seeking the exemption from registration as a generator to be independent of market outcomes.

Conclusion

ERM Power supports the AEC's proposed rule change to reduce both the non-scheduled generator registration or exemption for registration as a generator threshold to 5 MW. This would bring the threshold for all scheduled generators to the same level as that currently employed for battery energy storage systems. We consider that this rule change is needed given the large volumes of sub-30 MW non-embedded generation units projected to be installed across the NEM over the coming years.



We believe that to the extent there is a cost impact to generators who would previously have been classified as non-scheduled, this will be dependent on how actively they seek to participate in the energy market. There are a number of low-cost options for generators to use as set out in our submission which would keep costs low compared to a generator who chooses to be very active in bidding and dispatch.

We also consider that the current exemption from registering as a generator framework in the Rules should be reformed in order to provide improved clarity and more transparency to the market and project developers seeking exemption from registering as a generator. The Rules should be clear that exemption from registering as a generator is only available to a non-market embedded generator of less than 30 MW capacity where the applicant clearly demonstrates that operation of the generating system will be independent of market outcomes. There should be no ability to exempt or register a generating system of greater than 5 MW output capacity as a market, non-scheduled generator.

Lastly, we believe that AEMO should be required to publish its reasons for granting or disallowing an exemption from registration as a generator or granting registration as a non-scheduled generator and that the proposed “conditional exemption” framework which would bring forward a decision by AEMO to exempt a generating system from registering as a generator would be a valuable addition to the existing regime.

Please contact Ron Logan 0427 002 956 or rlogan@ermpower.com.au if you have any questions with regards to this submission.

Yours sincerely,

[signed]

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