22 December 2020

Ms Kate Degen
Australian Energy Market Commission

Sent via kate.degen@aemc.gov.au

RE: Generator registration thresholds (ERC0256)

Dear Ms Degen

The Australian Sugar Milling Council (ASMC) is the peak industry organisation for raw sugar manufacturing (the sector). We represent five sugar manufacturing companies which collectively produce 90 percent of Australia's raw sugar at 16 sugar mills in Queensland.

ASMC appreciates the opportunity to respond to the aforementioned Consultation Paper. Our high level views are set out below and our responses to the Questions are at Attachment 1. We also acknowledge that our submission is later than the requested 17 December deadline and we thank the AEMC for the one week's extension to lodge (refer email exchange between Liam O'Brien and Robert Millar 15 December 2020).

The position of the ASMC

The ASMC does not support the AEC's proposed rule change to:

- Amend the NER to lower the default threshold for non-scheduled classification from 30MW to 5MW nameplate capacity;
- Narrow the grounds upon which AEMO can grant exemptions; or
- Require AEMO to publish its reasons for granting an exemption.

The ASMC has adopted this position on the basis that the changes suggested in the AEC's proposal will not promote power system security and reliability or assist the market through the availability of more accurate forecasting information. The ASMC believes the proposed rules will only serve to increase regulatory burden, resulting in a less efficient market by limiting the choice of available generation for investment and undermining the important role incidental generation plays in sugar milling.

The ASMC believes the analysis and findings of the AEMC in their 2017 rule change determination (Ref ERC0203) remain valid to the extent they assess the impact non-scheduled generation has on market forecasting processes and the costs of participating in central dispatch by small generators.

Furthermore, and more generally, the ASMC supports the AEMC adopting a broader assessment framework when considering NER changes with two additional criteria added:

1. **Impact on value adding regional economic activity and employment;** to what extent will the proposed rule change impact value adding activity where electricity generation is integrated into an industrial process and what are the likely regional economic and employment implications.

2. **Impact of market power and generation diversity;** to what extent will the proposed rule change increase barriers to entry for new generation owners, reduce diversity of ownership in generation and increase market power of existing generation owners.

Background

Sugar mill co-generation plants utilise the by-product cane fibre (bagasse), and other feedstock, to generate high and low pressure steam from boilers that are used:

(1) For electricity generation (i.e. high-pressure steam to drive generator turbines); and
(2) To power internal processes (e.g. high pressure steam to drive turbines and shredders and the spent steam that is converted to low pressure steam for heating and evaporation).

The electricity is used internally or externally (sold into the NEM or into wholesale markets). Operating 16 of Australia's 22 sugar mills, ASMC members currently have 438 MW of installed co-generation capacity, annually generating 900,000 MWh of total electricity from units ranging from 9 to 67.2 MW of nameplate capacity. In 2019 all 16 mills sold excess electricity into the NEM or to the wholesale markets (421,000 MWh in total).

The predominant fuel source for sugar mill co-gen is bagasse – although other feedstocks such as coal are used. Sugar crushing and generator operations generally start in early June and continue until the bagasse from the crush has been reduced to a manageable level, which may extend past the date of actual sugar production which is normally November/December. Some mills store bagasse on-site and others store and transport it to neighbouring mills with larger co-gen units.

There remains considerable scope for the Australian sugar industry to increase its co-gen electricity output, including exports to the grid. The ASMC estimates that if the bagasse that is currently stored was fully utilised, and steam on cane settings and boiler efficiencies were improved, the sector could triple its potential electricity output from 0.9 million MWh to around 2.7 million MWh. Attempting to mitigate volatile sugar prices through international trade policy measures and diversifying the industry's revenue base from export raw sugar sales to electricity and other bio-products are the industry's priorities at present.

Consistent with clause 2.2.3 (b) of the NER, these co-gen units are classified as a 'non-scheduled' generating unit under the AEMO rules as:

> *(a) their primary purpose for which the generating unit operates remains local use, no more than 25% of the annual electricity supplied from the generating unit (gross generation less auxiliary load) is exported to the network, and the aggregate sent out generation at its connection point rarely, if ever, exceeds 30MW,*

or

> *(b) the physical and technical attributes of the generating unit are such that it is not practicable for it to participate in central dispatch because:*

- the generating unit's fuel or energy source is dependent on an industrial process not related to the production of electricity; or
- the generating unit is unable to vary its output in response to a dispatch instruction for some technical reason (other than fuel supply constraints).

It is anticipated by the ASMC that the regulator's progressive increase in generator performance standards will require upgrades of these generating units in future years which will trigger NER clause 5.3.9 – *Alteration of existing generation units.* Under this proposal, these time consuming and costly assessments could in turn result in a re-classification of existing co-gen units from non-scheduled to scheduled.

If the AEC proposal to lower the threshold for scheduled generators to a nameplate rating of 5 MW or greater were adopted, it is likely that all new investments in co-gen units would be captured, and gradually over time, all existing co-gen units (through 5.3.9 assessments).

The benefits of being Non-scheduled

There are numerous National electricity and commercial benefits associated with current and new co-gen units maintaining their non-scheduled classification:

- The status of non-scheduled allows sugar millers to focus on producing energy and steam for the sugar production process to the exclusion of all other priorities, as required by suppliers of sugarcane and sugar customers. Only when these priorities are met, and then if excess energy generation is available, these mills send-out surplus energy to the grid. This option to prioritise sugar milling with no requirement to schedule energy export is essential to **efficient sugar production activities** and to realise a return on investment.
- The flexibility to export energy in response to market signals generates essential revenues which in turn promotes mill viability and **regional job retention** (critical during periods of low sugar prices and low profitability – such as that experienced over the past four years). Furthermore, maintaining flexible supply may encourage further investment in additional co-gen capacity, leading to improved mill viability and regional job security.
- Given the relatively small volumes of electricity exported, the sector is unlikely to have any influence on or control of NEM or wholesale electricity prices. Sugar industry generators are relatively modest in size, are widely dispersed throughout Northern NSW and QLD, and are not concentrated in any one price sensitive region, and as such are not generally in a position to adversely affect the technical performance of the electricity network, nor are they likely to materially influence regional energy pricing.
- Consistent with the critical priorities identified in the latest Energy Security Board *Health of the National Electricity Market 2019* report, the sugar industry's co-gen can assist with:

    - **System security** (rotation is synchronised with the frequency of the system);
    - **System reliability** (supply can be brought on quickly in response to the intermittency problems created by wind and solar). Synchronous co-gen energy production is capable of being relatively stable when sugar production targets are being reliably met, and therefore, in certain circumstances, sugar mills can

actively support system stability at times of intermittency caused by other renewable energy generators;
- **System investment** (with favourable regulatory settings, the industry's co-gen output can be tripled to 2.7 million MWh); and
- **System greening** (bagasse co-gen is a renewable source of energy with a low CO2-e emissions intensity that can assist with meeting carbon targets).

The costs of becoming Scheduled

There are numerous operational, compliance and commercial costs associated with current and new co-gen units becoming scheduled generation units:

- **High compliance costs.** In its 2017 determination on scheduling of generators lower than 30MW, the AEMC stated:

  > *"for smaller generators, the costs and requirements of scheduling would represent a significant impost. Requiring non-scheduled generators to be scheduled would impose costs, change investment incentives, and change business models for these participants, but it would not necessarily improve demand and price forecasts materially."*[1]

  The ASMC considers this position to still reflect the cost impacts of participating in central dispatch for generating units who would otherwise be non-scheduled.
- The inability to supply electricity in response to market signals and the requirement to sell electricity during periods of low and even negative NEM prices would **threaten mill viability**.
- Mill viability would also be threatened due to the likely **disruption to operations** where dispatch instructions require a mill to limit electricity production. The core business of the facility is to process sugar. Sugar mills must prioritise their crushing & sugar production functions above all else and are contracted with cane growers through cane supply agreements to meet operational expectations through a Performance Guarantee, meaning sugar production takes precedence above all other output expectations. Any interruption to production caused by electricity despatch requirements would also result in higher costs being passed on to growers from transport inefficiencies and a potential reduction in revenue resulting from the reducing sugar content of any cane that suffers from a delay in processing.

  The generation of process steam cannot be separated from the generation of electricity. The energy balance within a sugar mill is typically optimised by running the generators close to their maximum capacity to supply the quantity of steam demanded by the process. Sugar mills cannot tolerate any external control signals that may attempt to manage or constrain electricity generation rates, as these will have immediate impact on sugar operations via a simultaneous change to process steam outputs.

  Sugar mills are not designed as large scale power stations. The operational technology used reflects the level required by a modern process plant, and they do not include the structure and technology to efficiently and effectively control electricity

[1] https://www.aemc.gov.au/sites/default/files/content/0bcaf68c-8449-4ce0-aaa6-da223ca6e01c/Final-Determination-ERC0203-Non-scheduled-generation-and-load.pdf p. vi

generation and sugar operations based on external control signals such as that used by AEMO for market operation. Whilst some of the mills operating larger co-gen units may have sophisticated despatch systems, there would be significant establishment and ongoing costs to the industry in participating in central dispatch and adopting the required scheduling systems. Ultimately these costs will be borne by the mills and result in a higher cost of electricity production.

We look forward to further engagement on these matters. Please do not hesitate to contact David Rynne, Director Policy, Economics & Trade on david.rynne@asmc.com.au or 0431 729 509 for further clarification.

Yours sincerely

David Pietsch
Chief Executive Officer

Attachment 1: ASMC response to AEMC questions

QUESTION 1: PROPOSED ASSESSMENT FRAMEWORK

Do you agree with the proposed assessment framework or are there any additional assessment criteria the Commission should use when assessing identified issues and possible solutions?

ASMC Response

The ASMC supports the AEMC's proposed assessment criteria and believes the issues embodied in the criteria will enable an assessment of the proposed rule change that materially aligns with the intent of the NEO. It is important that the criteria – particularly the "promote efficient investment" criteria - are not interpreted narrowly. Therefore in addition to the AEMC's assessment criteria the ASMC suggests two other criteria be considered.

1. **Impact on value adding regional economic activity and employment;** to what extent will the proposed rule change impact value adding activity where electricity generation is integrated into an industrial process and what are the likely regional economic and employment implications.
2. **Impact of market power and generation diversity;** to what extent will the proposed rule change increase barriers to entry for new generation owners, reduce diversity of ownership in generation and increase market power of existing generation owners.

QUESTION 2: ISSUE IDENTIFIED BY AEC - INCREASE IN NON-SCHEDULED GENERATION IN THE NEM

1. Do you agree with the AEC that transition in the NEM's generation mix is trending towards having a greater proportion of non-scheduled generation?
2. Do you expect the capacity of non-scheduled generation as a proportion of total generation capacity to maintain the same growth trend into the future? If not, how do you expect this trend to change over time?

ASMC Response

From the AEMO information provided, the growth in non-scheduled generation provided by ASMC members in NSW and QLD has not materially changed from 2010-2020 (5.4% - 6.5%). In the ASMC's opinion the relative level of generation of any particular classification is a secondary issue compared to the operation of the power system in the interests of consumers in accordance with the NEO.

QUESTION 3: ISSUE IDENTIFIED BY AEC — THE FORECASTING AND DISPATCH PROCESS

Do you consider that the current penetration of non-scheduled generation in the NEM is causing difficulties or inefficiencies in the forecasting and market scheduling process?

ASMC Response

ASMC members typically participate in the energy market at relatively stable and predictable levels of generation both during the sugar production season, and in some cases outside the sugar production season. This predictability, in addition to the relatively small volumes of sent-out energy produced by ASMC members means the presence of non-scheduled generation operated by ASMC members should not cause difficulties or inefficiencies in the forecasting or market scheduling process.

The ASMC cannot comment on any difficulties or inefficiencies that may be created in forecasting and market scheduling process from other sources of non-scheduled generation. However, the ASMC accepts the analysis and conclusions of the AEMC in their 2017 rule change determination (Ref ERC0203) in relation to the minimal impact non-scheduled generation had on forecasting processes.

Further, the ASMC encourages the AEMC to consider the costs and inefficiencies, both to specific consumers / generators and the system as a whole, related to addressing any forecasting or market scheduling issues in their deliberation.

QUESTION 4: ASSESSMENT OF THE PROPOSED SOLUTION

1. Do you consider that lowering the threshold for classifying new generators as non-scheduled would help to address the issues the AEC has identified for the efficient management of the power system? Why or why not?
2. How much of an improvement to the accuracy of AEMO's forecasts would scheduling new generators above 5 MW nameplate capacity have, compared with requiring this of all new and existing generators above this size?
3. Do you think the costs associated with the AEC's proposal to reduce the thresholds have been adequately captured? How would these costs vary depending on whether the generator was scheduled or semi-scheduled?
4. Do you agree with the AEC that the costs of participating in central dispatch have fallen to the extent where the market benefits of increasing the proportion of scheduled generation outweighs the costs to participants? Why or why not?
5. Do you agree with the AEC that its proposed scheduling threshold does not need to be made consistent with the thresholds that apply to system security management and technical connection requirements? Why or why not?
6. If made, should the AEC's rule change only apply to new generating units at the time of their registration and AEMO's existing practise of grandfathering the changes apply to existing generators registered inconsistently with the new provision?

ASMC Response

1. Lowering the threshold: The ASMC occupies a unique position in that it represents members whose interest in this rule change traverse that of both generator and energy consumer. Although the ASMC's main function does not give it claim to deep electricity market experience, it does provide a very good understanding of how regulatory changes will impact its members. This understanding is likely to be similar to that of entities in other energy intensive industries whose activities require complex involvement and interaction with the electricity system. In this regard the ASMC does

not believe that reducing the threshold for classification of non-scheduled generation will have a material impact on efficient management of the power system as it pertains to the NEO and NERO. Further, the costs of making the changes contemplated in the questions above are likely to be far larger than is quantifiable as a significant proportion of cost will manifest in disruption to well established operational and business processes outside of the electricity supply system. Ultimately these costs will result in trade-offs to employment and economic activity. The ASMC does not believe the AEC has adequately considered these factors in the justification for their rule change.

2. Accuracy of AEMO's forecasts: ASMC member's generator outputs are generally predictable and stable. Although the proposed changes may have minimal impact on the accuracy of ASMC member forecasts the ASMC cannot comment on the impact of accuracy on system forecasts compiled by AEMO.
3. Are the costs adequately captured? The ASMC believes that the indicative costs described in the paper that are attributed to SA Water and the AEMC 2017 industry workshop may represent order of magnitude direct electricity market participation costs for new participants whose primary business purpose and the primary purpose of their electricity supply installation is to participate in the NEM. These costs are not sustainable for sugar industry participants that currently operate on thin margins in a critical agricultural production industry. Additionally, as outlined in point 1, indirect costs associated with disruption to operational and business processes are far more difficult to quantify and are likely far higher. The ASMC expects this to be similar for other value adding energy intensive businesses.
4. The costs of participating in central dispatch? The ASMC does not agree with the assertion by the AEC that the costs of participating in central dispatch are reasonable, and affordable for small generators and also do not agree that the market benefits have been proven by the arguments put forward by the AEC.
5. Consistency of the proposed scheduling threshold? The ASMC does not have a position on this question at this time. The ASMC does urge the AEMC to ensure the scheduling process does not impact on the system security and technical connection requirements as well as recognising the critical and historic economic inter-relationship between recovery and use of waste energy and the value of the businesses that work to utilise that waste energy.
6. Grandfathering the changes? Due to the significant cost implications of changing fundamental operational processes established based on long standing regulatory arrangements, the ASMC generally supports grandfathering provisions for existing participants. This grandfathering should be maintained while the existing generation maintains its primary plant characteristics and should not be captured in the same change process that impacts technical performance and system security.

QUESTION 5: TIMING OF THE PROPOSED SOLUTION

1. Do you consider that the penetration of unscheduled generation has reached a level where a decision needs to be taken to lower the thresholds to require this generation to participate in central dispatch? Why or why not?
2. If not, what level of penetration would need to be reached before it is warranted to place more scheduling obligations on this category of generator?

ASMC Response

1. The ASMC does not agree that its members have contributed in any material way to any increase in the level/proportion of unscheduled generation as a percentage of market generation, and that any proposed rules should be more properly focused on new generation technologies that are causing greater network/market uncertainty, rather than the highly predictable output of ASMC members synchronous generators.
2. The ASMC does not believe there is a threshold penetration of unscheduled generation that if breached warrants a change to generator classification arrangements for all non-scheduled generation types. Instead the ASMC urges effort to be appropriately focused on specific variable asynchronous generating systems where it is demonstrated that the operation of individual facilities is shown to put system security at risk.

QUESTION 6: IS THE PROPOSED THRESHOLD OF 5 MW NAMEPLATE CAPACITY APPROPRIATE?

1. Do you believe AEMO's 5 MW generator registration exemption threshold would serve as a reasonable threshold for participation in central dispatch? If not, what do you think this threshold should be?
2. Do you think that factors other than the size of a generator should factor into whether a generator is required to participate in central dispatch? If so, what should these other factors be?

ASMC Response

1. A generic 5 MW threshold is not reasonable. The existing AEMO threshold for participation in central dispatch should remain, and in certain cases could be increased to take into account newer, larger sugar mill co-generation plant that meets the criteria already promoted by the ASMC. For ASMC members energy generation is a by-product of sugar milling, the output is synchronous, generally highly predictable, and not at all similar to some renewable energy generators that appear to be causing the problems raised by the AEC in their submission.
2. Yes. A principal consideration should be whether the energy produced is required as or the result of a fundamental process in a broader industrial operating complex, as is the case in sugar milling. The production of the principal product is the reason for energy production, and the electricity generation is coincidental, and should not be controlled by a central dispatch mechanism. Secondly, the level of predictability should be considered – whether the generator is generally variable, such as renewables based, or generally consistent, such as thermal co-gen.

   Further, for cogeneration plants, the primary numerical factor should be the power transfer capability from the facility to the local distribution grid, rather than the installed generator capacity, For co - generators where the major user of the power is internal process demand, the power transfer capacity may be as low as 15% of the installed facility's generator capacity, and certainly not at the 95% typical of a power station.

QUESTION 7: ALTERNATIVE SOLUTIONS

1. Do you have any suggestions for information which would satisfy these criteria to make the existing scheduling framework more accessible for small generators?
2. Would AEMO's forecasting and market scheduling process benefit from partial visibility of non-scheduled generators?
3. Can you suggest ways that participants could provide this information without becoming bound to the obligations of the existing dispatch process? Would the New Zealand approach, or the approach taken in relation to wholesale demand response in the NEM, be appropriate?
4. Do you consider the benefits of implementing these alternative arrangements would outweigh the prospective additional system costs they might impose on the market by increasing the complexity of AEMO's operations?

ASMC Response

As the ASMC does not believe the AEC's rule change is necessary we do not have a position on alternatives other than to reiterate that any rule changes need to ensure that both electricity system costs and costs to other operational elements, as well as broad economic and employment implications, need to be considered in relation to rule changes that disproportionally impact energy intensive value adding businesses.

The ASMC is conscious of the increasing complexity of the electricity supply system and the importance of AEMO in managing that complexity. The complexity is principally a technical and security issue which all market participants are conscious of. The ASMC recognises the importance of providing information to AEMO for efficient operation of the wider system. However the simplification of the process by bringing more and more generation into the scheduled status as suggested by AEC is contrary to the growing recognition of different supply models that are appropriate across the NEM and the wider economic implications of a "one-size-fits-all" model as proposed by AEC.

QUESTION 8: EXEMPTION ISSUES - AEC

1. Do you share the AEC's concern about the impacts of generator exemptions and non-scheduled classifications on the number of generators (and proportion of total generation) subject to scheduling obligations? Why or why not?
2. Do you agree there is an issue with AEMO classifying generators as non-scheduled where it is satisfied that:
    - the primary purpose of the generator is local use and it would rarely, if ever, send out generation above 30 MW?
    - the individual generating units do not have the physical attributes to participate in central dispatch (regardless of whether they are part of a bigger system)?
3. Do you share the AEC's concern about a lack of transparency surrounding AEMO's decisions to provide generators with registration exemptions or classify their generating units as non-scheduled? Why or why not?

ASMC Response

1. The impacts of generator exemptions: The ASMC does not share the AEC's concerns in relation to the impact of generator exemptions and non-scheduled classifications as the ASMC believes the priority objective for any rule change should be the interests of energy consumers as per the NEO and NERO.
2. Is there an issue with AEMO classifying generators?: The ASMC does not believe there is an issue with the existing AEMO approach to classification of generators as non-scheduled and encourages the AEMC to maintain the current registration regulations and processes.
3. Concern around transparency of AEMO's decisions: AEMO acts as an independent system operator and should be empowered with sufficient discretion to make judgements about the appropriate classification of generating units on a case by case basis without an added burden to publish unnecessary detail surrounding its decisions. Further, ensuring there is adequate confidentiality provisions in place for generator registration processes will encourage participants to work most openly and effectively with AEMO in their application processes.

QUESTION 9: EXEMPTION ISSUES - MR VERMEER

What are your views on Mr Vermeer's concerns with the connection process for embedded generation owned, operated or controlled by entities that intend to be exempt from the requirement to register as a generator?

ASMC Response

No Response

QUESTION 10: EXEMPTION SOLUTIONS — AEC

1. What are your views about the relative costs and benefits of the AEC's proposal to narrow the circumstances set out in the NER for exempting generators from the requirement to register or classifying generating units as non-scheduled?
2. Besides the nameplate capacity, what would you consider to be appropriate reasons to provide an exemption or classify a generating unit as non-scheduled, such that they are not required to participate in central dispatch?
3. Are you in favour of the NER requiring AEMO to publish its reasons for making these exemption and classification decisions? Why or why not?

ASMC Response

The ASMC is supportive of the original principles of the NER to be permissive and allow various options for supply and market interaction. The future market design and regulation should encourage the philosophy of different requirements for different circumstances. The Rules should guide AEMO on the overall objectives and should ensure the recognition that the electricity supply industry exists for the wider objectives of society, the economy and the communities who depend on it.

1. As above, the ASMC considers there to be a high risk of unintended consequences for a narrowing of the circumstances that would facilitate the registration of non-scheduled generation. This is particularly true where generation is incorporated into other value-adding industrial processes for the purpose of making those processes more efficient and sustainable. In principle the narrowing of these circumstances will limit the opportunities for new generation investment to support value-adding processes that ultimately contribute to economic benefit and employment in industries beyond the electricity market. If this outcome was to materialise, it would be a significant cost to the many industries and consumers whose interests are prioritised under the NEO.
2. In the experience of ASMC members, the volume and capacity of sent-out generation, as well as the role of generation in other core business processes are of greater relevance than name plate capacity in determining qualification for exemption to central dispatch.
3. No. As mentioned in the response to question 8, it is important that participants have confidence in the level of confidentiality in their dealings with AEMO and there is a risk that forcing AEMO to publish the reasons for their classification decisions will undermine that confidence.