



9 May 2021

Committee Secretary  
Standing Committee on the Environment and Energy  
PO Box 6021  
Parliament House  
Canberra ACT 2600

Sent via email ([Environment.Reps@aph.gov.au](mailto:Environment.Reps@aph.gov.au))

**RE: Inquiry into the current circumstances, and the future need and potential for dispatchable energy generation and storage capability in Australia**

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

To promote long-term grower and miller financial viability, and support resilient sugar communities Australian Sugar Milling Council (ASMC) members are vigorously pursuing an industry *Revitalisation* plan.

Revitalisation focuses on three key 'pillars':

1. Increase cane and sugar yields and volumes, decreasing operational costs.
2. Increase or at least maintain the area where sugarcane is grown.
3. Increase revenues from complementary, diversified, value-added outputs and products.

The industry's 85% revenue reliance on global raw sugar sales (and highly volatile global prices) and increasing mill under-utilisation is a risk to the industry, host communities and the wider Queensland and Australian economies.

Our largest sugar-exporting competitors – Brazil and Thailand – continue to reduce their exposure to sugar price volatility by implementing government reforms that promote revenue diversification (mainly electricity co-generation and ethanol but also bio-plastics and bio-chemicals).

Given our heightened focus on pillar 3 (revenue diversification) our submission focuses on:

- Our understanding of Australia's (the NEM's) future dispatchable capacity needs;
- The Australian sugar industry's ability to triple its supply of zero to low emission semi-dispatchable power from current, but highly under-utilised bagasse feedstock; and
- Barriers to fully utilising this latent bagasse supply for power generation.

Please contact David Rynne, Director Policy, Economics & Trade on [david.rynn@asmc.com.au](mailto:david.rynn@asmc.com.au) or 0431 729 509 for further clarification on the issues raised in the attached submission.

Yours sincerely

A handwritten signature in black ink, appearing to read 'D. Pietsch', with a stylized flourish at the end.

David Pietsch  
Chief Executive Officer

## **ASMC Submission**

### *Our understanding of the NEM's future dispatchable energy needs*

The Energy Security Board<sup>1</sup> state that 'without further action the maximum instantaneous penetration of renewable resources (within the NEM) would be limited to between 50 and 60 percent' with AEMO commonly citing 75% as the technical limit of the NEM to receive variable renewable energy (VRE) and maintain system reliability and security. Translated, the ESB (AEMO) believe there is 'an additional need for 6-19 GW of new utility scale, flexible and dispatchable resources<sup>2</sup>'.

Significantly, and of concern, the ESB also state that the reduction in NEM power prices caused by very high VRE penetration will not 'deliver the dispatchable capabilities required to meet future system needs'<sup>3</sup> and as such reforms are needed to the NEM market rules to encourage dispatchable supply<sup>4</sup>.

### *The Australian sugar industry's co-generation potential*

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 electricity co-generation 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, typically November/December. Some mills store bagasse on-site and others store and transport it to neighbouring mills with larger co-generation units.

There remains considerable scope for the Australian sugar industry to increase its co-generation electricity output, including exports to the grid. ASMC estimates that if the bagasse that is currently stored was fully utilised and steam on cane settings and boiler efficiencies improved, the sector could triple its potential electricity output from 0.9 million MWh to around 2.7 million MWh of which 2.2 MWh could be exported to the NEM.

---

<sup>1</sup> Post 2025 Market Design Options – A paper for consultation, 30 April 2021, page 16

<sup>2</sup> Ibid, page 14

<sup>3</sup> Ibid, page 18

<sup>4</sup> For example, the ESB's Post 2025 Market Design Options and AEMC's imminent release of draft determinations in response to 7 proposed Essential System Service rule changes.

This would result in another 235 MW [0.235 MW] of co-generation capacity being installed which would see export power revenues increase from around \$20 million to \$100 million per annum, resulting in an injection of approximately \$700 million into regional Queensland.

*Barriers to fully utilising this latent bagasse supply for power generation*

Changes to the Renewable Energy Target (RET) and erosion of LGC values, uncertain energy and carbon pricing policies, volatile NEM wholesale market prices and onerous AEMO generator performance standards have all contributed to investment uncertainty (both in investing in new generation and updating the efficiency of current generation).

- Inconsistent and varying carbon policies and targets

Consecutive Australian Governments through various global agreements, including the Kyoto Protocol and Paris Agreement, have supported national emission targets as Australia's contribution to global action. However, these targets are with Australian political parties adopting different policies. Furthermore, with electricity and stationary energy related emissions contributing to the majority of Australia's emissions profile<sup>5</sup>, consecutive Australian parliaments and state governments have been unable to agree to cogent and nationally-consistent renewable energy and climate change policy frameworks. Where alignment has been agreed, such as the RET, it has been subject to continual adjustment.

- Volatile NEM wholesale market prices

With manufacturing in Australia declining and reducing demand, coupled with significant new VRE, the gaps in day time NEM demand versus supply profiles for the Queensland and New South Wales Pools are too high to allow commercial, medium term prices for new co-generation. Extending to Victoria also, the inherent and increasing capacity surpluses will continue to suppress long term power prices until there is a significant change in either, or both, supply and demand profiles. Regrettably, the limits on transmission links into South Australia and Tasmania limit the flow into these two transmission regions.

- AEMO generator performance standards and constraints

AEMO is imposing increased performance standards on generators (both generator and load) which is increasing compliance costs for connecting to the grid. Furthermore, Ergon Networks are requesting that when Connection & Access Agreements (CAs) expire compliance to tougher standards (even with old machines) will be required.

In addition, AEMO is now constraining co-generators when the grid is overloaded. An example of this is when new solar farms become connected to the nearby grid. AEMO applies the generator constraint to all semi and scheduled generators irrespective of whether they are distribution or transmission connected. The key is for cogeneration sites to remain a non-scheduled market generator so that it maintains flexibility to despatch energy aligned to the activities of the mill (producing power is a secondary objective behind manufacturing sugar and controls on energy despatch could disrupt factory operations) and to avoid negative day time pool prices.

---

<sup>5</sup> Quarterly Update of Australia's National Greenhouse Gas Inventory, December 2018