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Consultation on the Electricity and Energy Sector Decarbonisation Plan
Department of Climate Change, Energy, the Environment and Water

By email: EnergyandElectricitySectorPlan@dcceew.gov.au

To whom it may concern

ELECTRICITY AND ENERGY SECTOR DECARBONISATION PLAN

The Australian Sugar Milling Council (ASMC) is pleased to provide a submission to the Australian Government's consultation document – the *Electricity and Energy Sector Decarbonisation Plan ('the Plan').*

Through the optimization of available feedstocks, the sugar manufacturing sector can provide up to 1,053 ML of ethanol, which can create enough SAF to meet 8 percent of Australia's domestic aviation fuel needs, and a carbon abatement potential of 1.7 million tonnes per annum. Alternatively, feedstock can be dedicated to increased cogeneration capacity, increasing the sector's electricity generation capacity from 440 MW to 1068 MW of installed capacity (enough to power 850,000 homes if fully utilised), with 1.17 million tonnes of annual carbon abatement potential.

However, there are significant operational, market and regulatory constraints that can only be addressed through government intervention and regulatory changes (see recommendations).

ABOUT THE AUSTRALIAN SUGAR MILLING COUNCIL

As you may be aware, the ASMC is the peak industry organisation for the Australian raw sugar manufacturing sector. We represent sugar manufacturing companies who collectively produce 85 percent of Australia's raw sugar.

Our industry contributes $4.4 billion annually to the Australian economy and supports more than 20,000 jobs. Australian sugar manufacturers already make a substantial contribution to Australia's decarbonisation efforts via bio-fuel production and the green cogeneration electricity production.

SUMMARY OF ASMC RECOMMENDATIONS

Australian sugar manufacturers can provide tangible and near-term solutions for the Government's decarbonisation agenda, with the revenue diversification potential of cogeneration and biofuels not only providing solutions to hard to abate sectors, but also reducing our sector's exposure to highly volatile international sugar markets. However, government incentives are required in the short-term to ensure the required capital investments are made within the sector, and the regulatory environment must be changed in the longer term to recognize the benefits of cogeneration, including that it is a source of renewable, synchronous electricity.

The ASMC has provided the following recommendation that will promote the investment in additional cogeneration and bio-fuels capacity:

Cogeneration

- The development of a tradable market for the proposed Renewable Energy Guarantee of Origin Certificates (REGO's) that allows the market to value the renewable, carbon abatement and synchronous attributes of cogeneration (particularly important when the Renewable Energy Target is phased out).
- Changes to the proposed Capacity Investment Scheme (CIS) to allow non-scheduled synchronous renewable cogeneration of electricity to participate in the CIS in recognition of their grid firming benefits.
- Incentives for manufacturers to invest in bagasse liberalisation, densification and storage to increase cogeneration capacity and flexibility to export electricity.
- Continued pressure on network providers to advance cost-reflective network tariffs to encourage lower delivered electricity prices, and make investments in cogeneration more feasible.

Bio-fuels

- Progressive and enforceable biofuels mandates that provide additional incentives for domestically produced feedstocks and general production.
- The establishment of tradable market certificates for low-carbon bio-fuels supply.
- Early investment phase revenue support for bio-fuel producers by way of:
  - Production incentives like low-interest loans, grants, and contracts for difference.
  - Increased Government investment for R&D and commercialization of emerging technologies and processes to improve the supply chain viability and efficiency of biofuels production, particularly with respect to feedstocks.
  - Government procurement underpinning demand (e.g. Australian Defence Forces having percentage procurement targets for high-cost biofuels like Sustainable Aviation fuel).

Other

- Increasing reliable and sustainable cane supply can break the trade off between biofuels and cogeneration. Increasing cane supply from the average of 32 million tonnes p.a. to 36 million tonnes, would increase available feedstock by 12 percent. This can be achieved through better land-use planning measures (i.e protections for prime agricultural land), increased RD&E investment by Government, and calibrating environmental regulations to optimize both environmental and output outcomes.
- The expansion of biofuels and cogeneration requires significant capital investments. As such, the ASMC supports the repeal of the *Federal Sugar Code of Conduct,* and as a minimum for

Government to limit the Grower Choice and Pre-Contract Arbitration provisions to matters relating to further new raw sugar production. The Code as it stands, is a significant impediment and risk for the sector to make investments in Australia, including in cogeneration and biofuels.

- Noting the unique opportunities, and associated challenges, facing the sugar industry, we recommend a government-industry working group, including other feedstock providers, to progress these matters.

THE OPPORTUNITY: SUGAR MANUFACTURING'S RENEWABLE ENERGY & BIOFUELS POTENTIAL

Analysis completed by L.E.K Consulting (2022) demonstrates the significant potential of the sugar manufacturing sector to increase feedstock for cogeneration and biofuels using current cane supply levels and current cane harvesting and sugar milling processes (sugar cane tops & trash, bagasse from the cane, mill mud, molasses, cane juice and vinasse etc.).

Through the optimization of available feedstocks, the sector could provide up to 1,053 ML of ethanol, which can create enough SAF to meet 8 percent of Australia's domestic aviation fuel needs, and a carbon abatement potential of 1.7 million tonnes per annum (Table 1).

Table 1: Bio-fuels

Current ethanol capacity (per annum)	60 ML
Potential additional capacity	993 ML of ethanol
Total ethanol capacity potential	1,053 ML of ethanol
% of Australia's aviation fuel needs through SAF	8%
Potential (tailpipe) carbon abatement per annum (t/ CO2-e)	1.7 million tonnes
Potential (tailpipe) carbon abatement over 10 years (t/ CO2-e)	17 million tonnes

Source: L.E.K consulting and ASMC analysis

Alternatively, bagasse feedstock could be dedicated to additional cogeneration capacity, increasing the sector's electricity generation capacity from 440 MW to 1068 MW of installed capacity, with 1.17 million tonnes of annual carbon abatement potential (Table 2).

Table 2: Cogeneration electricity

Current cogeneration capacity and output	440 MW (1 million MWh)
Potential additional capacity	628 MW (1.5 million MWh)
Total cogeneration capacity potential	1,068 MW
Potential carbon abatement per annum (t/ CO2-e)	1.17 million tonnes
Potential carbon abatement over 10 years (t/ CO2-e)	10.2 million tonnes

Source: L.E.K consulting and ASMC analysis

The investments by the sugar manufacturers required to liberalise the required feedstock for bio-fuels and/or cogeneration electricity will be significant, and in some circumstances unviable. The main methods of liberalization of feedstock include:

1. Not using all the cane juice to make raw sugar but using the juice from certain factories to make ethanol in conjunction with other suitable feedstocks.
2. Introducing various energy efficiencies into the milling processes to reduce the amount of

bagasse that is required to run the factories, and

3. Diverting current molasses supply from agricultural feed to make ethanol.

The sugar manufacturing sector currently favors liberalization investments in cane juice and bagasse, based on operational, financial and risk considerations.

CONSTRAINTS TO INVESTMENT AND THE LACK OF SUPPORTING GOVERNMENT POLICIES

Whilst ASMC members share the Government's ambitions to grow the renewable energy and bio-fuels sectors, there are considerable uncertainties and constraints in the electricity and fuel markets that requires Government action to reduce investment risk.

Bio-fuels

While some technologies (like 2G ethanol and Alcohol-To-Jet) are yet to be proven at scale, the overwhelming constraint is, that at current market prices, investments in biofuels production would not provide a commercial return. As such, there must be a suite of integrated State and Federal government policies that encourage both the supply and demand of bio-fuels – with the primary objective of assisting bio-fuel manufacturers to achieve a commercial return on investment and encourage economies of scale to lower bio fuel costs. Over time this will create a sustainable market for biofuels.

Recommendations:

- *Progressive and enforceable biofuels mandates that provide additional incentives for domestically produced feedstocks and general production.*
- *The establishment of tradable market certificates for low-carbon bio-fuels supply.*
- *Government early investment phase revenue support for bio-fuel producers.*

Cogeneration

Currently, these generators are classified as non-scheduled under the National Electricity Rules and as the electricity is synchronous, cogeneration provides valuable firming (reliability and security) to the grid.

The electricity system is in transition, as we replace coal-fired generation and replace it with renewables that are firmed by storage such as batteries and pumped-hydro, and backed up by gas. This complex transition and changing regulatory and market settings is now creating significant issues for sugar manufacturers wanting to invest in greater cogeneration capacity, per:

<u>Diminishing green energy support</u>

Sugar manufacturers currently generate revenues from Large-Scale Generation Certificates (LGC's) which are expected to decline in value as the RET winds down by 2030 and the target is met.

The Government has proposed to replace the RET with the Capacity Investment Scheme (CIS) which is designed to provide long-term revenue certainty to successful renewable and renewable-dispatchable generators. However, and because the CIS currently precludes units less than 30 MW's and non-scheduled generators, sugar manufacturers will be unable to access this scheme and other ancillary markets despite delivering green, synchronous and firming qualities to the grid.

Recommendation: Changes to the proposed CIS to allow non-scheduled synchronous renewable cogeneration to participate in the CIS in recognition of their grid firming benefits.

Furthermore, and whilst Government has proposed to replace LGC's with REGO's which will generate certifiable and tradable renewable energy certificates, there is as yet no proposed government or market mechanism for cogeneration to be rewarded for generating REGO's and for the decarbonization and grid firming benefits it delivers.

Recommendation: The development of a tradable market for the proposed REGOs that allows the market to value the renewable, carbon abatement and synchronous attributes of cogeneration.

Price volatility

As PV installations increase, along with the load on the network, the NEM is likely to become 'peakier' resulting in increased price volatility (i.e more negative pricing during the day and higher prices during the peak periods).

This presents risks and opportunities for cogeneration and will require additional investments in bagasse liberisation, densification and storage to become more operationally versatile to be able to provide the feedstock to the boilers and dispatch electricity when the NEM requires it and when economic to do so.

Recommendations:

- *Incentives for sugar manufacturers to invest in bagasse liberalization, densification and storage to increase cogeneration capacity and flexibility to export electricity.*
- *Continued pressure on network providers to advance cost-reflective network tariffs to encourage lower delivered electricity prices and greater economic activity and employment.*

General barriers

Cane supply

There is a trade-off between renewable cogeneration and biofuels production due to the limited availability of feedstock. The same feedstock that provides the energy for cogeneration, can be used for the production of biofuels. A simply way to circumvent this trade-off is to increase feedstock availability through the increase of cane supply. Ensuring that reliable and sustainable cane supply is increased from 32 million tonnes p.a. on average to 36 million tonnes would increase feedstock by 12 percent, increasing the potential to create more biofuels and cogenerations. However, this requires an holistic approach to land-use planning, environmental regulations that co-optimise sustainability outcomes and output, and increased government investment R&D into the sugar value chain.

Recommendation: Holistic approach to increased cane supply including optimized land use planning policies, environmental regulations, and increase government R&D investments.

Investment uncertainty

A significant additional complexity unique to sugar manufacturing is the risks associated with pre-contract arbitration provisions contained in both Queensland and Federal law. The pre-contract arbitration provisions in the Federal Sugar Code of Conduct, and the Sugar Industry Act present risks to existing investments as well as potential future investments.

These provisions could lead to arbitration on a grower-sugar manufacturer cane payment matter resulting in an expropriation of financial returns from an investment made by the manufacturer prior to the arbitrated outcome.

Furthermore, the Code and the Sugar Industry Act (which details the requirements of a Cane Supply Agreement) do not allow for the production of renewable fuels instead of sugar. This is despite the fact that production of ethanol from juice being a low cost and low risk technology option for large scale ethanol production. This is considered a disincentive to investment given the lack of certainty on what future returns could be.

Recommendation: Repeal of the Federal Sugar Code of Conduct, and as a minimum for Government to limit the Grower Choice and Pre-Contract Arbitration provisions to matters relating to new raw sugar production.

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Yours sincerely

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