

2 September 2016

Director, Climate Change Team
Department of Environment and Heritage Protection
400 George St
BRISBANE QLD 4000

Via email: climatechange@ehp.qld.gov.au

Dear Sir/Madam

RE: Advancing Queensland Climate: Making the transition to a low carbon future

Thank-you for the opportunity to comment on the Advancing Queensland Climate: Making the transition to a low carbon future discussion paper. While there are a broad range of topics with questions, this submission focuses on the questions relevant to the sugar milling industry in Queensland.

The Australian Sugar Milling Council (ASMC) is the peak industry organisation for raw sugar milling in Australia. The ASMC has six member companies and represents some 95 per cent of Australian raw sugar production. There are 24 sugar mills in Australia producing raw sugar, 80 per cent of which is directly exported. Sugar milling companies produce a variety of other final products, including ethanol, electricity, value-added cattle feed, molasses, and compost.

Questions on page 27 - low carbon future in Queensland

Sugar mills can play an integral role in a low carbon economy into the future, and currently represent an under-utilised energy resource for bioenergy. The sugarcane plant is one of the world's most efficient converters of solar energy into chemical feedstock, making it suitable to derive a range of products from, including electricity and ethanol, and into the future, other biofuels and biochemicals. Sugar milling companies have the capacity to significantly expand their production of renewable electricity and biofuel, with no expansion to the existing industry footprint. These expansions can have payback periods in excess of 10 years, and as such, require the right policy settings to provide the necessary investor confidence.

Sugar mills have been generating renewable energy from waste sugarcane fibre for approximately 100 years in Australia, meeting their own electricity needs and exporting excess electricity to local networks. This capacity has been expanded since the Commonwealth Government's Mandatory Renewable Energy Target (MRET) was introduced in 2001, so that all sugar mills can export surplus electricity into regional distribution networks during the crushing season (June to November). There are some cogeneration projects that now generate for 50 weeks of the year, and are virtually base-load generators in terms of reliability. In 2014 sugar mills in Queensland produced almost 1,000



GWh of electricity, the equivalent of powering 173,000 homes. This expanded cogeneration capacity increases regional energy security and reduces government cost of Community Service Obligations. The current installed capacity in sugar mills in Australia for renewable electricity generation is 1000 GWh/year, but with the right policy settings, it could be expanded to over 9000 GWh/year, without any additional sugarcane production.

Ethanol has been produced in Sarina for around a century from molasses, a by-product of raw sugar milling. Only a relatively small portion of the industry's molasses is currently used to produce ethanol. The Queensland Government ethanol mandate is set at 4% in 2017, which is able to be met with existing production capacity and feedstocks. Next generation ethanol technology and future biochemicals are also likely to use cellulosic feedstock, and not require or drive an expansion of sugarcane production. The comments on P25 of the strategy about the increased demand for feedstock resulting in expansion of cane production and the increased use of fertiliser are unfounded and incorrect. Further, there is significant work currently underway to improve the management of fertilisers and chemicals on farms, and innovative options being assessed for managing runoff water to close the irrigation loop.

The transition to renewable energy is already occurring globally, using a range of technologies including biomass from waste. The Queensland Climate Change Discussion Paper has a very strong focus on solar (PVC) electricity, but an effective and sustainable Queensland renewable energy policy needs to be technology diverse and recognise the importance of despatchable renewable electricity generation, not just 'must-run'.

Targets for renewable energy and biofuels drive the desired change through enabling access to an otherwise restricted market. However, it is critical that scheme design enables an efficient investment in renewable electricity generation that supports network stability and reliability.

Questions on P29 - Renewable energy and energy efficiency

There are a range of opportunities for increasing the penetration of renewable energy in the Queensland energy market, particularly in regional areas. As discussed above, sugar mills are one such opportunity that has the potential to more than double without increasing the land under sugarcane. Mills have traditionally burnt bagasse (the waste sugarcane fibre) inefficiently to dispose of it, but with the right policy settings, have the potential to invest in improving mill efficiency and retaining bagasse for electricity generation beyond the crushing season.

The main barrier to increasing renewable electricity from sugar mills is access to electricity markets. Fossil fuel generators with their legacy of government support (capital investment, subsidised fuel, fuel transport and water, long term power purchase agreements, etc) have created an exclusive electricity market¹. At a federal level, the RET has provided opportunity for new entrants, who would otherwise be unable to

¹ Foster, T & D Hetherington. 2010. Energy Market Design and Australia's Low-Carbon Transition: A Case Study of Distributed Gas Power. PerCapita.



compete with incumbent generators.

The RET creates a market for renewable electricity, and therefore the capacity for renewable electricity generators to enter into power purchase agreements that provide the additional revenue that delivers an acceptable return on investment. Programs that provide upfront capital investment are helpful in overcoming barriers related to upfront capital costs. However, there still needs to be a market for the electricity to provide return on investment.

Questions on P39 - Land use planning

Sugar mills create opportunities for regional development through providing energy, including steam, electricity and biofuels for other co-located or locally based energy-intensive industries. Land use planning can enable these opportunities. More broadly, embedded energy of any renewable electricity source results in greater grid resilience and improved energy security in regions. There is significant opportunity for renewable energy generators to work together for continuity of supply.

Careful land use planning is not only important for carbon farming. It is required to avoid inappropriate placement of any renewable energy proposal and to maximise the benefits of decentralised regionally based renewable energy projects. Regionally based embedded generation increases regional energy security and reduces government costs for Community Service Obligations. Conversely, allowing solar farms on highly productive farm land is inefficient for both food production and farm profitability. For example the Clare Solar Farm was allowed to be constructed on some of the most productive sugarcane growing land in Australia. Such a placement not only takes that area out of production, but reduces the efficacy of infrastructure investment in cane railways, irrigation and processing. The solar farm could have been placed 20km away, still in a high solar region, but not on good quality agricultural land.

Yours sincerely

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