



Submission

To

**The Australian Parliament's Inquiry into the Development of Northern
Australia**

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Chairman

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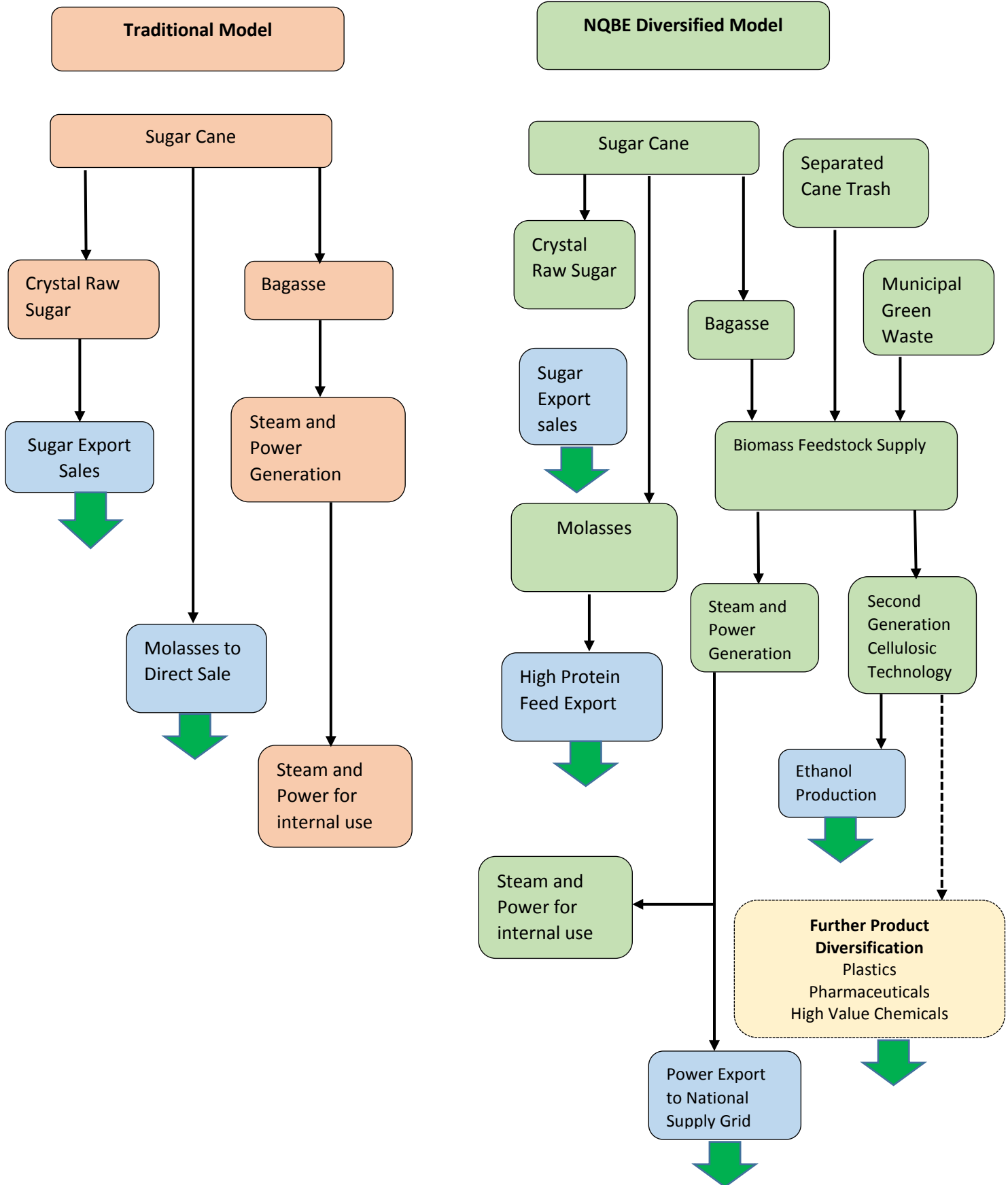
Introduction

1. The Australian Sugar Industry is the **3rd largest** raw sugar producer in the World, with approximately 80% of its annual raw sugar production sold on the world export market and it generates an annual gross revenue of between \$1.7 to \$2.0 billion.
2. The Australian sugar industry is the **7th largest** agricultural exporter in Australia and supports approximately 4000 cane farming businesses and associated supporting businesses.
3. The Australian Sugar industry currently enjoys a strong and justifiable international reputation as a leader in sustainable cane farming practices.
4. Unfortunately, apart from a few limited exceptions, the total focus is on the production of raw sugar crystal only and this has seen the Australian sugar industry slip further behind its International sugar competitors in terms of product diversification and value adding opportunities.
5. This blinkered approach, surrounding product diversification, has also transferred and negatively impacted on the cane variety research and development programme, with little effort or emphasis being directed towards development of higher fibre yielding (commonly referred to as energy canes) varieties for release to farmers.
6. This lack of “vision” by Sugar Industry leaders has resulted in a reduction of sugar cane yields, the loss of cane land to other crops or uses, the break up or weakening of the traditional family orientated farming model and the reduction in revenue or income to the local communities that support the cane industry.
7. It should be noted that the Australian sugar producers are considered ‘price takers’ and not ‘price makers’.
8. Australia’s competitors (Brazil, India, and Thailand) have made significant advances in diversifying their sugar industries with the adoption of ethanol production, electricity generation from the waste material (bagasse) and other renewable products.
9. There is also an increasing public acceptance of the need to reduce greenhouse gas emissions, improve air quality in major cities and to find alternative renewable fuel sources that will extend the availability of crude oil.
10. It is also a well-established fact that the sugar cane plant is an efficient producer of fibre, as well as sucrose (i.e., crystal sugar). In addition to using the waste fibre for electricity generation, the potential yield of ethanol from the fibre content of sugar cane (i.e., the Bagasse) is almost equivalent to the yield of ethanol from the sucrose content of the sugar cane.
11. Any Federal government action for northern Australia, particularly North Queensland, should include policies that allow for increased use of an abundant waste material (sugar cane bagasse – the product of sugar crystal production) to generate additional revenues for the regions sugar cane based communities, whilst at the same time, ensuring a viable and sustainable industry, providing power security for the region, increasing employment and reducing the need for Federal government “bailout” assistance packages, such as the \$444m SIRP package provided in 2004.

North Queensland Bio-Energy Corporation Limited – Leading Sugar Industry Diversification

12. The North Queensland Bio-Energy Corporation Limited (NQBE) project in Ingham, North Queensland, is an excellent example of how the sugar industry can diversify. The new “green field” facility will be Australia’s first multi-functional sugar factory and has been designed along similar lines to new-age diversified, sugar factories that have been operating successfully for more than 10 years in countries such as Brazil, India and Thailand.
13. NQBE is a consortium of local 220 cane grower shareholders in the Herbert River District in North Queensland, Australia.
14. NQBE is currently finalising finance and equity with overseas investors for the establishment of a new, diversified, biomass based energy complex. All of the biomass feed stocks are annually renewable and are sourced from the North Queensland region. Construction is expected to commence during year 2014 with manufacturing operations to commence in June 2017.
15. Feed stocks to the facility include, locally grown sugar cane, **plus** surplus sugar cane trash from the cane harvesting operation, **plus** wood chip from pine plantation gleanings in the local area, **plus** municipal green waste sourced from the local Councils within the region.
16. In the first year of operations, products will include raw crystal sugar for export, high protein feed produced from the molasses by-product and power generation and export to the National grid system, using the annually renewable biomass materials as the fuel source for steam generation.
17. NQBE will introduce ethanol production utilising the second generation “cellulosic” technology, currently being commercialised by Ethanol Technologies Limited (Ethtec), during its second year of operations. Ethtec is an Australian owned company and its technology is capable of producing large volumes of low cost sugars from any lignocellulosic material.
18. The **sugars** produced from the Ethtec process can be used for the production of bio-fuels, bio-plastics, bio-detergents, bio-degradable chemicals and many other products. **Lignin** can be used as a renewable solid fuel for heat and power generation or for the production of a range of value added renewable chemicals. **Ethanol** can be used as a renewable liquid fuel for transport, agriculture, forestry, mining and remote area electricity generation.
19. Two main advantages of the Ethtec process are; **Firstly**, all feed stocks required are annually renewable biomass based materials, such as sugar cane bagasse, municipal green waste, crop stubble and wood chip. **Secondly**, the effluent outflow from the process is zero in comparison to the traditional ethanol production processes currently being used.
20. Benefits which will flow with the commencement of operations will include –
 - Improved income or revenues for growers and millers.
 - Revitalisation of the local economic base.
 - Improved employment prospects for the Northern region.
 - Additional product export from the Port of Townsville.
 - Provision of a base load electricity generator in the Northern region, utilising annually renewable biomass fuel sources.

Sugar Industry Traditional Production versus NQBE Diversified Production Model



Terms of reference: “Examine the potential for development of the region’s mineral, energy, agricultural, tourism, defence and other industries.”

1. The sugar industry has a valuable resource which is currently wasted. With the exception of small scale power plants at Victoria Mill in Ingham (4-6MW) and Pioneer in Ayr, the bagasse (the “waste” left after the cane is crushed and the juice extracted) is burnt off or incinerated, with no benefit to the farmers or the millers, and to the detriment of the environment.
2. Given the need for consistent base-load power in northern Australia, to not only cater for existing demand, but also cater for the expansion of the mining and other industries in the future, the sugar industry is ideally placed to provide large volumes of clean, green, renewable power.
3. These new-age sugar factories will provide:
 - Significant quantities of low cost renewable power at strategic locations along the coastline of northern Australia.
 - Additional income for sugar cane farmers and millers, securing the future of this major industry for decades to come.
 - A major economic boost to regional communities in North Queensland, most of which are facing an uncertain future.
4. When operational in 2017, the \$500 million NQBE factory will crush 2.5 million tonnes of sugar cane, the bagasse from which will be burnt in high pressure boilers to generate renewable power.
5. By using state-of-the-art technology proven in similar sugar/power factories around the world, NQBE will generate approximately 105mW of renewable power over 320 days per annum – 65 to 80 mW of which will be available for export into the national electricity grid.
6. Given that the Australian Sugar Industry crushes 30-35 million tonnes of sugar cane annually, if the NQBE model was rolled out in all sugar growing areas, the potential for generation of renewable power is enormous.
7. The development of similar multi-functional factories in other sugar growing areas would provide affordable renewable power, hundreds of jobs, and emergency power security in Far North Queensland (including Atherton, Cairns, Innisfail and Tully) and North Queensland (Ingham, the Burdekin district, Proserpine, Sarina and Mackay).
8. The commercialisation of the Ethtec technology has the potential for the establishment of “stand alone” factories in regional centres for the production of ethanol and other products which would utilise the annually renewable, biomass feed stocks required. Typically, a feed stock resource of 150,000 tonnes annually would enable ethanol production of approximately 30m litres ethanol per annum from a single, standalone factory

Terms of reference: “Provide recommendations to enhance trade and other investment links with the Asia – Pacific; establish a conducive regulatory, taxation and economic environment; address impediments to growth; and set conditions for private investment and innovation.”

1. The potential of the NQBE project to revolutionise the sugar industry has been recognised by the Queensland Government, who declared the project, a Significant Project in 2012.
2. The NQBE project is renewable energy project with a strong environmental focus. The Federal Government has declared the NQBE project, “not a controlled action” for environmental purposes, which is significant.
3. All the necessary development approvals are in place and the facility design has been finalised.
4. Attracting private investment, as well as superannuation and managed fund investment into sugar industry based projects, has proved difficult for a number of reasons which include;
 - The lack of a leadership and vision from the Sugar Industry’s leaders in relation to diversification opportunities. Many opportunities were and still are being actively campaigned against;
 - A perception that the industry relies too heavily on Federal government handouts or assistance. The assistance or handout funds should be directed to value adding projects that could provide the opportunity for a sustainable industry; and
 - The lack of a consistent bi-partisan approach from both sides of government in relation to energy policy (power & ethanol);
5. Stable Federal Government energy policy (power & ethanol) is essential to provide the necessary confidence to the investment and banking sectors.
6. Because of the points raised in item 4, the Federal government policy platform should provide for some form of early start up assistance for the first couple of similar type facilities to allow confidence to build and attitudes to change.
7. Policy consistency is a key essential element.
8. The main destination for sugar will still be the traditional south east Asia markets, however, the power will be consumed in north Queensland, thereby shoring up power security in that region.

Community Benefits

The full suite of net regional economic impacts of the NQBE Bio-Energy plant, operating with a throughput of 2.5 million tonnes of cane 'diverted' from the traditional sugar milling sector, and inclusive of all flow-on effects, are shown in Table 1 below.

Table 1: Net Regional Economic Impacts of the Bio-Energy Plant

Sector	Output (\$ million per annum)	Employment (Number of full time jobs)	Value Added (\$ million per annum)	Income (\$ million per annum)
Bio-energy sugar milling	193.1	207	102.3	17.6
Traditional sugar milling	-132.0	-106	-52.1	-7.4
Wholesale and retail trade	11.0	71	5.3	3.6
Finance, property and business services	7.3	21	3.1	1.6
Dwelling ownership	2.9	0	2.4	0.0
Electricity supply, gas, water and waste services	2.7	10	1.7	0.4
Machinery, appliance and equipment manufacturing	1.6	4	0.5	0.3
Accommodation, cafés and restaurants	1.0	7	0.5	0.3
Road transport	1.0	5	0.5	0.2
Health and community services	0.8	7	0.5	0.4
Cultural and recreational services	0.6	4	0.3	0.2
Personal and other services	0.3	3	0.2	0.2
Education	0.3	3	0.3	0.2
Other	6.0	17	2.5	1.0
Total	96.6	253	68.0	18.6

Source: Input-output analysis

Table 1 indicates that despite negative impacts on the traditional sugar milling sector, the NQBE Bio-Energy plant leads to positive overall net gains for the regional economy, including:

- a net increase of \$96.6 million in regional output (business turnover),
- a net increase of 253 in regional employment (full-time jobs),
- a net increase of \$68.0 million in regional value added (contribution to GRP), and
- a net increase of \$18.6 million in regional income (wages and salaries paid).

Source: NQBE Economic Impact Assessment report prepared by Herron Todd White.

Terms of reference: “Identify the critical economic and social infrastructure needed to support the long term growth of the region, and ways to support planning and investment in that infrastructure.”

Focused education by professional providers, in conjunction with key industry stake holders, is viewed as an important infrastructure cornerstone in the development of the Northern region.

1. Long term training and development is required to develop the “professional owner manager” skill set required in the diversified and modernised sugar industry and to remove the perception of the farmer not being a professional in his area of expertise.
2. Emphasis to be placed on providing a career path for the development of the younger generation to become professional managers. The demise of the “traditional” Agricultural College type education has led to the reduction of skill sets among the younger generation.
3. The establishment of Centres of Excellence to provide recognised primary industry focused education leading to formal qualifications. Subject area of focus would include management and financial methods and efficiencies, environmental understanding and management, chemical understanding and management and farming fundamentals to include farm husbandry and methods as well as engineering basics and management.
4. Formal qualification recognition based on prior learning by experience should be encouraged with particular emphasis on producers, perhaps more applicable to the middle and older generations of producers, who have not had the opportunity over the years to formally define a formal career path.

Additional infrastructure viewed as a necessity for the Northern development would include.

5. The development and upgrade of the Bruce Highway to provide the vital transport and communication link required during all-weather events.
6. Provision of International aviation links with Townsville in particular to enhance personal communication links with Asian partners.
7. Revision of the power transmission infrastructure system to ensure minimum losses to the grid system and to ensure a degree of redundancy is available within the distribution system.
8. Enhancement of electronic communication system such as phone and internet services to ensure timely and reliable communications.
9. Relocation of identified Government agencies into the Northern regions to assist in stream lining system and procedures related to Northern development and potential foreign investment opportunities.

Summary

1. Sugar cane production and the associated infrastructure already exist in North Queensland.
2. Sugar cane is an annually renewable **BUT** underutilised crop.
3. A valuable resource (bagasse) is being incinerated, rather than used to produce additional revenue streams (electricity & ethanol) that would benefit the grower, the miller and the local community.
4. A government endorsed “step” change is required to maximise the benefits of an industry that not got the capacity to recognise the potential it has in its resource.
5. The Economic Impact Assessment undertaken for the NQBE project demonstrates the profound effect that a project of this nature can have on a community.
6. Carefully considered and consistent Federal government energy policy is paramount.
7. Educational infrastructure, such as Agricultural colleges, is a key element for developing northern Australia.
8. Removal of bureaucratic “red tape” is also a key element.
9. Some initial start-up assistance or support to assist in the “step” changes is recommended.
10. The established north Queensland Sugar Industry does have the potential and the capacity to assist the Federal government achieve its desired outcome for the region.

