Annexure E

Synergies Economic Consulting report

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Proposed declaration of Sucrogen's Herbert River tramway service network

An application of the Part IIIA access declaration criteria

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Executive Summary

Synergies has been engaged by Corrs Westgarth Chambers on behalf of Sucrogen to assist with preparation of a submission to the National Competition Council (NCC) in relation to an access declaration application by the North Queensland Bio-Energy Corporation Ltd (NQBE). The application is in regards to below rail services provided at Sucrogen Herbert Pty Ltd's (Sucrogen's) Tramway Service Network in the Herbert River district.

We have undertaken an assessment of whether the access criteria in Part IIIA of the Trade Practices Act 1974 are satisfied in relation to Sucrogen's below rail services.

Service to which access is sought

We consider that, taking into consideration relevant regulatory precedent, the following is a list of potentially declarable below rail services that are provided by Sucrogen's Tramway Service Network:

- use of tram lines and associated track infrastructure;
- use of siding facilities connected to tram lines to load harvested sugarcane into tram bins and use of tram lines connected to unloading facilities at the Port of Lucinda Bulk Sugar Terminal; and
- provision of short-term dwelling or storage of trams on the tram lines and associated track infrastructure due to the unavailability of the loading or unloading facilities, or the temporary unavailability of the tram lines or the temporary breakdown of trams.

This service definition should be used for the purpose of applying the Part IIIA access criteria.

Part IIIA's access criteria

It is reasonable to define a sugarcane and raw sugar haulage services market in the Herbert River district within which Sucrogen is supplying its below rail services. This definition recognises that road transport can provide an alternative competing service to the Tramway Service Network, at least for small cane and raw sugar volumes.

In relation to the defined below rail service, in our view, the access criteria are not satisfied, except for the health and safety and effective access regime criteria.

Economic to duplicate

It would appear that there is sufficient existing capacity to meet reasonably foreseeable demand over a 5 to 10 year period if it is assumed that only a single above-rail operator (i.e. Sucrogen) uses the Tramway Service Network. However, we consider that significant expansion works would be required in the event that another above rail operator was to obtain access given the tramway's relatively basic structural characteristics reflecting its single rail operator status over its life.

The purpose of these expansion works would not be to meet additional foreseeable demand as such, but rather to minimise disruptions to the existing highly integrated harvesting, rail and milling operations.

However, the existence of road transport as a competing service for the Tramway Service Network means that a regulated rail access price based on the standard building block approach generally used by Australian regulators would unlikely to be sustainable in the market for sugarcane and raw sugar haulage services.

As a result, we consider that there is a strong element of doubt about whether the declaration application satisfies the uneconomical to duplicate test.

Promote competition in dependent markets

The following dependent market(s) were identified and assessed:

- sugar cane production and sales market
- sugar cane processing market
- domestic (national) fuel sales market
- domestic (national) electricity sales market
- international sugar sales market
- Port of Lucinda bulk sugar terminal services market
- international shipping services market.

The structural and competitive circumstances in each of the dependent markets, while different, are such that access (or increased access) to the market for below rail services provided by Sucrogen on the Tramway Service Network is judged unlikely to

materially increase competition in each of them. As a result, we consider the promotion of competition criterion (s. 76(2)(a)) is not satisfied.

National significance

In relation to the size of the facility, we do not consider that it is of sufficient size to be considered nationally significant, having regard to its small geographic spread within the Herbert River district, its current relatively low estimated replacement cost, its capacity and its annual throughput levels.

In relation to the importance of the facility to constitutional trade or commerce, the Herbert River district's contribution to total export income earned by the Australian sugar industry is not considered sufficient for the Tramway Service Network to be considered nationally significant. Moreover, as an export-focussed facility, the Tramway Service Network's importance to the national economy can only be reasonably viewed in terms of its importance to constitutional trade and commerce.

We do not consider that the Tramway Service Network satisfies the national significance criterion.

Public interest

Based on an assessment of the likely efficiency impacts of the declaration of the Tramway Service Network, we consider that the public detriment associated with declaration is likely to significantly outweigh any public benefits.

The key observations taken into consideration were:

- the significant efficiency losses associated with:
  - scheduling complications and disruptions, including in relation to the harvesting and transportation operations in the Herbert River district; and
  - loss of above rail service efficiencies;
- the additional administrative costs likely to be incurred in the event that the service provided by the Tramway Service Network is declared;
- other costs associated with access regulation, including the cost of regulatory error and regulatory risk; and
- the apparent lack of material offsetting public benefits associated with NQBE's proposal.

As a result, we consider that declaration of the Tramway Service Network would be contrary to the public interest and so this criterion is not satisfied.

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1 Introduction

North Queensland Bio-Energy Corporation Ltd (NQBE) has lodged an application to the National Competition Council (NCC) under section 44F(1) of the *Trade Practices Act 1974* (Cth) (Trade Practices Act) requesting the declaration of several services provided by the Herbert River Tramway Service Network (the Tramway Service Network) owned by Sucrogen Sugar (Herbert) Pty Ltd (Sucrogen).

Sucrogen is currently the sole operator of the 550km Tramway Service Network located in the Herbert River district.[1] The network is used to transport harvested sugarcane from growers in the district to Sucrogen's two mills - Victoria and Macknade. The sugarcane is then processed into raw sugar before being transported to the Port of Lucinda Bulk Sugar Terminal for export.

Synergies Economic Consulting (Synergies) has been engaged by Corrs Chambers Westgarth (Corrs) on behalf of Sucrogren to assist with a submission to the NCC in relation to NQBE's declaration application, focusing on the economic issues raised in the application.

The remainder of this report is structured as follows:

- Chapter 2 summaries the application of the coverage test under Part IIIA of the Trade Practices Act, including the declaration criteria in section 44G(2);
- Chapter 3 considers the production process threshold under Part IIIA of the Trade Practices Act and its relevance to the Tramway Service Network;
- Chapter 4 discusses the services to which access is sought;
- Chapter 5 considers whether it is uneconomical to duplicate the Tramway Service Network (criterion (b));
- Chapter 6 assesses the potential for the promotion of competition in dependent markets (criterion (a));
- Chapter 7 assesses the national significance of the Tramway Service Network (criterion (c));
- Chapter 8 considers health and safety issues raised by the application (criterion (d));

[1] The boundary of the Tramway Service Network is Crystal Creek to the South, the Cardwell Range to the North, the seaboard to the East and Abergowrie and Upper Stone to the West.

- Chapter 9 considers whether the Tramway Service Network is already subject to an effective access regime (criterion (e));
- Chapter 10 assesses public interest issues raised by the application (criterion (f)); and
- Chapter 11 presents the conclusions from our assessment of the declaration application.

2 Application of Part IIIA coverage test

The NCC may recommend that a service be declared if it is satisfied that all of the criteria set out in section 44G(2) of the Trade Practices Act are met. If any of the six criteria are not met, the NCC must reject the application for declaration.

The declaration criteria are as follows:

(a) that access (or increased access) to the service would promote a material increase in competition in at least one market (whether or not in Australia), other than the market for the service;

(b) that it would be uneconomical for anyone to develop another facility to provide the service;

(c) that the facility is of national significance, having regard to:

  (i) the size of the facility; or

  (ii) the importance of the facility to constitutional trade or commerce; or

  (iii) the importance of the facility to the national economy;

(d) that access to the service can be provided without undue risk to human health or safety;

(e) that access to the service is not already the subject of an effective access regime; and

(f) that access (or increased access) to the service would not be contrary to the public interest.

The declaration application is assessed against each of these criteria in the following sections of this report.

It is important to note that if access to the service does not satisfy the definition of 'service' as provided in section 44B of the Trade Practices Act it cannot be declared. The definition provided in the relevant section of the Trade Practices Act is as follows:[2]

> "service" means a service provided by means of a facility and includes:
>
> (a) the use of an infrastructure facility such as a road or a railway line;
>
> (b) handling or transporting things such as goods or people;
>
> (c) a communications service or similar service;

[2] *Trade Practices Act 1974*, section 44B.

but does not include:

(d) the supply of goods; or

(e) the use of intellectual property; or

(f) the use of a production process;

except to the extent that it is an integral but subsidiary part of the service.

Section 3 considers the issue of whether access to the services provided by the Tramway Service Network entails 'the use of a production process'.

3 Production process threshold under Part IIIA

Section 44B of the Trade Practices Act states that if a service constitutes 'the use of a production process' it does not satisfy the definition of a service as it is applied in the Trade Practices Act and is therefore exempt from the declaration criteria in section 44G(2).

Based on our economic assessment in the following sections of this chapter, we consider this to be the case for the Tramway Service Network.[3]

3.1 Tramway Service Network and the sugar the production process

Having regard to the arrangements for the harvesting, transportation and processing of sugarcane in the Herbert River district, we consider that the Tramway Service Network forms an integral part of the self-contained raw sugar production process that terminates at Sucrogen's Victoria and Macknade mills. This production process forms part of the wider supply chain that includes the transportation of raw sugar from Sucrogen's mills to the Port of Lucinda Bulk Sugar Terminal for export.

From an economic perspective, a critical consideration in determining whether this series of operations constitutes a production process is the intensity and associated efficiency of the interface between different elements of the process. This is broader than a consideration of the technical inputs required to produce a given output. Rather, it requires consideration of how, and the extent to which, one element of the process can affect another. That is, it requires consideration of the interdependencies between different elements of the production process, taking full account of logistical, timing and physical efficiency considerations.

In the case of Sucrogen's production process, there are very strong interdependencies between elements of the production process, encompassing the harvesting, transporting and processing of cane. These interdependencies reflect two key characteristics: the time-sensitive nature of the process of producing raw sugar from harvested cane; and the close integration of the transport task with harvesting and crushing operations.

The time-sensitive nature of the operations in the Herbert River district is attributable to the following factors:

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[3] The production process threshold under Part IIIA has been subject to interpretation by the Courts, which is discussed in Sucrogen's submission to the NCC. As a result, this chapter focuses only on economic issues in relation to production processes.

- an inability to stockpile harvested sugarcane due to its rapid deterioration;
- the importance of minimising the delay between the harvesting and crushing of sugarcane in order to maximise returns to cane growers; and
- the adverse consequences of failing to complete the harvesting and crushing task by the end of the crushing season (i.e. prior to the onset of the wet season) due to the corresponding negative impact on current and future grower returns.

These factors dictate that a high level of importance is placed on the time that is taken to complete the transport task in relation to the efficiency and productivity of sugar crushing operations in the Herbert River district.

While the time-sensitive nature of the operations is also largely responsible for the extent to which the task of transporting the harvested sugarcane is integrated with the harvesting and crushing operations, the following factors are also relevant:

- the entire system (harvesting, transport and crushing) operates at very high levels of utilisation for the duration of the cane harvesting season, with minimal spare capacity, particularly in the sugar crushing operations;
- the scheduling of the harvesting task must be closely integrated with the crushing schedules due to the rapid deterioration of harvested sugarcane, particularly when it is considered that the two crushing mills are not centrally located; and
- there is a requirement to track each cane growers' product through to the crushing stage in order to determine the payments to be made to each grower, as returns to individual growers are determined by the Commercial Cane Sugar (CCS) content of harvested cane.

In effect, Sucrogen performs a single integrated scheduling function at the core of its production process. Given the time constraints involved in harvesting and processing cane, Sucrogen co-ordinates harvesting, transportation and crushing schedules in order to optimise sugar content and, hence, returns to both growers and itself. This integrated scheduling task provides a strong indication of the interdependencies of the production process.

Third party rail access will drive a wedge between the scheduling of harvesting and crushing operations, due to the split in the transport link in the production process. This break will create two additional interfaces between the new above rail operator and growers and Sucrogen respectively. Those growers choosing to use the new rail operator will no longer have a direct contractual relationship with Sucrogen. At best, this will entail a significantly more complicated and riskier scheduling function. At

worst, it could introduce inefficiencies into the production of raw sugar if the additional interfaces are not managed effectively, which will be reflected in lower returns to the production and processing of sugarcane.

Another indication of the highly integrated nature of the production process is the lack of a stockpiling 'buffer'. Stockpiles in other bulk commodity transport processes, such as coal and iron ore, are used as a buffer where, in effect, the transport task can be halted for a period whether for a planned or unplanned purpose, while the production process can continue unaffected by disruption because of the stockpile. In contrast, the time-sensitive nature of raw sugar production dictates that stockpiling (at farm or mill) is not an option. Consequently, the harvesting, transporting and processing of cane must be highly integrated to avoid product deterioration and resulting economic losses.

Given the highly integrated nature of the production process, the risks and associated potential costs of a disruption due to third party rail access are large. Disruptions and delays in train services will potentially have major impacts on the CCS content of cane and, therefore, output from the region and returns to both growers and millers. This reflects the nature of the product in question and is a key difference between raw sugar production and either coal or iron ore production. These are consequential economic losses which are not easy to quantify and typically would not be recovered by access charges or more broadly under access agreements.

These characteristics point to the high level of integration and coordination that is necessary between the cane harvesting, transportation and crushing operations in the Herbert River district. It is therefore not appropriate to consider these activities as distinct operations but rather as components of an integrated production process that culminates with the manufacture of raw sugar at Sucrogen's Victoria and Macknade mills.

3.2 Conclusion

The services provided by Sucrogen's Tramway Service Network are considered to constitute an essential component of the raw sugar production process in the Herbert River district. This production process commences with the harvesting of the sugarcane and culminates with the manufacture of raw sugar at Sucrogen's Victoria and Macknade mills.

It is therefore concluded that, based on the definition of a 'service' provided by Sucrogen in section 44B of the Trade Practices Act, the Tramway Service Network should be precluded from an assessment against the declaration criteria in section 44G(2).

However, it is noted that should the NCC's assessment arrive at a different conclusion to that of Synergies (i.e. the services provided by the Tramway Service Network do not constitute part of the sugar production process in the Herbert River district, but are rather a distinct operation), the declaration criteria in section 44G(2) of the Trade Practices Act would become relevant. These criteria are evaluated, having regard to the services to which access is sought, in the remainder of this report.

4 Services to which access is sought

The first step in assessing whether a service should be subject to access regulation is to determine the scope of the service to which access is sought. It is important to distinguish between potentially declarable services and those services that should not be declared on the basis that they are already subject to competition. Declaring services that are already subject to a competitive constraint can result in costly distortions to service provision.

Any right to negotiate access to the service (if it were to be declared) should also be suitably limited by a reference to its purpose. Defining the service by referring to the purpose of its provision is also necessary to distinguish the dependent markets from the market for the service to which access is being sought.

The service to which NQBE is seeking access is defined in sections 2.6 and 2.7 of its declaration application:[4]

> The service which NQBE seeks to have declared is the use of the facility comprising the narrow gauge cane tram network owned and operated by CSR in the Herbert River district, North Queensland and which is approximately 530km in length (Tram Service).

NQBE also stated that this would include the use of all associated infrastructure necessary to allow for the operation of a third party on the Tramway Service Network.[5] According to NQBE this includes, but is not limited to:

- tram track, associated track structures and track supports
- bridges
- passing loops
- tram control systems, signalling systems and communication systems
- sidings and refuges to part rollingstock
- easements and other facilities which provide access to the tram network.

These can be broadly categorised as 'below rail' services. Below rail services relate to the use of the track and associated infrastructure. Alternatively, 'above rail' services

[4] North Queensland Bio-Energy Corporation Limited (2010). Application for Declaration of CSR's Tram Network, paragraph 2.6, p 2

[5] NQBE, paragraph 2.7, pp 2-3

relate to the operation of rollingstock on the track infrastructure, and includes the use of locomotives and vans or wagons.

We hold concerns over NQBE's definition of the services to which declaration is sought. We consider that NQBE has sought access to services to which Sucrogen either is not able or should not be required to provide access, specifically:

- sidings and refuges to park rollingstock
- easements and other facilities which provide access to the tramway route.

Where NQBE's declaration application refers to 'Sidings and refuges to park rolling stock', it is not clear whether it is referring to short or long-term rollingstock parking and/or storage requirements. We consider that additional clarity is required on this point.

We consider that access to sidings and refuges to park rollingstock should only be provided to the extent that it is necessary to allow a third party operator to conduct point-to-point operations on the Tramway Service Network. This would mean that Sucrogen would be required to provide access to facilities enabling the short-term storage of a third party operator's rollingstock (to the extent that this short-term storage or parking was necessary for the third party to operate on the network).[6]

In contrast, the long-term storage of rollingstock would be the responsibility of the third party operator. This stance is consistent with a conclusion reached by the NCC in its assessment of the declaration application for Victoria's intrastate rail network:[7]

> The Council concludes that any declaration should incorporate all infrastructure, including the rail network, sidings and branch lines, necessary to provide point to point network services nominated by the application.

This approach would also be consistent with that adopted in Queensland Rail's access undertaking, which clearly states that the access provider is only required to provide access to facilities for the short-term storage of rollingstock.

NQBE's reference to the provision of access to easements is also of concern. This issue is discussed in detail in sections 3.4 to 3.28 of Corrs' submission to the NCC.

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6 However, we understand that there is insufficient siding capacity for two above rail operators on the Tramway Service Network. This issue is further discussed in chapter 5.5 of this report

7 National Competition Council (2001). Application for declaration of rail network services provided by Freight Australia - Final Recommendation, pg 10.

We consider that, taking into consideration relevant regulatory precedent, the following is a list of potentially declarable below rail services that are provided by Sucrogen's Tramway Service Network:

- use of tram lines and associated track infrastructure, including passing loops, bridges and tram signalling and communication systems to run sugarcane and raw sugar rollingstock;
- use of siding facilities connected to tram lines to load harvested sugarcane into tram bins;
- use of tram lines attached to unloading facilities at the Port of Lucinda Bulk Sugar Terminal to unload raw sugar; and
- provision of short-term dwelling or storage of trams on the tram lines and associated track infrastructure due to the unavailability of the loading or unloading facilities, or the temporary unavailability of the tram lines or the temporary breakdown of trams.

5 Uneconomical to duplicate – criterion (b)

This criterion has been assessed in accordance with an approach that is consistent with NCC past practice:

- definition of the market relevant to the service for which access is being sought and an assessment of potentially competing service providers;
- an assessment of the barriers to entry to the relevant market;
- an assessment of the expected demand for the service, including an analysis of whether the Tramway Service Network possesses sufficient capacity to satisfy this foreseeable demand; and
- an assessment of the expansion costs that would be incurred if access was to be provided and a comparison of these costs against those that would be incurred in developing another facility to provide the service to which access is sought.

The purpose of this approach is to determine whether access can be provided at least cost by the Tramway Service Network itself, or by new or other existing facilities in combination with, or separate to, the Tramway Service Network.

5.1 Defining the market

There are four dimensions to defining the relevant market for a service to which access is sought:

- product – types of services or products available to meet demand;
- functional – stage of the activity in the production or distribution chain;
- geographic – spatial definition of the market, including whether the market is limited to a particular region; and
- time – period over which substitution possibilities are considered and actual and potential competitors identified.

Substitutability of demand and/or supply is typically the main economic basis used to define the relevant market for the purpose of assessing competition-related issues. Supply-side substitution refers to the ability of suppliers of other products or services to respond to a price increase by readily switching their production capacity (without significant sunk investment and time) from supplying one product or geographic area to supplying another product or geographic area. Demand-side substitution refers to the ability of buyers to switch to other suppliers in the event of a price increase.

For the purpose of defining the market, it can be considered as the collection of products/services for which it would be profitable for a hypothetical monopolist controlling all of these products/services to raise their price by a small but significant and non-transitory amount (i.e. the SSNIP or hypothetical monopolist test).

The market definition test starts by considering a SSNIP for a single product/service. If, when faced by a SSNIP, buyers would substitute to other products/services or locations, then the candidate market is too small and should be expanded. The candidate market is expanded to include other products/services or locations until the hypothetical monopolist test is satisfied. The SSNIP test, which has been used to define markets in Australia for trade practices and access coverage purposes, considers both demand and supply substitutability with the assumption that there is no significant investment required (for both existing and new suppliers).

5.1.1 Product market

Potential uses of the facility

Defining the product dimension of the relevant market requires an assessment of the characteristics of the below rail services for potential freight traffics carried by the Tramway Service Network.

The Tramway Service Network is currently used for the sole purpose of transporting harvested sugarcane from sidings located at various points on the network to Sucrogen's Victoria and Macknade crushing mills and raw sugar from the mills to the Port of Lucinda Bulk Sugar Terminal.

NQBE's declaration application states that in addition to these existing uses of the Tramway Service Network, the service to which it seeks access is also necessary to enable it to transport timber and sorghum to its proposed factory and for the transportation of bio-fertiliser products back to the sugarcane fields.

The NCC has previously stated that establishing the purpose for which the service is provided should be distinguished from the particular activity an access seeker intends to undertake if access to the service is made available.

Therefore, the NCC's position requires any consideration of the product dimension of the market to focus on whether the Tramway Service Network can also be used to carry any non-sugar freight traffics as well as the sugar traffic. In our view, the facility is not capable of carrying any non-sugar freight due to the basic operational characteristics of the Tramway Service Network in its sole-purpose role as a dedicated sugar transport facility.

Table 1 presents the rationale underpinning this conclusion in the form of a comparison of the operational constraints of the Tramway Service Network with the equivalent characteristics of two major general freight railways - ARTC's interstate network and Queensland Rail's North Coast Line. It is clear from the information provided that the Tramway Service Network is fundamentally different to railways that are capable of transporting general freight traffics in terms of its physical structures and operating constraints. The most significant difference between the facilities presented in Table 1 is the width of the gauge. The Tramway Service Network's particularly narrow gauge of 2ft precludes the operation of conventional narrow gauge rollingstock used to carry general bulk freight traffics on Queensland Rail's network.

Table 1 Operational constraints of the Tramway Network compared to general freight railways

Operational constraints	Tramway Network	ARTC Interstate rail network	QR North Coast Line
Gauge	2ft	4ft 8.5in	3ft 6in
Maximum train speed	35km/hr[a]	80km/hr	120km/hr[b]
Maximum train length	1,000m	1,500-1,800m[c]	1,500m[d]

a Significant variance across different segments of the network. Sucrogen advises that on several segments of the network the maximum tram speed is 5 or 10km/hr.

b Significantly less on some segments of the North Coast Line.

c 1,800m on the East-West corridor and 1,500m on the North-South corridor.

d Maximum train length of each network segment is limited by the length of the smallest passing loop. As of October 2008, this length was 682m.

Sources: Booz Allen Hamilton (2007). Final Report – ARTC Standard Gauge Rail Network DORC. Australian Rail Track Corporation Ltd; QRNetwork Access (2007). Information Pack: North Coast Line System North – Issue 2.

NQBE's declaration application includes a proposal to transport sorghum and woodchip products on the Tramway Service Network outside of the cane harvesting season. However, we understand that the areas suitable for the production of these two products are not currently serviced by the Tramway Service Network.

This implies that the transportation of these products on the Tramway Service Network would require the double handling of the freight and most likely the use of the existing road network to transport the products to the Tramway Service Network. It is considered highly unlikely that the use of the Tramway Service Network to transport sorghum and woodchips, which are relatively low-value products, would be commercially viable under these arrangements.

More broadly, we are not aware of any other primary products that are being grown in the Herbert River district which could potentially use the Tramway Service Network. In this regard, it is also worth noting that the Tramway Service Network serves a dedicated bulk sugar export terminal at the Port of Lucinda rather than a general cargo port terminal.

Supply-side substitution

The definition of the production dimension of the market also requires an assessment of whether there are any potential sources of competition for the services that are provided by the facility (i.e. the extent to which supply-side substitution is a possibility). We consider that there are three potential alternatives to the services provided by the Tramway Service Network:

- Queensland Rail's North Coast Line
- road transport
- other Tramway Service Networks (used for sugar haulage)

The focus of this assessment is whether a SNNIP for services provided by the Tramway Service Network would result in one or more of these alternative forms of transportation providing a viable alternative to the Tramway Service Network for cane growers.

Queensland Rail's North Coast Line is a narrow gauge general freight and passenger network that traverses the eastern region of the Herbert River district in a broadly north-south direction. However, we do not consider that using the North Coast Line to transport sugarcane to processing mills in the Herbert River district represents a practical alternative to the services provided by the Tramway Service Network, taking into consideration the following factors:

- the need for sugarcane to be double and triple-handed in order to be transported from the sugarcane fields to the processing mills, as road transport would be required to transport the majority of the harvested sugarcane from the cane fields to the North Coast Line, given its geographic location and the location of cane fields in the Herbert River district;
  - the short distances over which the sugarcane would be transported and the high cost associated with transporting freight over short distances on general freight railways; and
  - the time-sensitive nature of the transportation of harvested sugarcane due to its rapid deterioration and the importance of maximising the CCS content precludes double or triple handling of cane.

In contrast, there would appear to be strong potential for road transport to provide an alternative competing service to the Tramway Service Network given the fact that road transport is used elsewhere in the Australian sugar industry. For example, of the 25 sugar mills operating in Australia, the following 6 mills utilise road transport for all of their sugarcane haulage:

- Maryborough (QLD)
- Tablelands (QLD)
- Rocky Point (QLD)
- Condong (NSW)
- Broadwater (NSW)
- Harwood (NSW).

We understand that other mills use road transport to supplement their rail haulage task. For example, Sucrogen's Burdekin mills run one harvesting group of around 60,000 tonnes into the mill by road transport because it cannot justify a cane rail extension to service this area. Similarly, Maryborough carries cane from the area of the closed Moreton Mill. Other mills which presently supplement rail with road transport include South Johnstone, Tully and Isis.

The low transit distances in the Herbert River district (average haulage distances of around 16km)[8] are favourable for road transport, as is the short (22 – 24 week) crushing season, which means that trucks used to carry sugarcane or raw sugar could be re-deployed for other revenue generating activities in the remainder of the year. Hence, recovery of the costs of road transport could be spread across non-sugar freight over a whole year whereas this option is not available for the dedicated Tramway Service Network and above rail tramway rollingstock.

NQBE's declaration application argues that there are no financially viable alternatives to the Tramway Service Network for the transport of sugarcane located greater than 5 – 10 km from its proposed processing factory. In particular, road transport is not an economical substitute for the Sucrogen's below rail service for distances greater than this. Based on the relative competitiveness of road transport over short distances, we find it difficult to understand why 10 km is some sort of threshold beyond which road transport becomes uncompetitive with rail. The competiveness of road transport is discussed further in section 5.2 of this chapter.

NQBE uses an estimated operational cost of road haulage of $7 - 8 per tonne (assuming the transport contractor owns the truck and trailer and NQBE owns the sugarcane bins) to support its case. NQBE also estimates the operational cost of rail haulage on the Tramway Service Network to be around $2.50 - $3.50 per tonne (excluding capital maintenance).

[8] Estimate provided by Sucrogen.

We consider NQBE's road haulage cost estimate to be unreasonably high. However, there is no supporting information provided by NQBE beyond that noted above that enables us to understand the basis of the $7 - 8 per tonne estimate.

Based on data supplied by Sucrogen and confirmed by a road transport contractor, we have estimated a price for road haulage of $5.56 per tonne assuming a 70,000 tonne seasonal haul. This is the minimum efficient scale for a road operator to enter the sugarcane haulage market allowing a single truck to be fully utilised for the duration of the cane harvesting season.

To determine whether rail and road transport are competing in relation to a specific freight task, a comparison of the road haulage estimate with an estimate of the below rail cost plus an above rail haulage cost is necessary.

Based on a depreciated optimised replacement cost (DORC) valuation of $140.0 million and a cost of capital of 9.6%, we have estimated an indicative below rail access price of $4.37 per tonne.

Key assumptions underpinning this estimate include:

- $463,000 per km for track and earthworks (based on the $315 000 per km in 1999 taken from NQBE's declaration application and escalated to $2010 using a composite materials and labour index which grows at 3.56% per annum)
- track length of 550km (i.e. no optimisation)
- $25.5 million for bridges, culverts, passing loops, sidings and signalling
- remaining life of assets of 50%(assuming asset age is distributed linearly)
- assumed cane volume of 4.5 million tonnes.

Assuming NQBE's conservative estimate of an above rail haulage cost of $2.50 to $3.50 per tonne, this would imply a total rail price of $6.87 to $7.87 per tonne. Based on the use of a DORC asset valuation for the Tramway Service Network, the combined rail haulage price is materially higher than the cost of a comparable road service such that the DORC-based rail access price would not be sustainable in the sugar haulage services market. In practice, the rail access price would need to be set having regard to the price of the competing road service and not the DORC-based rail access price.

Hence, if there were to be a SSNIP in relation to use of the Tramway Service Network, i.e. a 5% increase in the below rail access price, growers would likely switch to road operators, at least on a small scale (i.e. for low sugarcane volumes).

The extent to which road transport is capable of freighting a significant volume of sugarcane to mills within the Herbert River district would depend on potentially large investment in a fleet of trucks and carrying bins, as well as in the road network itself. Consequently, the potential for large scale road entry is more appropriately assessed in relation to new market entry in section 5.2 of this report.

Finally, the cane harvesting, transportation and processing operations in the Herbert River district constitute a self-contained production and supply chain process. This precludes harvested sugarcane being transported to processing mills outside of the Herbert River district (such as the Tully mill) using an alternative connecting Tramway Service Network or road network.

Conclusion

Given road can provide an alternative competing service to the Tramway Service Network, at least for small cane volumes, we conclude that it is reasonable to adopt a broad definition for the product dimension of the market, with the relevant market being the sugar haulage services market rather than a narrower below rail sugar services market.

5.1.2 Functional market

The sugar supply chain in the Herbert River district is made up of the following elements:

- growing of sugar cane
- harvesting of sugar cane
- transportation of harvested cane
- processing of cane into raw sugar
- transportation of raw sugar to the port terminal
- storage and subsequent export of raw sugar to international customers.

The Tramway Service Network represents one component of the sugar supply chain in the Herbert River district that is centred around Sucrogen's Victoria and Macknade processing mills. It is important to assess the potential for substitutability in demand or supply regarding other elements of this supply chain to act as a constraint on any market power that could potentially be exercised by Sucrogen in providing below rail services.

Sucrogen's processing mills and its Tramway Service Network form a vertically integrated operation. This reflects the highly complementary nature of the different elements of the supply chain and the highly coordinated and integrated nature of its operations (as has previously been discussed in Chapter 3 of this report). Despite the magnitude of the complementarities associated with operating a vertically integrated processing and transport operation, it does not appear that these preclude the separation of some of these functions from a management perspective in all circumstances. It is therefore considered that it is not strictly necessary for the same entity to perform the sugarcane crushing and transportation operations.

However, it is important to note that, given that the cane harvesting, transportation and crushing operations all form part of the sugar production process, there are significant risks and potential efficiency losses associated with separating the cane crushing and transportation functions. For instance, failure to effectively coordinate harvesting and transportation schedules can result in the CCS content of harvested cane being destroyed before it reaches the processing mill. It is therefore necessary that, where the management of the transportation and crushing functions are separated, a high degree of control is exercised over the scheduling of the cane harvesting and transportation operations. This can be delivered through the necessary contractual arrangements, with the miller retaining control of the scheduling of these functions.

The fact that road transport is considered to represent a viable alternative to the services provided by the Tramway Service Network is also relevant to this assessment. Given that road represents a potential substitute for the rail service in the sugar supply chain, it is considered that scope exists for the functional separation of the management of the cane transportation and crushing functions, noting the need to retain a high degree of control over the functioning of the different operational elements within the sugar production process.

It is not considered that there is scope for upstream or downstream participants in the sugar supply chain (i.e. cane growers or the sugar export terminal operator) to integrate their operations in order to also provide the rail haulage service. This is primarily due to the lack of complementarities between these elements of the supply chain.

Having regard to the scope for the functional separation of the transportation and crushing components of the supply chain and for the potential for road to represent a viable supply-side alternative to the rail service, it is considered reasonable to define a functionally separate sugar haulage services market within the Herbert River district.

Conclusion

We consider that the appropriate definition for the functional dimension of the relevant market is the provision of sugar haulage services within the Herbert River district sugar supply chain. This conclusion is based on the view that, despite being part of the sugar production process, it is possible for the management of the transportation and crushing functions of the supply chain to be separated (providing a high degree of control is maintained over the scheduling of cane harvesting and transportation). In addition, road transport is demonstrably an effective substitute for the dedicated Tramway Service Network under consideration.

5.1.3 Geographic market

The geographic dimension of the market is dependent on the economic feasibility of another facility outside of the Herbert River district being capable of providing services in direct competition with the Tramway Service Network.

As has been previously stated, the Tramway Service Network is one component of the self-contained sugar supply chain in the Herbert River district. It is not feasible for sugarcane or raw sugar to be transported from the Herbert River district to any other region nor is it feasible for sugarcane to be transported to the Herbert River district from any other cane-producing region.[9] There are no links between the Tramway Service Network and any tramway facilities located outside of the region.[10]

Conclusion

As the operation of the processing mills and the Tramway Service Network form part of a self-contained sugar supply chain in the Herbert River district (with no links to any facilities or services outside of the region), it is considered appropriate that the geographic dimension of the market is the Herbert River district.

5.1.4 Time dimension

The timeframe adopted for assessing market definition in most competition-related cases is typically relatively short (1-2 years). A longer timeframe is required in relation

[9] Several years ago harvested cane was transported from the far south of the Herbert River district to the Invicta Mill in the Burdekin region on Queensland Rail's freight network. The cost of this operation precludes this from being a feasible option given current market conditions.

[10] The nearest region with which a tramway link could potentially be established is the Burdekin region to the south of the Herbert River district, however a link to this region would not be an economic proposition.

to an assessment of potential barriers to entry to a market. We note that NQBE has sought the declaration of the Tramway Service Network for a 30-year period.

The time dimension of the relevant market is considered in detail in section 5.2, which deals with the barriers to entry to the sugar haulage services market.

5.1.5 Conclusion on market definition

Synergies considers that there is a functionally separate sugar haulage services market operating within the Herbert River district, with Sucrogen supplying above and below rail services for the purpose of the transportation of sugarcane and processed sugar within this market. The sugar haulage services market forms part of an integrated raw sugar production process comprising cane harvesting, transportation and crushing operations.

5.2 Barriers to entry to the sugar haulage services market

The market assessment test applied in the previous section considered the potential for demand and supply-side substitution under the assumption that no significant investment would be required (for both existing and new service providers).

The consideration of the barriers to entry to the relevant market is another step in the competition assessment process. If substantial investment is required to facilitate access to a service, substitutability may only be possible in the longer term.

Given that the relevant market has been defined as the market for sugar haulage services in the Herbert River district, it is necessary to consider the barriers to entry to providing haulage services on the road network. Typically, the barriers to entry to providing road haulage services are relatively low (particularly compared to the barriers to entry to providing below rail services).

For large scale entry, as implied by NQBE's declaration application, the most significant costs associated with obtaining entry into the sugar haulage services market would be the purchasing of trucks and associated bins necessary to transport sugarcane and raw sugar on the road network. However, depending on the expected volumes of sugarcane carried by road, additional investment in the Herbert River district road network may also be necessary.

When assessing the competitive dynamic between road and rail transport, it is necessary to consider their relative performance in terms of the following parameters:

- price

- reliability
- service frequency or availability
- transit times.

Rail's high fixed and low operating costs relative to road in addition to its ability to haul significantly larger loads means that it has a considerable price advantage over road for long haul tasks. In contrast, road transport is better suited to short haul, smaller load tasks. We consider the total sugarcane freight task in the Herbert River district of around 4.5 million tonnes per annum to be short haul and relatively low load.[11]

Furthermore, it is also accepted that road has a service quality advantage over rail and this can impact on the modal shares each hold. As rail operates on a continuous network, any major faults are likely to have a far more significant impact on on-time reliability and transit time relative to interruptions on the road network. Road therefore strongly competes with rail for freight tasks for which transit time, reliability and availability hold a significant degree of importance. These factors are critical to the highly integrated harvesting, transport and milling functions in the Herbert River district.

In the absence of any government-imposed restrictions on road use, we consider that the barriers to entry to the sugar haulage services market in the Herbert River district are relatively low. The indicative cost of large scale road entry is discussed further in section 5.5.

5.3 Expected demand for sugar haulage services

Reasonably foreseeable demand provides an indication as to the timing of any capacity constraints that are likely to emerge on the Tramway Service Network. While estimates of foreseeable demand are typically aligned with the period of the requested declaration, we consider that reasonable estimates cannot be determined for NQBE's requested declaration period of 30 years. Alternatively, taking into consideration the uncertainty associated with demand forecasting, a shorter period of 5 to 10 years is considered more appropriate.

NQBE acknowledges it is not anticipated that there will be an increase in the volume of sugar cane harvested in the region in the short to medium term, citing steady yields over the past 10-15 years. However, in its declaration application, NQBE argues that

[11] This estimated haulage task is considered to represent an appropriate estimate for reasonably foreseeable demand.

the introduction of 'energy canes' could potentially increase sugarcane yields and hence demand for below rail services on Sucrogen's Tramway Service Network up to around 6-7 million tonnes per annum. This extra demand would eventuate in approximately 5 to 10 years.[12]

Based on the evidence presented in NQBE's declaration application, we do not consider that the impact of the potential growing of energy canes in the Herbert River district should be incorporated in a forecast of reasonably foreseeable demand on Sucrogen's Tramway Service Network. In our view, there remains a high degree of uncertainty about the likely performance of 'energy canes' and the timing of their introduction. In other words, 'energy canes' are, at this stage, an unproven technology.

In our view, there is not a lot of sugarcane expansion potential in the Herbert River district, nor is there the likelihood of contraction unless the world sugar price collapses. As a result, assuming the growing area and average yields are stable around current levels, reasonably foreseeable demand will be maintained around historical levels.

Given this background, Table 2 presents forecasts of reasonably foreseeable demand for sugarcane and raw sugar below rail services for the next decade.

Table 2 Actual and forecast sugarcane and raw sugar volumes (annual average data)

	1995-2004	2005-09	2010-14	2015-19
Sugarcane (Mt)	4.29	4.68	4.50	4.50
Raw sugar (Mt)	na	0.633	0.604	0.604

Source: Synergies and Sucrogen.

5.4 Available capacity to meet reasonably foreseeable demand for sugar haulage services

A service provider's facility is uneconomical to duplicate for the purposes of criterion (b) where it can serve the entire range of reasonably foreseeable demand for the service subject to declaration at lower cost than that of two or more facilities. This implies that the facility is characterised by economies of scale such that substantial fixed costs and low operating costs result in average costs per unit of output decreasing as output rises over the range of reasonably foreseeable demand.

We understand that Sucrogen's cost structure is predominantly fixed, with relatively low below rail operating costs. The fixed costs represent Sucrogen's sunk and ongoing investment in its tramway. The largest component of operating costs is maintenance of the tramway.

[12] North Queensland Bio-Energy Corporation Limited (2010), pp 10-11.

Given this cost structure, Sucrogen's Tramway Service Network is likely to be characterised by economies of scale. As the throughput of the Tramway Service Network increases, Sucrogen's average unit costs could be expected to decline up to the point where available tramway capacity becomes constrained. Reasonably foreseeable demand provides an indication of the likely timing of any capacity constraints emerging on the Tramway Service Network.

Sucrogen estimates that the capacity of the sugarcane and raw sugar sections of its network is around 5.5 million and 640,000 tonnes per annum respectively.

As a result, it would appear that there is sufficient existing capacity to meet reasonably foreseeable demand over a 5 to 10 year period if it is assumed that only a single above-rail operator (i.e. Sucrogen) uses the Tramway Service Network. However, this will not be the case if a second above rail operator commences using the network given its single-user characteristics. The capacity implications of this scenario are discussed in section 5.5.

5.5 Expansion of sugarcane haulage capacity

Despite the Tramway Service Network possessing sufficient capacity to service reasonably foreseeable demand over the next 5 to 10 years, it is considered that significant expansion works would be required in the event that another above rail operator was to obtain access to the facility.

The purpose of these expansion works would not be to meet additional foreseeable demand as such, but rather to minimise the disruption to Sucrogen's existing operations on the Tramway Service Network, as well allow NGBE's processing facility to operate, given the existing network was built to accommodate a single not multiple rail operators.

The expansion works that would likely be necessary to accommodate a second above-rail operator on the facility include:

- additional passing loops – there are only 6 passing loops on the existing network;
- a new spur line to the new above rail operator's processing facility;
- duplication of the tramway in the most heavily trafficked main line segments;
- construction of additional sidings and/or expansion of existing sidings (where it is feasible to accommodate two above rail operators);

  - as noted in chapter 4, there is insufficient capacity for two above rail operators to use sidings for short-term storage purposes given the Tramway Service Network is designed for only one above rail operator; and

- upgraded tram control and/or communications system to manage tram movements.

While it is considered that the costs associated with these expansion requirements would be significant, it is difficult to obtain a reliable estimate. This is attributable to the uncertainty associated with the exact magnitude of the works that would be required. This would depend on the new above rail operator's demand for below rail services, which is subject to the number and location of the cane growers with which it contracts.

The NCC has noted the following where the facility subject to a declaration application would be unable to serve the reasonably foreseeable demand for that service without some modification or augmentation and there exists another facility that could potentially meet this demand:[13]

> In these circumstances, the Council would need to consider whether the additional demand for the service could be served at lower cost by modification or augmentation of the other existing facility or by modification or augmentation of the facility subject to declaration.
>
> ...
>
> A case-by-case assessment is required to determine whether criterion (b) is satisfied in circumstances where additional demand can be served at lowest cost by modification or augmentation of an existing facility other than the facility subject to declaration.

It was shown in section 5.1.1 that road transport is a competing service for rail at low sugarcane volumes. However, the cost of road transport being capable of efficiently hauling a larger level of demand should also be estimated. Taking NQBE's assumed sugarcane haulage task of 2,100,000 tonnes per year, we have estimated a road haulage cost of $5.76 per tonne.

Key assumptions include:

- average haulage distance of 16km
- average speed of 65km/hr

[13] NCC, Declaration Guide, p53-54

- total trip time of 1.1 hours
- an hourly cost of $105 per truck, which includes a return on capital, labour, fuel, tyres and maintenance
- bin load of 24 tonnes and tip rate of 23.6 bins per hour
- 10% spare truck capacity
- bin costs are excluded (owned by NGBE)
- harvest and truck scheduling costs of 0.20 cents per tonne.

In presenting this road transport cost data, we recognise that additional expenditure on roads and potentially restrictions on road transport in the Herbert River district could eventuate if a significant volume of sugarcane was to shift from rail to road transport. However, given the short time for preparation of submissions in response to NQBE's declaration application and the engineering complexities involved in assessing whether such expenditure is required, we have not attempted to estimate these additional costs. A comprehensive assessment would need to be undertaken to determine a fully informed position on this issue.

However, the road cost data above suggests that it is likely to be able to meet the additional capacity required if a second above rail operator commences services on the Tramway Service Network at lower cost than rail. Evidence previously cited that other mills (Burdekin and Maryborough) are using road rather than rail to haul tonnages beyond the boundaries of their existing tramways supports this conclusion.

5.6 Conclusion

Given road is a source of supply-side substitution and the relevant market is a sugar haulage services market in the Herbert River district, we consider that there is a strong element of doubt about whether the declaration application satisfies the uneconomical to duplicate test.

As a result, we consider that the NCC would need to undertake a comprehensive assessment of road and rail haulage costs in the Herbert River district to determine whether this criterion is satisfied.

6 Promotion of competition – criterion (a)

Criterion (a) of section 44G(2) of the Trade Practices Act relates to the promotion of competition. This criterion provides that the NCC cannot recommend that a service be declared unless it is satisfied that access (or increased access) to the service would promote a material increase in competition in at least one market other than the market for the service.

In making this assessment, the key consideration is whether access would improve the opportunities and environment for competition in a dependent market(s) so as to promote materially more competitive outcomes.[14] In this case, the assessment will be based on whether competition in identified dependent markets will be promoted as a result of the declaration of the below rail services provided by the Tramway Service Network. The dependent markets considered must be economically separate from the market in question.

The following markets are the relevant dependent markets to be assessed for any potential impact on the competitive environment arising from the declaration of the below rail services provided by the Tramway Service Network. These relevant dependent markets are those that are vertically related to the market for the services for which declaration is sought (i.e. they are upstream or downstream):

- sugarcane production and sales market
- sugarcane processing market
- domestic (national) fuel sales market
- domestic (national) electricity sales market
- international sugar sales market
- Port of Lucinda bulk sugar terminal services market
- international shipping services market.

In accordance with the NCC assessment framework, the competitive conditions in these dependent markets should be assessed with and without the declaration of the below rail services provided by the Tramway Service Network. The following factors are relevant in this assessment, namely, whether:

- the dependent market is competitive or there are low or no barriers to entry;

[14] National Competition Council (2009). Declaration of Services under Part IIIA of the Trade Practices Act: A guide, Melbourne, p. 27

- the service provider has the ability and incentive to exercise market power in the dependent market;
- there is countervailing market power in any of the dependent markets; and
- the impact (if any) on competitive conditions in dependent markets is material.

The impact of declaration of the below rail services provided by the Tramway Service Network on each of the identified dependent markets is assessed below.

6.1 Sugarcane production and sales market

The sugarcane production market in the Herbert River district relates to sugarcane grown and harvested on approximately 55,000 hectares by 575 farmers. Cane production in the region was approximately 3.9 million tonnes in 2009, producing 579,000 tonnes of raw sugar.[15]

6.1.1 Factors affecting market entry

The economic returns that may be achieved by land holders from growing sugarcane compared to alternative uses of land is the key factor determining entry to the sugarcane production industry. As the demand for sugarcane is derived from the demand for raw or refined sugar, returns to sugarcane production are fundamentally dependent on the market price of sugar and costs of sugar production.

All of the raw sugar produced in the Herbert River district is transported to the Port of Lucinda Bulk Sugar Terminal for export. As such, the returns to cane growers in the region are determined by the international sugar price and the costs of producing raw sugar (processing and transport costs). The international sugar market is competitive, with Australian raw sugar production accounting for approximately 2.9% of world production (based on average production levels from 2007/08 to 2009/10).[16] We therefore consider that Australian producers are price-takers in the world raw sugar market.[17]

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15 Information provided by Sucrogen.

16 ABARE (2010). Australian commodities March quarter 2010, Vol 17 No 1.

17 Australian raw sugar producers earn a 'Far East Premium' on the world price, given that the freight costs incurred by high-volume customers in the Asian market in sourcing raw sugar from Australia are significantly lower than the costs associated with sourcing supply from elsewhere. The size of this premium is also affected by currency movements. While the 'Far East Premium' results in increased returns to Australian raw sugar producers, it does not reduce the extent to which they are price-takers in the competitive world market.

In our view, it is the market returns for sugarcane, derived from the market returns for exported raw sugar, which will have the strongest influence on market entry into the sugarcane production industry. Other factors, such as geographic constraints (discussed below) will also be important. In this context, access to the Tramway Service Network will not be a critical factor in promoting entry into the sugarcane production industry in the Herbert River district. With a competitive interntional market for raw sugar sales and approximately 575 farmers in the region, there is likely to be effective competition in the market for the production of sugarcane. This would not be affected by granting NQBE access to the Tramway Service Network.

In contrast, NQBE's declaration application argues that the declaration of the Tramway Service Network will result in a material increase in competition in this market as returns to growers will increase. According to NQBE, these additional returns will be sourced from additional revenue streams that are to be earned by NQBE through the production of ethanol, electricity and bio-fertilisers using by-products from the sugar production process. As discussed below, these additional returns to cane growers are unlikely to be sufficient to result in a material increase in competition in the market for the production and sale of sugarcane.

This is effectively acknowledged by NQBE in its declaration application, where it notes that its entry into the sugar processing market will simply divide the existing sugarcane volumes amongst the mills, rather than result in an increase in the level of sugarcane production in the region.[18]

Geographic constraints also place some regional limits on sugarcane production in the region. Sugarcane growers in the Herbert River district supply harvested cane to locally based sugar mills. The Tramway Service Network is used to transport the cane from farm sidings to the mill. As the CCS content of the sugarcane deteriorates fairly quickly after harvesting, it is critical that cane is crushed as soon as possible to maximise yield. This effectively places a constraint on the area of land that is available to service a particular mill (and is serviced by the connecting Tramway Service Network).

In addition, there are alternative land uses that may reduce the area of cane-producing land in the Herbert River district. Cane farmers may fairly readily switch production to other crops or enterprises. There has in fact been a reduction in cane growing area in the Herbert River district due to a significant incursion of timber plantations in cane farming areas.[19]

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[18] North Queensland Bio-Energy Corporation Limited (2010). paras 7.21, 7.22 and 7.25.

[19] Canegrowers (2008). Annual Report 2008, p. 27.

The combined effect of the geographic constraint on the production of sugarcane in the region and the impact of competing land uses (particularly from forestry plantations) is such that it is highly unlikely that there will be a material increase in sugarcane supply from the Herbert River district.

6.1.2 Impact of cane price formula

The NCC has noted that if a service provider is unable to exercise market power in the dependent market, then declaration of the service so as to regulate the terms and conditions of access would not promote competition or efficiency in that market.[20] It has been argued by NQBE that Sucrogen is able to exercise market power in the sugarcane production and sales market as the sole buyer of cane from the region.

While it is correct that Sucrogen has to date been the sole purchaser of cane in the region, Sucrogen's market power is mitigated by a number of factors. The most significant factor is the well-established cane price formula which effectively regulates the share of returns between millers and growers for sugarcane production by establishing the price (per tonne) paid by millers to cane growers for their cane. The Box below provides background information on the cane price formula.

Box 1 The cane price formula

The cane price formula was initially introduced in 1916 and has since formed the basis for the calculation of payments made by sugar processing mills to cane growers in Queensland for each tonne of harvested cane supplied. The formula was initially designed with the objective of allocating the returns from the production and sale of sugar products between millers and cane growers in a manner that reflected the ratio of the assets held by the two parties. Typically, the breakdown of total returns is 1/3 to the millers and 2/3 to the cane growers.

The two key determinants of the payments made to cane growers by millers under the cane price formula are the world price of sugar and the CCS content of the cane supplied. The cane price formula for the Herbert River district is as follows:

$$\$/\text{tonne cane} = 0.009 * \text{World sugar price} * (\text{CCS} - 4) + 0.6353$$

From the time of its introduction in 1916 through to 1949, several changes were made to the constant in the formula. The constant then remained unchanged at 0.328 until 1994, when an increase of 0.25 was applied based on an agreement by industry participants.

The *Sugar Industry Act 1999* then required each mill to specify cane payment arrangements as part of their 'Cane Processing and Supply Agreements'. This legislation permitted cane pricing arrangements to be totally different to the cane price formula, with any pricing arrangements permitted provided they were based on an agreement between millers and cane growers. Despite this legislation, all cane growing regions in Queensland have retained the cane price formula as the method for determining cane payment arrangements, with the only changes being made relating to regional adjustments to the value of the constant.

Data source: Department of Agriculture, Fisheries and Forestry (2002). Appendix B – The Australian Sugar Industry – The Basics.

While the cane price formula is not prescribed, it is widely accepted and is currently used as the basis for sugarcane purchasing arrangements in all cane-producing regions

[20] National Competition Council (2009).p. 35 - 36.

throughout Queensland. In addition to the protection for growers offered by the price formula, Cane Supply Agreements with Sucrogen have been negotiated on a collective basis by 97% of growers in the region since 2007/08. These factors indicate that there are material constraints on Sucrogen's ability to exercise market power in the Herbert River district.

Moreover, Sucrogen has an incentive to ensure cane production is maintained in the future to maximize the efficiency of its milling operations and, at the extreme, to prevent stranding of its mill assets in the region. Consequently, given this throughput incentives and the constraints on Sucrogen's ability to exercise market power in the market for the purchasing of sugarcane, access to the below rail services provided by the Tramway Service Network is unlikely to result in the promotion of competition in this dependent market.

This conclusion is not consistent with NQBE's declaration application, which argues that the declaration of the Tramway Service Network will materially increase competition in the sugarcane production market on the basis that changes to pricing arrangements will provide additional returns to cane growers.

NQBE's argument is based on its proposal to revise the cane price formula. Under the current pricing arrangements, Sucrogen provides cane growers with a return on the CCS content of the cane that is supplied to its mills and on the molasses that is produced (this return is provided separately to the return calculated under the cane price formula).

NQBE argues that, by implementing changes to the current pricing arrangements, its entry into the sugar processing market (through the declaration of the Tramway Service Network) will result in higher returns to cane growers which will provide an additional incentive for the production of sugarcane in the Herbert River district, thereby increasing competition in the market.[21]

We do not consider that the declaration of the Tramway Service Network will result in such an outcome. The basis for this conclusion is set out as follows.

It is firstly important to recognise the following in relation to the significance of the cane price formula in determining returns to growers:

- the cane price formula forms the basis for sugarcane purchasing arrangements in all cane-growing regions in Queensland; and

[21] North Queensland Bio-Energy Corporation Limited (2010), p 19.

- NQBE does not propose to move away from the cane price formula, but simply to make minor adjustments to the formula by incorporating additional returns for growers associated with additional revenues obtained from the production of by-products such as ethanol, electricity and bio-fertilisers. As discussed below, it is considered unlikely that this will result in a material increase in the returns to cane growers.

NQBE notes that it is "investigating a new pricing formula that will allow a share of the additional revenues to be passed onto the growers".[22] Given that NQBE does not propose to alter the returns received by cane growers that relate to the CCS content of sugarcane, we consider that these "additional revenues" relate to the production of by-products such as ethanol, electricity and bio-fertilisers.

It is also important to note that cane growers currently receive a return on molasses from Sucrogen. Molasses is a by-product of the raw sugar production process and is used in the production of ethanol. The return earned by growers from the production of molasses effectively represents a return on an input to the production of ethanol. We consider that paying cane growers a return based on the production of this input is reasonable, with any returns from further processing and associated value-adding retained by Sucrogen. This is not an unusual situation across other industries in regards to the value-adding of primary commodities.

If it is NQBE's intention to pay growers a return on the production of both molasses (the raw input) and ethanol (the processed product), it is considered that there exists significant uncertainty over the commerciality of its proposed operation. Given that the market for the sale of ethanol is considered to be competitive (see section 6.3 for Synergies' analysis of this market), a producer's input costs are crucial to the viability of its operations. It is therefore not considered that NQBE would be able to pay cane growers a return on the production of both molasses and ethanol while maintaining a competitive cost structure in this market.

It is also important to recognise that returns from by-products represent a very small proportion of the overall returns received by cane growers. An analysis of the significance of the returns currently received by growers in the Herbert River district from the production of molasses (the most significant by-product from the sugar production process and key input to the production of ethanol) demonstrates this point.

[22] North Queensland Bio-Energy Corporation Limited (2010), p 19.

Sucrogen has advised Synergies that in 2009, cane growers were paid an allowance of $0.337 per tonne of cane for molasses. Based on a world sugar price of $500/tonne and a CCS content of 13 for the Herbert River district, and using the cane price formula stated in Box 1, the return to growers from a tonne of harvested cane would be $41.14. This means that the total return to growers, from both the CCS content and molasses, would be $41.48/tonne of cane. Based on this analysis, molasses accounts for approx. 0.8% of the total return to cane growers.[23]

NQBE's new processing facility is proposed to also generate earnings from electricity sales (from bagasse, a by-product of sugarcane crushing), which it suggests would be shared with growers. However, it is likely that NQBE would need to retain a reasonably large proportion of any such revenues earned to achieve a reasonable return on its invested capital. No details are provided in the declartion applcation on the likely sharing arrangement.

It is therefore concluded that any additional returns likely to be received by cane growers attributable to the additional revenue streams achieved by NQBE from the production of by-products (e.g. electricity and bio-fertilisers) are unlikely to be significant in terms of growers' overall returns. The low-volume and low-value nature of the by-products that NQBE proposes to product further supports this conclusion.

As a result, it is considered highly unlikely that the declaration of the below rail services will cause the increase in returns to cane growers necessary to raise the incentives for producing cane in the Herbert River district to the point that it would result in a material increase in competition in the market for the sale and production of sugarcane.

It is also important to note that in the Plain Creek district, where Sucrogen operates in a competitive sugar processing sector, it is understood that Sucrogen's cane growers are paid under the same cane price formula as is applied in the Herbert River district. This would provide further indication that the introduction of a second sugar processor would not result in a material increase in the returns received by growers in the Herbert River district.

Moreover, as road transport presents a viable alternative to the Tramway Service Network for the transportation of sugarcane from cane fields to the mills in the Herbert River district, access to the Tramway Service Network itself is not likely to increase competition in the market for the production and sale of sugarcane in the region. This is attributable to the fact that the opportunity currently exists for a second raw sugar

[23] This analysis is based on data and information provided by Sucrogen.

processor to enter the market and purchase cane volumes from growers. The viability of road transport as an alternative to the Tramway Service Network was discussed in section 5.4 of this report.

6.1.3 Conclusion

In summary, in our view, declaration of the below rail services provided by the Tramway Service Network will not have a material impact on competition in the market for the production and sale of sugarcane in the Herbert River district, on the basis that:

- the level of supply of sugarcane available from the Herbert River district is constrained by geographical factors and the impact of competing land uses, particularly timber plantations;
- there are constraints on Sucrogen's ability to exercise market power in the market for the sale of sugarcane in the form of the impact of competing land uses, the existence of the cane price formula, and the collective bargaining arrangements that are in place for negotiating cane supply agreements;
- the additional returns to growers to be provided by NQBE associated with additional revenue streams from the production of low-value by-products are not considered to be of such a magnitude as to facilitate an increase in production and sales necessary to constitute a material increase in competition; and
- in any case, road transport represents a viable alternative to the services provided by the Tramway Service Network.

6.2 Sugarcane processing market

Sucrogen operates the only two sugarcane crushing mills in the Herbert River district and therefore processes 100% of sugarcane produced in the region. Sucrogen produces raw sugar at its Victoria and Macknade mills for export. By-products of this process include molasses and bagasse.

As discussed in section 5.1.3 of this report, we consider sugarcane crushing in the Herbert River district to be a regional market determined by the growing area serviced by a particular mill. As discussed above, the need for relative proximity between cane farms and crushing mills to maximise the CCS content of harvested cane effectively sets a geographic boundary around the market.

Should NQBE establish a new sugarcane processing mill in the region then this would appear to increase competition in this market, given the transition from a single to a duopoly buying structure. However, in our view, there is considerable doubt that third party access to the Tramway Service Network is necessary to facilitate market entry by NQBE or any other entity.

A key entry condition is that a new entrant would need access to sufficient cane at competitive prices to operate its processing facility. Under the current arrangements, Sucrogen enters into annual contracts with growers for the supply of sugarcane. This indicates that growers are not locked in on a long-term basis to supplying cane to Sucrogen, but rather may switch to alternative mills (should they become established). However, there would appear to be other more serious barriers NQBE faces, as are identified in section 6 of Corrs' submission to the NCC. However, these barriers do not relate to market power issues in the sugarcane processing market.

In our view, there are a range of factors which suggest that Sucrogen has limited ability and incentive to exercise market power in the sugarcane processing market. Sucrogen is the sole miller in the region at present and therefore may be said to have market power. However, this is mitigated to a considerable extent by the fact that returns to growers are determined by the cane price formula, which is well established in the industry (see section 6.1.2). This formula is likely to constrain Sucrogen's ability to drive down monopoly prices in purchasing sugarcane.

We also understand that there is no 'take or pay' pricing component to Sucrogen's contracts with cane growers, which means that Sucrogen bears volume risk associated with the supply of sugarcane, i.e. Sucrogen bears the risk of not being able to obtain volumes consistent with efficient use of its facilities. In other words, Sucrogen has a strong incentive to maximise throughput at its mills to achieve efficiencies in its operation which provides strong incentives to contract for sugarcane at prices that will induce sufficient quantity and quality of production.

As previously noted, given the ability of growers to switch land to alternative uses, Sucrogen also has an incentive to seek to maintain sugarcane volumes to prevent stranding of its mill assets. In our view, these factors (and any use of collective bargaining by growers) provide an effective constraint on Sucrogen's ability to exercise market power in the sugarcane processing market.

Moreover, in our view, should a new market entrant become established in the region, declaration of the below rail services provided by the Tramway Service Network will not have a material impact on competition in the regional sugarcane processing market on the basis that road transport represents a viable alternative to the services provided by the Tramway Service Network. This issue is addressed in more detail under

Criterion (b) (see section 5.4). In summary, we consider that, based on the short haulage distances involved and the use of road transport, to varying degrees, by other mills in Queensland and New South Wales, road transport is competitive with the Tramway Service Network in this case.

To conclude, in our view, declaration of the Tramway Service Network is not necessary for NQBE, or any other access seeker, to enter the sugarcane processing market in the Herbert River district. In other words, lack of access to the Tramway Service Network should not preclude NQBE entering this market and there would appear to be other more important barriers. As a result, declaration will not of itself increase the conditions for competition in this market.

6.3 Domestic (national) ethanol sales market

Ethanol is produced from the fermentation of the sugar and starch that is present in plant materials. Ethanol may be produced from a number of plant sources, including sugarcane and grain crops. Ethanol produced as a by-product of the production of raw sugar is typically produced by the fermentation of molasses. However, there are other potential methods that may be used to produce ethanol. NQBE notes that it intends to produce ethanol by:

- fermenting molasses;
- fermenting sugar juice; and
- fermenting sugars extracted from lignocellulosic materials (e.g. bagasse, woodchip and green municipal waste).

There are currently three major producers of ethanol in Australia. A summary of these firms' operations is given in the table below.

Table 3: Regional Freight Transport Infrastructure – responsible entity and relationships

Plant	Location	Owner	Capacity (ML at 1/1/09)	Feedstock	Status	Capacity)ML in 2010)
Sarina Distillery	Central Queensland	SucrogenEthanol	38	Molasses (by-product from sugar processing)	In production	60
Dalby Bio-Refinery	South Queensland	Dalby Bio-Refinery P/L	80	Grain (sorghum)	In production	80
Manildra Ethanol Plant	Coastal NSW	Manildra Group	125	Starch (by-product from flour milling)	Plant expansion in planning phase	300
Totals			**243**			**440**

Source: www.biofuelsassociation.com.au.

Production by these firms is approx. 273 ML annually, with expected capacity of 440 ML in 2010. Australia also imports a proportion of its ethanol requirements.

Ethanol may be used for industrial products (e.g. in the food, beverage and pharmaceutical industries) or it may be blended with petroleum and used as fuel. The primary driver of demand for ethanol in Australia is the Government-mandated targets for ethanol content in fuel.

NQBE states that it proposes to produce a minimum of 30ML of ethanol for sale to Australian fuel companies.

In terms of the geographic boundaries of the market, given its sale to fuel producers for use in blending with petroleum, ethanol produced from cane processed in the Herbert River district (and other cane growing regions) will be sold as part of a national ethanol market.

We understand that approximately 80% of the ethanol produced at Sucrogen's Sarina Distillery is sold into the fuel market in South East Queensland (i.e. is sold to petrol refineries in South East Queensland), where it is blended for sale in the fuel market. The remainder is transported to Sucrogen's Yarraville plant in Victoria where it is further processed or blended with other solvents to make a range of products.[24] Dalby Bio-Refinery Limited (DBRL) also cites a report noting that Caltex has agreed to buy at least 30 ML of ethanol annually for 3 years from it.[25]

As there are presently several producers of ethanol nationally plus imports, we consider that this is currently a competitive market. This conclusion is supported by the relatively low barriers to entry to this market (discussed further below).

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[24] www.ethanolfacts.com.au.

[25] www.dbrl.com.au, cited in extract from Queensland Country Life, January 8 2009.

We do not consider that the declaration of the below rail services provided by the Tramway Service Network is likely to result in an increase in competition in the market for the sale of ethanol in Australia. This is based on:

- the economics of the ethanol market in Australia;
- the relatively low barriers to entry to the production of ethanol;
- the presence of input constraints; and
- the existence of road transport as an alternative to use of the Tramway Service Network.

Each of these aspects is considered below.

Ethanol market

The characteristics of the ethanol market in Australia are a relevant consideration in determining whether declaration of the Tramway Service Network in the Herbert River district will have a material impact on competition in that market.

Recent evidence indicates that Australian-produced ethanol is not competitive with traditional fuels, in part due to a reluctance by consumers to use fuel blends. Biofuels currently cost more to produce than conventional fuels, often requiring government subsidies in order to attain biofuel targets.[26]

It is as a consequence of this that Governments have sought to mandate ethanol in fuel in Australia to achieve its policy goals of promoting biofuels. Other policy instruments adopted include discounted excise rates for locally produced biofuels and capital subsidies for new or expanded biofuel capacity.

A 2005 report by the Centre for International Economics (CIE) cited that there are projects with a combined capacity to produce nearly 900 ML of ethanol a year from grain waiting on further government policy changes (i.e. mandating of fuel blends). It also noted that locally produced ethanol is not competitive with the likely landed (full) excise inclusive cost of imports of ethanol from the world's benchmark producer, Brazil.[27]

Quirke et al (2008) noted that, at present, the biofuel industry remains dependent on subsidies, which have helped both underwrite the costs of building biofuel production

[26] http://new.dpi.vic.gov.au/energy/future-energy/transport-energy/victorias-current-and-alternative-transport-fuels/ethanol.

[27] Centre for International Economics (2005). Impact of ethanol policies on feedgrain users in Australia.

capacity and enabled them to compete with petrol and diesel.[28] The main implication of these findings is to demonstrate that the declaration of the Tramway Service Network is not a critical factor in promoting competition in the national market for ethanol. Clearly, the economics of the national ethanol market, including the competitiveness of local production relative to Brazil, competitiveness with traditional fuel types, and Government policies are far more important factors affecting competition in this market.

Barriers to entry

As noted above, there are currently three major ethanol producers in Australia, including Sucrogen. Entry to the market requires availability of feedstock, transport and a processing facility. There is also import competition for these domestic producers with imports of ethanol to Australia of 49 ML in 2008.

Moreover, ethanol as a fuel competes with traditional fuels, which are also imported. Although there are domestic factors affecting the demand for and the price of ethanol in Australia (such as Government policies including excise rebates and mandated fuel blends), the market price of ethanol in Australia will be significantly affected by the international price of imported ethanol and traditional fuels.

As the ethanol market is a national market, these broader market factors relating to the competitiveness of ethanol as a fuel source in Australia are likely to be more relevant to growth in the ethanol production market in Australia than access to the Tramway Service Network.

There are several potential sources of feedstock suitable for processing into ethanol, including sugarcane, grain crops and green waste. NQBE proposes to use sugarcane produced in the Herbert River district, as well as potentially other types of feedstocks, to produce ethanol. Given the range of potential feedstock supplies, access to the Tramway Service Network will not of itself increase competition in the Australian ethanol market.

Moreover, the existence of import competition indicates that domestic producers do not have unmitigated market power and an ability to earn above normal returns in the ethanol market.

While Sucrogen is presently the only sugar mill operator in Queensland that is commercially producing material volumes of ethanol at a dedicated facility (at Sarina),

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[28] Quirke, D, Steenblik, R. and Warner, B, (2008) Biofuels - At What Cost? Government Support for Ethanol and Biodiesel in Australia, A report prepared for the Global Subsidies Initiative (GSI) of the International Institute for Sustainable Development (IISD) Geneva, Switzerland, p.5.

this does not reflect the existence of barriers to entry to the industry. As noted above, market conditions and access to a variety of feedstocks are more important factors affecting growth in the ethanol market. Further, Sucrogen has recently invested significantly in expansion at its Sarina distillery, spending $30 million in the last three years. This expansion indicates that Sucrogen is willing and committed to increasing ethanol production in response to market demand. As such, lack of third party access to the Tramway Service Network is not constraining competition and growth in the ethanol production market in Australia.

Input constraints

The volume of ethanol that is able to be produced by a raw sugar producer is determined by the quantity of sugarcane that is available to be processed. It is therefore important to note the constraints that exist on future sugarcane production in the Herbert River district. As has been previously stated, geographical constraints and the impact of competing land uses are expected to result in the volume of sugarcane production in the Herbert River district remaining relatively stable in the foreseeable future.

While NQBE's declaration application notes that the adoption of 'energy canes' may increase sugarcane production yields, thereby resulting in an increase in ethanol production, it has previously been discussed that this development is contingent upon factors that are unrelated to the declaration of the Tramway Network (i.e. technological development and commercial incentives to cane growers).

It is also necessary to note that the low-value nature of molasses is likely to preclude the transportation of significant volumes from sugar processing mills outside of the Herbert River district to NQBE's proposed factory. In the event that market conditions are altered so that this does become commercially viable it is considered that processors in other sugar producing districts would seek to enter the ethanol sales market to take advantage of the increased returns rather than supplying molasses to NQBE.

Based on the above considerations, it is considered that the volume of ethanol that NQBE will be able to produce at its proposed factory is constrained in the short term by the respective returns it can earn from raw sugar and ethanol production and, in the medium to long term, by the essentially fixed supply of sugarcane in the Herbert River district. This provides further support for the conclusion that the declaration of the Tramway Service Network will not result in a material increase in competition in the ethanol sales market.

Road transport as a viable alternative

The potential use of road transport as a viable alternative to the Tramway Service Network is addressed in section 5.4 of this report. In summary, this analysis concludes that for the relatively short haul distances involved (on average), road transport can compete effectively with the Tramway Service Network, making this a financially viable alternative for NQBE. This means that an entity proposing to enter the ethanol production sector does not necessarily require access to the below rail services provided by the Tramway Service Network in order to enter this market, as there exists a viable non-rail substitute for the haulage of sugarcane.

6.4 Domestic (national) electricity sales market

NQBE has stated that its factory will produce about 50-55 MW of electricity over approximately 300 days per annum, which is available for export into the Queensland electricity grid. NQBE argues that this will increase the supply of electricity in the North Queensland region and will potentially lower the price of electricity.

While there is a Queensland electricity pool price, the Australian electricity market operates as a national market. The national market operates under the auspices of the Australian Energy Market Operator (AEMO).

ROAM Consulting has undertaken an analysis of the likely impact of NQBE's proposed operation on the national electricity market (see Annexure H of Sucrogen's submission to the NCC). In summary, ROAM concluded that the addition of 50-55 MW of capacity at Ingham would generate between 360 GWh and 396 GWh of electricity per annum (subject to reductions for breakdowns).

The main effect of this increased generation capacity is the reduction of Marginal Loss Factors (MLF) in North Queensland.[29] The additional generation capacity associated with NQBE's declaration application would provide approximately 80% of one year of MLF growth deferral in North Queensland (i.e. it would offset 80% of the annual growth in MLF). While offsetting less than one year of the annual increase in MLFs is beneficial, it will not have a material effect on North Queensland's electricity supply.

The other effect of the additional generation capacity will be to assist in meeting the growth of electricity demand in Queensland, with the 50-55 MW of capacity proposed by NQBE sufficient to offset approximately 12% of one year of load growth. This translates to a deferral of 12% of the growth in power prices in Queensland. This effect

[29] The Marginal Loss Factor quantifies the marginal transmission network loss between the power station and the Regional Reference Node for the region in which the power station is located.

holds a relatively low level of benefit to the market. There are also concerns over the connection of 50-55 MW of generation capacity at Ingham, owing to the weakness of the grid in that area. In other words, augmentation of the existing distribution network would also likely be required.

Accordingly, it is not considered that declaration of the below rail services provided by the Tramway Service Network will have a material impact on competition in the domestic (national) electricity sales market.

6.5 International sugar sales market

Another related market is the international raw sugar sales market. As all of the raw sugar production from the region is exported, this is the relevant downstream sales market for raw sugar produced in the region. In the context of this market, the 604,000 tonnes (based on estimated foreseeable demand) produced by the Herbert River district could not possibly have a material impact on international sugar prices or competition in this international market.

As a result, it is not anticipated that access to the Tramway Service Network will have any impact on the international sugar sales market.

6.6 Other dependent markets

The port terminal services market for handling raw sugar and the international shipping services market are related 'downstream' markets. However, they are not addressed in detail in this report as we consider that declaration of the below rail services provided by the Tramway Network Service will have no impact on these markets.

This is predominantly due to the constraint on future increases in sugarcane production in the Herbert River district due to competing land uses and geographic constraints. Any future increases in production levels will be driven by factors unrelated to the declaration of the Tramway Service Network. It is therefore clear that there is no meaningful prospect of a material increase in competition in the port services and shipping services markets as a result of third party access to the Tramway Service Network.

6.7 Conclusion

Based on the assessment conducted in the preceding sections, we conclude that the declaration of the services provided by the Tramway Service Network will not result in a material increase in competition in any of the relevant dependent markets.

In relation to the market for the production and sale of sugarcane, we consider that the constraints on both future production in the Herbert River district and Sucrogen's ability to exercise market power, as well as road transport presenting a viable alternative to the Tramway Service Network, suggests that the declaration of the Tramway Service Network will not result in a material increase in competition.

The same conclusion is reached in relation to the market for the processing of sugarcane, with the main consideration being that there are constraints on Sucrogen's ability to exercise market power (in particular, the cane price formula) and the barriers to entry to the market are unrelated to the declaration of the Tramway Service Network.

There was also not found to be any material impact on competition in the other dependent markets, mainly on the basis that these markets were already competitive.

It is therefore concluded that the declaration of the Tramway Service Network would not result in the promotion of competition in any of the relevant dependent markets.

7 National significance – criterion (c)

Section 44G(2)(c) of the Trade Practices Act states that in order to recommend the declaration of the services provided by the Tramway Service Network, the NCC must be satisfied that the facility is a nationally significant piece of infrastructure. The NCC must have regard to three criteria in deciding whether a facility is nationally significant:

- size; or
- the facility's importance in terms of constitutional trade or commerce; or
- the facility's importance to the national economy.

We consider that the Tramway Service Network does not satisfy any of these three criteria and is therefore not nationally significant. The Tramway Service Network is assessed against each of the relevant criteria in the following sections.

7.1 Size

The NCC has previously commented on the considerations relevant to the assessment of the size of a facility in relation to its national significance:[30]

> The physical dimensions of a facility may provide guidance on whether it is of national significance. Relevant indicators of size include physical capacity and the throughput of goods and services using the facility.

We also note that the NCC has previously had regard to other factors when assessing whether a railway is of sufficient size to satisfy the national significance criterion, including the physical dimensions of the facility and the estimated cost of duplicating or replacing the railway. Each of these factors is considered in the following sections, with the physical dimensions and current replacement cost of the Tramway Service Network considered in the context of NQBE's declaration application.

[30] National Competition Council (2003). Application by Virgin Blue for Declaration of Airside Services at Sydney Airport - Final Recommendation, para 7.3, p 102.

7.1.1 Physical dimensions and replacement cost

NQBE's declaration application proposes that the Tramway Service Network is of national significance from a size aspect alone, stating that:[31]

> ...the Tram Network covers approximately 530km in the Herbert River district with a current replacement cost in excess $77 million.

We do not consider this to be sufficient for the classification of the facility as nationally significant based on its size.

Firstly, it is important to note that the estimate of $77 million for the current replacement cost of the Tramway Service Network provided by NQBE in its declaration application is considered to be well under the actual current replacement cost of the network. Initial estimates, using NQBE quoted figures for track replacement costs and escalating them to $2010 indicates a current replacement cost of around $255 million. While it is important to note that at this stage this estimate is only indicative, it is considered to more accurately represent the current replacement cost of the Tramway Service Network and will therefore be used as the relevant comparator in terms of assessing the national significance of the facility with regards to its size. The method by which this indicative replacement cost estimate has been established is detailed in section 5.1.1 of this report. It is also noted that Sucrogen estimates the total length of the Tramway Service Network at 550km (as opposed to the 530km stated by NQBE).

Attachment A provides an overview of the NCC's past decisions on declaration applications, focusing on the considerations regarding the national significance of the relevant facilities and specifically the extent to which the size criterion was satisfied. Table 4 provides a summary of the information provided in this attachment, focusing on those facilities that satisfied the national significance criterion based on size.[32]

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[31] North Queensland Bio-Energy Corporation Limited (2010). p 24.

[32] Where the NCC did not make any explicit reference as to the exact rationale for the facility satisfying the criterion, the relevant facility was included in the table.

Table 4: Facilities considered nationally significant by the NCC based on size

Facility	Considerations relating to size of facility
Robe Railway	• 210km in length • Duplication cost of $735m - $945m
Hamersley Railway	• 625km in length • Duplication cost of $2.19b - $2.81b
Goldsworthy Railway	• 210km in length • Duplication cost of $750m
Water storage and transport facilities owned by Snowy Hydro Ltd & State Water Corporation	• Catchment area of 5,124 square km • 7 power stations • 16 major dams • 80km of aqueducts • 145km of interconnected tunnels • A pumping station
Mt Newman Railway	• 295km in length • Reported capacity of 100Mtpa
Sydney Sewerage Network	• Total service area of 111,900ha • Total network length of 13,999km • Total DORC value of $5,382.9m[a]
Victoria's intrastate rail network	• Total network length of 3,600km
Westrail's Kalgoorlie-Perth rail line	• 655km in length • Duplication cost of $655m - $982.5m[b]
Hunter Valley rail network	• Duplication cost of $400m - $825m
Sydney to Broken Hill rail line	• Two rail lines[c] • Track lengths of 1,332km and 1,697km respectively • Annual tonnages of 4.9Mtpa and 6.2Mtpa respectively • Duplication costs of over $1,998m and $2,545.5m respectively[d]
Queensland rail facilities (track infrastructure)	• 1,700km in length

a Combined information for three reticulation networks – North Head, Bondi, and Malabar.

b Based on reported estimated duplication cost of $1m - $1.5m per km.

c Sydney-Lithgow-Parkes-Broken Hill and Sydney-Cootamundra-Parkes-Broken Hill.

d Based on a reported duplication cost of over $1.5m per km.

Source: All of the estimates provided in this table were taken from NCC final recommendations regarding declaration applications for the relevant facilities.

To assess whether the characteristics of the Tramway Service Network referenced by NQBE in its application are sufficient for the facility to satisfy the national significance criterion based on size, it is necessary to separately consider the current replacement cost of the facility and the length of the network.

The first step in this process is to compare the indicative estimate of $255 million for the current replacement cost of the Tramway Service Network with the estimated duplication costs for the railways that the NCC has considered to have satisfied the national significance criterion:

- $735 million to $945 million for the Robe Railway
- $2.19 billion to $2.81 billion for the Hamersley Railway

- $750 million for the Goldsworthy Railway
- $400 million to $1,020 million for the Mt Newman Railway
- $400 million to $825 million for the Hunter Valley rail network
- $4 billion for Victoria's intrastate rail network[33]
- $655 million to $982.5 million for Westrail's Kalgoorlie-Perth rail line
- $1.9 billion and $2.5 billion for two lines on the Sydney to Broken Hill rail line
- $1.7 billion to $2.55 billion for the track infrastructure in Queensland (the North Coast Line).[34]

The indicative estimate for the replacement cost of the Tramway Service Network is well below the range of estimates reported above ($400 million to $4 billion). The current replacement cost of the facility is therefore not considered to be sufficient basis for the facility to be regarded as nationally significant.

NQBE's declaration application also proposes that the network length of 530km is a sufficient basis for the facility to satisfy the national significance criterion. However, we do not consider that this feature alone is a sufficient basis for the Tramway Service Network to be considered nationally significant.

Firstly, other factors were relevant to the NCC's decision in those cases where railways with shorter lengths were considered nationally significant based on size. As is shown in Table 4, there are five railways of comparable length to the Tramway Service Network that have previously satisfied the national significance criterion based on size.[35]

The NCC's final recommendations on the declaration applications for each of these railways made reference to both their length and the estimated cost of duplication. Table 4 shows that these cost estimates ranged from $400 million to $4 billion,[36] with the indicative estimate for the current replacement cost of the Tramway Service Network being well below this range.

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[33] This estimate was provided by Freight Australia in its application for declaration.

[34] These estimates were provided by Carpentaria and Paul Bugler.

[35] The Robe Railway, the Hamersley Railway, the Goldsworthy Railway, the Mt Newman Railway, and Westrail's Kalgoorlie-Perth rail line.

[36] While the NCC did not make any reference to the duplication cost of the Mt Newman Railway in its consideration of the size of the facility, it did state elsewhere in its final recommendation that the range for the duplication cost of the facility was $400million to $1,020million, with the actual cost likely to be at the upper end of this range.

In its recommendation for the Mt Newman Railway, the NCC also referred to the capacity of the railway, which had been estimated at 100Mtpa. This estimate is not comparable to the capacity of the Tramway Service Network, which has been estimated at around 5.5Mtpa.[37]

The second point supporting our position that the length of the Tramway Service Network is not a sufficient basis for it to be considered nationally significant is that the other physical dimensions of the facility are not comparable to other railways that have been considered nationally significant by the NCC on the basis of size.

The railways that have previously met the national significance criterion on the basis of size can be grouped into two general categories – dedicated heavy haul railways and general freight and passenger railways.

The first category relates to railways located in the Pilbara region in Western Australia and the Hunter Valley in New South Wales. These railways have been constructed for the sole purpose (in the former) and primary purpose (in the latter) of transporting large quantities of bulk commodities (iron ore and coal) from mine sites to port terminals for export.

The second category consists of general freight and passenger railways. These railways either form part of the interstate rail network, which comprises over 10,000km of track infrastructure and connects Australia's major capital cities (e.g. the Kalgoorlie-Perth and Sydney to Broken Hill rail lines), or constitute regionally significant freight railways (e.g. the Victorian intrastate network and the Queensland North Coast Line).

The physical characteristics of the railways in both of these categories differ significantly from the Tramway Service Network, which has a narrow 2ft gauge. This appears to reflect the single traffic, fit-for-purpose nature of the Tramway Service Network and compares to the following gauges for the above railways:

- the standard gauge of 4ft 8.5in that is used on the interstate network and on the Hunter Valley heavy haul coal and Pilbara iron ore rail networks;
- the narrow gauge of 3ft 6in on the Queensland rail network; and
- the broad gauge of 5ft 3in on parts of the Victorian intrastate regional network.

The significance of this difference in physical dimensions is most clearly demonstrated by the differential in replacement costs, with the per km estimate of approximately

[37] Estimate provided by Sucrogen based on the recent performance of the system.

$464,000 well below the range of $1 million to $4.5 million per km for the general freight and heavy haul railways.

It is also important to note that the Tramway Service Network is a radial network (i.e. the 550km does not represent a single long haul). It is therefore not considered that the heavy haul railways in the Pilbara represent a relevant comparator in terms of the length of the network, as the length of these railways represents a single long haul. A more appropriate comparison would be the Victorian intrastate network, which is also a radial network. As can be seen in Table 4, the estimated length of the Victorian intrastate network is 3,600km, over six times the length of the Tramway Service Network.

The following observations are also considered relevant to the extent to which the length of the Tramway Service Network should be taken into account when assessing its national significance:

- the Tramway Service Network is self-contained within the Hinchinbook Shire Council Local Government Area;
- the Tramway Service Network only accounts for approximately 13% of the 4,000km of tramway infrastructure in the Queensland raw sugar production industry; and
- Queensland Rail's track infrastructure exceeds 10,000km in total network length.

Based on this information, it is not considered that the information cited by NQBE in its application (the length of the network and replacement cost of the facility) is sufficient for the Tramway Service Network to be considered nationally significant. Moreover, we would have major concerns if a regional tramway located within a relatively small geographic area could meet the size criterion under Part IIIA. If it were to, a large number of regional infrastructure facilities would become potentially declarable under Part IIIA.

7.1.2 Capacity and throughput

As has been previously stated, the NCC also takes into consideration the capacity and throughput of a facility when assessing whether it is of sufficient size to satisfy the national significance criterion. According to Sucrogen estimates, the Tramway Service Network has a throughput capacity of approximately 5.5Mtpa.[38] In 2009, the facility

[38] It is important to remember that the Tramway Service Network is only currently in operation for the sugarcane harvesting season, which typically lasts between 22 and 24 weeks. This has a significant impact on the 'capacity' of the facility.

transported approximately 3.9Mt of sugarcane from the cane fields to Sucogen's Victoria and Macknade mills.[39]

These capacity and throughput levels are well below the corresponding volumes for the railways that have satisfied the national significance criterion based on size. For example, Rio Tinto transported over 200Mt of iron ore on the Robe and Hamersley Railways in the Pilbara region, while BHPBilliton transported in excess of 100Mt on the Mt Newman and Goldsworthy Railways. In the Hunter Valley in New South Wales, ARTC's standard gauge network hauled approximately 98Mt of coal in 2008/09.[40]

Based on this comparison, it is not considered that the capacity and throughput estimates for the Tramway Service Network are sufficient for it to be considered a nationally significant facility.

7.2 Importance to constitutional trade or commerce

A facility can satisfy the national significance criterion based on its importance to constitutional trade or commerce through either of the following two factors:

- the monetary value of trade that depends on the facility; or
- the importance of the facility to trade or commerce in related markets.

7.2.1 Significance of the Australian sugar industry

To assess whether a facility satisfies the national significance criterion on the basis of its importance to constitutional trade or commerce it is firstly necessary to assess the national significance of the relevant industry – in this case the Australian sugar industry.

As approximately 72%[41] of the volume of raw sugar that is produced in Australia is exported, it is considered that export commodities will be the most appropriate comparators in terms of providing insight into the national significance of the sugar industry.

Table 5 provides an overview of the real value of exports for a range of commodities between 2007/08 and 2009/10, with the figures for 2009/10 representing ABARE forecasts. The values are estimated in $2009/10.

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[39] This estimate is based on information provided by Sucrogen.

[40] ARTC (2009). 2009 Annual Report.

[41] This proportion was calculated using average raw sugar production and export volumes as estimated and forecast by ABARE for the three years from 2007/08 to 2009/10.

Table 5: Real value of exports for selected Australian commodities

	2007/08 ($m)	2008/09 ($m)	2009/10(f) ($m)
Metals and minerals			
Alumina	6,131	6,156	4,624
Aluminium	5,243	4,835	3,732
Copper	7,104	6,000	6,173
Iron ore	21,648	35,041	29,036
Gold	11,508	16,525	14,702
Metallurgical coal	16,928	37,676	23,490
Natural gas	6,179	10,315	7,169
Nickel	5,968	2,719	3,035
Oil	11,066	8,962	8,973
Thermal coal	8,829	18,304	11,138
Zinc	3,536	1,902	2,199
Agricultural commodities			
Beef and veal	4,423	4,971	4,160
Coarse grains	1,710	1,862	1,379
Dairy	2,916	2,742	1,894
Sugar	1,062	1,369	1,799
Wheat	3,156	5,146	3,988
Wine and wine grapes	2,832	2,485	2,388
Wool	2,951	2,376	2,297

Note: This table includes a selection of the commodities included in ABARE's March 2010 'Australian commodities' quarterly report. Commodities with relatively small export values were not included in the table.

Source: ABARE (2010). Australian commodities March quarter 2010, Vol 17 No 1.

This comparison demonstrates that the sugar industry is relatively small in terms of the value of its exports relative to other nationally significant commodities. For example, the average value of raw sugar exports over the three years between 2007/08 and 2009/10 is estimated at $1.4 billion. This is relatively small when compared to $28.6 billion for iron ore, $26 billion for metallurgical coal, $14.2 billion for gold, and $12.8 billion for thermal coal.

While sugar's average export value of $1.4 billion compares more favourably with major agricultural commodities (e.g. $4.5 billion for beef and veal, $4.1 billion for wheat, $2.5 billion for wool, $2.5 billion for dairy, and $1.7 billion for coarse grains), it is still one of the least significant of Australia's major agricultural commodities.

A comparison of the Australian sugar industry to the world sugar industry also demonstrates its relatively low level of significance. Over the three years from 2007/08

to 2009/10, the Australian sugar industry accounted for approximately 2.9% of global production (4.64Mt out of 160.4Mt).[42]

While it is accepted that the sugar industry is of national significance on the basis of constitutional trade or commerce, we consider that, based on the above data, it is one of the least nationally significant commodity sectors. Moreover, as will be discussed in the rest of the section, NQBE's declaration application relates to the Herbert River district, not the whole Australian raw sugar industry.

7.2.2 Significance of the sugar industry in the Herbert River district

All sugar processed at Sucrogen's Victoria and Macknade mills is exported through the Port of Lucinda Bulk Sugar Terminal, which exports just over 600,000 tonnes of raw sugar, on average, per annum.[43] ABARE has forecast the volumes of raw sugar produced and exported in the Australian sugar industry for 2009/10 at 4.519Mt and 3.249Mt respectively.[44]

These figures indicate that the Herbert River district accounts for around 13% of total raw sugar production in the Australian sugar industry and approximately 18% of raw sugar exports.

In terms of the value of these exports, ABARE has forecast that in 2009/10, Australian raw sugar exports will have a value of approximately $1.8 billion.[45] In its declaration application, NQBE estimated that the sugarcane industry in the Herbert River district generates annual revenues of between $180 million and $210 million. It also implies that the 2009 crop is likely to be worth around $269 million (assuming a high $465 per tonne for 579 000 tonnes of raw sugar). This indicates that the Herbert River district will contribute around 15% of total annual export revenue earned by the Australian sugar industry in 2009-10.

As has been previously discussed, the Australian sugar industry accounts for approximately 2.9% of production in the world sugar industry. The industry in the Herbert River district accounts for less than 0.4% of total world production.[46]

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42 ABARE (2010). Australian commodities March quarter 2010, Vol 17 No 1.

43 Based on data provided by Sucrogen, the average volume of raw sugar produced in the Herbert River district and exported through the Lucinda Bulk Sugar Terminal for the last four years is 606,750 tonnes.

44 ABARE (2010).

45 ABARE (2010).

46 Based on an estimate of 604,000 tonnes of raw sugar per annum from Herbert River district.

7.2.3 Conclusion

It is not considered that the Tramway Service Network is nationally significant on the basis of constitutional trade or commerce, having regard to the significance of the Australian sugar industry and the importance of the Herbert River district to total sugar export income. This conclusion is based on a comparison of the export value attributable to the sugar industry with other nationally significant export commodities and an assessment of the proportion of the sugar industry's total export value that is attributable to raw sugar production in the Herbert River district.

7.3 Importance to the national economy

The NCC has previously made the following statement in relation to its consideration regarding a facility satisfying the national significance criterion based on its importance to the national economy:[47]

> In assessing the importance of a facility to the national economy, the Council focuses on the market(s) in which access would promote competition. National significance is established if the dependent market(s) provide substantial annual sales revenue to participating businesses.

In assessing the significance of the Tramway Service Network under this criterion, it is important to recognise that the facility is a self-contained operation within the Herbert River district that is used solely for the transportation of sugarcane and raw sugar. The facility does not form part of any wider network and no other facilities or industry participants outside of the Herbert River district are affected by the operations on the Tramway Service Network. It is also relevant that the Herbert River district contains only 2 of 25 processing mills in the Australian sugar industry.

The self-contained nature of the Tramway Service Network, combined with the fact that all of the sugar produced in the region is for export, means that the facility's importance to the national economy is best determined by assessing the value of its exports in terms of its contribution to the Australian sugar industry and to the Australian economy as a whole. This assessment was undertaken in the previous section of this chapter.

We do not consider that there are any other factors that are relevant in the consideration of the importance of the Tramway Service Network to the national

[47] National Competition Council (2003). Application by Virgin Blue for Declaration of Airside Services at Sydney Airport - Final Recommendation, para 7.6, p 103.

economy. As a result, we conclude that the facility does not satisfy the national significance criterion based on its importance to the national economy.

7.4 Conclusion on national significance

We do not consider that the characteristics of the Tramway Service Network are such as to satisfy the national significance criterion, having regard to the three factors the NCC must consider.

In relation to the size of the facility, Synergies considers that the Tramway Service Network is not of sufficient size to be considered nationally significant, having regard to its physical dimensions (including its tramway status and geographic spread within a local government shire), its current estimated replacement cost, its capacity and its annual throughput levels.

While we agree that the Australian sugar industry is nationally significant based on the value of its exports, it is of considerably lesser significance compared to other major commodities. In addition, the Herbert River district's contribution to total export income earned by the Australian sugar industry is not considered sufficient for the Tramway Service Network to be considered nationally significant based on its importance to constitutional trade or commerce.

8 Health and safety – criterion (d)

Section 44G(2)(d) of the Trade Practices Act states that in order to recommend the declaration of a service, the NCC must be satisfied that access can be provided without undue risk to human health or safety.

Rail safety regulation in Queensland is administered independently to access regulation by the Department of Transport and Main Roads. While the declaration of the services provided by Sucrogen's Tramway Service Network would not alter the obligations of either Sucrogen or the access seeker in relation to rail safety and/or workplace health and safety legislation, it is considered that additional costs would need to be incurred to ensure that compliance was maintained. The nature and magnitude of these costs are considered in relation to criterion (f), which is considered in Chapter 10 of this report.

While it is anticipated that additional costs will necessarily be incurred to address the workplace health and safety issues arising from the provision of access to Sucrogen's Tramway Service Network, these issues are not considered to be sufficient to prevent the health and safety criterion from being satisfied.

9 Effective access regime – criterion (e)

Section 44G(2)(e) of the Trade Practices Act states that in order to recommend the declaration of a service, the NCC must be satisfied that the facility is not already subject to an effective access regime.

We consider that this criterion is met as Sucrogen's Tramway Service Network has not been declared for access purposes under Part 5 of the *Queensland Competition Authority Act 1997*, and is therefore not currently subject to an effective access regime.

10 Not contrary to the public interest – criterion (f)

Section 44G(2)(f) of the Trade Practices Act states that in order to recommend the declaration of a service, the NCC must be satisfied that the provision of access or increased access would not be contrary to the public interest.

While we consider that the services provided by the Tramway Service Network fail to satisfy several of the declaration criteria, and therefore should not be declared, it is accepted that the NCC may reach a different conclusion in its assessment. In this case, the public interest criterion would become relevant to the assessment of whether Sucrogen's Tramway Service Network should be recommended for declaration.

10.1 Criteria for assessing public interest

Our assessment of whether the declaration of the services provided by Sucrogen's Tramway Service Network is in the public interest focuses on the impacts on economic efficiency, specifically the efficient allocation of resources and the long-term interests of customers. We consider that this criterion is consistent with the principles of the Competition and Infrastructure Reform Agreement.

Having regard to the impact on economic efficiency, we consider the declaration of Sucrogen's below rail services in relation to the Tramway Service Network does not satisfy the criterion because it would be contrary to the public interest. The basis for this conclusion is provided in the following sections.

10.2 Efficiency losses from disruptions to industry operations

The provision of access to the services provided by Sucrogen's Tramway Service Network and subsequent entry of a third party operator into the below rail services market would result in a significant disruption to the sugar supply chain in the Herbert River district. This is attributable to the very high degree of integration and coordination of the cane harvesting, transportation and milling operations, which would be disrupted by the impact of a third party operating on the Tramway Service Network. The consequences of this disruption are most likely to be a substantial reduction in the efficiency of sugar production and significantly lower returns to cane growers in the Herbert River district.

The nature of the sugar production process in the Herbert River district has been discussed in Annexure B of Sucrogen's submission to the NCC. The following key points are significant in considering the efficiency impacts of the introduction of a second above rail operator on the Tramway Service Network:

- cane harvesting and sugar processing in the Herbert River district is undertaken over an intense 21-24 week season with significant pressure on the sugar processor to crush all sugarcane prior to the onset of the wet season;
- sugarcane transportation and processing facilities are used intensely over this period, with the two processing mills in the region (Victoria and Macknade) operating 24 hours per day and 7 days per week;
- returns to cane growers are determined primarily by the CCS content of their cane, which varies over the duration of the harvesting and crushing season;
- contracted harvesters are scheduled by Sucrogen in order to maintain equality among sugarcane growers;
- a high level of integration exists between the harvesting and transportation schedules given that the sugarcane must be crushed within 16 hours of harvesting and therefore cannot be stockpiled. This task is complicated by the fact that the two processing mills are not centrally located within the Herbert River district; and
- there is significant pressure on the sugar processor to crush harvested sugarcane as quickly as possible given that the CCS content of the harvested cane deteriorates over time. Once a crop has been harvested, the returns earned by growers are largely determined by the efficiency of the transportation and crushing operations.

10.2.1 Scheduling complications and disruptions

Given the nature of the cane harvesting and processing operations in the Herbert River district, we consider that the declaration of the Tramway Service Network and subsequent entry of a second rail operator would cause significant disruptions and subsequent reductions in efficiency. The relatively basic operational characteristics of the Tramway Service Network will exacerbate these disruptions and/or necessitate large additional investment in the network.

The NCC's Declaration Guide states the following in relation to the treatment of such disruptions:[48]

> ...in general terms, disruption costs should be incorporated in access charges or ameliorated through other access terms and conditions and are, therefore,

[48] National Competition Council (2009). A guide to Declaration under Part IIIA of the *Trade Practices Act 1974* (Cth), para 8.23, p 69.

> appropriately dealt with at the second stage of the access process where access terms are negotiated or if necessary subject to arbitration.

While we accept that it is typically appropriate to deal with network disruptions at the second stage of the access process, we do not consider this to be appropriate in this case given the nature of the sugar processing operations in the Herbert River district (as described above). The characteristics of the raw sugar supply chain dictate that the magnitude of the costs associated with scheduling complications and disruptions is such that it is necessary that they are considered in the assessment of the public detriment associated with the declaration application.

As has been previously discussed, the efficiency of the sugar supply chain and the returns earned by cane growers in the Herbert River district are heavily dependent on the efficiency of the transportation and milling operations and specifically the integration and coordination of the cane harvesting and transportation schedules. Sucrogen's current status as sole operator enables it to ensure that this requirement is satisfied, with its ability to centrally control all harvesting, transportation and milling schedules critical to maximising the efficiency of the production process.

Under the scenario in which the Tramway Service Network is subject to access regulation, Sucrogen would be required, as the owner and operator of the facility, to accommodate the scheduling requirements of a second above rail operator. The time-sensitive nature of the transport and milling functions and the importance of ensuring a high level of coordination between harvesting and transportation schedules makes this a very difficult task and one that involves a significant degree of risk.

It is important to recognise that any disruptions to the scheduling of network operations are likely to result in additional costs and losses in efficiency. For instance, if a disruption caused by scheduling complications results in significant delays in the delivery of harvested cane to a processing mill, the deterioration of the CCS content of that cane will be greater than would have otherwise been the case. This deterioration represents a loss of value to all participants in the sugar supply chain.

It is also important to note the intensity at which the system in the Herbert River district operates during the harvesting and crushing season, with processing mills operating 24 hours per day and 7 days per week. This indicates that there is very little slack in the system, meaning that it will be unable to absorb the impact of any scheduling complications and disruptions in a costless manner. It would therefore be anticipated that disruptions attributable to the scheduling complications associated with the introduction of a second above rail operator could have a material negative impact on the value of sugar production in the Herbert River district.

A key factor in this assessment is recognising the importance of maximising the CCS content of harvested cane at the time that is crushed in terms of the returns that are received by both millers and cane growers. This, in turn, places a high degree of importance on minimising the delay between the harvesting and crushing of sugarcane.

Satisfying the scheduling requirements of a second operator will result in more complicated coordination between harvesting and transportation schedules, which will invariably result in an increase in the length of tram running times for each loaded and unloaded trip on the Tramway Service Network, including due to trams crossing paths. This translates to a lower CCS content at the time of processing and therefore reduced levels of raw sugar production and lower returns to cane growers.

Examples of instances where the addition of a second above rail operator on the Tramway Service Network would result in significant network scheduling complications include:

- harvesting and transportation schedules are currently integrated in a manner that results in the use of contiguous sections of the tramway by servicing operationally adjacent harvesting groups. This process is crucial to maximising CCS content in harvested cane and would be subject to significant complications with two above rail operators and two distinct groups of cane growers (i.e. the extent to which the schedules could be integrated to achieve these benefits would be compromised);
- operating schedules are currently adjusted on a daily basis to match scheduling requirements and disruptions in crushing operations. Ensuring that the necessary scheduling adjustments are made to the harvesting and transport operations to maximise system efficiency would be compromised with two above rail operators; and
- aligning the transport and crushing schedules with the operations of harvesters is crucial to the efficiency of the sugar processing operation. This can often require daily adjustments to operating schedules as bin requirements change in response to tramway and milling operations. These adjustments would also be difficult to accommodate with two above rail operators.

10.2.2 Complications to harvest scheduling process

Sucrogen is currently responsible for scheduling the harvesting of sugar cane in the Herbert River district over the duration of the harvesting and crushing season. While the harvesters are contracted by the cane growers, the scheduling of harvesting

operations is the responsibility of Sucrogen in order to maintain equality among growers, as the CCS content of sugarcane (which is one determinant of the returns earned by cane growers once the crop is harvested) fluctuates over the course of the season.

These arrangements would be significantly complicated in the event of the introduction of a second above rail operator and sugarcane processor. While it is clear that the scheduling of harvesting operations must be centrally controlled,[49] it is not clear how this would be achieved where there are two sugar processors in the Herbert River district.

It would not be possible for both Sucrogen and a second processor to centrally control harvesting schedules on an independent basis, as this would result in competition between the two processors for the services provided by harvesting contractors at the time in the season when the CCS content of cane is maximised. This scenario would cause significant complications to the harvest schedules and could potentially result in cane being stranded, thereby reducing the level of sugar production and returns to cane growers (both in the current and future cane harvesting seasons).

It is considered that the two processors would need to enter into a collective agreement in regards to the scheduling of harvesting operations, however it is unknown as to how such an agreement could be enforced (including resolving disputes) or how effective it would be in maintaining equality among cane growers and maximising the efficiency of sugar production.

10.2.3 Loss of above rail efficiencies

Just as there are below rail efficiencies associated with economies of scale there are density efficiencies associated with the above rail task. The sources of these efficiencies are the ability of an above rail operator to:

- effectively manage the risks associated with its haulage task
- maximise the efficiency of the utilisation of rollingstock.

The scale of an above rail operator's haulage task is positively related to its ability to manage its throughput and operational risks. This is attributable to a larger haulage task, and therefore a larger rollingstock fleet, providing the operator with a greater

[49] Permitting cane growers to schedule harvesting operations individually would result in very high demand for harvesters when CCS content is maximised. This would cause scheduling complications which would be likely to result in a proportion of sugarcane not being harvested prior to the onset of the wet season. The adverse implications of this scenario have been discussed previously in this report.

degree of flexibility. This allows for the more effective management of above rail operations in the event of a major network disruption or an unanticipated increase in short-term throughput. Therefore, the greater the haulage task of an above rail operator, the lower the cost of network disruptions and throughput volatility.

Dividing the total haulage task on the Tramway Service Network between Sucrogen and a second above rail operator, as is proposed in NQBE's declaration application, will remove the above rail density efficiencies that are currently afforded to Sucrogen. This will result in an increase in the difficulty associated with managing throughput and operational risks, as neither operator will have the advantage of the operational flexibility that is currently held by Sucrogen.

Possessing significant operational flexibility in the transportation function in the Herbert River district sugar supply chain is an important determinant of the efficiency of an above rail operator on the Tramway Service Network, having regard to the variability of harvested cane volumes from season to season. The Herbert River district's production experiences annual yield fluctuation due to rainfall patterns. The figure below depicts this volatility between 1995 and 2009.

Table 6: Sugarcane production volumes in Herbert River district

Year	Sugarcane volume
1995	4.9
1996	5.3
1997	5.3
1998	4.2
1999	4.2
2000	2.8
2001	3.3
2002	4.2
2003	4.1
2004	4.6
2005	5.6
2006	4.9
2007	4.3
2008	4.7
2009	3.9

Source: Sucrogen

Dividing the haulage task between Sucrogen and a second above rail operator also has the potential to significantly reduce the operational efficiency of rollingstock. The smaller the haulage task, the more difficult it becomes for the above rail operator to schedule and manage its network operations in a way that facilitates the efficient use of its rollingstock. The efficiency of above rail operations is therefore typically maximised, for a fixed haulage task, where the entire haulage task is dedicated to one above rail operator.

While the density efficiencies associated with above rail operations are widely recognised, the efficiency losses associated with dividing the haulage task between multiple operators may be exceeded by the benefits associated with the increase in throughput that results from an additional above rail operator. It is therefore important to reiterate that there is no potential increase in system throughput in the foreseeable future (as discussed in section 5.3) that is related to NQBE's declaration application.

The potential for additional above rail efficiencies to be achieved by the introduction of a second above rail operator is also considered to be very limited due to the operational constraints of the Tramway Service Network, including low tonnage limits and maximum speed restrictions. Taking these constraints into consideration, it is considered that the potential for a second above rail operator to achieve an increase in operational efficiency relative to Sucrogen's current above rail operations is very limited.

The limited scope for improvements in operational efficiency and the lack of any potential future increases in the haulage task (that are attributable to the declaration application) emphasise the significance of the loss of density efficiencies that is likely to be incurred if the haulage task is divided between Sucrogen and a second above rail operator.

There is a significant body of literary evidence to support the existence of economies of density in the operations of an above rail freight operator. In a US-based study on density and the effect of integration for freight railroads, Ivaldi and McCullough (2001) reached the following conclusion in relation to the importance of maximising the freight task of above rail operators:[50]

> Increases in the level of activity that individual firms control on U.S. rail networks (at the output levels in our sample) appear to have reduced unit costs. This suggests that the governance of rail networks should be organized in such a way that

[50] Ivaldi, M. & McCullough, G.J. (2001). Density and Integration Effects on Class I US Freight Railroads. Journal of Regulatory Economics, 19(2), pp 177/78.

operating companies have the ability and the incentives to build and maintain traffic densities.

McGeehan (1993) also commented on the benefits of more intensive utilisation of inputs by an above rail operator with increasing traffic volumes:[51]

> Whilst inputs were declining, outputs in terms of passenger miles and ton-miles increased quite substantially. Thus a more intensive utilisation of inputs occurred, leading to a growth in productivity and lower costs per unit of output. Given a fixed level of track miles, increases in traffic volumes allowed the substantial economies of density which were present to be more fully exploited.

McGeehan (1993) attributed the productivity growth observed with increasing traffic volumes to the rationalisation of rail freight services, which was achieved by reducing freight handling rates, eliminating shunting and lowering labour input costs (i.e. the more efficient utilisation of rollingstock and other equipment).

The significance of the economies of density associated with above rail freight operations was also acknowledged by Pittman (2005). After noting the potential benefits from above rail competition, Pittman (2005) made the following statement:[52]

> ...competing vertically integrated railway enterprises between the same two points may not take advantage of the available economies of density to train operation.

This comment demonstrates the importance of considering the loss of efficiencies associated with economies of density in above rail freight operations when assessing the potential benefits from increased competition, particularly where there is limited expected growth in the total freight task, as is the case in the Herbert River district.

10.3 Additional costs from declaration

The following sections consider the additional social costs that will be incurred in the event that the Tramway Service Network is subject to access regulation.

10.3.1 Administrative costs

Regulation of any kind generally entails significant 'administrative' costs. Administrative costs include the costs associated with enforcing regulation and the

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[51] McGeehan, H. (1993). Railway Costs and Productivity Growth - The Case of the Republic of Ireland, 1973-1983. Journal of Transport Economics and Policy, p 32.

[52] Pittman, R. (2005). Structural Separation to Create Competition? The Case of Freight Railways. Review of Network Economics, 4(3), p 189.

costs that parties subject to regulation must meet to comply with it. This includes the costs that interested parties expend in pursuing and influencing regulatory intervention.

The precise level of administrative costs ultimately depends on the complexity of the issues relevant to the regulatory process, the incentives possessed by participants to influence the regulatory process and the duration of the regulatory process. However, it is clear that these costs are rarely trivial.

The additional administrative costs that would be incurred if the Tramway Service Network was to be subject to access declaration relate predominantly to the development and negotiation of access agreements between Sucrogen and any potential access seekers and the cost associated with any dispute resolution procedures that arise out of these negotiations. Given the highly integrated nature of the harvesting and transportation links in the Herbert River, it would appear highly likely that disputes would arise.

We also consider that costs will be incurred to satisfy the additional safety requirements associated with the introduction of a second above rail operator. These requirements will include significant investment to improve train control and signalling equipment on the Tramway Service Network.

It is also relevant to consider that the Tramway Service Network is currently defined as a 'cane railway' under the Transport Infrastructure Act. This means that the Tramway Service Network is exempt from having to maintain compliance with this legislation, including the obligations specified in Chapter 7 which deals exclusively with railways.

NQBE's application includes a proposal to transport timber and sorghum products on the Tramway Service Network outside of the cane harvesting and crushing season. The Transport Infrastructure Act defines a cane railway as a tramway or railway that:[53]

(a) operated, entirely or partly, on an access right under the *Sugar Industry Act 1999*, chapter 2, part 4; and

(b) used, or proposed to be used, to transport sugar cane, sugar or sugar cane by-products; and

(c) that does not transport passengers or other freight for reward.

If NQBE was permitted to transport sorghum and timber products on the Tramway Service Network outside of the cane harvesting season, the facility would likely lose its

[53] *Transport Infrastructure Act 1994*, Schedule 6, p 565.

status as a 'cane railway' and would therefore no longer be exempt from the obligations contained in the Transport Infrastructure Act.

It is considered that this would result in Sucrogen incurring significant costs associated with maintaining compliance with the obligations under this legislation. The most significant of these obligations relates to the requirement to implement an approved safety management system in order to be accredited as a railway owner or manager. This would represent a significant increase in the administrative burden and costs associated with ensuring the safety of operations on the Tramway Service Network. These additional costs would not appear to be offset by any potential benefits from the introduction of a second above rail operator (as discussed in section 10.2.3).

10.3.2 Costs of regulatory error and regulatory risk

Regulatory error costs arising under a regulatory regime are the efficiency costs to society of incorrect decisions by regulators, when regulatory judgement substitutes for commercial judgement and errors are made.

While error costs can arise in both regulated and unregulated markets, there is a greater likelihood of error in regulated markets. This reflects the limited adverse consequences of error to a regulatory decision maker, as compared with a commercial situation where decision makers have greater incentives to make optimal decisions.

Error costs arise primarily as a result of unavoidable information asymmetries or as a result of principal-agent problems.[54] For instance, it is extremely rare that regulators will have access to sufficient information to be able to accurately determine efficient access prices, either due to parties being unwilling to provide the necessary information or because the information may only be amenable to imperfect observation and measurement. The magnitude of regulatory errors is a function of the complexity of the issue at hand and the propensity of the regulator to intervene in any given situation. As previoulys discussed, we consider the highly integrated harvesting, transportation and milling functions to be very complex.

Costs associated with regulation arising as a consequence of the principal-agent problem, are attributable to the institutional design failing to ensure that the interests of the public and the regulator are correctly aligned. This results in society bearing the costs associated with incorrectly applied regulation. Despite the fact that it is the regulator that is responsible for these costs, it is the public, not the regulator, which is required to bear these costs.

[54] Principal-agent problems essentially constitute a misalignment of economic incentives, arising where there is imperfect information, either concerning what action the agent has undertaken or should undertake.

Regulatory uncertainty creates 'regulatory risk', which can constitute a significant disincentive to invest because rational investors facing regulatory risk will require higher returns than would otherwise be the case to attract them to make investments. Regulatory risk is affected by the level of discretion available to regulators when combined with normal market uncertainty and is very difficult for investors to quantify which in turn impacts on their return expectations and investment incentives

Regulatory discretion can have severe effects on incentives to invest. Levy and Spiller[55] concluded that the effectiveness of a regulatory framework and its ability to facilitate private investment requires substantive restraints on the discretion of the regulator, constraints on changing the regulatory system, and on institutions that enforce these constraints. They also noted that regulatory expropriation can take a number of forms, including:

- setting of prices below long-run average costs;
- imposing specific requirements concerning investment, equipment purchases or employment contract conditions; and
- when regulators have a high level of discretion, private investors will attempt to limit their exposure in regulated industries.

We consider it is important that the NCC has regard to the additional costs associated with regulatory risk and regulatory error when assessing whether the declaration application satisfies the public interest criterion.

10.3.3 Restriction on Sucrogen's ability to act entrepreneurially

The effect that a firm's exposure to regulation has on its managerial culture is potentially one of the most costly effects of regulation, in addition to being the most difficult to quantify.

Being exposed to regulation inhibits a firm's incentive and ability to act entrepreneurially. While in theory a well-designed regulatory regime is able to minimise the extent to which a firm's managerial culture is constrained, in practice this has proven to be extremely difficult. This is largely attributable to regulators pursuing short-term allocative efficiency objectives (typically constraining access charges) without having proper regard to the risk and impact of regulatory error and the impact on dynamic efficiency.

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[55] Levy, B. & Spiller, P.T. (1994). The institutional foundations of regulatory commitment: a comparative analysis of telecommunications regulation. Journal of Law, Economics and Organization, 10, 201.

While it is considered that the pricing of a regulated service at marginally higher levels than the regulator believes to be optimal does have an adverse impact on infrastructure users and/or final customers, this impact is not likely to be significant relative to the costs associated with under-pricing the service in the event that this inhibits investment.

The potential benefit from dynamic efficiency gains suggests that access regulation should only be applied where the negative welfare effects resulting from the exercise of market power and/or the impact of access regulation on competition in related markets are demonstrably material, after taking account of likely impacts on dynamic efficiency.

Contrary to the impression created in NQBE's submission, we consider that Sucrogen is acting entrepreneurially in pursuing opportunities beyond raw sugar production, including ethanol and energy canes. As a result, the potential for NQBE to deliver dynamic efficiency gains that are not already being pursued appears exaggerated.

10.4 Lack of material offsetting benefits

The previous sections have detailed the potentially significant public detriment associated with the declaration of the Tramway Service Network. We consider that declaration is unlikely to result in any material efficiency gains to offset this detriment and therefore conclude that declaration of the facility is not in the public interest and subsequently fails to satisfy criterion (f). The basis for this conclusion is detailed in the following sections.

10.4.1 Limited potential for increase in sugarcane production

In assessing the potential efficiency gains relating to the declaration application it is important to recognise that there is a significant constraint on the maximum level of production of sugarcane in the Herbert River district.

These constraints are attributable to two factors. The first of these is the geographical constraints on the area available for the production of sugarcane in the Herbert River district (refer to map in Appendix 1 of Sucrogen's submission to the NCC). The second factor is the impact of competing land uses, particularly forestry plantations. The increase in the competitiveness of the forestry plantations sector in the region is a result of the provision of significant government assistance under the 'Queensland timber plantation 2020 strategy'.

This strategy includes several initiatives that aim to facilitate the growth of the Queensland forestry plantations sector. These initiatives include targeted industry

development support, such as the provision of direct industry development support, and facilitating new investment in timber plantations through measures such as the identification of the timber plantation sector as a priority industry and collaborative research with industry participants.

The presence of these constraints is acknowledged in NQBE's declaration application, which states:[56]

> The entry of NQBE into the market will not necessarily mean an increase in the volume of sugar cane transported on the Tram Service each year. Rather, Sucrogen and NQBE will compete for the current levels of supply of sugar cane for their respective operations.

NQBE states that future sugarcane production in the district will be increased in the longer term by the introduction of 'energy canes'.[57] NQBE estimates that this could result in sugarcane production in the Herbert River district increasing from 4.0-4.5Mt per annum to 6-7Mt per annum.[58]

We agree that the uptake of 'energy canes' (or any other new crop variety) may have a positive impact on the level of sugarcane production in the long term. However, we do not consider that these productivity gains are dependent upon the declaration of the Tramway Service Network. The uptake of new crop varieties (such as 'energy canes') is dependent upon the technology developing to the point where market forces dictate that it is efficient for growers to use them. This will occur regardless of whether the Tramway Service Network is subject to access regulation (i.e. growers will have an incentive to pursue higher yielding crops regardless of access declaration), and therefore cannot be considered a public benefit associated with the declaration application.

10.4.2 Lack of material offsetting public benefits

The significance of the proposed benefits of declaration included in NQBE's application has largely been dealt with in the assessment of criterion (a). In summary, with regards to the proposed benefits associated with the provision of additional returns to cane growers in the Herbert River district, and the use of by-products from the sugar production process to produce ethanol and electricity, we have concluded

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56 North Queensland Bio-Energy Corporation Limited (2010). para 7.21, g 9.

57 'Energy canes' are a new sugarcane crop that is being developed that has the potential to produce higher cane yields.

58 NQBE's declaration application stated that if access to the Tramway Service Network is granted, the introduction of 'energy canes' would be approximately 5-10 years away.

that there is no material increase in competition in any of the relevant markets and no improvement in economic efficiency and therefore no material public benefit.

NQBE's application also includes two other proposed benefits associated with the declaration of the Tramway Service Network - increased future production of sugarcane resulting from the introduction of 'energy canes' and the transportation of other feedstocks such as woodchip and sorghum for processing outside of the cane harvesting season.

The extent to which material public benefits are likely to be attributable to the introduction of 'energy canes' was dealt with in the previous section.

In relation to the transportation of other feedstocks, NQBE's application stated that it proposes to transport products such as woodchip and sorghum to its factory for processing outside of the cane harvesting season. NQBE also states that while the quantity of these products to be transported is currently not known, it estimates that it could be over 200,000 tonnes per annum.

We do not consider these to be material public benefits associated with NQBE's proposal to transport other feedstocks on the Tramway Service Network outside of the cane harvesting season. This conclusion is based on the following three points.

Firstly, NQBE's assertion in relation to the future transportation of other feedstocks on the Tramway Service Network is considered to be highly speculative. In addition to stating that it is currently unsure as to the volume of other feedstocks that will be transported on the facility, NQBE fails to provide any supporting information underpinning this proposal. It is therefore not considered that the transportation of other feedstocks on the Tramway Service Network by NQBE constitutes part of the foreseeable demand associated with the facility, and is therefore not relevant to this assessment of the public benefits associated with the declaration application.

Secondly, the Tramway Service Network's current status as a 'cane railway' under the Transport Infrastructure Act is dependent upon it only transporting sugarcane and sugar products (including by-products). The legislation specifically precludes the transportation of other freight products on the Tramway Service Network. As feedstocks such as woodchip and sorghum constitute other freight products, the Tramway Service Network would lose its status as a 'cane railway' under the Transport Infrastructure Act. The negative implications associated with this have been previously discussed.

Thirdly, even in the event that NQBE's claim of transporting 200,000 tonnes of other feedstocks on the Tramway Service Network on an annual basis were to be realised, we consider that the low-value nature of these products means that the associated public

benefits would be relatively small and are unlikely to be relevant to this assessment of material public benefits associated with the declaration of the Tramway Service Network.

We therefore conclude that NQBE's proposal to transport other feedstocks on the Tramway Service Network outside of the cane harvesting season does not constitute a material public benefit relevant to this assessment.

10.4.3 Conclusion on offsetting public benefits

Taking into consideration the limited potential for future increases in sugarcane production in the Herbert River district (and the extent to which any foreseeable increases in production are unrelated to the declaration application), we consider that the declaration of the Tramway Service Network would not result in any public benefits in terms of increased efficiency or productivity.

10.5 Conclusion

Based on an assessment of the likely efficiency impacts of the declaration of the Tramway Service Network, Synergies concludes that the public detriment associated with declaration is likely to significantly outweigh any public benefits. The criterion that the declaration of the facility must not be contrary to the public interest is therefore not satisfied.

The key observations taken into consideration in reaching this conclusion were:

- the potentially significant efficiency losses associated with:
  - scheduling complications and disruptions, including in relation to the harvesting and transportation operations in the Herbert River district; and
  - loss of above rail efficiencies;
- the additional administrative costs likely to be incurred by Sucrogen in the event that the service provided by the Tramway Service Network is declared;
- other costs associated with access regulation, including the cost of regulatory error and regulatory risk; and
- the apparent lack of material offsetting public benefits associated with NQBE's proposal.

11 Conclusions

In our view, not all of the access criteria are satisfied so the NCC should not recommend the services to which access is sought be declared under Part IIIA of the Trade Practices Act.

Sucrogen's Tramway Service Network has not been designed or built to carry freight traffics other than sugarcane and raw sugar, nor to accommodate more than one above rail operator. Rather the network forms part of a highly integrated raw sugar production process in the Herbert River district. As a result, the possible entry of a new rail operator into this process will result in significantly more complicated scheduling of the harvesting, transport and milling operations. These additional complications will pose material risks to the efficiencies inherent in the process and necessitate an expansion of capacity to accommodate a new above rail operator's services.

However, there appears limited potential for future increases in sugar cane production in the Herbert River district and the scope for any foreseeable increases in production is unrelated to access declaration. More broadly, it is difficult to identify any material increases in efficiency or productivity that would arise from access to the Tramway Service Network being declared with no offsetting benefits in terms of efficiency gains in the raw sugar production process in the Herbert River district.

We have also not found strong evidence to indicate that Sucrogen is exercising significant market power in relation to the purchasing or crushing of sugarcane to produce raw sugar. In our view, Sucrogen has a strong incentive to maximise throughput at its two mills and compete for an effectively fixed volume of sugarcane, reflecting the regional nature of the production and sales market.

Moreover, the existence of road transport as a competing service for the Tramway Service Network means that a regulated rail access price based on the standard building block approach generally used by Australian regulators would unlikely to be sustainable in the market for sugarcane and raw sugar haulage services.

A Attachment A

Table 7 NCC decisions in relation to criterion (c) for declaration applications

Facility	Year	Decision on criterion (c)	NCC considerations relating to size
Robe Railway	2008	The NCC stated that it was satisfied that the facility was of national significance having regard to the size of the facility, its importance to constitutional trade or commerce and its importance to the national economy.	The size of the facility was taken into consideration by the NCC when making its decision on the national significance of the facility. In relation to the size of the facility, it was noted that the railway is 210km in length and it was estimated that the cost to duplicate the facility was between $735m and $945m.
Hamersley Railway	2008	The NCC stated that it was satisfied that the facility was of national significance having regard to the size of the facility, its importance to constitutional trade or commerce and its importance to the national economy.	The size of the facility was taken into consideration by the NCC when making its decision on the national significance of the facility. In relation to the size of the facility, it was noted that the railway is 625km in length and it was estimated that the cost to duplicate the facility was between $2.19b and $2.81b.
Goldsworthy Railway	2008	The NCC stated that it was satisfied that the facility was of national significance having regard to the size of the facility, its importance to constitutional trade or commerce and its importance to the national economy.	The size of the facility was taken into consideration by the NCC when making its decision on the national significance of the facility. In relation to the size of the facility, it was noted that the railway is 210km in length and it was estimated that the cost to duplicate the facility was $750m.
Tasmanian Railway Network	2007	The NCC was satisfied that the facility met the national significance criterion.	The size of the facility was not cited as a factor in the NCC's decision. The facility was regarded as being of national significance on the basis of its importance to constitutional trade and commerce.
Water storage and transport facilities owned by Snowy Hydro Limited and the State Water Corporation	2006	The NCC was satisfied that the facility met the national significance criterion.	Size was one of the factors taken into consideration by the NCC, with the following points being noted in its final recommendation: • the Snowy Hydro Scheme captures and diverts water within a catchment area of 5,124 square kilometres; and • the relevant facilities consists of: – 7 power stations; – 16 major dams with a total storage capacity of 7,000GL; – 80km of aqueducts; – 145km of interconnected tunnels; and – a pumping station.
Mt Newman Railway	2006	The NCC was satisfied that the facility met the national significance criterion.	Size was one of the factors taken into consideration by the NCC, with the final recommendation noting that the railway is 295km in length (plus associated infrastructure) and had a reported capacity of 100Mtpa.
Sydney Sewerage Network	2005	The NCC was satisfied that the facility met the national significance criterion.	The size of the facilities was a relevant factor in the NCC's decision, with the following details included in the final recommendation: • for the North Head Reticulation Network: – total service area of 42,000ha;

Facility	Year	Decision on criterion (c)	NCC considerations relating to size
			– network length of 6,083km; – DORC value of $2,243.6m; • for the Bondi Reticulation Network: – total service area of 3,900ha; – network length of 762km; – DORC value of $260.5m; and • for the Malabar Reticulation Network: – total service area of 66,000ha; – network length of 7,154km; and – DORC value of $2,878.8m.
Airside Services at Sydney Airport	2003	The NCC was satisfied that the facility met the national significance criterion.	No explicit reference was made in relation to the size of the facility. The main basis for the NCC's decision was the value of freight handled at the facility ($21b in 1997) and the proportion of Sydney's workforce which was accounted for by the facility (8%).
Wirrida-Tarcoola Railway	2002	The NCC was satisfied that the facility met the national significance criterion.	The size of the facility was not identified as a relevant factor behind the NCC's decision. The NCC stated that its decision was based on the importance of the facility to constitutional trade or commerce and to the national economy.
Victoria's intrastate rail network	2001	The NCC was satisfied that the facility met the national significance criterion.	The NCC stated that the size of the network was likely to define a facility of national significance. It was noted in the NCC's final recommendation that the network consisted of 3,600km of track infrastructure.
Westrail's Kalgoorlie-Perth rail line	1997	The NCC was satisfied that the facility met the national significance criterion.	The size of the facility was identified as a factor underpinning the NCC's decision, with the final recommendation noting that the length of the rail line is 655km and that the estimate cost to duplicate the facility was $1m-$1.5m per km.
Hunter Valley rail network	1997	The NCC was satisfied that the facility met the national significance criterion.	While no specific reference was made to the size of the facility being a factor relevant to this decision, it was noted in the NCC's final recommendation that the cost of duplicating the facility had been estimated at between $400m and $825m.
Sydney to Broken Hill NSW rail line	1997	The NCC was satisfied that the facility met the national significance criterion.	The size of the facility was identified as a factor underpinning the NCC's decision, with the final recommendation noting the following: • for the Sydney-Lithgow-Parkes-Broken Hill line: – track length of 1,332km; – annual tonnage of 4.9Mtpa; • for the Sydney-Cootamundra-Parkes-Broken Hill line: – track length of 1,697km; – annual tonnage of 6.2Mtpa; and • the estimated cost of duplicating the track exceeded $1.5m per kilometre.
Queensland above- and below-rail facilities	1997	The NCC considered the following separately when assessing the national significance of the relevant facilities: • track infrastructure; • locomotives and	In relation to the track infrastructure, the NCC ruled that the facility was nationally significant based on its physical size, noting that the QR network covered 1,700km. The size of the rollingstock and terminal facilities were not considered sufficient to be considered nationally significant. The NCC commented that the terminal facilities were not

Facility	Year	Decision on criterion (c)	NCC considerations relating to size
		rollingstock; and • terminal facilities and loading equipment. Of these three categories, the NCC concluded that only the track infrastructure met the necessary requirements to be considered nationally significant.	large when compared to terminals in capital cities.
Freight handling facilities at the Sydney and Melbourne international airports	1996	The NCC was satisfied that the facilities met the national significance criterion.	While the NCC was satisfied that the facilities met the national significance criterion, there was no reference to the size of the facilities in the final recommendation. The volume of trade handled and the strategic importance of the facilities were cited as the basis for the facilities meeting the criterion.
Department of Education, Employment, Training and Youth Affairs computer network	1996	The NCC was not of the view that the facility was nationally significant.	In making its decision, the NCC noted that the Austudy database operated by the facility was not particularly large and that many other national databases of comparable or greater size existed, within both the government and the private sector. The facility also failed to meet either of the other requirements to satisfy the national significance criterion.

Source: The information in this table was taken from several NCC final recommendations relating to declaration applications.