



Benefits of Grain Express

Report for Corrs Chambers Westgarth

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Executive Summary

Introduction

CBH is applying to the ACCC for notification of conduct that changes the operation of the grain supply chain in Western Australia. These changes are to overcome inefficiencies in the supply chain caused by the lack of effective co-ordination.

CBH proposes, through Grain Express, to bundle the procurement and management of transport services with its existing storage and handling services. Corrs Chambers Westgarth (Corrs) has engaged Synergies to prepare a report on the economic benefits of the Grain Express proposal. Corrs has also instructed Synergies to consider whether these benefits could be secured in a way that is less restrictive.

Background

The grain supply chain in Western Australia must address numerous challenges. The grain harvest is both variable and unpredictable, with the variability increasing over time. The challenge of the supply chain is to deliver the correct grain when it is required at the outturn site (mainly ports and the Metropolitan Grain Centre). In order to perform this function, the supply chain must contend with a wide array of products from nearly 200 different sites of varying sizes across the CBH network.

Currently, the rail haulage contract is a multi-party agreement pursuant to which the liability to pay for the rail hauler's services is assigned to grain marketers rather than to CBH. These arrangements confer upon marketers a significant degree of leverage in the raiing task enabling the manipulation of rail movements to support individual marketer imperatives at the cost of the supply chain as a whole.

In the current environment, where two marketers dominate, these arrangements are inefficient. However, the situation will deteriorate significantly following the deregulation of marketing in the absence of a single party having responsibility for the movement of grain from up country sites to destinations.

CBH proposes to overcome these difficulties through Grain Express. Grain Express involves CBH bundling the provision of handling and storage with transportation services. Under Grain Express, CBH will assume direct responsibility for procuring and managing the transportation of grain throughout the logistics chain, as well as being responsible for the co-ordination of the movement of grain.

Grain Express benefits

Grain Express will provide many benefits to the industry:

- by enabling growers to delay their nomination of their marketing option for 21 days following receipt, Grain Express will improve grain receipt, by:
 - increasing the speed of the receipt process;
 - reducing errors in Carter’s Deliver Forms; and
 - enabling automation of several elements of the receipt process;
- reduce the costs associated with the provision of storage and handling services – by controlling the timing and sequencing of bulk head openings, CBH will generally be able to clear each bulk head it opens:
 - enhancing labour efficiency by reducing labour mobilisation costs, reducing overtime and improving rostering practices;
 - reducing mobilisation of equipment; and
 - reducing the frequency of grain removals from storages under fumigation;
- improve the operation of the rail network by increasing the operation of unit trains carrying homogenous product. This is expected to avoid a [CONFIDENTIAL MARKET SENSITIVE INFORMATION REMOVED] increase in the cost of the rail operation caused by deregulation through:
 - enhancing rail efficiency;
 - enabling CBH to insure against the fixed costs of rail haulage (reducing grower risk);
 - maximising the efficient use of rail for the grain haulage task;
 - improving the transparency of freight costs; and
 - improving the negotiating position of CBH in transport procurement;
- more efficient utilisation of port infrastructure and a reduction in the costs associated with demurrage;
- more efficient and innovative investment decisions due to a better ability to comprehend the impact of new investment on supply chain efficiency and greater accountability for performance in the management of the supply chain; and
- facilitate better grain marketing decisions – not only will growers have more time to assess their marketing options, but by removing a transport based barrier to trade, Grain Express will facilitate secondary trade in grain.

Growers will be the primary beneficiaries through a reduction in the scale of supply chain cost increases.

Grain Express is unlikely to restrict competition

Grain Express is unlikely to restrict competition:

- in the relevant transport markets (which are likely to be most affected), Grain Express may actually serve to increase competition between road and rail transport operators and within the rail sector itself.
- CBH's access to sensitive information and its opportunity to pass on marketer's (or grower's) confidential information to Grain Pool is no different under Grain Express compared to present arrangements;
- ringfencing arrangements will protect competing marketers against the risk that CBH will offer preferential terms and conditions or treatment to Grain Pool.

Grain Express is superior to alternative solutions

The main alternative to Grain Express is to use prices to co-ordinate behaviour in a decentralised system. However, this approach does not provide an effective solution to the problems in the supply chain as it:

- requires accurate pricing impacts to be determined – a task which is effectively impossible due to the complexity of the logistics chain;
- will undermine the network benefits that are essential to achieving an orderly (and efficient) transportation of grain to outturn sites.

Consequently, pursuing a decentralised pricing option will increase supply chain cost reducing the international competitiveness of the industry. Moreover, relying upon a pricing approach will confer marketers an entitlement to specific parcels of grain that does not exist under the Bulk Handling Act and which cannot exist in a bulk system.

Grain Express is a long term solution

Grain Express provides a vehicle to optimise supply chain performance that provides a long term solution to the systematic co-ordination failures that beset the grain supply chain in WA. There is no party in the supply chain better placed than CBH to perform this role. Only CBH possesses the knowledge of the grain stock for each grade through the system to be able to co-ordinate transportation to optimise supply chain performance. Growers will only directly realise these benefits under Grain Express.

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1 Introduction

CBH is applying to the ACCC for notification of conduct that involves changing the operation of the WA grain supply chain to overcome inefficiencies in the current arrangements that arise from a lack of effective co-ordination.

CBH proposes, through Grain Express, to bundle the procurement and management of transport services with its existing storage and handling services. Corrs Chambers Westgarth (Corrs) has engaged Synergies to prepare a report on the economic benefits of the Grain Express proposal. Corrs has also instructed Synergies to consider whether these benefits could be secured in a way that is less restrictive.

The report is set out as follows:

- section 2 outlines the current structure of the logistics chain and the challenges associated with it;
- section 3 outlines the key features of the Grain Express proposal;
- section 4 describes the economic benefits that will be achievable under Grain Express;
- section 5 considers any anti-competitive detriment that may result from the implementation of Grain Express;
- section 6 considers the validity of alternative solutions to addressing the problems identified in the current logistics chain; and
- section 7 concludes this report.

2 Challenges in the WA grain supply chain

The submission prepared by Corrs describes the WA grain supply chain in detail. We do not repeat this description here. Rather the purpose of this section is to:

- provide a brief overview of the complexities associated with supply chains;
- draw out some of the key aspects of the WA grain supply chain;
- consider the susceptibility of the WA grain supply chain to co-ordination failures; and
- highlight how the WA grain supply chain differs from the coal chains on the East Coast.

2.1 Complexities in supply chains

Logistics (or management of supply chains) is the process of planning, implementing and controlling the efficient, effective flow and storage of goods and related information from an origin (or several origins) to a destination or destinations (normally, but not always, the point of consumption).¹

The flow and storage of goods is achieved through a series of interdependent activities called a supply chain. The activities that comprise a supply chain are vertically related, each activity is an input to a subsequent activity or activities. The coordination of vertically related activities can be undertaken either through contracts or be integrated within an organisation or a governance structure.

Logistics chain optimisation is a complex task. This is due to the need to manage competing participant requirements whilst ensuring a systematic approach is used to the overall transportation task to ensure optimisation of available capacity – noting that:

- the capacity constraint (or bottleneck) can vary over time and with different demand on the system (mainly throughput levels); and
- every element of a supply chain affects every other element.

¹ Lampropoulos, S (2007), What is logistics & supply chain management, <http://logistics.about.com>

A number of institutional responses have been used to maximise the efficiency of export supply chains:²

- joint venture logistics coordinators;
- vertical integration;
- collaborative project teams.

Logistics in Australian export commodity supply chains has emerged as a major policy issue in recent years as investments have been slow to respond to unexpected increases in demand. The Review of the Exports and Infrastructure Taskforce (“the Taskforce”) noted that:³

there is scope to encourage participants in logistics chains to coordinate their operations more effectively. The Hunter Valley Coal Chain Logistics Team provides an example of the gains that this can secure. The Department of Transport and Regional Services should be asked to assist in the formation and operation of such groups and to report on any statutory impediments to their operation (such as those that may arise under the Trade Practices Act).

Similarly, the ACCC has noted in its authorisation of the EGL Joint Venture that better coordination of the supply chain will constitute an increase in economic efficiency, contributing to public benefits.⁴ Before considering the nature of the supply chain coordination complexities, we consider some of the key characteristics of the WA grain supply chain.

2.2 Characteristics of the WA grain supply chain

2.2.1 Production

The defining characteristic of grain production is that the annual harvest is both volatile and unpredictable. Indeed, it appears that the volatility of grain production is

² Exports and Infrastructure Taskforce 2005, *Australia's Export Infrastructure, Report to the Prime Minister*, Canberra, May.

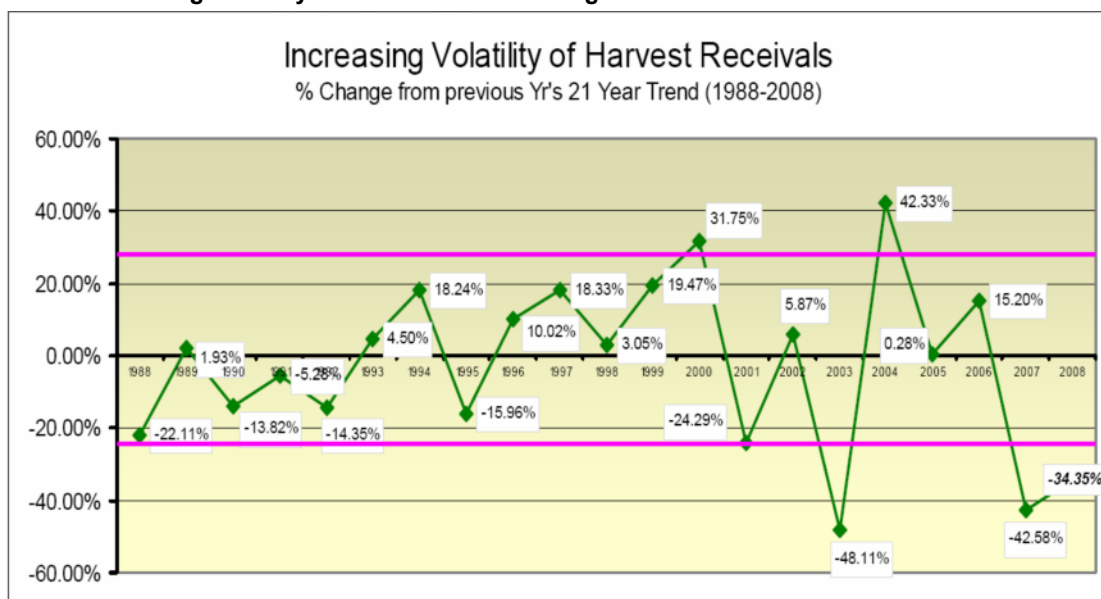
³ *ibid.*

⁴ ACCC, Determination, Applications for Authorisation Lodge by GrainCorp Operations Ltd, AWB Ltd and Export Grain Logistics Pty Ltd, in respect of proposed Joint Venture Arrangements for export grain freight and logistics in the Eastern States of Australia, p. 38

increasing over time. This contrasts, for example, with coal, that has been the subject of far more consistent and steady growth over time.

The recent trend of increased volatility in annual harvest tonnages is shown in Figure 1 below. This diagram provides information on the percentage deviation in the harvest tonnages as recorded in each year from the 1988-2008 trend level. The diagram indicates that there has been a distinct increase in the level of volatility of annual harvests since 2000.

Figure 1 Increasing volatility in annual harvest tonnages



Data source: CBH

The key implication of this volatility for successful operation of the supply chain is that managing the capacity of the system becomes especially crucial. CBH must be able to install sufficient capacity to meet a record harvest.

However in other years production will fall well short of this volume so that the ratio of peak to average throughput for grain is relatively high. In such an environment, excess or inefficiently utilised capacity in the supply chain has a relatively high opportunity cost.

Consequently, one of the key outcomes of an efficient supply chain is to ensure the maximum utilisation of installed storage and handling capacity to minimize the holding costs associated with capacity that is only required occasionally.

Another production factor influencing supply chain efficiency is the number of products that must be accommodated within the supply chain. The number of discrete products varies between each of the zones that comprise the WA grain industry

(respectively, Kwinana 49, Geraldton 23, Esperance 19 and Albany 22). Each product must be separately treated throughout the supply chain to prevent contamination and the consequential diminishing of value.

Finally, an increasing trend in recent years is for growers to develop specific characteristics in their crops so as to attract price premiums. Again, in an environment in which grain of a specified grade co-mingles, specific quality management plans must be developed and implemented in order to preserve these premiums.

2.2.2 CBH's current cost structure

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2.2.3 The nature of the logistics challenge

The decision regarding movement of grain from the farm gate to initial storages rests with the grower and coordination is achieved through a storage planning process based on information on expected production provided by growers. This process provides CBH with sufficient information on which to initially plan and configure the storage network to receive the forthcoming harvest. However, these plans need to be continuously updated to incorporate the new information that is revealed during the course of the harvest.

The combination of limited on farm storage and the vulnerability of grain to deterioration over time (especially rainfall) means that the receipt process is intensive - all of the grain that is harvested in a given year is effectively committed to CBH storages over approximately 10 weeks. This means that CBH attempts to ensure that up-country storages are emptied prior to harvest commencing.

Once the grain is "in the system" the key challenge is to ensure that it is transported to its destination in an orderly and efficient fashion which ensures that quality is maintained at least at receipt standard. This requires a careful process of sequencing the opening of storages which needs to include consideration of numerous factors including:

- shipping timetables - CBH must ensure that there is a sufficient quantity of the correct grain (that is grain of the relevant quality specification) at each port in sufficient time for ship arrivals to minimise the incidence of demurrage;⁵

⁵ CBH receives a 12 month forward shipping program from the marketers which describes the type and quantity of grain and approximate time and port the grain will be shipped from. Forward shipping programs are inherently subject to change, and as a result, CBH may receive grain at a port facility that is not for shipping on a specific vessel.

- there are restrictions on opening storages - once the grade of grain has been determined following receipt it is committed to sealed storages with a fumigant being applied for at least 28 days before it is transported;
- there are nearly 200 individual storage sites of varying sizes across the region - optimising clearances depends on a tradeoff between:
 - mobilisation costs for each storage (especially for smaller more remote storages);
 - restrictions on the loading of trains and train scheduling complexities;
 - transport costs; and
 - the ease with which the system can accommodate all of the grain from a receipt site (as opposed to an individual storage within the site);
- once a storage is opened, it is most efficient for all of its contents to be transported to the relevant destination(s);
- capacity constraints throughout the supply chain which can affect every other element of the chain; and
- the quality characteristics across the system.

However, there are some characteristics of the supply chain and its associated regulation which could facilitate this task, such as:

- the information that is held by CBH as to the stock of grain within the system - CBH possesses all of the relevant information needed to make the trade-offs outlined above so as to optimise the performance of the logistics chain;
- the specification of marketer's rights to grain - the Bulk Handling Act contains provisions which should support this activity - marketers are not entitled to specific parcels of grain but rather to a share of a bulk pool of grain of a specified grade; and
- the extent of stockpile capacity at the ports (refer Table 1).

Table 1 Port grain storage capacity

Port	Port Silos (tonnes)	Annexes (tonnes)	Total storage capacity (tonnes)
Kwinana	370,000	643,900	1,013,900
Geraldton	289,800	776,800	1,066,600
Albany	241,000	233,000	474,000
Esperance	146,000	680,000	826,000

Source: CBH Group, Grain Terminals Brochure, at www.cbh.com.au

In the context of the WA grain supply chain, this capacity is crucial to the performance of the supply chain as it presents an opportunity to secure the optimal utilisation of rollingstock.

This is because a major driver of transport costs is rollingstock utilisation - is crucial to the efficient utilisation of rollingstock that stockpile capacity at the port is used to facilitate the transport task being performed with as many unit trains carrying a homogenous grain type from a single origin to a single destination as possible. Key environmental factors affecting the realisation of this goal include:

- transport costs represent approximately [CONFIDENTIAL MARKET SENSITIVE INFORMATION REMOVED] of total supply chain costs;
- the fragmented nature of the supply chain (with numerous sites of differing storage capacities needing to be accessed over the course of the year) making the timing and sequencing of the opening of storages crucial to supply chain cost minimisation.

2.2.4 Challenges efficient operation of the supply chain

Unfortunately, there are several impediments present in current arrangements which restrict CBH's capacity to perform its task in an optimal manner. These include:

- the absence of a nominated party to unequivocally control the logistics chain;
- up-country sites that are geographically diverse;
- transport arrangements;
- fragmentation of the marketing function that is expected with deregulation; and
- maintaining quality characteristics.

Absence of a single party to control the logistics chain

A clear lesson of the work that has been performed on logistics chains in the coal sector is that the only efficient means of managing the scheduling of activity is to place supply chain management in the control of a single entity that has access to the relevant information necessary to optimise supply chain performance.

In reality, the provision of coordination, planning and management of grain movements in the supply chain can only effectively be performed by a single party. However, responsibility for logistics in the WA export grain supply chain is not vested in any single entity.

Up country storages

Up country storage sites vary with their size, geographic location and mobilisation cost. In order to achieve supply chain efficiency it is crucial that the opening of storages is managed. This requires careful integration with the transportation task.

Transport

Inefficiencies in the WA grain supply chain arise between up-country receival storages and the movement of grain to ships. These inefficiencies arise because the coordination of activities required to move grain is not optimised by participants in the supply chain. In contrast to the movement of grain from farm gate to receival point, responsibility for the movement of grain is shared and there is no entity with overarching authority for the control of the movement of grain to ships.

A key consideration in this regard is the nature of the transporting contracting relationships. Currently, the rail haulage contract is a multi-party agreement pursuant to which the liability to pay for the rail hauler's services is assigned to grain marketers rather than to CBH. These arrangements confer upon marketers a significant degree of leverage in the raiing task enabling the manipulation of rail movements to support individual marketer imperatives at the cost of the supply chain as a whole.

The deregulation of the marketing arrangements will therefore have a significant impact on the coordination of the rail haulage task as it will lead to further diffusion in the focus of the rail task.

Fragmentation of the marketing function

The current arrangements for the marketing of export wheat in Australia are to be deregulated from 1 July 2008 (with the prospect of marketing arrangements for other grains also being deregulated). Given the dominance of wheat exports in terms of the output of the grain sector in WA, this will have significant consequences for the operation of the grain supply chain.

The recent liberalisation of the wheat export marketing arrangements has already resulted in a significant increase in the number of marketing options available to growers with current estimates indicating there are up to 360 marketing options available to each grower upon the delivery of a grain load to a receival site.

This figure is likely to expand significantly following the full deregulation of the current marketing arrangements for wheat exports.

Primarily, the deregulation of the marketing arrangements will increase the level of contestability in the marketing sector, leading to the fragmentation of the sector, which in turn will exacerbate the coordination problems currently being experienced. CBH anticipates that, under full deregulation, over 40 grain marketers will enter the market.

Under the current arrangement the marketing sector is highly concentrated, meaning that CBH is required to comply with the requirements of relatively few marketers in terms of the movement of grain throughout the logistics chain. The deregulation of the sector will therefore significantly increase the number of marketers in the industry.

If the current arrangements continue, each marketer will continue to have an incentive to only manipulate the supply chain to their commercial advantage to the extent possible - marketers will not consider the effects of their own storage and handling requirements on the efficiency level of the supply chain unless there is some tangible measure of the impact it is likely to have e.g. a fee for conduct. However, fees further distort the system, and payment of them to enable such conduct can actually be more disruptive and undesirable.

Accordingly, the recent liberalisation of grain export marketing arrangements has added an increased degree of complexity to the already complicated grain logistics chain. The deregulation of the of the current wheat export marketing arrangements will further complicate the task of coordinating the storage, handling and transportation of grain.

In the absence of reform, these developments will create a chaotic environment and highlight (at great cost to the industry) the co-ordination concerns in the WA grain supply chain.

Maintaining Quality Characteristics

The aim of segregating grain based on quality is to deliver a consistent product to end-users. The segregation approach used in Australia is based on different quality grades - the number of grades varying by grain type. To determine which grade individual truck loads of grain are allocated they are tested in line with industry agreed receival standards. This testing ensures that each stack of grain is similar to another stack of the same grade within the parameters of the minimums and maximums of the receival standards. The receival standards also manage the variation of the growing season on quality traits.

To outturn grain in line with customer's quality requirements CBH Operations undertakes extensive quality assessment processes and systems at the point of receival and outloading. CBH Operations guarantees that grain will be outturned to the

appropriate receival standard for that grain. Subject to seasonal quality fluctuations CBH Operations provides reasonable endeavours to outturn grain aligned with quality profile of an individual customer bearing in mind stock is stored in commingled stacks.

2.3 Co-ordination concerns in the WA grain supply chain

The key co-ordination concerns that arise in the WA grain supply chain include:

- information and co-ordination;
- competitors;
- pervasive externalities;
- loss of network benefits;
- incomplete contracts;
- complements and substitutes; and
- hold-up concerns.

2.3.1 Information and Co-ordination

Logistics chains are dynamic. It is essential that logistics chains are responsive to internal (within the supply chain) and external (market) requirements.

This is due to the material impact, activities or limitations that each participant in the chain has the efficiency of other supply chain participants and, in turn, the entire system.

However, there are substantial transactions costs associated with incorporating and coalescing the information that is dispersed throughout the members of the supply chain. There is a further challenge to achieve co-ordination between them. The only efficient means of economising on this process is generally through a centralised co-ordinating mechanism through a central agency that

- has access to the relevant information to inform decision making; and
- has authority to make resource allocation decisions within the logistics chain for it to operate efficiently.

Where a supply chain consists of numerous disparate members and is decentralised, information is dispersed amongst participants. There is no single entity able to make

resource allocation decisions having regard to the efficient operation of the chain as a whole.

Amongst other things, this means that it is generally not possible for any individual member of the supply chain (other than an entity such as CBH in the WA grain supply chain) to accurately assess the impact of its behaviour (or the impact of any change to its behaviour) on the other participants or indeed the supply chain as a whole.

Even leaving aside incentive issues, if those making resource allocation decisions have insufficient information to comprehend the full impact of decisions, the result is invariably poor coordination and high supply chain costs especially when the effects may not be immediately apparent.

Only CBH possesses the knowledge of the grain stock for each grade through the system to be able to co-ordinate transportation to optimise the performance of the supply chain.

2.3.2 Competitors

The tensions within a supply chain are exacerbated by the fact that the individual marketers that it serves are in direct competition with each other - the individual participants may not have incentives to ensure the flow of information but rather (in the absence of penalties) will have an incentive to use any information to their commercial advantage .

Individual marketers will rationally seek to minimise the costs they incur - especially where doing so increases the costs borne by competitors. This in turn creates a competitive dynamic between grain marketers to strategically interact with the environment so as to cause commercial harm to (or push cost onto) their competitors.⁶

Indeed, in some of the East Coast logistics chains this dynamic has incentivised producers to exploit information asymmetries in contractual negotiations resulting in contractual mismatches, excessive transaction costs and even gaming (such that mines have contracted to different capacities for the port, rail haulage and rail infrastructure).

In logistics chains co-operation and co-ordination - rather than competition - is essential for achieving efficiency.

⁶ Indeed, where elements of a supply chain are in competition with one another (such as competing haulage providers) the effects can be even more severe for system efficiency.

2.3.3 Pervasive externalities

An externality arises where a party imposes an unpriced (i.e. uncompensated) cost on another. A defining characteristic of the operation of a logistics chain is that the actions of each component of the chain can materially affect other components and thereby affect the operation of the entire system.

Therefore, individual participants as well as the entire logistics chain are susceptible to pervasive spillovers. For example, a marketer may require chase or eccentric loading of grain forcing increased handling costs and departures from the rail plan (thereby increasing rail costs). The failure by the rail operator to present trains on time and in sequence at the port might require additional moves of port stockpiling, thereby consuming additional port capacity and imposing a cost on the port operator (and in turn the logistics chain as a whole).

Other examples of externalities in the WA grain supply chain include:

- the impact of any individual marketer breaching the protocol relating to fumigant increases the risk that the resistance will grow forcing the adoption of a less attractive alternative (see below);
- the modal leakage from rail to road exposes local communities to the increased cost associated with road maintenance.

2.3.4 Loss of network benefits

The lack of incentive alignment between the participants of a logistics chain creates an environment in which none of the supply chain participants is able to operate in a manner that fully exploits the opportunities presented by network benefits.

One of the key considerations in this regard relates to the process of transporting grain from up country storage facilities to port. The fragmentation that is inevitable in a decentralised supply chain with multiple marketers will compromise the efficiency of rail operations.

This is because individual marketers will not have the volume to support unit train operation. This in turn may result in a substantial modal leakage of freight from rail to (the less efficient) road system. The impact will be more acute in the narrow gauge system, which is inherently more vulnerable to modal shift.

2.3.5 Incomplete Contracts

The optimal operation of the supply chain will vary from time to time depending upon achieving the maximum utilisation of the most expensive element of the chain or minimizing the impact of the bottleneck that then presents. This in turn creates a challenge for the contracting framework in a decentralised supply chain – the operating paradigm itself will need to adjust for the circumstances that present in order for optimal performance to be achieved.

For example, the Goonyella coal chain in central Queensland has been forced to change from a rail to stockpile operating paradigm to a cargo assembly environment – for efficiency in the logistics chain to be achieved it required rail haulage capacity to be sacrificed in order to maximise the utilisation of the relatively more expensive port stockpile capacity.

However, fragmented supply chains create several problems in this respect. First, there can be gaps in the contractual framework between members of the supply chain. For example, whilst there may be a relationship between each marketer and a rail haulage provider and a port, there is uncertainty as to the lines of accountability between marketers, CBH and the rail provider.

Consequently, crucial interfaces in the transportation and logistics task may be ‘incomplete’ given individual interactions are not governed by any legal obligations or voluntary codes of conduct.

Without some form of obligation there is no assurance affected parties will be aware of short term or long term haulage loads, methods for prioritisation of the transportation task, pricing, capacity or dispute resolution. Due to the incomplete nature of these interactions, participant risk profiles and preferences can be affected and it will also reduce a participant’s ability to identify and address all operational issues.

Moreover, even if there were contractual relations throughout the supply chain, contracting parties are unable to foresee and effectively mitigate all potential market outcomes (sometimes known as due to bounded rationality). Consequently, contracts cannot comprehend or address all of the contingencies that are likely to arise over the life of the contract.

Given these limitations contract inclusions aiming to mitigate risk may not be effective. For example, if performance incentives do not work as intended under all contingencies they may create gaming opportunities and bargaining incentives that are antagonistic to supply chain efficiency.

Similarly, the terms of the contract may be difficult to adapt to significant changes in economic circumstances which may result in further rent extraction opportunities and performance inefficiencies.

Imperfections in the governance arrangements of the logistics chain can also lead to distortions in ex ante investment incentives and ex post performance and adaptation inefficiencies.

Furthermore, in order for an investment in capacity expansion to have maximum impact on the capacity of the logistics chain may require changes to the operation of other elements of that chain. Again, this is an example of where optimal performance of an element cannot be considered in isolation, but rather needs to be considered in the context of the contribution to the entire logistics chain.

2.3.6 Complements and Substitutes

Normally, the separate elements of a supply chain are complementary – a port requires a railway to deliver the grain for export. In this sense, the rail and port services are complementary. However, due to the characteristics of the supply chain, some participants can act as substitutes for other chain participants. For example, grain held at port may often be substitutable for the same grade and similar quality of grain located up-country. Similarly, it has become clear in East Coast logistics chains that rollingstock capacity can be used as a substitute for port stockpile capacity.

Moreover, some services are concurrently complementary and substitutable – for example, road and rail services are complementary to the extent that both are needed to achieve a movement of grain from the farm gate to the port. However, at other times road and rail compete – road can be substituted for rail for certain movements.

Consequently, as the operating basis of a logistics chain changes, so will the nature of the interactions between the elements of the chain, and the nature of the contribution of any particular element to the overall logistics chain performance can also change.

2.3.7 Hold-up concerns

The concerns that have been expressed above applies not only for the operation of the system at a point in time (operational efficiency), but also the efficient operation over time (having regard to investment for example).

Grain supply chains involve high levels of asset specificity (suggesting high levels of confidence are required to underpin new investment). Consequently, for investment to be optimal the party making the investment (or the central co-ordinator) must:

- be able to comprehend the impact of that investment on the supply chain - even comprehending the impact of a change to one element of a supply chain (say increasingly rail loading rates) on the other elements of the supply chain requires considerable information concerning the nature of the change and the impact on operations;
- have confidence that the investment will not be stranded through the operation of factors beyond its control;
- be able to ensure that complementary investments are undertaken in a timely and properly sequenced manner – the owner of one link in the chain could delay the expansion of an element of the chain thereby reducing the capacity of the system and potentially stranding investments parties make elsewhere in the chain.

2.4 Comparison with East Coast coal chains

Whilst the focus on the performance and operation of logistics chains has intensified for all supply chains in Australia in recent times, the pressures have been most acute in the coal supply chains on the East Coast – particularly the Goonyella – Dalrymple Bay system servicing the Bowen Basin in Queensland and the Hunter Valley.

Box 1 Coordination improvements in logistics chains

In 2003, representatives from each participant in the Hunter Valley coal supply chain established the Hunter Valley Coal Chain Logistics Team (HVCCLT). The Logistics Team was structured as a cooperative organisation with the overall aim of scheduling services throughout the supply chain in order to efficiently fill customer orders. This included the coordination of vessel berthing, stockpile layouts and train sequencing, as well as the evaluation of the investment requirements of the system. Estimates produced by the HVCCLT estimate that its implementation has lifted the system's export capacity from 69mta in 2002 to 84mta in 2005, without any substantial infrastructure works.

A high degree of coordination can also be observed in the Pilbara Iron Ore Chain in Western Australia. The chain is dominated by two large organisations – Billiton Iron Ore Pty Ltd (BHPIO) and Rio Tinto Iron Ore (RTIO) – that own and control the entire supply chain. This structure facilitates internal coordination by the two participants with the appropriate scheduling and investment planning decisions being made in order to optimise the operations of the entire supply chain. Significant production efficiencies have been achieved as a result of this high level of coordination, including maximum flexibility in mining and rail operations and the coordination of technical innovation and capacity expansion. This coordinated approach has enabled BHPIO and RTIO to improve their ability to compete internationally and also assisted in developing more effective response mechanisms to demand increases. There is also no evidence of any rail or port capacity bottlenecks within the chain.

The Goonyella Coal Chain in Queensland transports coal from the mines in the central Bowen Basin through the Goonyella rail system to the Dalrymple Bay and Hay Point terminals for export. The chain is highly disaggregated with a high number of participants at several stages of the supply chain, with little or no coordination between them. The recognition that increased coordination was necessary in order to deal with the infrastructure bottlenecks and shipping queues resulted in the O'Donnell Review which examined the operations of the supply chain. The report was released in May 2007 with three principle recommendations. The first of these dealt with the issue of increased coordination and stated that a central coordination role was necessary in order to oversee all of the activities within the span of the supply chain. The role of such an organisation would include the preparation of master plans, the short term planning of chain operations, ensuring forecasts and future capacity levels are in alignment and establishing rules for the optimisation of capacity.

There are many similarities between these supply chains and those servicing Western Australia's grain producers. However, there are also several crucial differences which are summarised in Table 2 below.

Table 2 Comparison of grain and coal supply chains

Factor	Coal chains	WA grain
Number of origins	Limited – up to 20	Numerous – over 100 sites in some regions of varying sizes
Number of products	Numerous – depending on the system up to 55 different products. Products volumes are relatively stable over time	Numerous – depending on the system up to 49 different products with a significantly lower overall volume of product
Variability	Limited variability around seasonal changes and mine outages	Significant within and between season variability – both in terms of volumes and the composition of those volumes
Unit trains	All rail movements are in unit trains with homogenous products	Many movements are not in unit trains, have multiple origins (involving additional stops and shunting) and do not involve homogenous products
Central co-ordinator	Present for the Hunter Valley and being implemented for the Goonyella system	No central co-ordinator established
Stockpiling capacity	Limited – e.g. under 3% of throughput at DBCT	Considerable – up to 30% of throughput
Information	Weekly movements planned – limited knowledge of future production which can be interrupted for many reasons	Annual harvest received in a 10 week window – provides opportunity for orderly movement of grain to port over the following 12 months
Complexity of supply chain	Challenge revolves around maximising throughput from installed capacity.	In addition to the challenges present in the coal systems, there is the need to apply fumigant to stocks and observe the relevant protocols. The nature of the supply chain is also complicated by the uncertainty over the harvest and the number of sites to be accessed over the course of a season.
Loadouts	Mine based stockpiles – no issues of configuring the optimal clearance of storages.	Challenge of optimising the clearance of storages across a wide geographic region with considerable mobilisation costs.
Managing parcels within system or proportions of bulk stock	Supply chain must address individual parcels of cargo throughout the supply chain	Marketers entitlements are limited to a given entitlement to grain of a specified quality as part of a bulk pool

These differences materially affect the focus of the supply chain task which informs optimal contractual and logistical paradigm. Three of the key differences relate to the land transport task, the way in which stocks are managed through this process in terms of upcountry sites and the impact of marketing deregulation on the supply chain under the current operating paradigm.

In order to operate optimally, the grain supply chain must perform efficiently the task of opening storages across a wide geographic region involving significant mobilisation costs. This challenge simply does not arise in the coal industry where there are a limited number of mine based stockpiles.

The grain supply chain must contend with the difficulties of managing the efficiency of the rail task (and land transport task more generally). This involves managing the transportation of grain to from numerous up country sites of varying sizes to port (or other outturn site) in unit trains that are as homogenous as possible (given grain stocks). Whilst in the coal sector this represents the natural way in which the transportation task is performed, this is clearly a major challenge in the grain system.

Finally, the grain system must address the significant challenge presented by the deregulation of grain marketing. In contrast to the current arrangements (where there is significant concentration in grain marketing), this process will result in fragmentation “at either end” of the supply chain and could result in a chaotic environment emerging.

2.5 Conclusion

When one considers these supply chain characteristics, what is striking is that the opportunities for improved performance from better co-ordination of the supply chain are arguably greater for grain in WA than for other systems. Reasons for this include:

- the inherent complexity and variability of the supply chain for WA grain is greater than for many other systems highlighting the importance of co-ordination to achieve optimal outcomes;
- CBH has good information about the entirety of stock to be transported to outturn sites over the course of the following year and an early indication (albeit subject to confirmation and amendment over time) of the likely demand for grain at port;
- marketers are only entitled to a quantity of grain of a specified grade – CBH has considerable flexibility to meet this requirement as it does not have to match specific grain parcels (except in limited circumstances for niche products); and
- CBH possesses stockpiling capacity at the port which enables it to substantially delink the rail and the port transport tasks.

However, in order to take advantage of these opportunities, it is necessary for the grain supply chain to optimise the clearance of storages and enable the transport task (particularly the rail task) to be performed efficiently within a sufficiently robust operating paradigm that can efficiently accommodate industry deregulation. These challenges can only be met by centralising management of the supply chain. Grain Express provides a vehicle to achieve this outcome.

3 Key features of Grain Express

The previous sections described the grain supply chain and the logistical challenges that it presents. The sections also highlighted the significant risks that arise to the efficiency of the logistics chain emerging from the deregulation of marketing. This section describes CBH's proposed response to these developments.

3.1 Bundling of storage and transportation services

Grain Express involves CBH offering grain growers and marketers an integrated transport, storage and handling service. Under Grain Express, access to CBH's storage facilities will be conditional upon CBH being the primary contractor for the provision of road and rail freight carriage services to growers and marketers.

3.2 Coverage

Grain Express will apply to all grain stored in the CBH network. This ensures that there is no leakage from the CBH network which in turn enables CBH to optimise the orderly movement of grain from upcountry storages to outturn facilities.

3.3 Receival and deferring nomination of marketing option

Under Grain Express, growers will deliver their grain to the nearest receival site as per their normal delivery pattern.

Grain may be delivered without the provision of any specific marketing information with growers to be given a 21 day period to nominate their preferred marketing option before warehousing charges are applied.

The process of nominating a preferred marketing option will be performed electronically through CBH's Loadnet system or by contacting CBH Grower Services. These information services will provide growers with all the information that they require to nominate their preferred marketing option.

3.4 Redefining marketers entitlements

Under Grain Express, as is the current practice, different grain loads will be combined within stacks on the basis of their quality grading. This means that the current

situation whereby the acquirer assumes ownership of the individual grain loads which are then immediately submerged in a common stack will not be practical. Alternatively, the acquirer's entitlement will relate to a certain quantity of grain at the quality specification nominated by the acquirer at a specific destination point.

Marketers will therefore secure destination point based entitlements for their grain. Destination site based entitlements will clarify that CBH's obligation is to deliver grain of given characteristics rather than a specific parcel of grain. This is more consistent with the provisions of the Bulk Handling Act.

3.5 Reduction in outturn sites

CBH has specified 15 destination sites for the outturn or transfer of export grain in order to minimise the extent to which unnecessary and inefficient domestic point transfers occur, as well as ensuring the sustainability of the existing port infrastructure.

These 15 destination sites include:

- 4 export terminals at Esperance, Albany, Kwinana and Geraldton;
- the Metro Grain Centre in Forrestfield; and
- 10 domestic destination points spread throughout the four regional zones.

3.6 Payment

Once the grower has selected a preferred marketing option and makes a 'virtual' sale to the nominated destination site, growers will be charged for freight services from the receival point to where the grain is 'virtually' delivered, (either the export point or an allocated domestic destination site) depending on the marketing choice nominated by the grower.

Growers will not be charged for freight services resulting from the alteration of the transport arrangements for a grain load. The freight costs attributable to these services will be charged to the marketer who lodged the request. For instance, a marketer that alters the transportation arrangements to have grain outturned at a port instead of at a domestic site will be liable for the transport costs associated with this unplanned movement. Marketers may also be charged storage and handling fees for the grain from the destination site to the point at which it is outturned.⁷

⁷ Acquirers are liable for time-based storage charges from the time of nomination of acquirer.

Hence, any reversion between destination points which results in additional freight costs after the grower has completed the nomination process will be charged directly to the marketer.

3.7 Transportation arrangements

CBH will become the primary contractor for transportation services under the Grain Express proposal. This will mean that transport carriers negotiate exclusively with CBH on the terms of the transportation of grain from storage sites to the port and between CBH sites.

3.8 Freight fund

The proposal also includes the creation of an independently audited 'Freight Fund' which will be separately administered to the current accounting method in order to ensure that the transparency of the scheme is maintained. Any surplus funds generated by freight payments at the end of a harvest season will be used in subsequent years to subsidise lower freight rates from poor harvests.⁸ CBH will not secure any margin on freight rates.

3.9 Quality Management Plan

One of the key issues with Grain Express maximising the value of the output of the WA grain industry is to ensure that any premia that can be secured through niche products is retained.

Under Grain Express, the data that is routinely provided to growers will continue to be provided at no additional cost. However, additional data relating to each receipt will be available to marketers on a non-discriminatory basis on a fee for service basis.

In order to ensure that marketers acquire the necessary quality information associated with their grain loads and to protect price premia for niche products, CBH will implement a quality management planning process. This plan will provide marketers with information on:

- the quality of each grain load that is acquired;
- the weighted average quality of that marketer's stock; and

⁸ It is also possible that a surplus may also be used to help fund rail infrastructure improvements.

- the moving weighted average quality of that marketer's stock.

The implementation of a quality management plan may involve the movement of specific stacks of grain but quality requirements will generally be approached through the matching of the grain at the accumulation point to the entitlements held by the marketer. Through this process, Grain Express will not compromise the ability of marketers to preserve price premiums from niche products as each will have the option of developing a quality management plan with CBH (through the logistics quality manager) that will, where necessary, preserve segregations by CBH for high quality grades of grain.

3.10 Movement of grain through the system

Grain Express will enable grain to be moved throughout the supply chain in a coordinated fashion. When up country storage facilities are opened under Grain Express, all of the grain contained in the bulkhead will normally be moved. Eccentric loading should reduce.

Once it has received a vessel nomination from a marketer CBH will prepare a site accumulation plan for that vessel. As CBH has all necessary information concerning the grain in its system, it is able to plan site accumulations for multiple marketers, taking into account all of the interactions of grain marketers. This advantage of the Grain Express proposal is critical given the increased fragmentation of the export grain marketing sector that will result from the deregulation of the current arrangements.

4 Benefits of Grain Express

The Grain Express proposal has been designed to provide a comprehensive solution to the uncertainty and lack of coordination associated with the movement of grain throughout the logistics chain when there are multiple owners of the grain. The sections below provide a description of the expected benefits from the implementation of the Grain Express proposal. Before considering the specific benefits for the various elements of the supply chain, it is useful to review the way in which Grain Express will enhance the operation of the supply chain as a whole.

The key point underpinning is that under the present industry arrangements, no one party (other than CBH) has access to the full range of information necessary to implement optimal supply chain logistics management.

The success of Grain Express will arise from the fact that it will transform supply chain management to involve a single entity which is in possession of all of the relevant information to undertake the coordination function in the supply chain.

This in turn will enable CBH to direct the movement of grain through its system in a co-ordinated manner designed to optimise infrastructure utilisation and minimise supply chain costs.

This will be reflected in lower overall supply chain costs (i.e. greater productive efficiency) and more efficient use of supply chain infrastructure, including storage, rail, road and port facilities relative to the outcome that would be expected if Grain Express were not introduced.

To be effective, this co-ordination task needs to be centralised - dissemination of information by CBH to marketers on full (system-wide) costs of requested grain movements would not be effective due to the misalignment of incentives inherent in existing institutional arrangements.

4.1 Receiving

Grain Express will streamline the grain supply chain by removing the requirement for growers to specify their marketing options at each receiving site. This development will:

- allow growers to examine all of the applicable freight rates and marketing options for their specific grain load; and

- reduce the pressure on growers to nominate a marketing option at the time that grain is received in the CBH network.

The ability to defer nomination will in turn generate benefits in the receival process from:

- increasing the speed of receival;
- reducing errors in the Carter's Delivery Forms; and
- enabling automation of several elements of the receival process.

4.1.1 Increasing the speed of receival

Grain production in Western Australia has traditionally involved very limited on farm storage. Instead, growers rely on CBH's storage infrastructure to perform this task.

However, the vulnerability of grain to deterioration over time (especially rainfall) means that producers have strong incentives to commit grain to CBH's facilities as soon as possible after harvest.

This creates an intensive receival process – all of the grain that is harvested in a given year is effectively committed to CBH storages over approximately 10 weeks – indeed as quickly as the capacity of the system will allow.

In this environment, time (and hence receival capacity) is of the essence. Any measure that increases the speed with which grain can be received into the CBH storage network will be of considerable benefit to growers.

By allowing growers to delay their election as to the marketer, Grain Express will facilitate increased speed in receivals in two ways:

- avoiding delays occasioned by growers deciding how to market grain at the time of receival; and
- simplifying the receival process.

This in turn will reduce the queuing that presently occurs and will therefore enable increased utilisation of road haulage capacity. It is also relevant that CBH has been forced to upgrade receival facilities as the grain harvest grows over time. Increasing the speed of the receival process has a similar effect as increasing the receival capacity. Accordingly, these changes can be expected to enable CBH to defer capital expenditure on increasing receival capacity.

4.1.2 Carter's Delivery Form error reductions

Upon delivering their grain loads to receival sites, growers or their representatives currently have to fill out a Carter's Delivery Form (CDF) concerning the details of the load. The information relates to the specific characteristics of each parcel of grain that is delivered.

One of the key problems with CDFs relates to errors in the details provided by the growers or their transport representatives in relation to their individual parcels of grain. Errors on CDFs generally relate to incorrect specifications concerning the variety of the grain, payment methods to be applied to the load and most importantly the grower's preferred marketing option.

The extent to which these errors are affecting the operation of CBH's receival services is indicated by prevalence of errors in CDFs - last year approximately 30% of all loads delivered to CBH required manual correction due to an error on the CDF.⁹

By eliminating one of the principal sources of error in the CDF process (namely, the nomination of the marketing option) Grain Express will substantially reduce the costs associated with these errors. Over time, it will enable further automation of the receival process.

4.1.3 Automation

The reduction in errors in CDFs will allow (over time) the automation of several of the processes associated with the delivery of grain loads to receival sites which are currently performed manually. This increased automation will further reduce the time and costs associated with the receival process and eliminate errors arising from the manual transfer of information from CDF forms into the CBH system.

4.2 Storage and Handling

Grain Express will allow CBH to control the movement of grain through the logistics chain to deliver grain of specified quality and grade from the receival site to the outturn point. Given that the timing and sequencing of the opening of bulk heads will be coordinated with the quality requirements of the grain acquirers, CBH will be able to clear the contents of each bulk head it opens and for those contents to be loaded onto unit trains.

⁹ Errors were identified in 60% of all grain loads which involved the nomination of a marketing option (which in turn accounted for 50% of all receivals).

This enables:

- reductions in costs associate with opening of Open Bulk Head storages due to:
 - enhanced labour efficiency;
 - reduced mobilisation of equipment; and
- reductions in the removal of grain from storages under fumigation.

4.2.1 Reductions in costs associated with Open Bulk Head storages

Under the current arrangements within the logistics chain CBH is frequently required to separate individual loads of grain within the grain storage bulk heads. This results in the extensive opening and closing of bulk head storages, a process which adds significant costs to the storage and handling operations. These costs include weather damage, the intensive use and mobilisation of out-loading equipment, shorter depreciation periods and the more frequent replacement of bulk head storages.

The Grain Express proposal provides for the more coordinated storage of grain in bulk heads. Instead of staff having to contend with regularly opening a bulk head to obtain part of the grain within the storage, the timing and sequencing of opening storages will be centrally coordinated by CBH.

This will enable CBH to adopt the most efficient approach to delivering the grain (of the quality corresponding to the entitlements of acquirers) at nominated outturn sites which involves completely clearing out each bulk head as it is opened. CBH has estimated that this would reduce the need for the opening of storage bulk heads by up to 60%.

This reduction in the number of times that storages are to be opened will enable labour efficiencies to be secured from:

- reducing mobilisation costs – the labour effort associated with opening storages more than once will be avoided;
- reduced overtime; and
- improving rostering – CBH will have the ability to effectively roster around out-loading tasks to minimise eccentric loading.

In addition, CBH will secure savings from reducing equipment movements between sites – currently equipment is moved between sites on a daily basis – with better planning these movements will be significantly reduced.

4.2.2 Reduced risk of Phosphine resistance

CBH treats grain with the fumigant phosphine to address insect contamination and damage. Parcels of grain stored under this fumigant must have the fumigant level maintained for 28 days to be effective.

When a bulk head is opened before the fumigation period has been completed a range of additional costs are incurred including the cost of:

- opening the storage;
- clearing the gas from the storage; and
- re-tarping and refumigating the storage.

However, the opening of storages under fumigation presents a longer term implication in relation to the choice of fumigant. Phosphine is currently used by CBH as it is a non-residual chemical, has no adverse effects on the grain or the environment and is cost effective. Alternative fumigants do not have these qualities.

[CONFIDENTIAL MARKET SENSITIVE INFORMATION REMOVED]

The demands of the current supply chain arrangements result in a high number of improper grain parcel openings. This increases the risk that a phosphine-resistant strain of insects will evolve.

Over time, increasing insect resistance to phosphine may force CBH to adopt other less attractive and more expensive alternatives. Where this has occurred in the Eastern States of Australia, it has forced the use of more toxic, more expensive and less environmentally stable fumigants such as methyl bromide.

With enhanced planning and coordination under the Grain Express model, the need to open grain parcels under fumigant treatment for outloading for specific requirements will be dramatically reduced.

The expected benefits of this compared to the present situation is the reduction in total fumigation costs over time due to:

- a reduction in the costs associated with the processes of opening, clearing the gas, taking the grain, re-tarping and refumigating the storage facility; and
- maintaining the useful life of phosphine in the long term.

4.3 Rail Benefits

ARG has estimated that without the implementation of the Grain Express proposal rail freight charges will increase by between [CONFIDENTIAL MARKET SENSITIVE INFORMATION REMOVED] under the new marketing arrangements. The rail network is currently under-utilised and current transport arrangements lack the security that is required to facilitate efficient investment in expansions to the network.

The benefits that Grain Express delivers relate to:

- enhanced rail efficiency;
- enabling CBH to insure against the fixed costs of rail haulage (reducing grower risk);
- maximising the efficient use of rail for the grain haulage task;
- increased transparency of freight costs; and
- improving the negotiating position of CBH in its transport procurement processes.

4.3.1 Enhanced rail efficiency

Arguably the greatest gain from Grain Express is the benefits it will bring in the utilisation of rail resources. These benefits arise from:

- the ability to utilise unit trains with homogenous cargoes;
- better alignment of accountability for the rail task;
- better utilisation of below rail resources;

Unit trains carrying a homogenous product

Grain Express will provide CBH with the ability to increase the number of trains carrying one type of grain specification from a single site to a destination (or at least to be fully laden with grain from that site so that the rail haulage can be completed with a movement between a single origin and destination). This is rarely possible at present given the structure of the grain supply chain as CBH is often required to deliver specific parcels at certain sites. This can result in trains containing several different types of grain having been progressively loaded at different primary and secondary silos before reaching the port.

This process means that rollingstock efficiency is reduced as a result of:

- several stops for further loading creating several sources of inefficiency:
 - a longer cycle time as different sites are accessed, and additional shunting and loading is performed;
 - sites being revisited time and again by the rail provider – which imposes a cost in a geographically dispersed rail network;
 - increasing the time spent by trains at discharge pits due to the need for the terminal to accommodate several different products on trains; and
- excessive empty wagons - the more effective coordination of grain movements on the logistics chain and the improved planning mechanisms under Grain Express will result in a substantial reduction in the number of empty wagons on trains. This will subsequently result in an increase in the tonnages being carried on the rail network which will reduce the unit freight costs charged to grain growers.

This issue is likely to become even more important under the deregulated marketing arrangements as, if the current supply chain structure is maintained, the increase in the number of grain acquirers will mean that trains will be required to carry even more different grain types unless CBH is allocated responsibility for the transportation of the grain in its system.

Grain Express will generally result in the entire stock of a bulk head being transported to the port or outturn point in a discrete rail movement using homogenous unit trains. This can be expected to result in:

- improved scheduling arrangements;
- reduced number of cancelled trips and the number of trips that are scheduled on short notice;
- lower labour costs per shipment;
- reduced cycle times due to more rapid loading and unloading;
- better utilisation of above rail capacity; and
- better utilisation of below rail capacity.

Responsibility for rail efficiency

Under Grain Express, CBH will be responsible for:

- the scheduling of trains in terms of the sites to be presented with trains (as opposed to train timetabling); and

- the efficiency of the storage – rail interface with which grain is loaded onto trains.

In turn this will provide a basis for CBH to become accountable for its performance in these activities. This contrasts with the current model where the existence of several individual marketers being involved in the storage-rail interface means that there is no clear accountability for performance.

Grain Express will therefore better align accountabilities and produce a stronger incentive for CBH to increase the efficiency of the movement of grain through the supply chain than currently exists.

Effect on below rail efficiency

The considerable interdependencies that exist between above and below rail operations suggest that the more efficient utilisation of rollingstock and associated resources under Grain Express will have a positive effect on below rail efficiency. If nothing else, below rail efficiency will be enhanced through:

- lower maintenance costs due to:
 - a reduction in the gross to net ratio of the traffic task due to less empty wagons;
 - fewer ntk's being required to perform the transport task due to unit trains being loaded from a single site; and
- enhanced scheduling efficiency enabled by more co-ordinated operation.

More importantly, increasing the efficiency of the rail task will be crucial to providing confidence that rail is to remain the predominant vehicle for the grain transportation task.

4.3.2 Insurance risk sharing

The provision of rail transportation services involves significant fixed costs arising from the requirement that the services provided commit rollingstock and associated resources (including crew) to the haulage task.

However, the output of the grain industry is becoming increasingly variable over time. In contrast, the rail task needs to be resourced to a peak – with this resourcing requirement effectively translating to a fixed cost being incurred - even though in some years its output will be considerably less than installed capacity.

This in turn exposes the industry (growers and marketers) to considerable variability in unit haulage charges. In times of drought, when volumes (and industry-wide

returns) are low, the unit haulage charge will be at its highest. Hence, rail charges will tend to be strongly pro-cyclical – being high in the very years when the industry-wide capacity to pay these charges is at its lowest. Moreover, it is at these times (low industry volumes) that the risk of leakage to road is highest.

In the fragmented environment that will emerge from deregulation, this can have a spiralling effect as the increased freight rates would result in an increase in the incidence of leakage onto the road network as marketers look for alternative means of transporting their grain.

In such an environment, the industry (growers and marketers) would benefit from being able to mitigate this risk through being able to secure some form of insurance against fixed haulage costs. In other words, there is a clear allocative efficiency gain available if CBH were to be able to secure insurance against higher rail costs in drought years on terms that the majority of the industry would find attractive.

CBH has investigated purchasing insurance but has been unable to secure it at a reasonable price due to the lack of control it has over the volumes committed to rail in the current environment. This is because this form of insurance is subject to a moral hazard risk in that once it is secured, the insured has an incentive to reduce volumes on rail in order to access the benefit of the insurance.

In other words, because it is marketers which secure transportation services, CBH is unable to prevent the leakage of the traffic task to the road network. The risk of this leakage in the movement of grain from rail to road reduces the level of security in the rail transportation arrangements. This lack of security means that variability in rail volumes becomes an uninsurable risk.

Grain Express will address this problem since CBH will control transport agreements allowing it to commit available volumes to rail. This would eliminate the leakage of the task from rail to road, providing insurers with the security in relation to the freight task that is required in order to make insurance risk sharing viable.

Grain Express will enable CBH to insure against drought induced freight rate increases at prices which make it beneficial. Hence, one benefit of Grain Express is that it will facilitate the industry gaining the benefit of enhanced risk mitigation – an outcome that can only be achieved under Grain Express (where CBH manages transportation).

4.3.3 Better negotiation capability

Currently, rail agreements are negotiated in a tripartite environment – CBH is a party to the agreement but does not control the flow of funds to the rail provider. Consequently, CBH lacks operational leverage due to the rail provider naturally being

most responsive to the marketer who is in the position to delay the payment of the rail provider's bill.

Grain Express will change the dynamics of this environment by enhancing CBH's negotiating power by centralising the procurement task. By directly negotiating with rail operators for the transportation of grain on the rail network, CBH will be in a position to ensure that freight rates are set at the reasonable efficient level to cover the costs and encourage investment yet not permit monopoly pricing by ARG.

In time, Grain Express may enable CBH to bring greater competitive tension to the rail procurement process. This is because the rail task is performed in several relatively discrete zones. Under Grain Express, CBH will have the ability and the incentive to tender discrete transport tasks when it is efficacious to do so. Hence, Grain Express will promote competition in the haulage market.

4.3.4 Increased transparency of freight costs

As well as minimising the freight costs that are charged to growers, the Grain Express proposal will enhance the transparency of transportation arrangements with growers by:

- involving grower representatives as parties to the rail agreement in their capacity as observers;
- providing for direct invoicing in contrast to the current system where these costs are aggregated with other costs as part of pool deductions; and
- channelling freight charges through a separately audited Freight Fund to confirm that CBH will make no margin on freight under Grain Express.

4.3.5 Importance of Grain Express to viability of rail network

The deregulation of grain marketing arrangements will create a highly fragmented and uncoordinated logistics chain. In the absence of the implementation of a centralised coordination mechanism such as Grain Express, it will not be possible for CBH to guarantee the provision of required tonnages to rail operators, as the opportunity for marketers to contract their transportation services from other road-based operators will persist.

It is well known that much of the rail network servicing the grain industry is marginal.¹⁰ From an economic perspective, where rail can perform the transport task at lower social marginal cost than road it is desirable that it continue to do so. Unlike roads (an issue to which we return below), rail needs to cover at least its avoidable cost for it to continue to be utilised.

In this context, there is a significant network dimension to the provision of rail services. To understand this network dimension it is important to separately consider the economics of the above rail (haulage) and rail infrastructure operations.

From a rail infrastructure perspective, the avoidable cost of a train on a maintained track will be relatively low for the lines comprising the rail network servicing the grain industry. However, there is a significant and unavoidable fixed cost in making the rail line trafficable. In other words, for rail to be a viable alternative it must generate at least sufficient revenue for the “base line” maintenance to be funded.

In addition, there is a cascading effect through the rail infrastructure network of the closure of a site. This is because the additional volume provided by an individual site can assist in covering the fixed costs associated with the main line servicing a region (as opposed to the branch line feeding a site in isolation).

The economics of rail haulage differs from rail infrastructure since a greater proportion of haulage costs are avoidable. In the case of rail haulage however, the key issue relates to efficiency - for rail to remain a viable transport mode for lower volume sites it is crucial that the operation is as efficient as possible. This requires the operation secure all available scale economies. This in turn means that a whole of supply chain view must be adopted that ensures that all volume is committed to rail where it is economically sensible to do so.¹¹

Consequently, from both a rail haulage and a rail infrastructure perspective, it is crucial that rail attract a sufficient critical mass of traffic to make the continued use of rail viable.

However, under current arrangements this will not be the case. The fragmented logistical environment that will emerge from deregulation will mean that individual

¹⁰ Grain Infrastructure Group (2008), Western Australia’s Grain Freight Network Review: A Window of Opportunity, p. v.

¹¹ There may be situations where it is not efficient that grain be hauled by rail from these sites – such as for remnant stock or where the destination for the grain is a site other than the relevant port terminal or other facility serviced by rail such as the MGC.

marketers will find it beneficial to act in an uncoordinated way and to use road instead of rail, despite rail being the most efficient mode for the transportation of grain.

Consequently, the fragmented nature of the logistics chain and the lack of any sufficient coordination mechanism will result in an increasing incidence of tonnages being inefficiently moved by marketers onto the road network at the expense of the commercial viability of the rail network.

This leakage of grain haulage from rail to road will initially result in the closure of the more marginal rail sites on the network. This will have a cascading effect throughout the rest of the rail sector as the loss of critical mass and the lack of security in relation to future tonnages will result in significant under-investment in the network and could result in the closure of additional sections of the rail network.

It will also generate negative externalities. The pavement specifications of much of the country road network on which grain is transported are not designed to cope with the dynamic impact of heavy axle load grain road carriers. The absence of efficient road pricing mechanisms means that the transport operators, and subsequently the marketers, are not charged a price that accurately reflects the cost that their activities impose on the road network or the community.

Accordingly, Grain Express will promote the WA Government's objective of maximising grain rail movements and minimising the leakage to road where it is not efficient that road be used for the transport task.

4.4 Port benefits

Just as Grain Express will be crucial to managing the complexity associated with increasing entrants into grain marketing for the storage and handling and transport tasks, so too will it be fundamental to achieving efficient port operations. These benefits arise from the:

- better utilisation of port infrastructure;
- reduced demurrage; and
- increased opportunity to gain despatch.

Better utilisation of port infrastructure

For instance, due to bottlenecks in parts of its storage facilities at peak periods during harvest, CBH may determine that it is more efficient for grain to be transported away from country sites to storage facilities closer to the port in order to free up capacity at

country sites. This makes CBH more readily able to get grain to port at late notice – for example, if a vessel nomination is given less than 14 days before the vessel’s ETA. An enhanced ability for CBH to deliver grain to the port for shipment in a timely and orderly manner in response to vessel nomination through an ability to control grain movements, including using its dedicated fleet, improves the efficiency of the port end of the supply chain.

Compared to the status quo, efficiency gains at grain handling ports will include:

- reduced handling costs within the port (e.g. between silos or from rail/port to silo to ship) enabling greater labour and capital productivity at the port;
- better utilisation of port stockpile capacity, including reduced loss on division;
- outloading (i.e. greater port throughput due to better use of capacity);
- with the more efficient use of existing port infrastructure, there is the potential to defer up country capital expenditure.

Reduced demurrage

Improved coordination of storage, handling and transport needs will allow for more efficient use of port infrastructure in ship loading, including scope for assembly of cargoes at the optimal point in the supply chain.

Where grain shipments can be assembled in a timely manner in response to ship arrivals, there is reduced risk of ships waiting for cargoes to be assembled. Consequently, the incidence of demurrage at ports is expected to reduce under Grain Express.

In addition, CBH understands that the nature of shipping contracts means that the timing of vessel loading can be optimised to maximise the recovery of despatch and minimise the incurring of demurrage. Grain Express therefore creates different drivers to those that currently exist on account of marketer’s incentives in the current environment to move grain as late as possible to delay freight liability.

One of the defining characteristics of the grain supply chain in Western Australia is the availability of substantial port stockpile capacity. This, together with the enhanced control CBH will enjoy over the logistics task empowers it to optimise vessel loading. In some cases, this could enable CBH to alter its operations so as to deliver an additional gain for a marketer in the form of increased despatch or reduced demurrage.

4.5 Dynamic Gains

4.5.1 Better investment decisions

Grain Express will increase the level of security of the transport arrangements for the movement of grain throughout the logistics chain by establishing secure transport arrangements with rail operators and eliminating the leakage of grain movement from rail to road.

Grain Express will also enable CBH to gain a better view on the sequencing and timing of new investment in the supply chain – a significant issue given the continuing growth in peak output that is forecast for the industry.¹² This is because Grain Express will enable CBH to better assess (and deliver) the benefits of new investment from a whole of supply chain perspective. This is in contrast to CBH’s current approach which necessarily adopts a partial (as opposed to a holistic) view of the benefits from new investment.

Amongst other things, this will create an environment that fosters efficient investment in rail-related infrastructure, including the installation of rapid rail facilities. CBH estimates that these facilities could increase the efficiency of grain loading services by up to 500% at many of CBH’s sites enabling cycle times to be reduced and rollingstock utilisation to be increased. However, CBH can only commit to this investment if it can be confident that rail will continue to be used.

In addition to this, the increased certainty and security would also increase the likelihood of major rail operators WestNet and ARG increasing their levels of investment in track infrastructure and rollingstock capacity.

4.5.2 Increase in level of innovation and investment

Under the present arrangements, management of the supply chain is fragmented, with responsibility shared amongst several parties and grain movements initiated by entities which are not fully informed of all the relevant factors.

In this environment, there is no accountability for performance and there is reduced incentive and capacity to innovate, as implementing productivity-enhancing initiatives is problematic. Grain Express focuses the accountability of the grain supply chain on CBH. This in turn provides enhanced incentives for CBH to innovate in supply chain management.

¹² The WA Strategic Grain Infrastructure Study (2005) projected the transport task for grain to grow by 28% by 2025.

Moreover, the additional control over the supply chain that CBH will gain through Grain Express will allow it to adopt a more proactive (rather than a reactive) approach to supply chain management. Over time, this changed focus will enhance opportunities for innovation and improvement in the management of the supply chain.

4.6 Better marketing decisions

4.6.1 Improved marketing decisions

There is no doubt that the deregulation of the industry will involve a significant cultural change for many growers as they will need to confront a far more complex marketing environment than has previously been the case.

The 21 day deferral period in which growers can make a decision on what marketing option to pursue will encourage a more considered marketing decision. It will better equip growers to assess all of the relevant information concerning the characteristics of their specific grain load, the freight rates applying to each possible destination site and the marketing options available to them.

Consequently, Grain Express will promote more informed marketing decisions which in turn can be expected to result in more intense marketing competition.

4.6.2 Increased availability of marketing options

The complexity of the logistics task and the inherent coordination problems it presents has unintentionally limited the marketing options that are available to growers. Under Grain Express, growers will be given access to all marketers operating in their port zone, regardless of which site the grain is initially delivered to.

4.6.3 Efficiency gains in the secondary trading market

The Grain Express proposal will also reduce a transport induced barrier to trade between marketers operating in the secondary market. The current structure has uncertainties associated with the availability of capacity in the transport infrastructure and the location and availability of entitlement which acts as a barrier to the trading of grain in the secondary market as marketers lack the confidence that is required for the market to operate effectively.

By allowing CBH to effectively control all movement of grain throughout the logistics chain from the receival sites to the destination points and also to establish secure

transportation arrangements, Grain Express will produce the level of certainty that is required for marketers to engage in secondary grain trading.

4.7 Distribution of benefits

The expected benefits from better coordination, improved transport and port efficiency, more effective fumigation and more transparent pricing signals will all tend to reduce supply chain costs. As CBH is a grower owned, not for profit entity, it is growers who will be the beneficiaries of lower supply chain costs. These cost savings will be reflected in higher pool returns (which are net of costs). Growers also stand to benefit from dynamic efficiency gains over the longer term due to more efficient use of CBH's existing facilities, potentially deferring future capital expenditure.

Other participants in the supply chain will also benefit from more efficient operations. Transport operators – both rail and road – will benefit from the more productive use of their assets, including the possibility of deferring capital expenditure.

The community more broadly will benefit from more effective fumigant treatment where the need to rely on more toxic and environmentally damaging fumigants is removed or delayed. Also regional communities will benefit to the extent that the grain transport task is kept to road.

This indicates that the benefits of Grain Express are likely to be widespread, with all supply chain participants potentially benefiting from productivity gains. Importantly, growers will be the main beneficiary through receiving higher returns for their grain as supply chain costs are reduced.

5 Review of competitive impacts

5.1 Defining the relevant markets

Markets are typically defined in terms of the dimensions of product, geography, functionality and time.¹³ Corrs have defined the relevant markets as:¹⁴

- markets for the supply of country grain receipt, storage & handling services in Western Australia, or alternatively, in each of the four port zones in Western Australia;
- markets for the supply of bulk grain road haulage services in Western Australia, or alternatively, in each of the four port zones in Western Australia;
- markets for the supply of bulk grain rail haulage services in Western Australia, or alternatively, in each of the four port zones in Western Australia;
- grain trading markets, which may include:
 - a market in Western Australia for the acquisition and supply of wheat (which may have international and domestic components);
 - the market in Western Australia for the acquisition and supply of coarse grains (which may have international and domestic components).

In addition, Grain Express affects the arrangements for the organisation of logistics services.

5.2 Competition impacts in each market

Grain Express involves bundling storage, handling and logistics solution to improve supply chain efficiency (and reducing supply chain costs and, hence, returns to growers).

The impact of the Grain Express proposal on competition in each of the relevant markets will depend on:

¹³ ACCC, Merger Guidelines, June 1999

¹⁴ Paragraph 5.19.

- the market structure;
- the competitive opportunities that emerge for each element of the bundle before and after deregulation; and
- the impacts on related markets (particularly grain trading markets).

5.2.1 Grain receival storage and handling

CBH is the predominant owner and manager of grain receival storage and handling facilities in Western Australia through its network of primary and secondary receival sites and ports. It is understood that there is limited duplication of these facilities in Western Australia (although there is more active competition in this market elsewhere in Australia).

It is not clear whether there is any likelihood of this network being duplicated (although duplication in specific areas is more likely than across the network as a whole).

It is likely that Grain Express will enhance CBH's position in the receival, storage and handling market on account of Grain Express enabling CBH to provide a considerably more efficient service than is currently the case.

Nevertheless, if entrants to the market for grain receival, storage and handling establish competing facilities, it is also likely that the precedent of bundling transport services (as with Grain Express) will enable entrants to offer a competing service and assist entrants in managing transport risks as part of a service offering to the market. In other words, Grain Express does not prevent entrants offering a competing service that similarly optimised the trade-offs in the competing supply chain.

On balance, as there would seem limited prospect of CBH's receival, storage and handling infrastructure being duplicated (at least on a widespread scale), the Grain Express arrangement is unlikely to have a substantial impact on this market. Nevertheless, even if this is not the case, Grain Express does not diminish the prospects for competition in the market for grain receival, storage and handling.

5.2.2 Road and rail haulage

For the purposes of assessing competitive impacts, we have considered road and rail haulage markets together. We note the Strategic Grain Infrastructure Study concluded

that the current rail freight agreement enshrines a dominant role for rail services but also recognised the increasing role played by road transport in grain haulage:¹⁵

The next generation of the rail agreement will be negotiated in the light of the current reality that road freight is now competitive with rail (on price, if not scale) in most areas of the state.

This suggests that rail will continue to dominate the haulage task, with ARG retaining a degree of market power at least where road does not provide an effective substitute. However, road haulage is a close substitute for rail in an increasing number of areas.

It is submitted that the issue of achieving a particular modal balance is not crucial to a consideration of the competitive impacts of Grain Express. Rather, the issue relates to whether Grain Express will enhance the opportunities for competition relative to the current arrangements. In this respect, we have considered the competitive impacts for the transport market as a whole.

Grain Express may have a material impact on the market for grain transport services, but it is likely to emerge from the concentration of responsibility for procuring transport services in CBH. This is certainly the case relative to the alternative where the market for the procurement of transport will become increasingly fragmented over time.

To understand the nature of this impact, it is important to note that road and rail are likely to become increasingly substitutable over time as marketing is deregulated so long as the management of the supply chain (or the management of transport services) is fragmented.

The fragmentation of supply chain management favours road over rail – simply because fragmentation will make it more difficult for the aggregation of cargoes in homogenous unit trains that are crucial, not only for the competitiveness of rail relative to road, but also for the supply chain to perform the transport task most efficiently.

Consequently, Grain Express will result in an environment in which modal choices will be made in circumstances in which rail will not be prevented from benefiting from its intrinsic advantages when competing with road.

In considering the competitive impacts of Grain Express, it is also important to distinguish competition for the market and competition in the market. The Western Australian grain task is such that entrants providing rail haulage services are only

¹⁵ WA Strategic Grain Infrastructure Study, April 2005, p. 40

likely to emerge where a customer makes a commitment to that provider (both in terms of tonnages and duration). This is because entry into rail haulage markets involves a significant commitment of sunk capital.

The fact that the market is effectively divided into four distinct regions means that a central buyer of services could attempt to encourage entry for a particular region of the network through long term tendering arrangements. Only under Grain Express will a customer (CBH) be in a position to offer a long term contract with a commitment to rail haulage in such a manner.

In summary, Grain Express is expected to have the following impacts in transport markets which could have competition implications:

- by making access to CBH facilities conditional on CBH being the primary transport service contractor, there will be a greater concentration in the market for purchasing transport services than the alternative;
- CBH's status as the primary contractor for transport services will give it greater leverage in transport contract negotiations;
- CBH will be able to operate the supply chain to optimise the balance of reliance on rail vs. road. The fragmentation that is increasingly becoming prevalent in the grain supply chain in Western Australia favours road over rail (since road is more flexible and better adapted to low volume movements) but does not enhance efficiency;
- over time, CBH will be able to maximise competitive tension:
 - between road and rail providers; and
 - potentially between rail providers - noting that aggregating the rail task provides the most favourable environment for attracting entry into the industry.

Consequently, it is concluded that Grain Express is likely to promote competition:

- between road and rail providers;
- between rail providers.

5.2.3 Grain trading markets

The key issue for the grain trading market from a competition perspective is the potential for CBH to provide preferential treatment to its related marketing entity,

GPPL, in providing access to its facilities under the Grain Express proposal. This could include:

- passing on marketers confidential information for the purpose of giving its related entity a commercial advantage; and
- providing access to GPPL grain on more favourable terms or performing its supply chain management task in a manner which favours GPPL relative to other marketers.

Confidential information

Under Grain Express, CBH will have access to all the relevant information in regard to grain demand and supply needs of all marketers, including GPPL. Some of this information will be commercially confidential. This highlights the critical importance of having in place robust ringfencing measures to ensure CBH does not pass on marketer's (or grower's) confidential information to GPPL for its commercial advantage.

However, CBH's access to sensitive information and its opportunity to pass on marketer's (or grower's) confidential information to GPPL is no different under Grain Express compared to present arrangements. It is noted that CBH's proposed ringfencing arrangements provide a means of conveying confidence to the market that such conduct will not occur.

In essence, therefore, (at worst) Grain Express will:

- result in CBH formalising its previously existing ringfencing commitments; and
- provide a forum for interested parties (including the ACCC) to satisfy itself as to the integrity of the ringfencing arrangements.

Both of these outcomes can only improve on competitive opportunities relative to the status quo.

Preferential self dealing

Grain Express may provide CBH with an opportunity to provide GPPL with a competitive advantage in grain marketing, whether due to:

- beneficial terms and conditions in the provision of logistics services; or
- favourable treatment in the management and performance of the logistics function (such as favouring GPPL's traffic task over other marketers).

Clearly the opportunity currently exists for such preference to be given (although the increased control over the supply chain offered under Grain Express increases this risk).

Again, CBH's ringfencing commitments provide a means of addressing these risks.

5.2.4 Supply chain logistics and management

Currently, the environment of coordinating, planning and managing of grain movements complex – larger marketers do retain an independent logistics capability although many marketers are too small to do so.

Clearly all marketers seek to influence the operation of the supply chain to their commercial advantage – an environment which will only become more chaotic with deregulation. Whether or not entrants will find it worthwhile in a deregulated environment to invest in establishing a supply chain management capability remains to be seen and will be influenced by the market dynamics that will arise from transportation contracting frameworks.

In proposing to provide storage, handling, transport and logistics services to all grain marketers in Western Australia, the Grain Express proposal may reduce the number of entities undertaking supply chain logistics and management services.

Although this may superficially represent a less competitive outcome, placing supply chain management in the control of a single entity that has all relevant information from all marketers (which marketers do not) will in fact enhance economic welfare. In reality, the provision of coordination, planning and management of grain movements in the supply chain can only effectively be performed by a single party.

Accordingly, the Grain Express proposal, while potentially lessening competition in supply chain management, will nevertheless deliver an improvement in economic welfare through more efficient utilisation of storage facilities.

5.3 Distribution of costs

The economic costs associated with the Grain Express proposal are not significant and, where they do exist, they are likely to be outweighed by the benefits.

The only area where there is the realistic potential for loss arises in the ability of CBH to preferentially self deal to the advantage of GPPL or transmit to GPPL confidential information. CBH has developed ringfencing principles to minimise this risk. CBH has

also indicated that it would be prepared to address these matters in appropriately worded undertakings if the ACCC requires.

Under Grain Express, transport operators, particularly truck operators, may be in a weaker bargaining position in contractual negotiations with CBH than they presently are with multiple marketers. However, it does not necessarily follow that road haulers will be worse off under Grain Express – this is because road haulers will gain the benefit of better asset utilisation that flows from the better co-ordination of the transport task enabled by Grain Express.¹⁶ Any loss that is suffered by transport providers will arise from a levelling of bargaining power or an increase in competition over time.

¹⁶ It is understood that the majority of road haulers support Grain Express.

6 Are there less restrictive alternatives

Whilst it is expected that Grain Express will have limited impacts on competition, the issue arises as to whether there is a less restrictive means to achieve the relevant objective. One alternative solution is the implementation of a more efficient pricing structure for the movement of grain.

6.1 A pricing solution

CBH has initiated a range of pricing mechanisms in an attempt to better align the interests of the participants in the supply chain. In the historical environment these pricing signals have had mixed success. However, it is likely that the deregulation of grain marketing will make participants more responsive to pricing signals than was the case in the past.

The first issue for a pricing alternative in a deregulated marketing environment is to establish how such a pricing mechanism may work. It is suggested that it may be possible that CBH charge a premium for storage and handling services where a marketer elects to independently arrange its own transportation of grain.

In evaluating the efficacy of a pricing solution, it is important to distinguish between the two discrete functions that are targeted through Grain Express, being:

- to achieve a more co-ordinated approach to the supply chain; and
- to efficiently transport grain from up country sites to outturn destinations (being predominantly the ports and the MGC).

The sections below provide an analysis of the specific reasons as to why pricing would be an ineffective mechanism for coordinating the conduct of supply chain participants and why pricing is likely to be an ineffective alternative to Grain Express for the transportation task.

6.2 Need for centralisation of supply chain management

The complexity of the WA grain supply chain will increase as a result of industry deregulation. Currently, there is the problem of catering to:¹⁷

- numerous growers delivering to a complex network of up country storage facilities;
- many discrete “products” or grades of grain within a region; and
- managing quality to minimise detrimental averaging of the quality of grain within grades.

Historically, the supply chain has catered to a relatively concentrated grain marketing sector (with two marketers accounting for the majority of grain in the supply chain). Under deregulation, the marketing function is likely to change dramatically, with numerous entrants and a more intense competitive environment emerging.

The level of complexity in the supply chain (as it currently operates) will therefore increase disproportionately (possibly exponentially) with the influx of marketers (at least under the current operational paradigm). For example, a larger number of marketers will be required to negotiate with transport operators for the movement of their export grain parcels on the logistics chain. The amount of grain controlled by each marketer will on average reduce – with a greater number of marketers claiming an interest in the timing and sequencing of the movement of grain to individual outturn sites. Further, marketers would be required to negotiate with CBH to obtain access to sites for outturn of grain. Given that following harvest most sites are not permanently staffed this would add a layer of complexity.

In this regard, a centralised process for the management of the supply chain is essential in a deregulated environment (as opposed to a decentralised process relying on pricing signals). Given the lessons of commodity supply chains elsewhere (including the Central Queensland coal systems and the Hunter Valley), centralisation of the management of the supply chain is uncontroversial.

¹⁷ A supply chain co-ordinator that is independent of CBH is unlikely to be as effective as CBH in performing this role on account of the informational issues associated with managing the supply chain and the inefficiency that would be induced through the creation of an additional interface. In this respect, there are several differences between the grain supply chain and that which operates in the coal industry where such arrangements have been effective. These differences include the additional complexity of the supply chain management process in the grain industry (with around 200 sites to be managed) and the different nature of competition in the rail market in the grain sector.

The issue as to the efficacy of a pricing solution therefore turns on whether decentralised transportation arrangements can be compatible with such a supply chain operating effectively and the nature of the network issues that emerge in this process.

6.3 Ineffectiveness of pricing for transportation

It is submitted that attempting to decentralise (that is, relying on pricing signals to coordinate the supply chain) the transport decision is similarly problematic due to the nature of the transport task – linking many sites each with many different grain types to a limited number of destinations. With this in mind, it can be seen that a pricing solution will not address the problems in the transportation component of the supply chain as it will:

- due to its impact on undermining network benefits and the complexity of the logistics chain suffer from the likelihood that pricing impacts will be difficult to quantify; and
- undermine the network benefits that are essential to achieving an orderly (and efficient) transportation of grain to outturn sites.

In addition, a pricing solution would tend to result in marketers being conferred an entitlement to specific parcels of grain even though such a right does not exist under the Bulk Handling Act. Consequently, pursuing a decentralised pricing option will increase the costs in the supply chain with a net detrimental impact on the international competitiveness of the WA grains industry.

These are explained in greater detail below.

6.3.1 Complexity of pricing decisions

The problem with pricing approaches is that the logistics chain is too complex for pricing to be used to convey accurate signals to marketers in relation to the costs that their actions impose on the logistics chain as a whole.

For example, the export outturn fee was intended to encourage marketers to bulk up tonnages at export sites but it led to some marketers not offering at some sites or paying a fee that wasn't representative of the cost of the accumulation. In addition, the knowledge of the fee added an artificial premium to any attempts to purchase grain off other marketers. It would be extremely difficult (if not impossible) to develop a pricing mechanism that accurately costed (and thereby correctly signalled to marketers) to the impact of their transport requirements on the entire logistics chain. This is largely attributable to

- the high level of integration among the different participants on the chain and
- the spillover effects of the uncoordinated movement of grain in that every action in the logistics chain affects everything else.

The grain logistics chain is highly integrated with an inefficient operation on one part of the chain having an adverse impact on all of the other participants. For instance, if a marketer submits a transport requirement which constitutes an inefficient movement of grain in the logistics chain, this will (at best) adversely affect the overall efficiency of the chain by having an adverse impact on the scheduling of other grain movements and the efficiency of the storage and handling operations. At worst, such an outcome could force (over time) the movement to a considerably more inefficient mode of operation for the logistics chain as a whole.

Consequently, the integrated nature of the logistics chain means that the cost impact of a requirement for the uncoordinated movement of grain will be many times larger than simply the direct cost imposed on the transport operator. Therefore, the introduction of a pricing mechanism to reflect this direct cost would fail to consider the wider costs that are imposed on the entire logistics chain.

The significant transaction costs associated with measuring the cost imposed by inefficient transport requirements and the difficulties associated with the accurate identification of the specific cost impacts means that it is too difficult to effectively capture all of these costs under a pricing mechanism.

This is especially the case in the current environment as it will only be after several years of operation that the full impact of non-compliant transportation arrangements could be assessed for pricing purposes. In this context, pricing would not be an appropriate method for addressing the coordination problems under the current structure of the logistics chain.

Costs set at the beginning of the year never ultimately accurately represent or apply to individual circumstances later in the year or could adequately integrate with the emphasis on maintaining adequate fumigation protocols.

Furthermore, based on current seasonal circumstances the current harvest could be one of the highest on record. In such an environment, continuing with the current operational arrangements risks creating a situation where the industry fails to fully capitalise on pricing premiums that are available due to capacity constraints in the supply chain. This in turn highlights the importance of the industry as a whole pursuing the most efficient logistics solution available, which at this time is represented by the Grain Express proposal.

6.3.2 Undermining the transport task

For a substantial portion of the grain task, the most efficient means of transporting grain from origin to destination is via:

- clearances of storages in a single operation; and
- unit trains containing homogenous grain being conveyed to the destination.

However, such an operation will not be possible unless the transportation is co-ordinated as part of this activity – due to the fragmented ownership of grain. The grain transportation function contrasts strongly with that in the coal systems (where decentralised land transport solutions have been pursued).

In the coal systems, each mine transports coal to the relevant destination (port of domestic customer, such as a power station) in a homogenous unit train. There are no complexities associated with the “opening” of stockpiles for an individual mine in the coal industry.

In contrast, managing the flow of grain to port (or other outturn site) in homogenous unit trains whilst allowing for individual bulk heads to be opened only once (and totally cleared at that time) represents the fundamental challenge of the logistics task itself. Moreover, the failure of all parties to adhere to such an arrangement will risk unravelling the benefits of efficient operation to all participants.¹⁸

Simply put, in a decentralised transportation model, any participant would be free to opt out and undermine the entirety of the operation which in turn would render rail transport more expensive for all parties. Moreover, even attempting to secure the co-operation of the parties on an ongoing basis will involve very substantial ongoing negotiation costs as marketing deregulation will not only result in a significant increase in the number of marketers but also in the level of competition between marketers.

There are already examples of very inefficient movements of small parcels of grain under the current arrangements. However, the increase in the number of marketers arising from deregulation will invariably lead to larger numbers of small grain parcels having to be managed through the supply chain.

¹⁸ CBH’s proposal relating to the development of quality management plans to preserve premiums is not inconsistent with the centralised management of transportation. This is because in the event specific movements are required, they will be managed as part of the supply chain. This is fundamentally different to a situation where a marketer arranges its own transport outside of the supply chain.

In this environment, the efficient coordination of the movement of grain throughout the supply chain may not align with the commercial incentives of individual marketers – each marketer will be more concerned with how their supply chain costs compare with those of competitors (and how their actions can increase those costs for competitors) than they will be with minimising supply chain costs as a whole.

This is likely to make the task of achieving co-operation between the participants more difficult than has historically been the case.

6.3.3 Inconsistency with the Bulk Handling Act

Allowing marketers to control the transportation of grain also appears to be inconsistent with the rights of marketers under the Bulk Handling Act. This Act specifically provides that a marketer's entitlement to grain is a right to a specified quality of grain as part of a bulk pool – as opposed to the specific parcel of grain that it may have acquired up country. For example, section 18 of the Act provides that:

- (1) The receipt of grain in bulk by the company does not confer on [CBH] any proprietary right or interest in the grain or render the grain liable to seizure or attachment, as against [CBH].
- (2) As regards grain, the position of [CBH] at law is that of a custodian for reward.
- (3) The proprietary interest in grain is vested in the person who, for the time being, is entitled to obtain it from bulk stocks held by [CBH] or under its control.

And section 44 of the Act provides:

The holder of a warrant is, subject to any variations allowed by this Act or the regulations, entitled to receive an equivalent weight of grain of the type corresponding with, and of a grade at least equal to, that in respect of which the warrant was issued.

In other words, grain marketers are not entitled under the Act to direct how parcels of grain are to be handled – the Act specifically recognises that CBH is able to co-mingle grain as the proprietary interest of marketers is limited to securing equivalent quality grain from CBH's bulk stocks.

Consequently, approaching the management of the transportation task in any manner other than allowed for under Grain Express is likely to be at variance to the rights of marketers under the Bulk Handling Act.

6.4 Conclusion

Given the inherent complexity of the logistics chain due to the structure of the WA grain industry and the exacerbation of the problems associated with the coordination of grain movements by the deregulation of wheat export marketing, it is not reasonable to expect that a pricing mechanism could be a commercially viable option for alleviating the efficiency pressures being exerted by the fragmentation of the chain and the poor coordination of its participants.

In order to effectively address this problem it is necessary for a centralised coordination mechanism to be introduced that gives the participant with the greatest amount of information the ability to control the movement of grain throughout the chain, as is the case under Grain Express. This will ensure that the efficiency of the grain logistics chain is maximised.

Failure to adopt the most efficient operating paradigm for what could be a record harvest creates a risk that grain supply to the market will be unnecessarily interrupted which would impose a significant opportunity cost on growers and marketers.

7 Conclusion

The characteristics of the Western Australian grain industry, with variable harvests, seasonality and changing product mix, would present challenges for any supply chain configuration.

However, a further wave of challenges will emerge from the deregulation of marketing based on the experience of deregulation in other industries. It can be expected that the industry will take some time to settle.

These changes present new challenges for a grain supply chain that is poorly adapted for its current operational environment, let alone one that will become significantly more challenging.

Grain Express provides a long term solution to address the systematic co-ordination failures that currently beset the supply chain and thereby provides a vehicle to optimise supply chain performance.

There is no party in the supply chain better placed than CBH to perform this role. Only CBH possesses the knowledge of the grain stock for each grade through the system to be able to co-ordinate transportation to optimise supply chain performance. Moreover, as CBH is a grower co-operative, Grain Express will result in growers directly realising these benefits.