Goonyella Coal Supply Chain Review

Supporting Documentation

EXECUTIVE SUMMARY

The Goonyella Coal Chain (GCC) is a vital link for delivering Australian-produced coal to market, yet has been performing at below plan for the last twelve months. This underperformance has resulted in a lost economic benefit in excess of $1 billion during the past year alone.

The history behind the current situation is complex with many different factors involved. The purpose of this report is not to assign blame to any coal chain participant, but rather to propose a plan to lift the throughput of the coal supply chain and have export volumes matching planned capacity increases of the supply chain

A TOP-LINE PERSPECTIVE …

Assessment	Rationale
The GCC has had a complex history in which most stakeholders have played a part	• Contracts negotiated in time that mining industry was more focused on cost reduction rather than on increasing capacity • Significant change in steel production has completely changed coal industry dynamics • User group held up expansion of DBCT by more than 12 months to understand capital involved
Historical issues have led to dysfunctional relationships that form a barrier to progress being made	• Current issues often made public through damaging press articles • Lack of trust between some entities within the chain • Inability to resolve issues • Isolated planning approaches
Have heard a lot of common repetitive messages that appear to create noise rather than constructive debate	• Lack of belief in DBCT being able to hit stated capacity of 85 Mtpa • Contractual framework based on “even railing” vs current operating mode of cargo assembly • Belief that DBCT is actively disadvantaged by QR compared to Hay Point
This coal chain is in crisis and needs significant change in order to capitalise on the opportunity which is substantial	• There is an annual Size of Prize of more than $1bn at stake. However this will require a coordinated approach and transparency of information. • Foundations need to be put in place to make this happen

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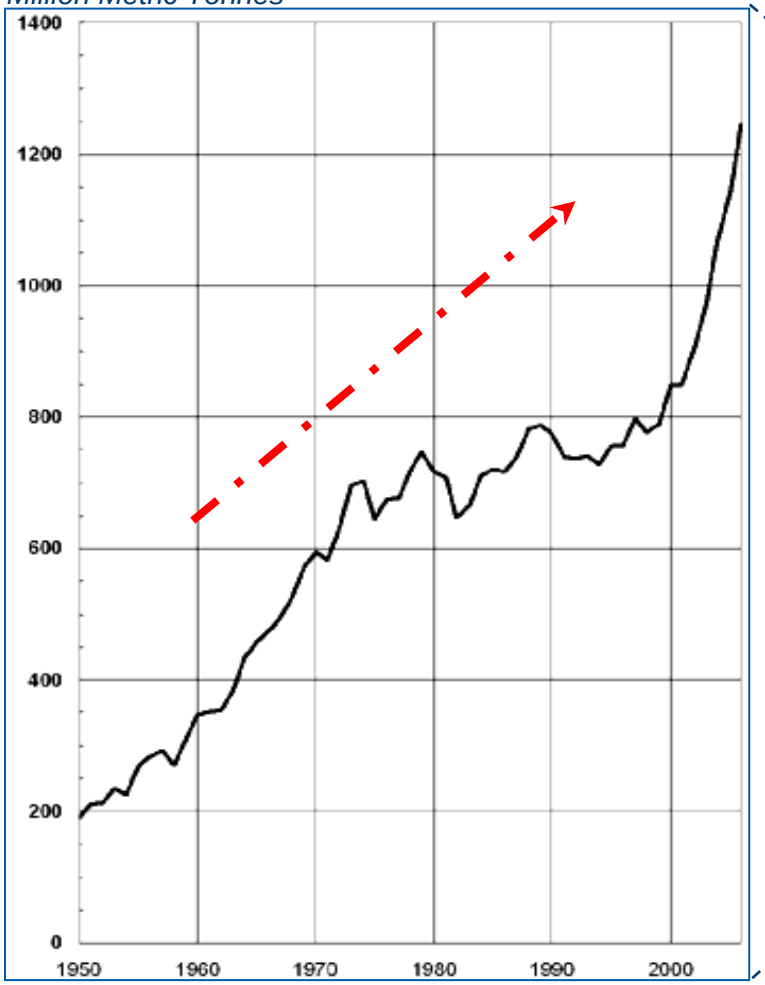
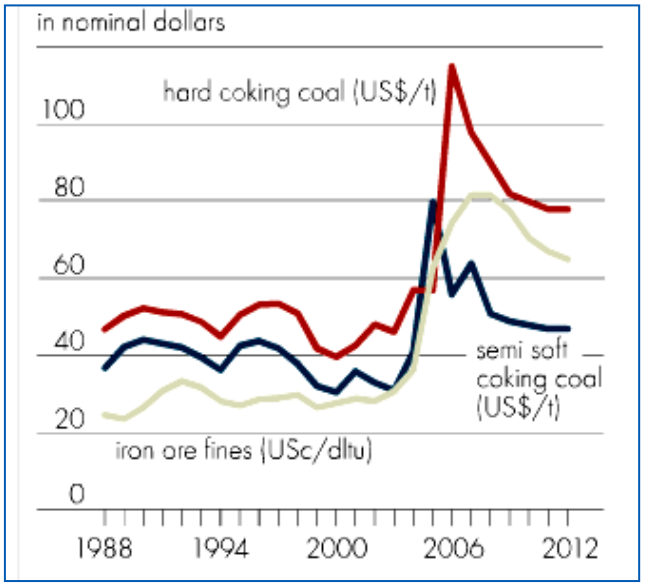
OVER THE LAST 4 YEARS THE COAL PRICE DYNAMICS HAVE CHANGED AS A RESULT OF THE CHANGING PRICE AND DEMAND

World Crude Steel Production: 1950-2006

Million Metric Tonnes



Iron Ore and Coal Prices: 1988 - 2012

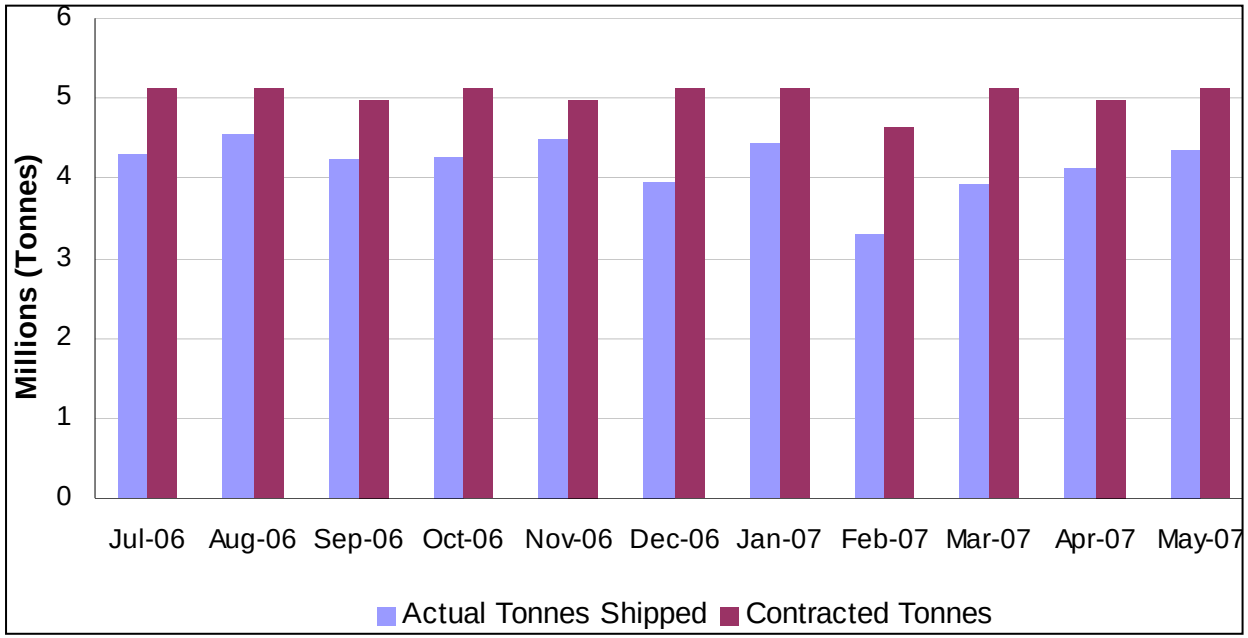


***Source**: World steel actual for world steel production: www.worldsteel.org*

Potential Gain if the Supply Chain Operates at Planned Throughput

(Contracted Tonnes – Shipped Tonnes)

Cumulative Tonnes Not Shipped: 9.5 MT *(July 06- May 07)*
Average Market Price of Coal : $92 Per Tonne (Approximate Per Tonne rate for Coal)
Total Economic Loss : $900 Million (Approx)

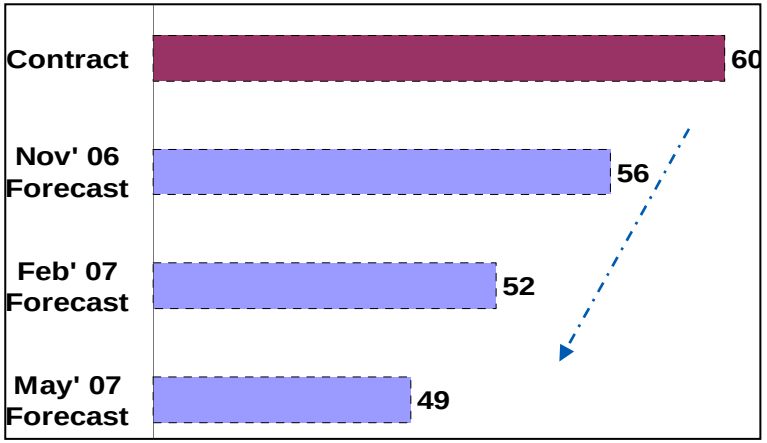


Approximate Loss to:
Mines : $ 38 / Tonne
Rail : $ 1 / Tonne (Mine – Port)
Government : 7% Royalty / Taxes (Corporate / Individuals / GST)

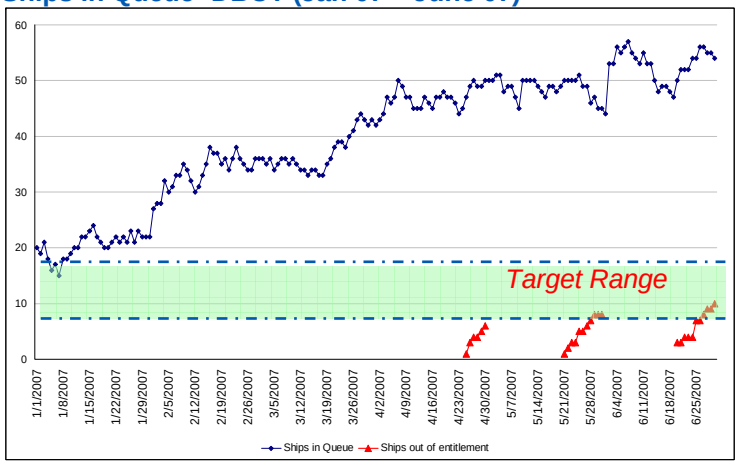
Source: DBCT report. Contracted vs. Actual tonnes

The System Continues to have a Shortfall between Planned and Actual Volumes

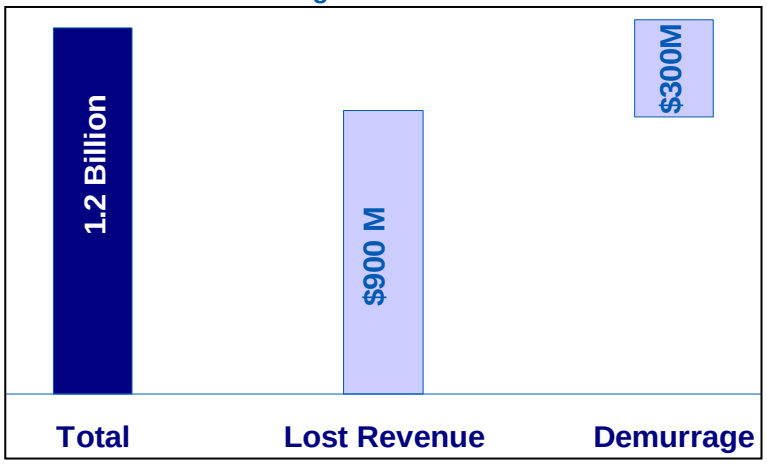
DBCT Throughput 2007 (MTPA)



Ships in Queue- DBCT (Jan'07 – June'07)



Lost Revenue / Demurrage Cost*



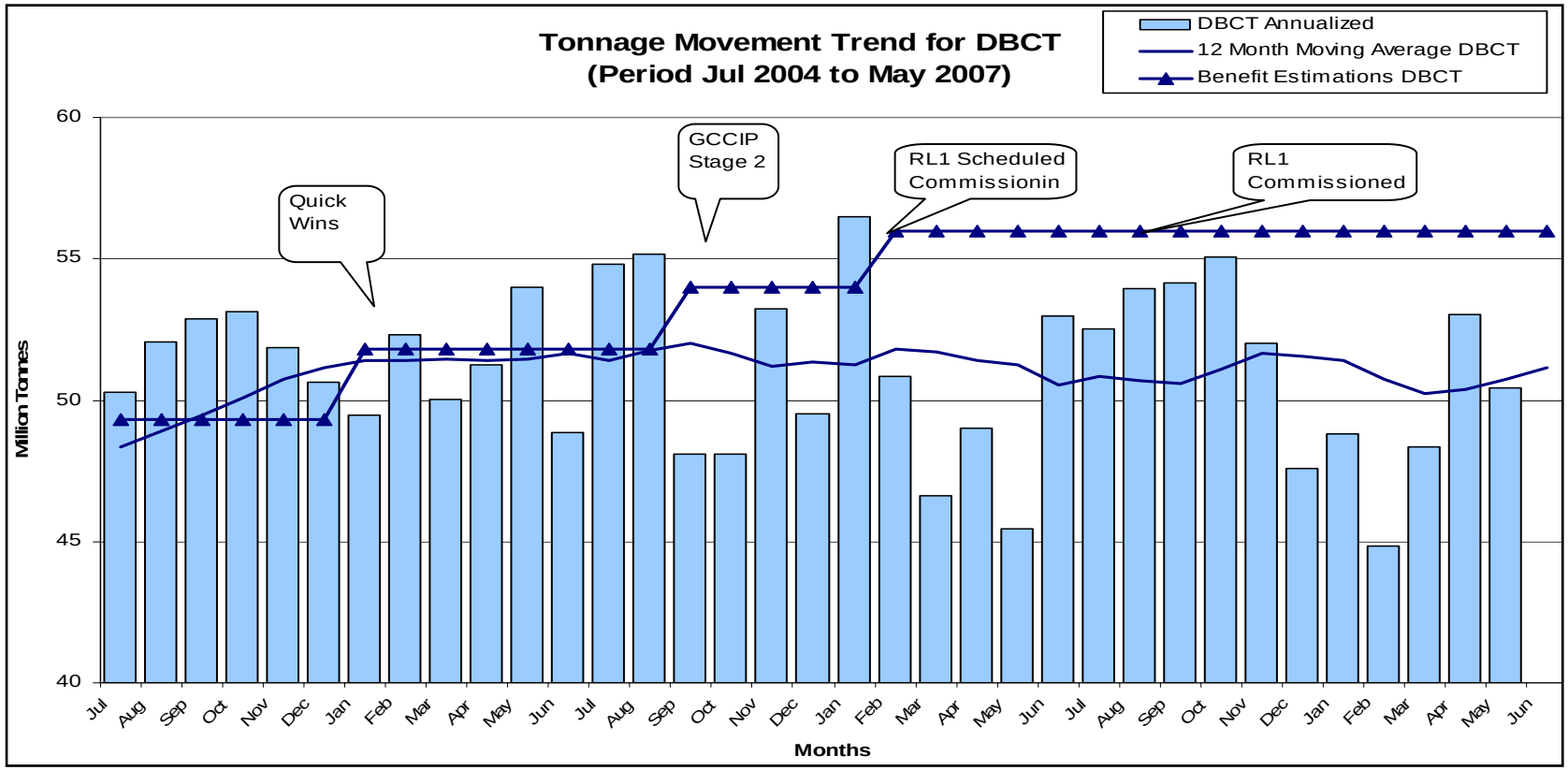
Note*:

•Approximate Lost revenue for the period (July'06-May'07) on the basis of contracted vs. actual tonnes

•Approximate Demurrage cost is for the period Jan'07-June'07(Annualized)

•Source: Data for Ships in queue (DBCT)/ Actual Delivery of train (QR) / Throughput / Lost revenue (Contracts / Forecast)

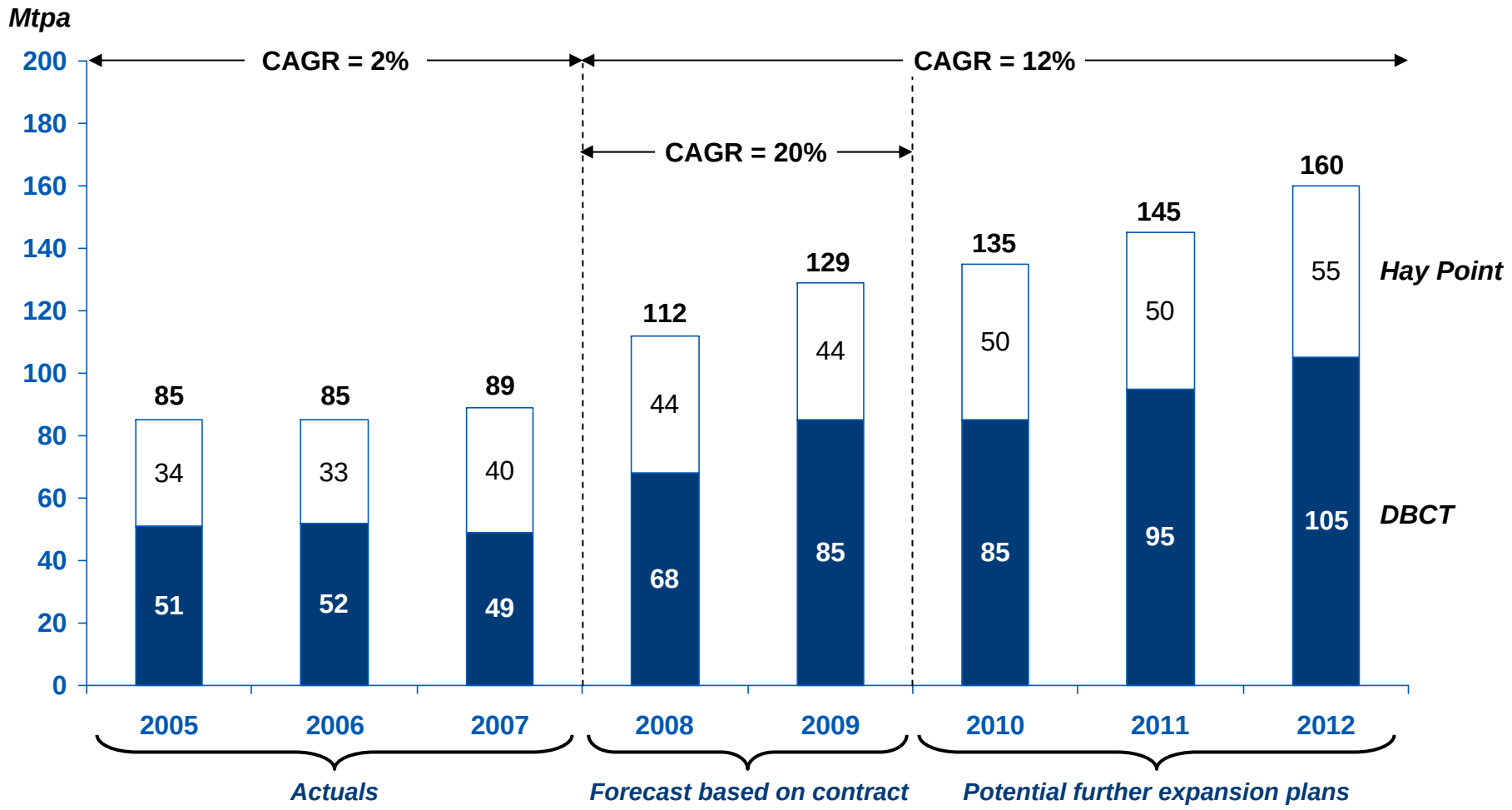
Various Initiatives have been Taken to Lift Throughput



GCIP = Goonyella Coal Chain Improvement Process

RL1 = Stockyard Reclaimer 1

CURRENT GROWTH AMBITIONS FOR NEXT 2-5 YEARS ARE SIGNIFICANT



Source: Forecast for Goonyella coal chain (Bruce Martin), Actual data received from QR, Team analysis

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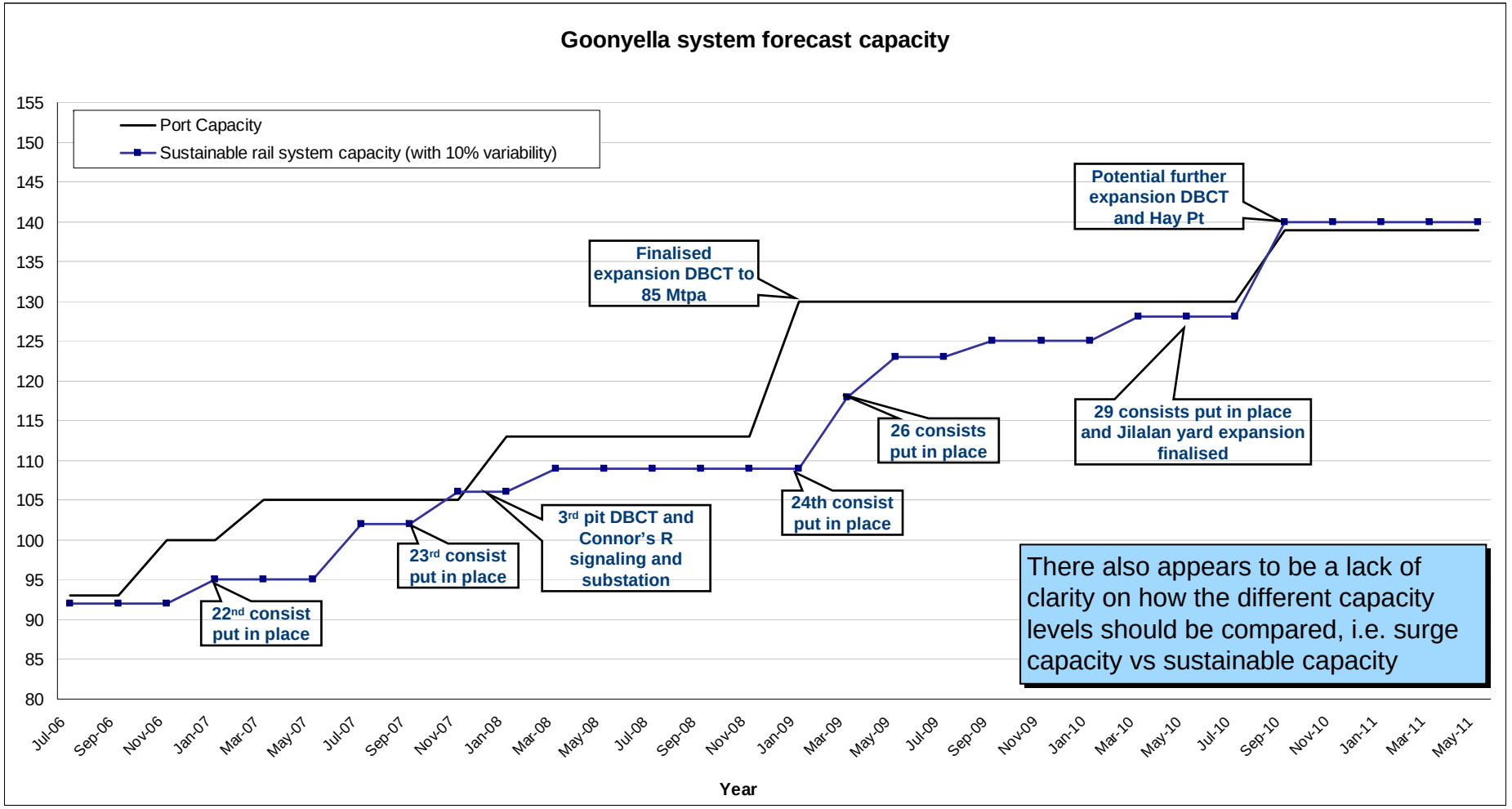
Mismatch Between Planned Rail and Port Capacity – This Reflects Uncertainty Regarding the Stated Port Capacity Post Expansions



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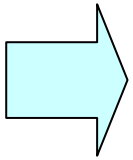
Recent performance and future outlook



Drivers behind underperformance

- Misaligned Planning of Capacity
- **Operational potential**
- Commercial foundations

Recommendations

There is a Shortfall in the Current Number of Train Sets as well as Over Optimistic Assumptions Regarding the Port Capacity after the next Expansion Phase

Fleet requirements

Days in year	365	
Days maintenance	13	
Days off due to weather	4	
Operational days	**348**	
Total contracted tonnage	104	Mtpa
Operational losses	5%	
Scheduled tonnage	**109**	**Mtpa**
Turn-around time	17.6	hours
Load per journey	9,600	tonnes
Journeys per day	33	trains / day
# of consists required	**24**	

Comments

- Based on a top-down calculations of total contracted tonnage, taking into account days out for maintenance, Christmas, etc and adjusting for operational losses, the necessary number of consists is 24
- Currently there are 22 consists in operation in the Goonyella Coal Chain

Inload pit utilisation DBCT

Days in year	365	
Days maintenance	13	
Days off due to weather	4	
Operational days	**348**	
Total contracted tonnage	60	Mtpa
Operational losses	5%	
Scheduled tonnage	**63**	**Mtpa**
Unload time	2.5	hours
Unload tonnage per train	9,600	tonnes
# of unloading pits	2	
Capacity utilisation	**98%**	

- DBCT has a planned unload time of 2.5 hours (vs target of 2.67 hrs right now), requiring an overall utilisation of about 98% - which is unrealistically high

Source: QRC Study Group Analysis

IN THE CURRENT OPERATIONS SIGNIFICANT TIME IS LOST VERSUS SCHEDULE – IMPORTANT DRIVERS OF THIS ARE THE LOADED RUN BACK FROM THE MINE AND THE TIME SPENT AT JILALAN

	DBCT				Hay Point			
	Plan	***Average***	***Delta***	***%***	***Plan***	***Average***	***Delta***	***%***
Empty Run	3.90	4.01	-0.11	-3%	3.44	3.71	-0.27	-8%
Time @ Mine hrs	3.40	3.24	0.16	5%	3.38	3.29	0.10	3%
Lded Run to Jil hrs		*5.75*				*5.14*		
Time @ Jilalan LD		*0.25*				*0.18*		
Dep Jil to Arr Port hrs		*1.15*				*0.59*		
Total loaded run	6.01	7.15	-1.14	-19%	5.40	5.90	-0.50	-9%
Time @ Port hrs	2.67	2.66	0.01	1%	2.50	2.89	-0.39	-16%
Port to Jilalan	0.50	0.95	-0.45	-90%	0.50	0.98	-0.48	-95%
Provisioning		*2.23*				*2.36*		
Downtime		*0.30*				*0.27*		
Total Jilalan time	1.89	2.53	-0.64	-34%	1.38	2.53	-1.15	-84%
TURN AROUND TIME 1)	**18.4**	**20.5**	**-2.2**	**-11.8%**	**16.6**	**19.3**	**-2.7**	**-16.2%**

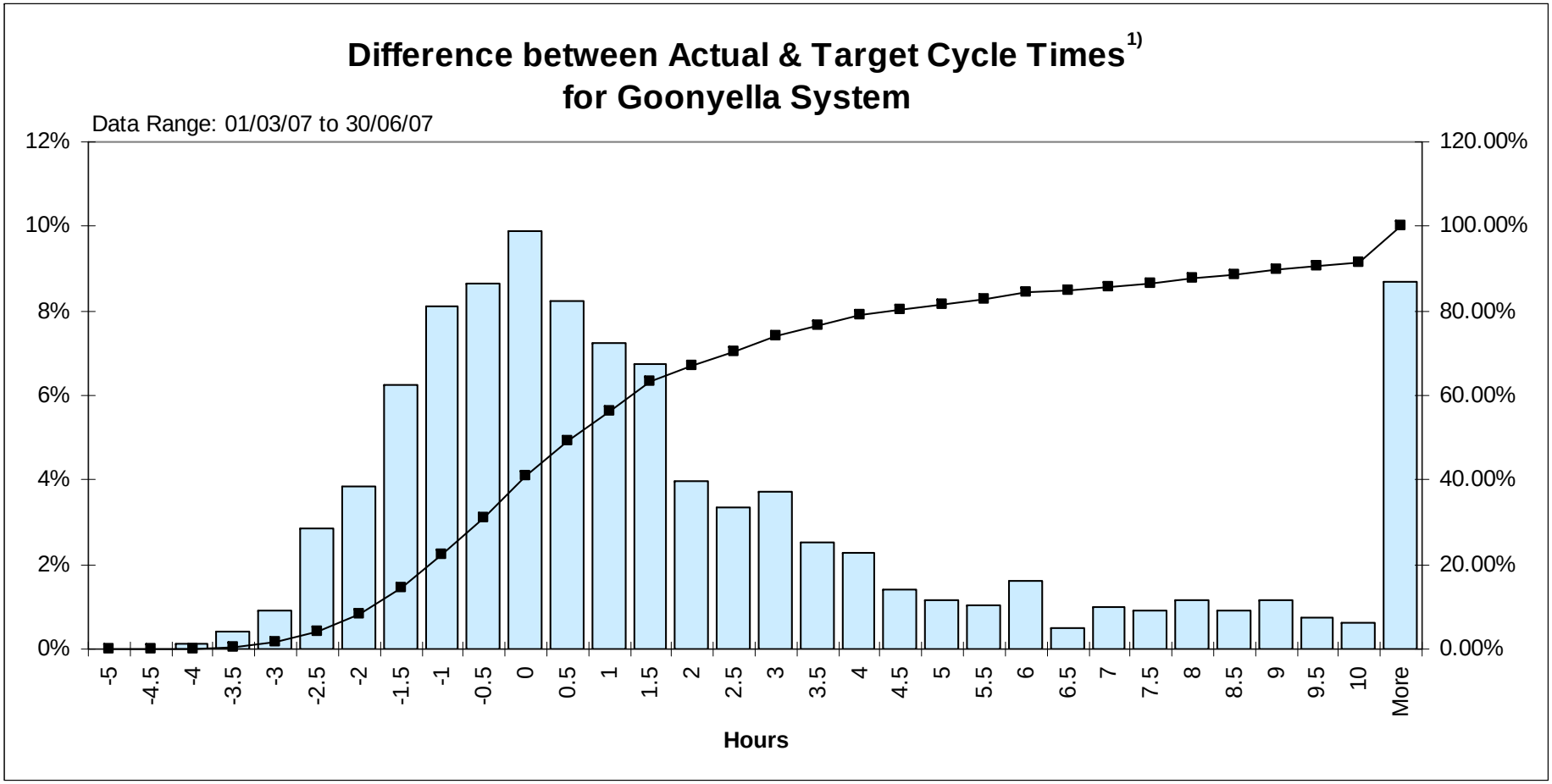
- There is about 2.2 hrs lost vs. scheduled cycle time for DBCT and 2.7 hrs lost for Hay Point
- There is about 1.5-2 hrs lost in the loaded run from mine to Jilalan and for provisioning
- Overall queuing at DBCT most likely accounts for 30-45 mins additional time lost for DBCT
- Overall, the two main causes of not hitting schedule over the last year have been loco reliability and crew issues – NB: the exact impact of these is impossible to measure.

Every 30 Mins lost equates to 2-2.5 Mtpa for the whole chain; the total opportunity of getting cycle time back to schedule is ~11 Mtpa for the Goonyella coal chain (using a basis of 87 Mtpa for the last 11 months)

1) Turn-around time consist of the cycle time (Empty run to Provisioning) and Downtime – it basically tries to measure the total time from the start of a journey of a consist to the moment of departure of the next journey

Source: QR- Cycle Time

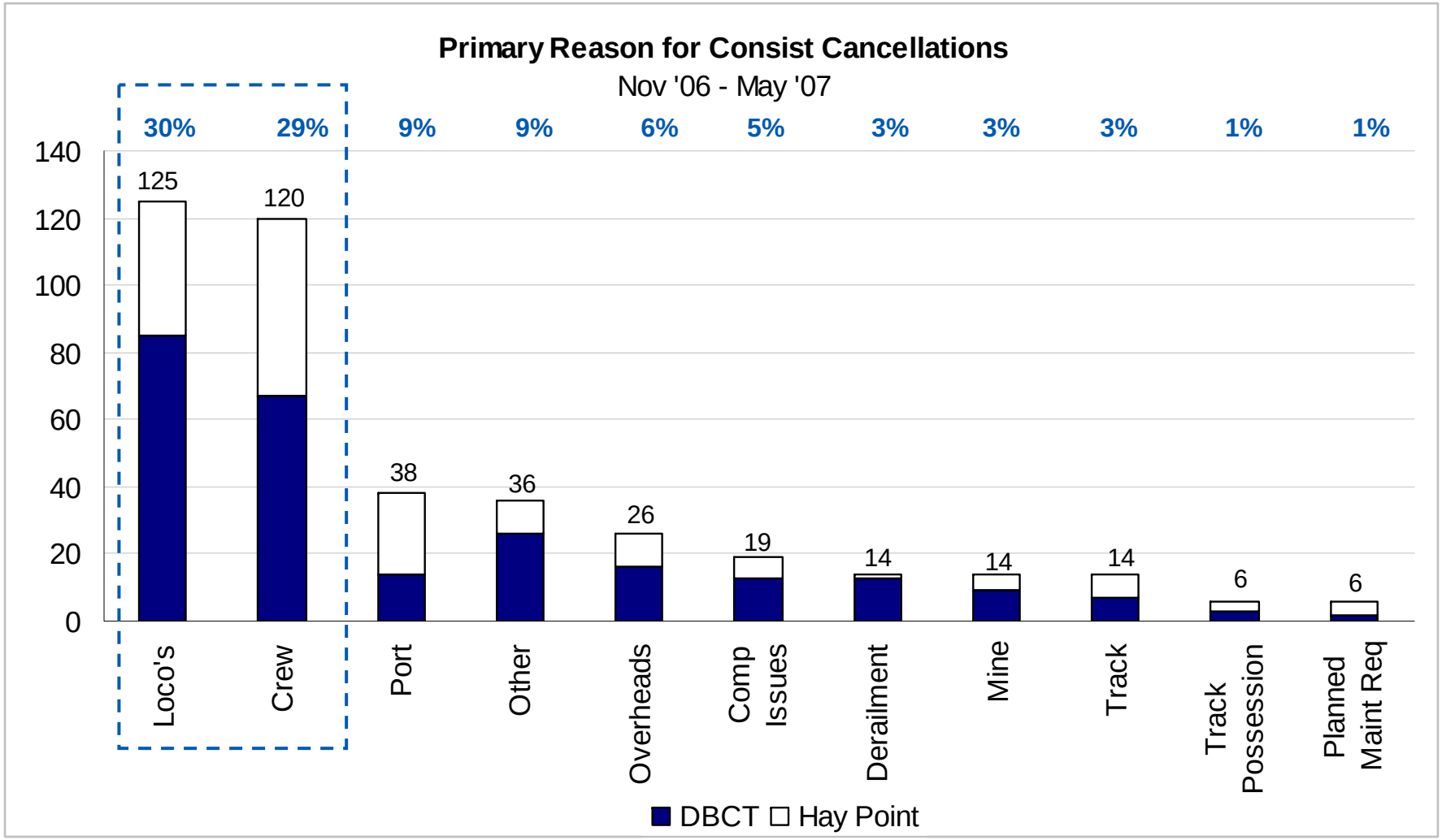
Variability in Train Arrival will Impact Ability to 'Run to Timetable'



1) Cycle time is the measurement of the total journey from departure to arriving back at Jilalan and provisioning. The only thing not included vs turn-around time is the actual downtime at Jilalan

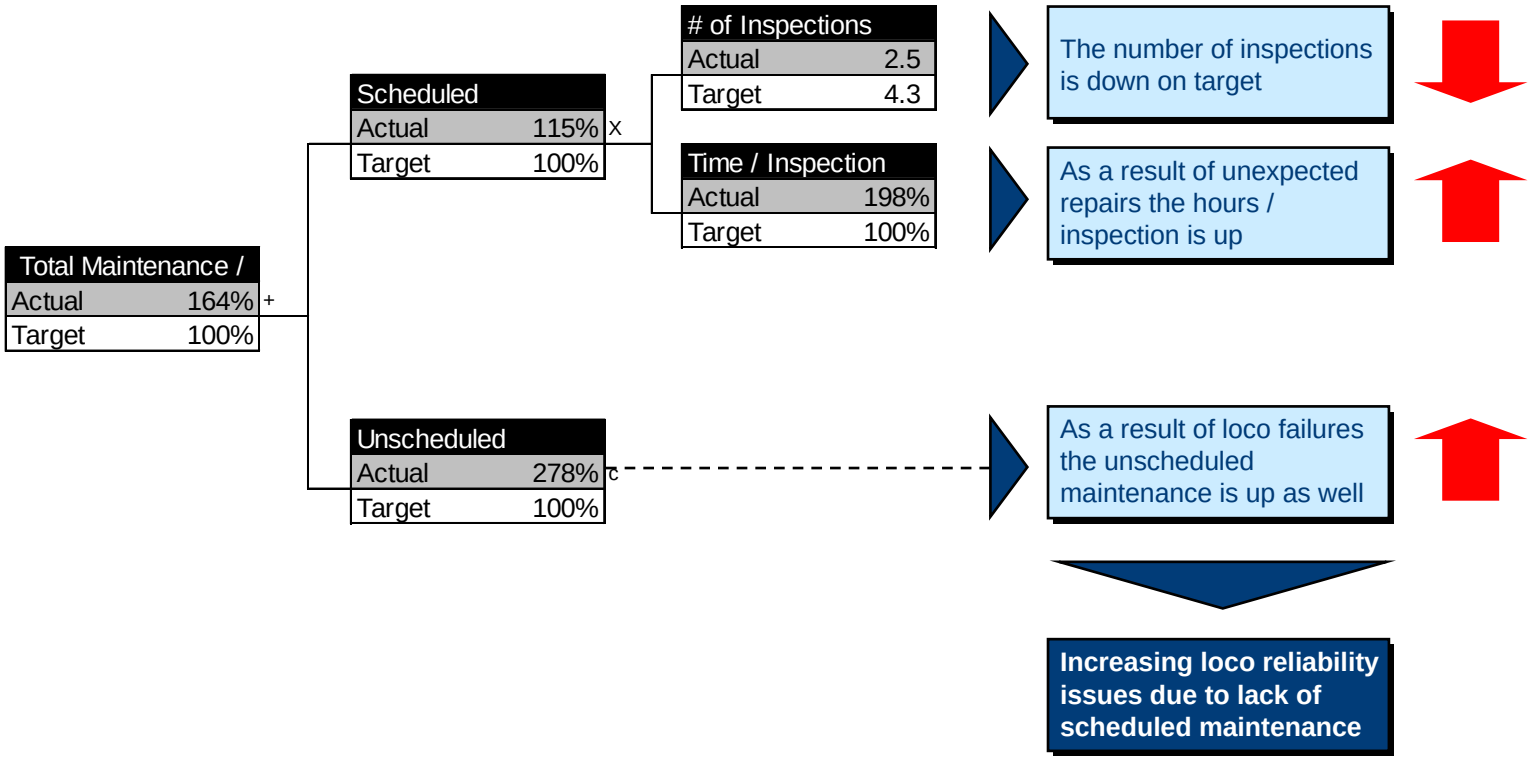
Source: QR- Cycle Time

Locomotive Reliability is largest Impact on Train Performance



Source: QR Cancellation record

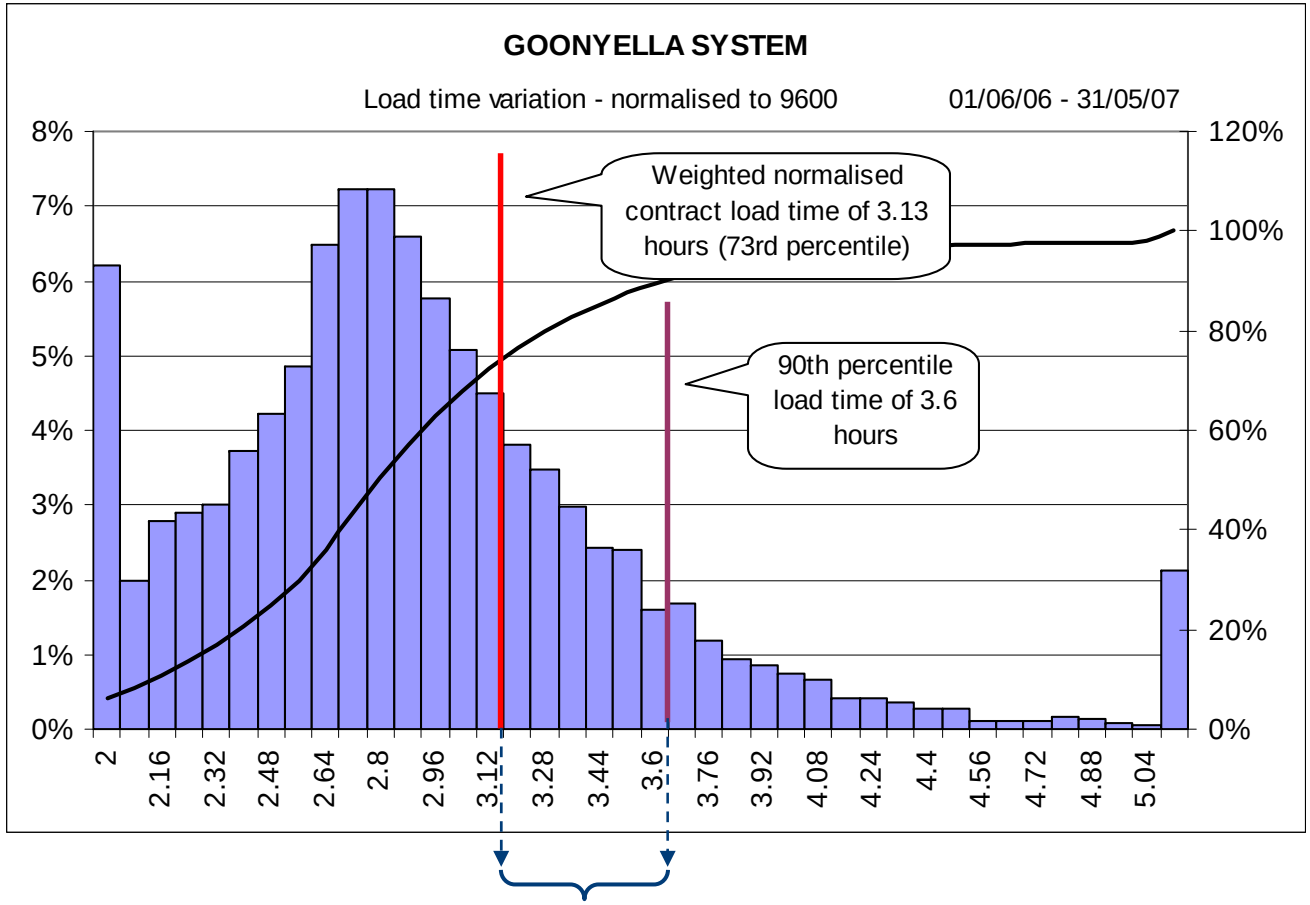
Loco Reliability is Impacted by Reduction in Scheduled Maintenance with Consequent Increase in Unscheduled Maintenance



1) Red arrow indicates it's moving in the wrong direction

Source: QRC Study Group Analysis. Data received from QR

Some Coal Producers Load Points are Impacting Cycle Time Performance

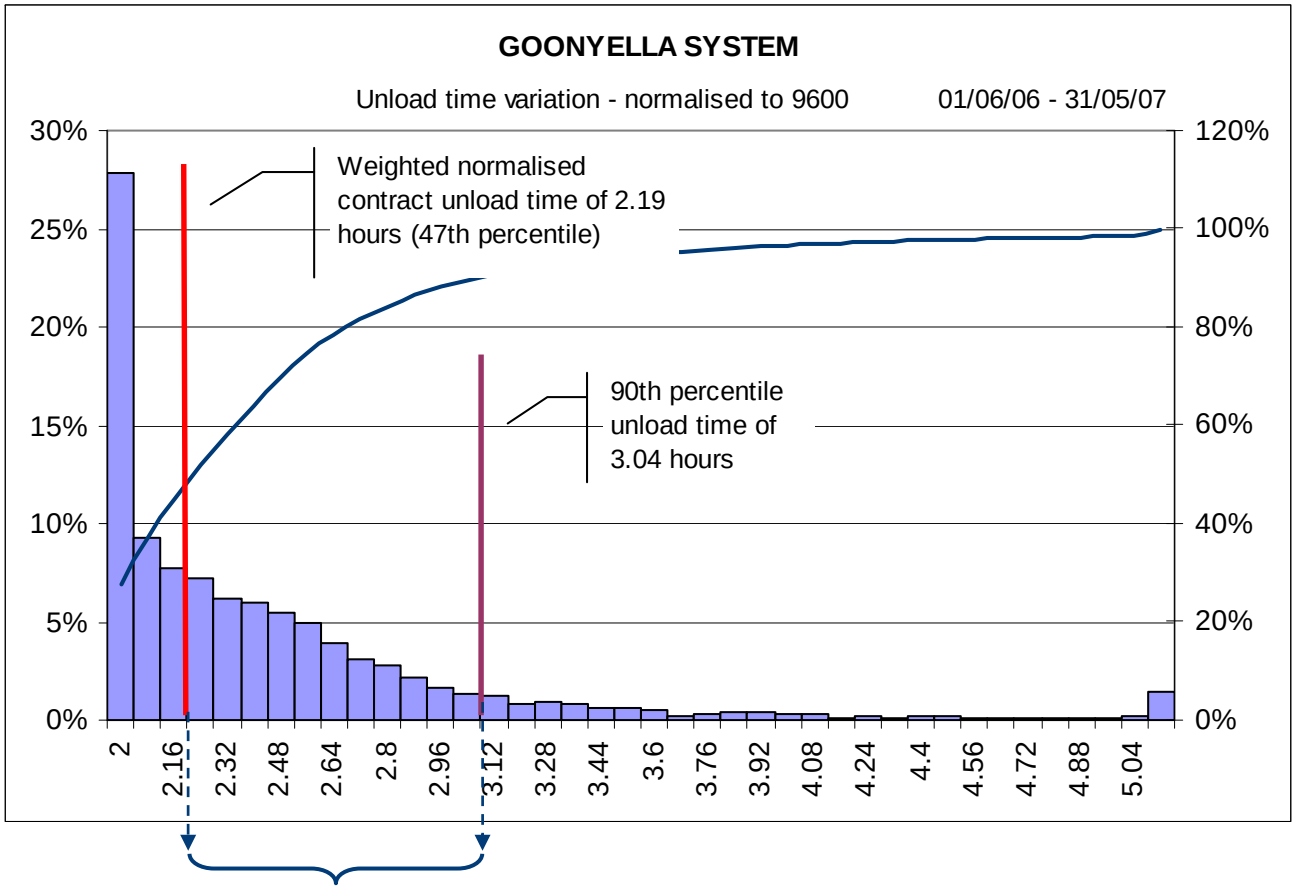


- Currently only 73 percent of the loading at the mines is within the contractual target
- While the mines currently hit the target cycle time on average, the variability puts considerable strain on the process – also the difference in performance per mine is considerable, i.e. some mines consume more than their share in system capacity

At the moment load point performance is not shared information. Poor load point performance reduces system tonnage

Source: Goonyella Cycle time analysis: QR

The Variability of In Load Performance at the Port also Impacts Performance



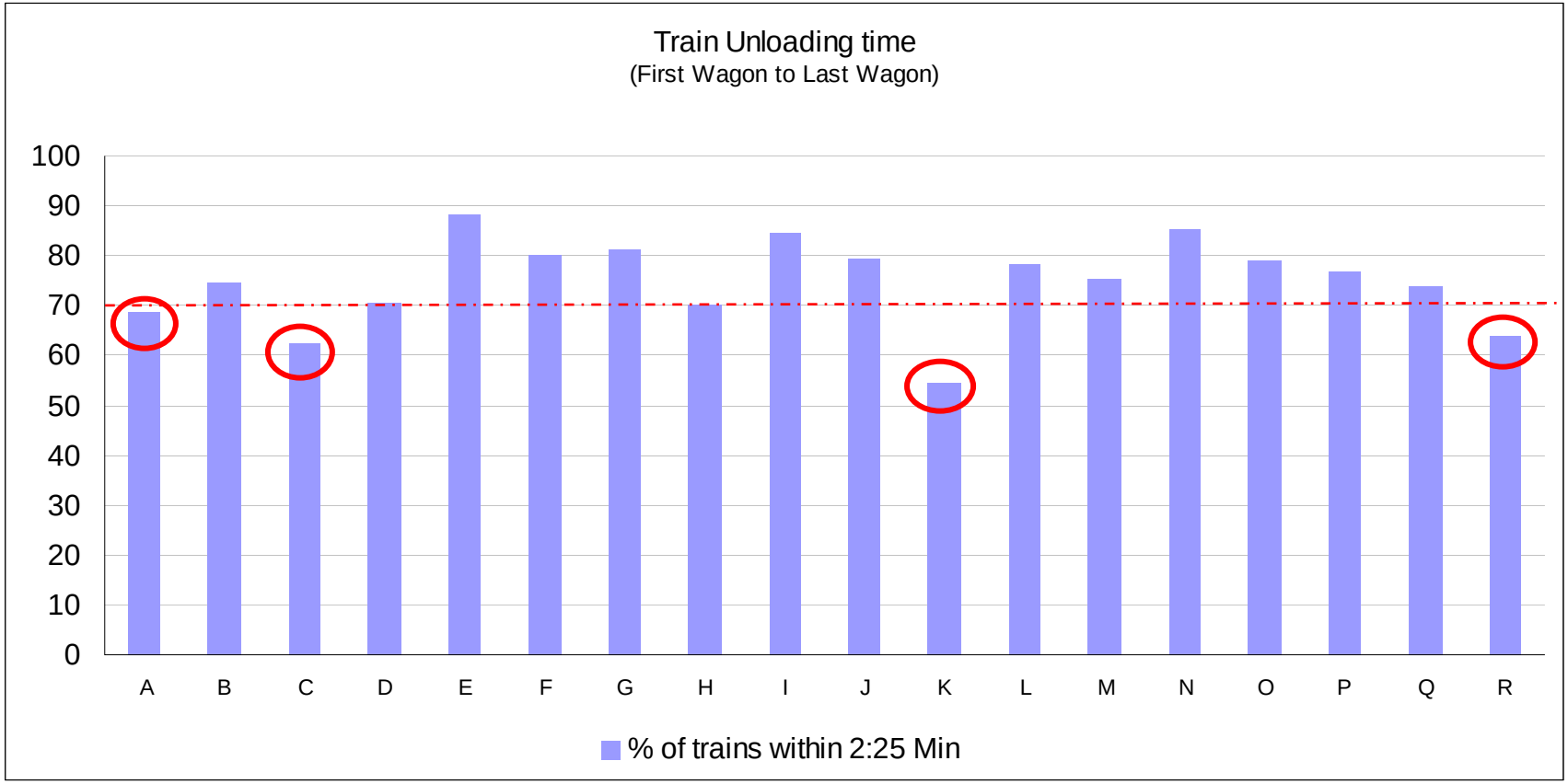
- Currently only 47 percent of the unloading at the port is within the contractual target
- With the 90th percentile almost an hour later, this introduces significant variability in the system

What is the best way forward to initiate improvements in this area?

Source: Goonyella Cycle time analysis: QR

There is a Correlation Between the Origin of the Coal and the Time it Takes to Unload

% trains within 2hr 25 min target time at the port (July '06 – May '07)

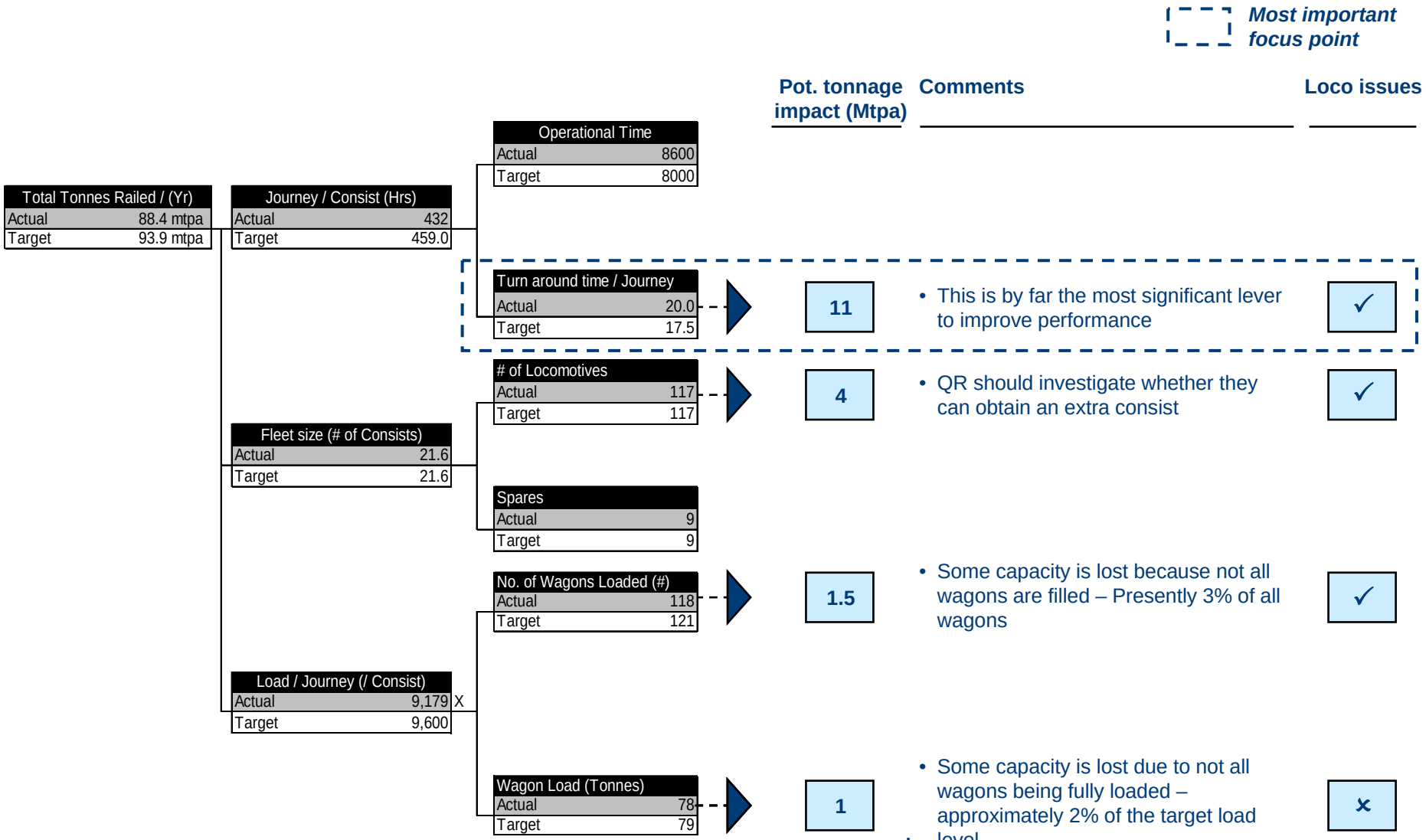


Opportunity exists to improve train scheduling at the ports by Focussing on specific Mines / Users

Historical data indicates that coal from 4 mines always take longer to unload at the port

Source: DBCT Train Unloading Time. (DBCT)

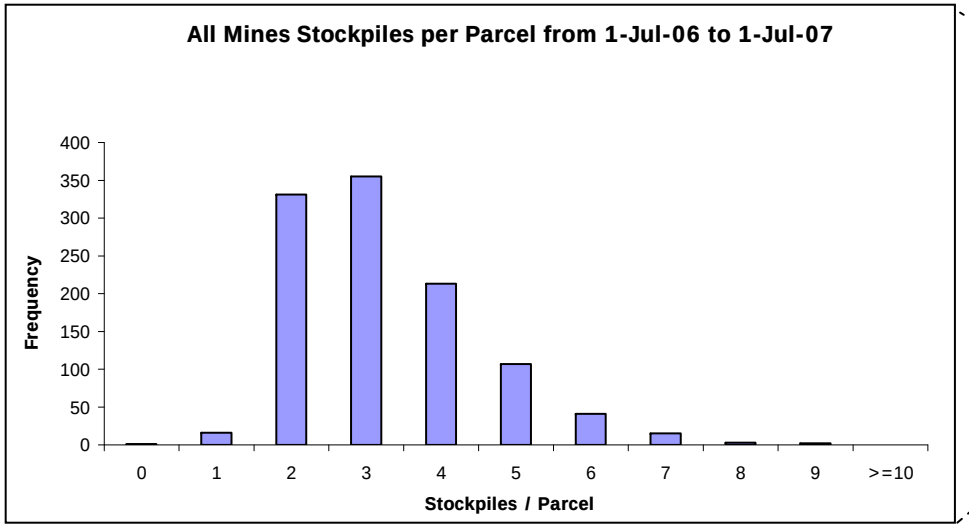
Halving the Operational Gap would Deliver 5-7 MTPA



1) Not including the additional consist

Source: QRC Study Group Analysis. Data received from QR

THERE IS ALSO SOME ROOM FOR IMPROVEMENT IN THE STOCK YARD POLICIES



- For the port to create breathing space, the most obvious opportunity is the stockyard management
- If a more efficient remnant policy could be agreed by all parties, this could free up stock yard real-estate that could be used for dedicated stock piles for long haul mines when necessary

Source: DBCT Stockpile analysis. (DBCT)

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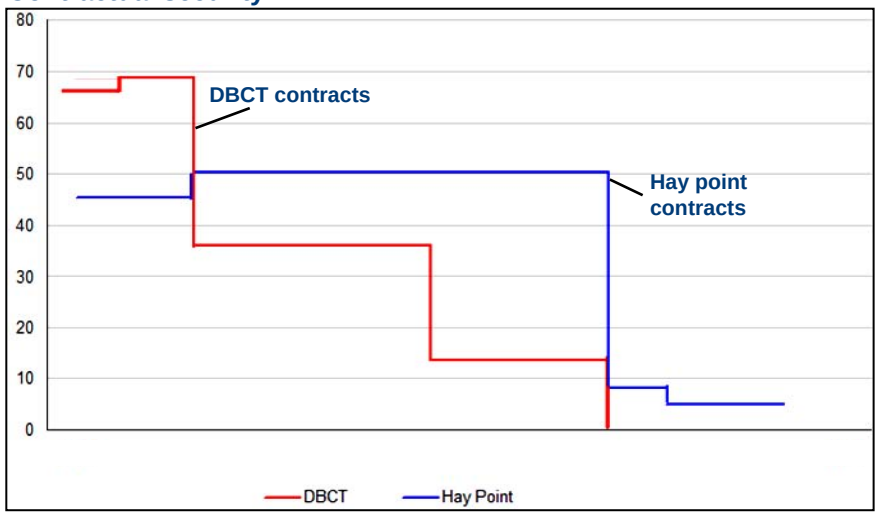
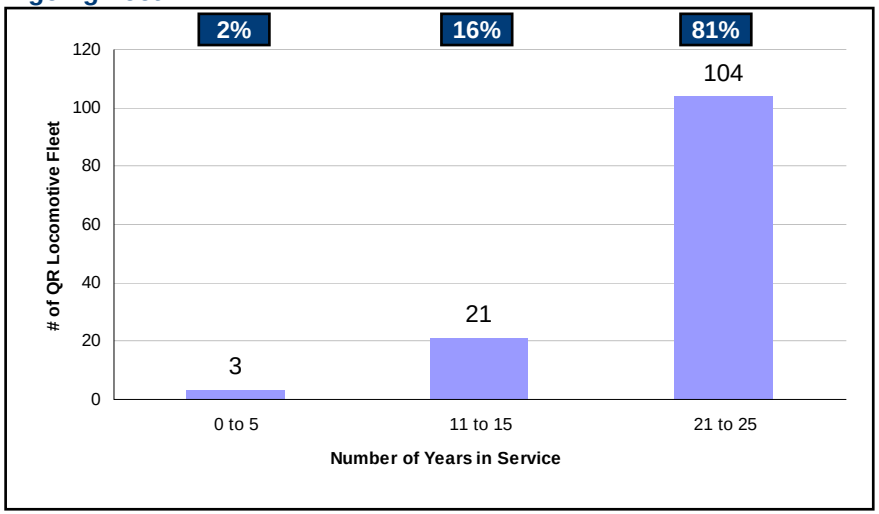
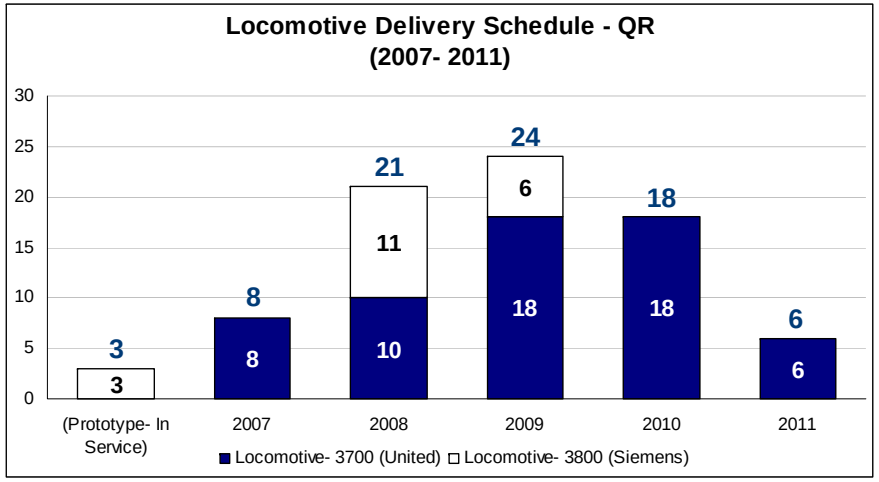
Present Contract Situation Does Not Provide Security to Allow the Required Rebuild of Existing Rolling Stock and Additional Train Sets to Proceed

Contractual security



Ageing fleet





Source: QR Contracts and fleet (QR)

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RECOMMENDATION #1 – A Central Coordination Role

Recommendation

A central coordination role to be put in place to take ownership of the overall planning process and be a senior central point-of-contact for all stakeholders and oversee performance across the chain

Comments

- Preferably Brisbane based, paid for by the Users and of a senior enough level to talk with all senior stakeholders in the chain - part-time position and need reviewed in 12-18 months
- Would oversee the IPG and the QMS and potentially require 1-2 additional analytical resources
- Oversee DBCT co-located cell and short-term planning process
- Oversee an integrated Master planning process that delivers an overview of the whole coal chain rather than the individual parts alone
- Ensures contractual capacity alignment between port, below rail and above rail
- Achieves agreement across the chain to a common set of operating and planning assumptions.
- Helps establish business rules that will enable key decision makers on the day-of-operations to make decisions in light of the overriding objective of maximizing throughput through the chain
- Oversees process for determining coal chain operating capacity, obtaining concurrence of all parties
- Monitors business improvement undertakings by participants

RECOMMENDATION #2 – A Business Improvement Project to be Established

Recommendation	Comments
In the short term a number of improvement projects and capacity extensions need to be kicked off in order to improve reliability and lift throughput in the supply chain	• Short-term business improvement opportunities exist in a number of areas that are worth pursuing, e.g. loco reliability, cycle time reductions, unloading and load performance • Starting point will be QR – needs to be externally resourced and audited • Focus is on best-practice – mining industry has had a focus on best-practice and demands the same from suppliers • Negotiation of a separate Coal Enterprise Agreement would assist in aligning employees with this business and have conditions appropriate to managing the business. • After the first stage has been finished, systems should be installed across the organisation to ensure that the improvements are sustained.

RECOMMENDATION #3 – QR TO SECURE COMMERCIAL FOUNDATIONS TO CONTINUE LOCO RENEWAL PROGRAM

Recommendation	Comments
In order for the current loco-renewal program to be secured, new contracts need to be put in place between QR and the Users to enable the capital expenditure on additional rolling stock	• In order to secure the future rail capacity, QR will need to accelerate the contract negotiations with the DBCT users in order to secure the contractual throughput as a foundation for the CAPEX on locos • The contractual framework should be reviewed with a view to contract simplification