

Decision notice

16 November 2022

Transitional arrangements for Aurizon Network to address existing capacity deficits: Determination, November 2022

In accordance with clause 7A.5(e) of Aurizon Network's 2017 access undertaking (UT5), we determine that the following transitional arrangements (listed in Table 1) will most efficiently and effectively address existing capacity deficits identified in the respective systems.

Table 1 Transitional arrangements to be implemented by Aurizon Network

Transitional arrangement	Estimated capacity created	Present value capital cost	Operating costs (p.a.)	Recommendation	
				AN ^a	IE ^b
Newlands and GAPE systems					
NG1: Installation of remote-control signalling	832 train paths	\$15.5 million	\$–	☑	☑
NG2: Change operation of ballast cleaning machine program	30 train paths	\$–	\$–	☑	☑
Goonyella system					
G1: Change to operation of ballast cleaning machine program	250 train paths	\$–	\$0.4 million	☑	☑
G2: Jilalan yard scheduling improvements	110 train paths	\$–	\$0.4 million	☑	☑
G3: Connors Range headway reduction	160 train paths	\$0.2 million	\$–	☑	☑
Blackwater and Moura systems					
Relinquishments	372 train paths	\$–	\$–	☑	☑
BM1: Change to operation of ballast cleaning machine program	25 train paths	\$–	\$0.3 million	☑	☑
BM2: Callemondah Yard Scheduling improvements	172 train paths	\$–	\$0.6 million	☑	☑

Note: ^a Aurizon Network made recommendations on which transitional arrangements should be implemented as part of its detailed response to the ICAR. ^b The independent expert made recommendations as to which transitional arrangements should proceed as part of its response to Aurizon Network's recommendations.

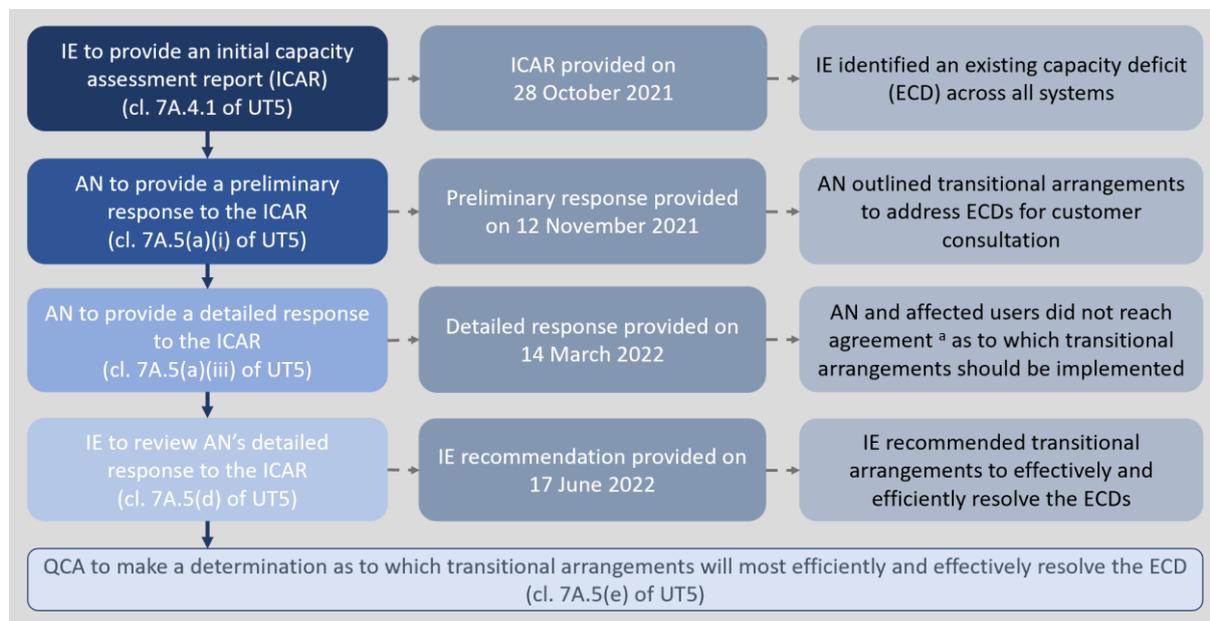
Source: Aurizon Network, Detailed response to the Initial Capacity Assessment Report, March 2022; Coal Network Capacity Co., Independent Expert Recommendations to Queensland Competition Authority, June 2022.

The transitional arrangements outlined in Table 1 will not resolve the capacity deficits identified in each system. We will make further determinations on the remaining transitional arrangements that will most efficiently and effectively resolve existing capacity deficits identified in each system, in due course.

Background

The process for identifying and resolving existing capacity deficits across the central Queensland coal network (CQCN) is outlined in Part 7A of UT5 (see Figure 1).

Figure 1 UT5 process to identify and resolve capacity deficits



Note: ^a Aurizon Network advised that it has received varying degrees of customer support for its recommended transitional arrangements to address the existing capacity deficits identified. However, Aurizon Network and affected end users had not reached an agreement as to which of the transitional arrangements should be implemented.

UT5 requires us to make a determination as to which transitional arrangements will most efficiently and effectively resolve the existing capacity deficits identified in each coal system.¹ Aurizon Network must then do everything reasonably necessary to implement those transitional arrangements in a prudent and diligent manner, so as to resolve the existing capacity deficit as soon as reasonably practicable.²

In considering the potential transitional arrangements to resolve the existing capacity deficits in each system, both Aurizon Network and the independent expert have recommended that the implementation of certain transitional arrangements occur in a staged manner.

In parallel to considering such matters, Aurizon Network has also proposed amendments to the UT5 process to identify and resolve capacity deficits.³ We are currently assessing Aurizon Network's Concept Study draft amending access undertaking (DAAU) as part of a separate regulatory process.⁴

The outcome of our investigation of Aurizon Network's Concept Study DAAU could affect the process for staging the determination and implementation of appropriate transitional arrangements. We are therefore not minded to make a determination on those transitional arrangements that may be directly affected by Aurizon Network's proposed amendments until the process for considering the Concept Study DAAU has been finalised.

¹ UT5, cl. 7A.5(e).

² UT5, cl. 7A.5(f).

³ On 8 June 2022, Aurizon Network submitted the Concept Study draft amending access undertaking (DAAU) to amend the UT5 process to identify and resolve capacity deficits. The Concept Study DAAU seeks to provide for a staged implementation of initiatives to address capacity deficits identified by the independent expert.

⁴ Information about this process is available on our [website](#).

However, Aurizon Network submitted that it is reasonable to progress the assessment of arrangements that will not be influenced by the likely outcome of the concept study DAAU, in the interests of the timely implementation of those arrangements. Other stakeholders supported this approach.

We consider that making this determination now, in relation to the initial transitional arrangements that Aurizon Network is to implement, provides for the timely implementation of these transitional arrangements.

This determination only considers those transitional arrangements where the independent expert:

- recommends the implementation of the transitional arrangement
- does not recommend that implementation of the transitional arrangement occur in a staged manner.

We will make further determinations on the remaining transitional arrangements that Aurizon Network is to implement to resolve the existing capacity deficits in each system, at the appropriate time.

Our approach in making this determination

Our determination is made in accordance with UT5 and has taken into consideration all submissions and information provided to us as part of this regulatory process.

We are to determine those transitional arrangements⁵ that we consider are the most efficient and effective for resolving existing capacity deficits identified across the CQCN. From the information available, we have sought to identify transitional arrangements that will:

- result in a clear capacity benefit that goes toward addressing an identified existing capacity deficit
- form part of the overall solution for resolving the existing capacity deficit at the lowest net present cost to access holders without prejudice to the reliability and performance (in the long and short term) of the rail infrastructure.

Our determination is directly informed by the analysis and recommendations provided by Aurizon Network and the independent expert as part of this process. In this regard, we have relied on the capacity modelling outputs and cost estimates produced by Aurizon Network and the independent expert to assess the capacity benefits and implementation costs associated with each of the transitional arrangements. We consider Aurizon Network and the independent expert are best placed to provide guidance on these matters.⁶

Our determination must also be consistent with the system operating parameters, unless required to accommodate an operational change we deem to be prudent for the purpose of rectifying the existing capacity deficit.⁷ The transitional arrangements considered in this determination are all consistent with the system operating parameters.

Our determination for the Newlands and GAPE systems

The independent expert identified an existing capacity deficit for the Newlands and GAPE mainline and branchline paths.⁸

⁵ The types of transitional arrangements for consideration are referred to in clause 7A.5(a)(iii)(A)–(D) of UT5.

⁶ The independent expert's analysis is informed by Aurizon Network's cost forecast for each of the proposed transitional arrangements. However, the independent expert has separately modelled the capacity benefits of each of the transitional arrangements, adopting its own assumptions.

⁷ UT5, cl. 7A.5(e).

⁸ Coal Network Capacity Co. 2021, pp. 28–29, 39–40.

Aurizon Network and the independent expert considered that common transitional arrangements could be implemented across both systems to address the identified deficit.

We consider the following transitional arrangements are the most efficient and effective for addressing the existing capacity deficit identified in the Newlands and GAPE systems:

- NG1: Upgrade signalling from direct train control signalling to remote-control signalling
- NG2: Change the operation of the ballast cleaning machine program.

NG1: Installation of remote-control signalling

The independent expert agreed with Aurizon Network's proposal to upgrade signals from direct train control signalling to remote-control signalling in the Newlands Junction to Collinsville branchline path.⁹

The existing direct train control signalling between McNaughton and Newlands is a capacity constraint due to the time it takes to cross trains. Aurizon Network considered that installing remote-control signalling has the potential to reduce the turnaround time of the system by up to four hours per cycle, enabling trains to cycle quicker and achieve more throughput.¹⁰

The independent expert considered that remote-control signalling installation provides the most significant capacity uplift for the Newlands and GAPE systems and also provides the greatest opportunity for other transitional arrangements to have a significant impact on capacity. It verified the expected capacity created from this transitional arrangement in its CQCN model output (see Table 1).^{11 12}

Based on the estimated cost for implementing this transitional arrangement and the expected capacity created, we consider that the installation of remote-control signalling will form part of the overall solution for resolving the existing capacity deficit at the lowest net present cost to access holders.

This conclusion is supported by the independent expert identifying this as a preferred transitional arrangement for resolving the existing capacity deficit, due to it being amongst the most efficient and effective transitional arrangements for achieving a capacity benefit in the Newlands and GAPE systems.

We also note there is strong support for the implementation of this transitional arrangement from affected users in the Newlands and GAPE systems. Aurizon Network reported that all affected end users in the Newlands system and 83 per cent of the number of affected end users in the GAPE system were supportive of the scope of this proposed transitional arrangement.¹³

NG2: Optimised ballast cleaning machine program

The independent expert agreed with Aurizon Network's proposal to improve the way it manages the ballast cleaning machine program.¹⁴

Aurizon Network's proposal provides for better utilisation of the ballast cleaning machine. It entails moving the machine between closures to reduce the reliance on single line closures, rather than the current operating methodology of having the operation locate in the north for five months and then the south for five months. Aurizon Network estimated that this operational change will remove 13 hours of closures each year in the Newlands system.¹⁵

⁹ Coal Network Capacity Co. 2022, p. 19.

¹⁰ Aurizon Network 2022, p. 50. Aurizon Network estimates that pathing in the Newlands system can be reduced from a 60-minute dispatch to 36-minute dispatch.

¹¹ Coal Network Capacity Co. 2022, p. 18.

¹² Coal Network Capacity Co. 2022, p. 20.

¹³ Aurizon Network 2022, p. 16.

¹⁴ Coal Network Capacity Co. 2022, p. 19.

¹⁵ Aurizon Network 2022, p. 52.

The independent expert verified the expected capacity created from this transitional arrangement in its CQCN model output (see Table 1).¹⁶

Based on the estimated cost for implementing this transitional arrangement and the expected capacity created, we consider that the optimised ballast cleaning machine program will form part of the overall solution for resolving the existing capacity deficit at the lowest net present cost to access holders.

This conclusion is supported by the independent expert identifying this as a preferred transitional arrangement for resolving the existing capacity deficit, due to it being amongst the most efficient transitional arrangements for achieving a capacity benefit in the Newlands and GAPE systems.

We also note there is strong support for the implementation of this transitional arrangement from affected users in the Newlands and GAPE systems. Aurizon Network reported that all affected end users in the Newlands system and 83 per cent of the number of affected end users in the GAPE system were supportive of the scope of this proposed transitional arrangement.¹⁷

Our determination for the Goonyella system

The independent expert identified existing capacity deficits for the Goonyella mainline and branchline paths.¹⁸

We consider the following transitional arrangements are the most efficient and effective for addressing the existing capacity deficit identified in the Goonyella system:

- G1: Optimised ballast cleaning machine program
- G2: Jilalan yard scheduling improvements
- G3: Connors Range headway reduction.

G1: Optimised ballast cleaning machine program

The independent expert agreed with Aurizon Network's proposal to improve the way it manages the ballast cleaning machine program.¹⁹

Aurizon Network's proposal provides for better utilisation of the ballast cleaning machine. It entails moving the machine between closures to reduce the reliance on single line closures, rather than the current operating methodology of having the operation locate in the north for five months and then the south for five months.²⁰

The independent expert verified the expected capacity created from this transitional arrangement in its CQCN model output (see Table 1).²¹

Based on the estimated cost for implementing this transitional arrangement and the expected capacity created, we consider that the optimised ballast cleaning machine program will form part of the overall solution for resolving the existing capacity deficit at the lowest net present cost to access holders.

This conclusion is supported by the independent expert identifying this as a preferred transitional arrangement for resolving the existing capacity deficit, due to it being amongst the most efficient and effective transitional arrangements for achieving a capacity benefit in the Goonyella system.

¹⁶ Coal Network Capacity Co. 2022, p. 18.

¹⁷ Aurizon Network 2022, p. 16.

¹⁸ Coal Network Capacity Co. 2021, pp. 50–51.

¹⁹ Coal Network Capacity Co. 2022, p. 26.

²⁰ Aurizon Network 2022, p. 52.

²¹ Coal Network Capacity Co. 2022, p. 24.

We also note that all affected end users in the Goonyella system were supportive of the optimised ballast cleaning machine program as a transitional arrangement.²²

G2: Jilalan yard scheduling improvements

The independent expert agreed with Aurizon Network's proposal to improve planning and scheduling at Jilalan yard.²³ The Jilalan yard is a source of congestion in the network that may be limiting capacity.

This transitional arrangement involves the following changes aimed to improve planning and scheduling in the yard:

- Embedding the integrated rail process—this involves operators submitting demand and operation assumptions to Aurizon Network, allowing it to globally optimise and minimise scheduling clashes.
- Availability optimisation—this involves eliminating pathing constraints by adjusting the criteria used to assess access requests and to cancel paths.
- Scheduling optimisation—investigate the use of a global optimisation tool to generate optimised rolling schedules with the aim of improving daily train schedules.
- Roadie implementation—the Roadie tool is a customer-built yard-scheduling tool that aims to merge all yard activity into one schedule, resulting in reduced connection changes required and improved compliance to yard plan activity type.²⁴

The independent expert verified the expected capacity created from this transitional arrangement in its CQC model output (see Table 1).²⁵

Based on the estimated cost for implementing this transitional arrangement and the expected capacity created, we consider that the Jilalan yard scheduling improvements will form part of the overall solution for resolving the existing capacity deficit at the lowest net present cost to access holders.

This conclusion is supported by the independent expert identifying this as a preferred transitional arrangement for resolving the existing capacity deficit, due to it being amongst the most efficient and effective transitional arrangements for achieving a capacity benefit in the Goonyella system.

We also note there is strong support for the implementation of this transitional arrangement from affected users in the Goonyella system. Aurizon Network reported that 90 per cent of the number of affected end users in the Goonyella system were supportive of the Jilalan yard scheduling improvements.²⁶

G3: Connors Range headway reduction

The independent expert agreed with Aurizon Network's proposal to implement operational improvements to facilitate shorter headway times²⁷ between Hatfield and Yukan on the Connors Range^{28, 29}.

Aurizon Network proposed that if the tonnage signal constraint can be safely removed, then headway times on the Connors Range may be able to be reduced from an average time of 24 minutes to 16 minutes. Aurizon

²² Aurizon Network 2022, p. 4.

²³ Coal Network Capacity Co. 2022, p. 26.

²⁴ Aurizon Network 2022, pp. 61–63.

²⁵ Coal Network Capacity Co. 2022, p. 24.

²⁶ Aurizon Network 2022, p. 4.

²⁷ Headway time is the minimum time that must have elapsed before a train can enter a section after a previous train.

²⁸ The Connors Range is a steep downhill gradient on the trunk of the Goonyella coal system between Coppabella and Jilalan.

²⁹ Coal Network Capacity Co. 2022, p. 26.

Network considers this has the potential to produce significant benefits in terms of network capacity and potential benefits to train cycle times.³⁰

The independent expert verified the expected capacity created from this transitional arrangement in its CQCN model output (see Table 1).³¹

Based on the estimated cost for implementing this transitional arrangement and the expected capacity created, we consider that the Connors Range headway reduction will form part of the overall solution for resolving the existing capacity deficit at the lowest net present cost to access holders.

This conclusion is supported by the independent expert identifying this as a preferred transitional arrangement for resolving the existing capacity deficit, due to it being amongst the most efficient and effective transitional arrangements for achieving a capacity benefit in the Goonyella system.

We also note there is strong support for the implementation of this transitional arrangement from affected users in the Goonyella system. Aurizon Network reported that 70 per cent of the number of affected end users in the Goonyella system were supportive of the Connors Range headway reduction.³²

Our determination for the Blackwater and Moura systems

The independent expert identified existing capacity deficits for the Blackwater and Moura mainline and branchline paths.³³

Aurizon Network and the independent expert considered that common transitional arrangements could be implemented across both systems to address the identified deficits.

We consider the following transitional arrangements are the most efficient and effective for addressing the existing capacity deficit identified in the Blackwater and Moura systems:

- Voluntary relinquishments
- BM1: Optimised ballast cleaning machine program
- BM2: Callemondah yard scheduling improvements.

Voluntary relinquishments

Aurizon Network received a request to relinquish up to approximately 3 mtpa in the Blackwater system.³⁴

The independent expert verified the expected capacity created from this transitional arrangement in its CQCN model output (see Table 1).³⁵

The requested relinquishments will effectively address part of the identified existing capacity deficit in the Blackwater and Moura systems, at no additional cost to affected access holders. Therefore, relinquishments will form part of the overall solution for resolving the existing capacity deficit at the lowest net present cost to access holders.

BM1: Optimised ballast cleaning machine program

The independent expert agreed with Aurizon Network's proposal to improve the way it manages the ballast cleaning machine program.³⁶

³⁰ Aurizon Network 2022, p. 65.

³¹ Coal Network Capacity Co. 2022, p. 24.

³² Aurizon Network 2022, p. 4.

³³ Coal Network Capacity Co. 2021, pp. 61–62, 71–72.

³⁴ Aurizon Network 2022, p. 42.

³⁵ Coal Network Capacity Co. 2022, p. 30.

³⁶ Coal Network Capacity Co. 2022, p. 33.

Aurizon Network's proposal provides for better utilisation of the ballast cleaning machine. It entails moving the machine between closures to reduce the reliance on single line closures, rather than the current operating methodology of having the operation locate in the north for five months and then the south for five months.³⁷

The independent expert verified the expected capacity created from this transitional arrangement in its CQCN model output (see Table 1).³⁸

Based on the estimated cost for implementing this transitional arrangement and the expected capacity created, we consider that the optimised ballast cleaning machine program will form part of the overall solution for resolving the existing capacity deficit at the lowest net present cost to access holders.

This conclusion is supported by the independent expert identifying this as a preferred transitional arrangement for resolving the existing capacity deficit, due to it being amongst the most efficient and effective transitional arrangements for achieving a capacity benefit in the Blackwater and Moura systems.

We also note that all affected end users in the Blackwater and Moura systems were supportive of the optimised ballast cleaning machine program as a transitional arrangement.³⁹

BM2: Callemondah Yard Scheduling Improvements

The independent expert agreed with Aurizon Network's proposal to improve planning and scheduling at Callemondah yard.⁴⁰

The Callemondah yard is a source of congestion in the network that may be limiting capacity. This transitional arrangement involves the following changes aimed to improve planning and scheduling in the yard:

- Embedding the integrated rail process — this involves operators submitting demand and operation assumptions to Aurizon Network, allowing it to globally optimise and minimise scheduling clashes.
- Availability optimisation — this involves eliminating pathing constraints by adjusting the criteria used to assess access requests and to cancel paths.
- Scheduling optimisation — investigate the use of a global optimisation tool to generate optimised rolling schedules with the aim of improving daily train schedules.
- Roadie implementation — the Roadie tool is a customer built yard scheduling tool that aims to merge all yard activity into one schedule, resulting in reduced connection changes required and improved compliance to yard plan activity type.⁴¹

The independent expert verified the expected capacity created from this transitional arrangement in its CQCN model output (see Table 1).⁴²

Based on the estimated cost for implementing this transitional arrangement and the expected capacity created, we consider that the Callemondah yard scheduling improvements will form part of the overall solution for resolving the existing capacity deficit at the lowest net present cost to access holders.

³⁷ Aurizon Network 2022, p. 52.

³⁸ Coal Network Capacity Co. 2022, p. 30.

³⁹ Aurizon Network 2022, p. 41.

⁴⁰ Coal Network Capacity Co. 2022, p. 33.

⁴¹ Aurizon Network 2022, pp. 61–63.

⁴² Coal Network Capacity Co. 2022, p. 30.

This conclusion is supported by the independent expert identifying this as a preferred transitional arrangement for resolving the existing capacity deficit, due to it being amongst the most efficient and effective transitional arrangements for achieving a capacity benefit in the Blackwater and Moura systems.

We also note that all affected end users in the Blackwater and Moura systems were supportive of the optimised ballast cleaning machine program as a transitional arrangement.⁴³

Next steps

In accordance with clause 7A.5(f) of UT5, Aurizon Network must do everything reasonably necessary to implement the transitional arrangements outlined in this determination in a prudent and diligent manner, so as to resolve the existing capacity deficit as soon as reasonably practicable.

We will make further determinations on the remaining transitional arrangements that Aurizon Network is to implement to resolve the existing capacity deficits in each system.

References

Aurizon Network, *Preliminary report in response to the Initial Capacity Assessment Report*, November 2021.

— *Detailed response to the Initial Capacity Assessment Report*, March 2022.

Coal Network Capacity Co., *Central Queensland Coal Network: Initial Capacity Assessment Report*, October 2021.

— *Independent Expert Recommendations to Queensland Competition Authority*, June 2022.

⁴³ Aurizon Network 2022, p. 41.