DATED: 12 May 2026

REDACTED VERSION

ACAR26

ANNUAL CAPACITY ASSESSMENT REPORT

COAL NETWORK CAPACITY CO.

Prepared by the Independent Expert, Coal Network Capacity Co.

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Use of Automated Tools
Coal Network Capacity Co Pty Ltd has used automated digital tools, including generative artificial intelligence, in the preparation of this document for the purposes of reviewing language, grammar, formatting, and consistency between related documents.

These tools were not used to generate modelling results, determine capacity outcomes, or form technical judgements. All analysis, findings and conclusions presented in this document have been developed, reviewed, and approved by the Independent Expert.

Contents

1. Preamble

UT5, as approved by the Queensland Competition Authority (QCA), requires capacity assessments to be performed by the Independent Expert (IE) for each of the Central Queensland Coal Network's (CQCN) coal systems, as detailed in *Part 7A: Capacity*.

This is the fifth Annual Capacity Assessment Report (ACAR) since the completion of the Initial Capacity Assessment Report (ICAR), in 2021. The ACAR determines the Deliverable Network Capacity (DNC) for each coal system of the CQCN.

This document should be read in conjunction with the 2026 System Operating Parameters (SOP) which set out the assumptions on the operation of each element of the coal supply chain.

1.1 Deliverable Network Capacity

The definition of DNC is taken from Part 7A.2 of UT5. This definition is important for stakeholders to consider and understand, as it directs the IE to consider and determine capacity in a particular way. This requirement drives an assessment of capacity in the CQCN's rail systems that is likely to differ from other estimates of capacity undertaken for other purposes. In particular, the IE understands that the intention of the UT5 definition is primarily to ensure that capacity is assessed in a practical "deliverable" sense, rather than a more theoretical view of capacity, and this is the underlying basis of the ACAR.

1.2 Annual Capacity Assessment

UT5 outlines requirements that the IE must consider in undertaking the ACAR, which include:

- Consider whether any variation of the SOP is required, provided that any amendments to the SOP:
  - include consideration of the factors set out in the definition of DNC;
  - would be consistent with the applicable approved Maintenance Renewals and Strategy Budget; and
  - would not place Aurizon Network (AN) in breach of its obligations under UT5 or any access agreement.
- Seek to consult with and receive submissions from AN and industry stakeholders on the proposed SOP.
- Set out the SOP for each coal system having regard to the way in which each coal system operates in practice.

The ACAR, and associated SOP, prepared by the IE, must report on the DNC of each coal system over the capacity assessment period. The ACAR must include information regarding:

- Assumptions that the IE has made in interpreting the definitional factors that DNC is characterised by;
- Assumptions that the IE has made in developing the SOP and other modelling related assumptions;
- The DNC of each coal system's mainline and branch lines; and
- Constraints that reduce, or are likely to reduce, DNC of each coal system.

UT5 defines that capacity is to be measured in train paths (a return train journey). CNCC has included in the ACAR for reference purposes the equivalent capacity in tonnes based on the modelled payload of trains in each system.

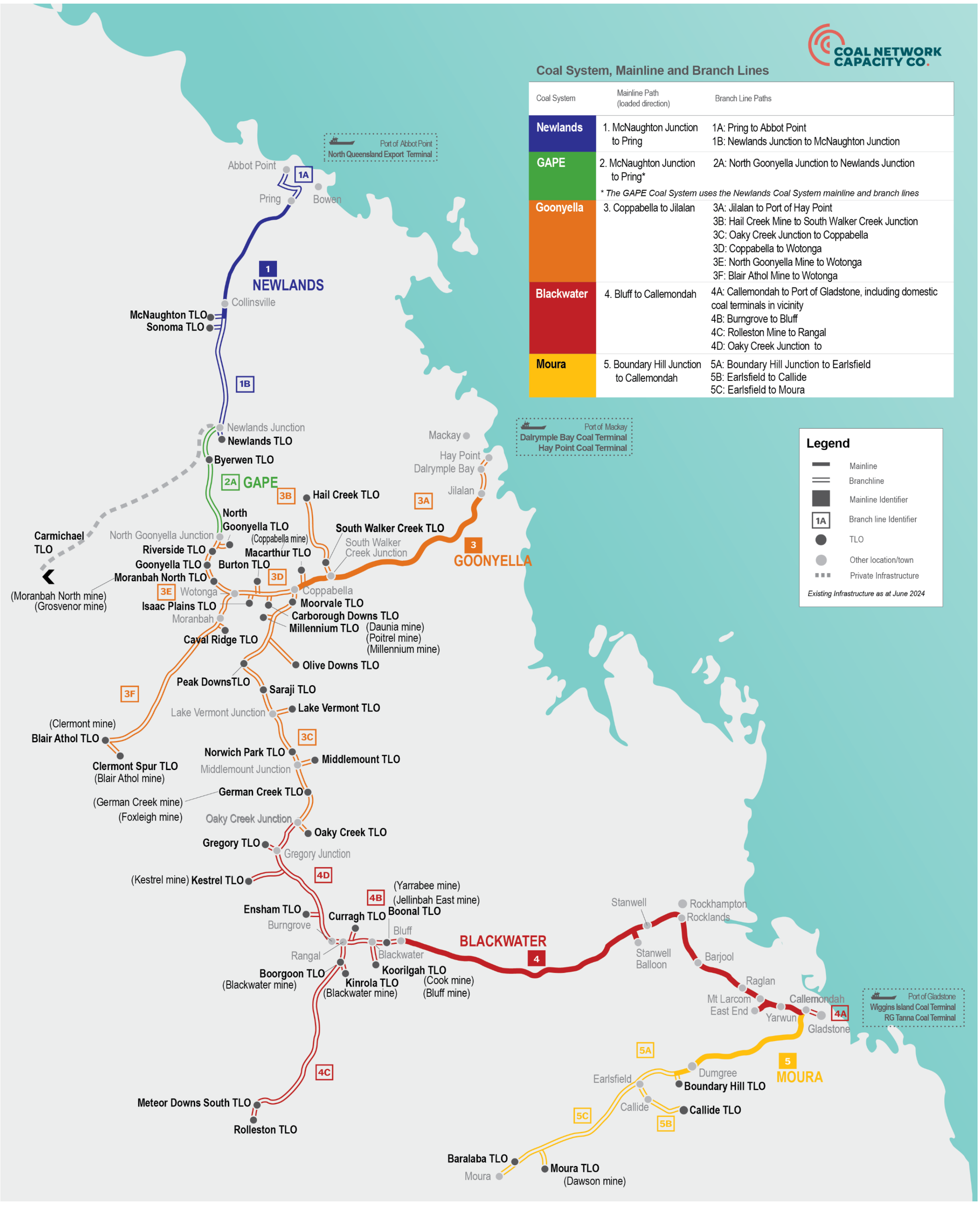
The outcomes of the IE's assessment must be reported to the QCA and AN in a redacted and unredacted form and to the Chair of the Rail Industry Group (RIG) in a redacted form. QCA and AN will publish the redacted versions on their respective websites.

The capacity assessment period for ACAR26 has been determined as the five financial years FY27 to FY31 inclusive i.e. 1 July 2026 to the 30 June 2031.

1.3 Dynamic Simulation Model

CNCC, as the IE, determines the DNC of each coal system within the CQCN (see map in **Figure 1** below) primarily through the use of a dynamic simulation model (Model) which is based on AnyLogic modelling software.

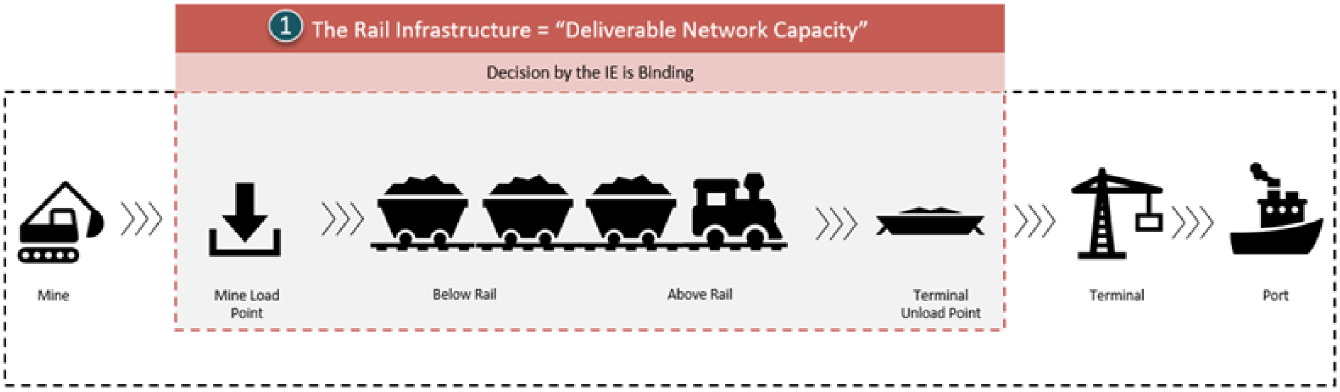
Figure 1 - CQCN mainline and branch lines



The scope of the Model reflects the DNC definition and considers activities at and between the boundaries of:

- Coal flow into wagons at Train Loadouts (TLO); and
- Coal flow out of wagons at inloaders and includes the components as outlined in **Figure 2.**

Figure 2 - Deliverable network capacity boundaries



This scope means that the Model does not determine the capacity of the entire system or coal chain. In particular, the Model does not consider elements of the terminal operations beyond the inloaders and does not consider the shipping queue or terminal operations in the generation of rail demand within the Model.

There are several general assumptions used in the determination of the DNC:

- The IE has had to exercise judgement on a large range of issues in developing the SOP assumptions and application of these within the Model. These are called out as appropriate in each section of the SOP;
- In general, inputs into the Model, including key data statistical distributions, are generally informed by historical data. The IE has predominantly considered data from July 2022 to June 2025 (where available), however the exact approach varies across the various Model parameters and are outlined in the SOP.

1.4 Information and Redaction

To the extent possible, this document has been prepared on an aggregated and unredacted basis. Where capacity outcomes contain information that is confidential to an access holder, customer, train operator, or terminal operator and is unable to be disclosed, it has been redacted in this document.

Minor rounding differences may occur in this report. Differences can arise between scenarios or sensitivity outcomes due to varying baselines or sequencing of constraints. For example, waterfall changes are assessed against ACAR25 DNC results, whereas sensitivities are evaluated as single input variations against ACAR26 DNC.

2. Executive Summary

The IE has prepared the ACAR, which determines the DNC of the CQCN for the capacity assessment period (1 July 2026 to 30 June 2031).

The IE's determination of DNC for FY27 for each system, and the change since ACAR25 is shown in **Figure 3** in train paths**.** This figure also shows the Committed Capacity and hence the resulting surplus or deficit of capacity. **Figure 4** shows the equivalent capacity change in tonnes (for reference purpose only). All systems are assessed as having increased DNC since ACAR25:

- Newlands-GAPE system DNC increases by approximately 200 trains (3%) due to a range of factors including an increase in consists (reversing, in part, a reduction in consists in ACAR25).
- An increase in Goonyella System capacity of approximately 520 trains (4%), influenced heavily by reductions in full-demand port maintenance requirements advised by the terminals and reductions in the capacity impact of AN's track maintenance.
- A modest increase in Blackwater System DNC of approximately 280 trains (3%), with a variety of factors contributing, including improvement to CNCC's interpretation of track maintenance data with offsetting adjustments to better reflect the observed behaviour of trains in the Callemondah port precinct; and
- Little change in the Moura System which remains able to comfortably meet demand, but which remains subject to competition with the Blackwater system for access to RG Tanna Coal Terminal.

In addition to changes in DNC, several changes in the magnitude and distribution of Committed Capacity (i.e. customer contracts) are now evident within the five year period of the ACAR, with the result that AN's DNC is comfortably able to deliver contract in all systems except Newlands-GAPE, which itself reaches 96% satisfaction of contract by FY29 (see **Figure 5**).

Figure 3 - Deliverable network capacity by coal system – FY27 – train paths

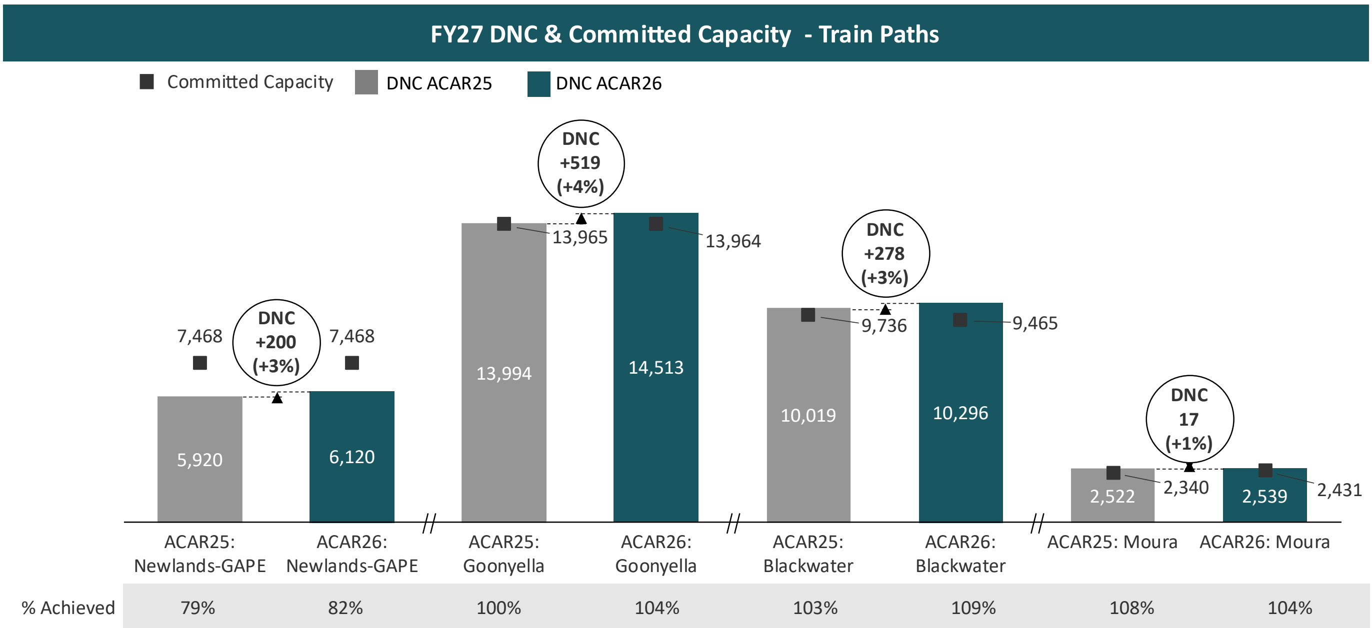


Figure 4 - Deliverable network capacity by coal system – FY27 – tonnes

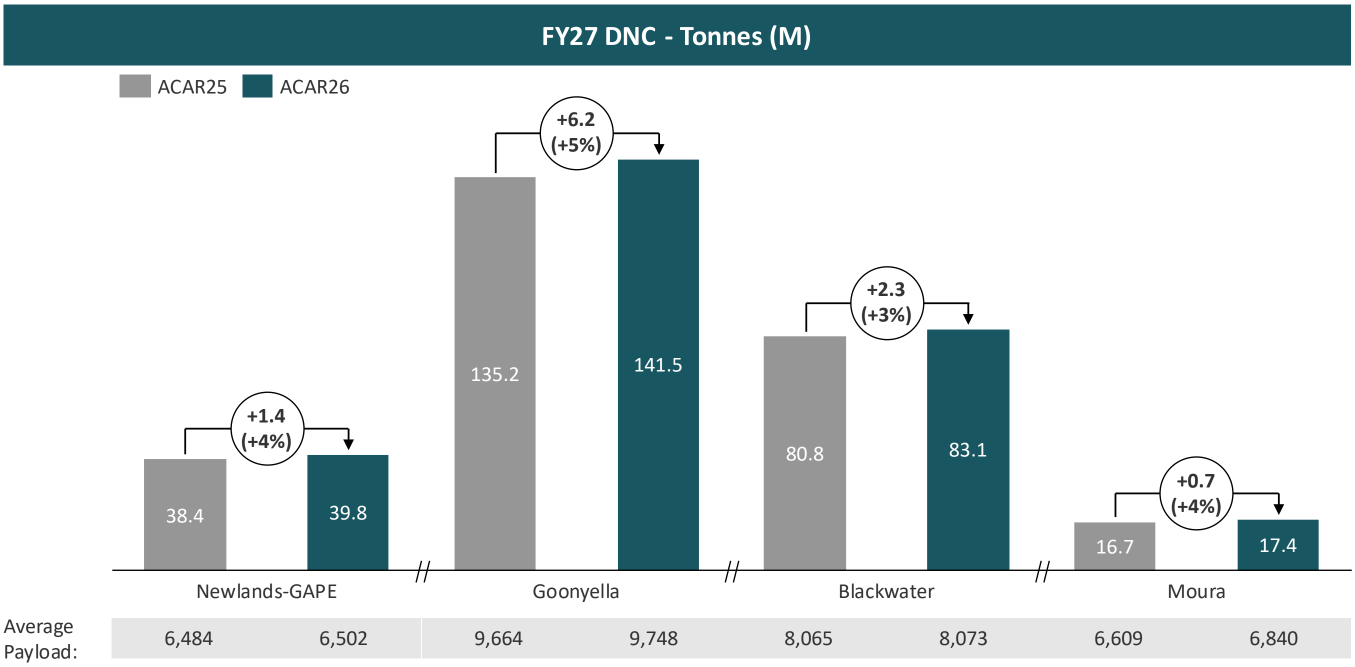
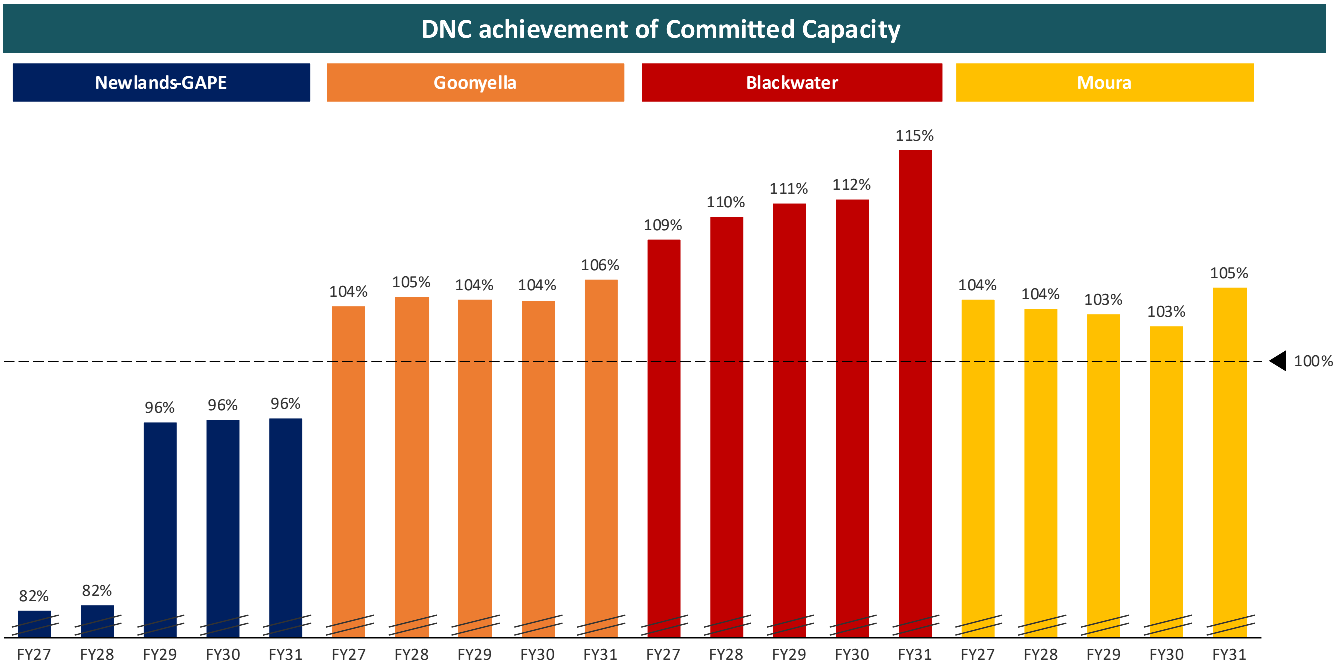


Figure 5 - DNC % achieved of committed capacity per year of the capacity assessment period



More detailed information on the results for each coal system can be found in **Sections 8 - 11** of this report.

3. ACAR Changes - CQCN-Wide

The IE continues to improve both the quality of the ACAR capacity assessment and the clarity with which Model inputs and outputs are communicated, including in response to stakeholder feedback.

A number of changes have been made to both the inputs to the capacity assessment, and the way the results have been presented in ACAR26. Changes that apply across all systems are outlined below. System-specific changes are outlined in the relevant system chapters (**Sections 8 - 11**).

3.1 Model Inputs

ACAR26 contains a small number of changes to CNCC's analysis and development of key Model inputs. Several of these changes have material impacts on the DNC outcomes of several systems.

3.1.1 Track Maintenance Footprint

ACAR26 introduces a significant change to the way CNCC provides track maintenance inputs into the Model. This includes Integrated Closures, single-line major maintenance, and routine ("minor") maintenance activities.

Since inception, CNCC has had access to significant detailed information on AN's maintenance possessions, including forward looking planned maintenance (via the annual MRSB) and historical maintenance records.

For ACAR modelling purposes, two principal activities are required when using this data:

- Translation into Model terms, as the Model utilises a simplified version of AN's track system which does not always align directly with AN track section naming (required for both MRSB and minor maintenance).
- Analysis of historical minor maintenance activity to inform an estimate of future maintenance requirements.

Historically, translating AN's maintenance data into Model terms relied on significant manual effort. This included manual examination and judgement-based interpretation of possession footprints (affected track sections, number of tracks etc), increasing the risk of inconsistency and error.

To improve the efficiency, accuracy and consistency of this process, the IE has developed an automated process to ingest, analyse and interpret AN's maintenance possession information. This process relies heavily on AN's four-character node codes to define each track intersection point – the same underlying logic as AN's APS planning system. A detailed explanation of this approach is outlined in the SOP26.

To test the effectiveness of the new automated approach, two validation steps were undertaken:

1.	Reconciliation against ACAR25	The automated process was retrospectively applied to the FY26 MRSB data used in ACAR25. Material disparities in results for both Integrated Closures and single line maintenance were examined. In most cases this highlighted limitations in the previous manual approach. The capacity impact of applying the automated method to ACAR25 data is described in each system's section. This is presented separately from the capacity impact of changes in AN's maintenance plans (FY27 MRSB) and maintenance practices (minor maintenance).
2.	Quality assurance	Model runs were undertaken with maintenance inputs generated by the new process. Daily train throughput outcomes were reviewed to identify periods of reduced capacity and reconciled against the underlying maintenance data. This testing identified several minor issues in the new process, which were subsequently corrected.

3.1.2 Minor Maintenance Trends, Including Concurrent Activities ("Shadow Maintenance")

In each ACAR, historical possession data for minor maintenance activities is used to develop a projection of future routine maintenance requirements. For ACAR26, the analysis was undertaken on a financial year basis rather than calendar year basis. Consistent with prior ACARs, a trend of increasing minor maintenance possession hours was again evident.

AN has advised the IE and stakeholders of their efforts to maximise the utilisation of maintenance possessions by undertaking multiple maintenance activities within the same possession window. For ACAR26, the IE has sought to identify and account for this "shadow maintenance" (as defined in the SOP) when projecting future minor maintenance in the Model.

A secondary benefit of the new automated maintenance analysis process outlined in **Section 5.1.1** above is the ability to identify overlapping maintenance activities. Where activities occur within the footprint of other possessions, the capacity impact is reduced, and these benefits can now be reflected in the Model.

Table 1 shows the historical trend of minor maintenance hours derived under both the previous manual method and the automated method. It demonstrates the continuing trend of increasing "raw" possession hours. The table also shows the minor maintenance projection applied in ACAR26, which is based on the average of the preceding three financial years', adjusted for historical volumes and future contract volumes.

Incorporating shadow maintenance has reduced projected minor maintenance hours in ACAR26 by approximately 13%. While this results in lower modelled minor maintenance than used in ACAR25, the upward trend in historical minor maintenance hours appears to be continuing.

Table 1 Historical minor maintenance hours

ACAR Process	Method	Historical Hours									Projected Hours	
		FY21	CY21	FY22	CY22	FY23	CY23	FY24	CY24	FY25	FY26	FY27
ACAR25	Manual		7,047		5,472		7,197		8,838		6,856	
	Automated		6,934		5,413		7,082		8,921			
ACAR26	Automated	5,432		6,257		6,547		7,507		9,194		7,591
ACAR26 - Automated (adjusted for shadow maintenance)												6,610

The capacity impacts of shadow maintenance for both ACAR25 (assessed retrospectively) and ACAR26 are outlined in the relevant system chapters.

The IE acknowledges that there may be further opportunity to identify maintenance activities with limited or no capacity impact, particularly by extending the shadow maintenance criteria to include branch line maintenance. However, these opportunities are expected to have a smaller overall effect on capacity.

3.1.3 Delays

ACAR25 implemented a fundamental restructuring of how delays were represented in the Model, including improved parsing of AN data to distinguish between "primary" delays and "secondary" (follow-on) delay impacts.

ACAR26 further refines this approach. Whereas ACAR25 assessed primary delays at a whole-of-system level, ACAR26 now segregates delays by system component (mainline, port lines and branch lines).

This refinement is important where constrained areas of the system experience delay characteristics that differ materially from the system average. For example, mainline delays in the Goonyella system are better than system average, while delays in the Callemondah port precinct in the Blackwater system are higher than that system's average. The implications of these changes are discussed in the relevant system chapters, while comprehensive information regarding delay parameters for each mainline and branch line section is included at Chapter 10 and associated appendices of the SOP document.

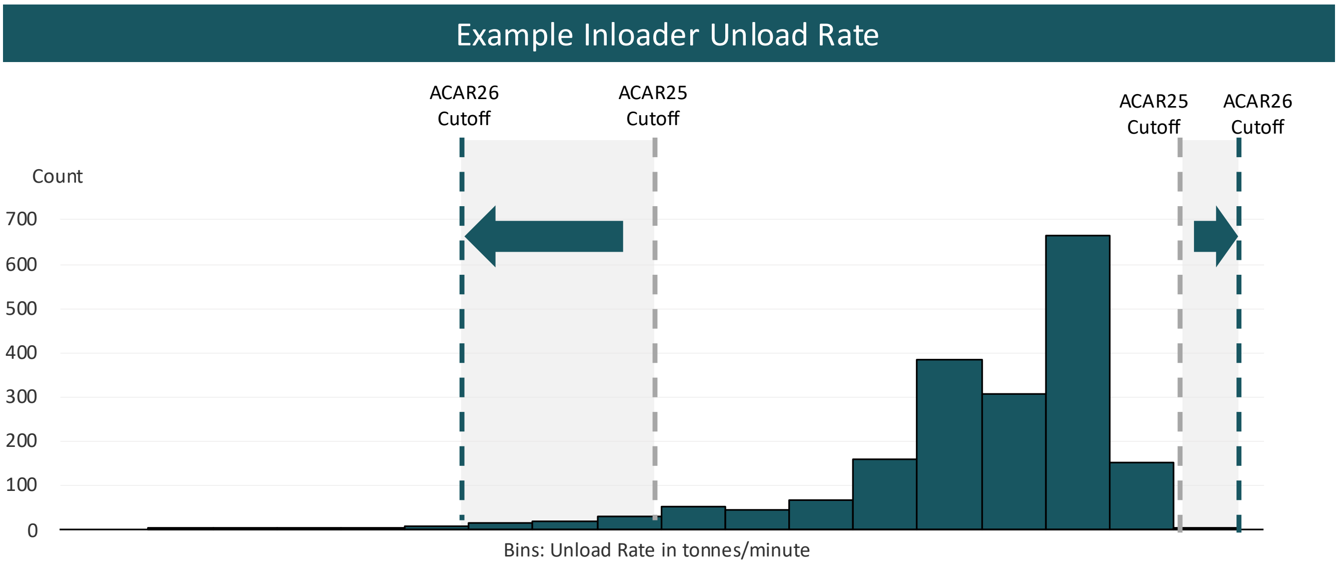
3.1.4 Inloader Performance

While ACAR24 and ACAR25 included reviews of inloader performance, those analyses focused on testing whether observed performance remained consistent with existing Model assumptions.

For ACAR26, a full review of inloader performance was undertaken, with Model inputs rebuilt from first principles. The review found no evidence of significant changes in underlying inloader performance. However, it identified that a data filtering threshold used by the IE had unintentionally excluded some valid historical data points.

For ACAR26, these data constraints were relaxed, resulting in a minor reduction in modelled unload rates at several terminals but an increase in others (see **Figure 6** for a representation of this change).

Figure 6 - Example inloader unload rate histogram



3.2 Demand

No significant changes have occurred to the approach to demand generation in ACAR26. Consistent with prior ACARs, demand is modelled at 120% of contracted capacity for each monthly period.

However, as changes in both the level and distribution of demand become more evident in the later years of the ACAR assessment period, specific care was taken to ensure that the Model was not demand constrained in those later years. In response to this, demand in the Blackwater system was increased to 130% in FY31. This adjustment addresses a reduction in overall committed capacity in that year and ensures that the resulting capacity outcomes are driven by network constraints rather than insufficient demand.

3.3 Consist Allocation and Above Rail Productivity

Each year, the IE assesses the appropriate level of above rail consists to be used in each system, both in aggregate and in their allocation across above-rail providers. This assessment reflects a balance between maximising system throughput, maintaining equity of contract achievement across customers, and supporting efficient above rail productivity and cycle-times.

Consist allocation remains the most subjective aspect of the ACAR process and continues to be a key focus of stakeholder engagement and feedback.
While there were some notable changes to above-rail provider allocations in ACAR26, this underpinning approach to consist setting has not materially changed from previous years. Total consists were increased in the Goonyella system, largely in response to additional track availability, and in Newlands-GAPE systems, partly reversing a reduction applied in ACAR25. These changes also supported modest improvements in the evenness of contract achievement across customers.

Coal System	ACAR25 (FY27)	ACAR26 (FY27)	Current Consists
Newlands-GAPE	18	19	20
Goonyella	38*	39	35
Blackwater	37	37	32
Moura	7	7	7
Total	**99**	**102**	**94**

* The ACAR25 report erroneously stated 40 consists in Goonyella

3.4 Model Verification

Significant attention has been given in the ACAR26 process to increase the extent and rigour of Model verification activities in the development of ACAR.

These verification activities included the use of analytical tools to examine the alignment between terminal and track maintenance events, daily train arrivals, and modelled cycle times. Through this analysis, CNCC confirmed that any material reductions in daily throughput could be attributed to specific maintenance events.

This process has enabled the identification and correction of a small number of issues in Model inputs and associated data analysis processes, improving overall confidence in the ACAR26 results.

3.5 ACAR Report Changes

There are fewer changes to the content and format of the ACAR report in ACAR26 than were applied in ACAR25. Readers should therefore find general consistency in the reporting approach.

3.5.1 Cycle Time

ACAR25 included a small number of monthly cycle time results that appeared incongruous when compared alongside monthly throughput outcomes, most notably instances of low throughput occurring with low cycle times. Investigation of this issue identified significant cycle time outliers in these cases, arising from two primary causes:

1. Cycle time calculation methodology

   Investigations into the possible cycle time anomalies identified that the IE’s standard method of calculation of cycle time was based on the median value of all results for each origin-destination-above rail operator combinations, rather than the median of all results for all origin-destination combinations. In circumstances where there are multiple operators for origin-destinations and where the number of operator consists available to service those origin-destinations vary significantly (e.g. one big operator and one small operator), this could distort cycle times.

   For ACAR26 the IE has altered the calculation methodology to address this issue. References in this report to ACAR25 have been restated accordingly.

2. Significant cycle time outliers

   Despite the revised calculation methodology, the IE still observed a small set of unusually long cycle times within the Model results. These stem from two identified circumstances:

i. Trains mid-cycle during system shutdowns
As noted in previous ACARs, the Model does not include a dedicated stowage function to mimic how consists are managed during system shutdowns or other significant maintenance events. While the Model seeks to limit train dispatch in the hours preceding shutdowns, without sufficient space in the yard to stow all consists, this approach can itself create congestion and delays in train journeys. In some cases, trains are caught mid-cycle during shutdown periods, leading to unusually long (and operationally unrealistic) modelled cycle times.

ii. Significant random delay events

As discussed in detail in ACAR25, delay events in the Model are generated using statistically derived time to failure (TTF) and time to repair (TTR) parameters based on AN delay data. This stochastic process can generate a small number of very long delay events. These events can affect both the initially delayed train (primary delay) and other trains in the vicinity which are governed by the Model's track access logic (secondary delays). Even though the Model includes a train overtaking logic that can be used to mitigate train delay events, it does not include conflict resolution methods to handle more complex cases with multiple trains in a queue. Moreover, the train dispatching logic does not take into account delays currently happening within the rail network to make decisions (such as to cancel a departing train). Therefore, these events, while rare, can result in unusually long modelled cycle times. While such compound delays are theoretically possible within the Model, the IE considers them unlikely to have the same impact in real world operations, where AN train controllers would typically intervene to re-route or prioritise traffic to mitigate secondary impacts.

Testing was conducted to eliminate these abnormally long results from the reported cycle times but the results suggested they do not have a material impact on the median cycle times presented in the ACAR. The IE will therefore focus attention on addressing the underlying causes of these anomalies, rather than further modifying the cycle time reporting.

3.5.2 Branch line Capacity

While the modelling process used to test branch line capacity remains unchanged in ACAR26, the depiction of branch line sensitivities has been refined in ACAR26 to focus more clearly on throughput constraints. Where the constraint in a system is the mainline, testing focuses on latent branch line capacity. If the system constraint is not the mainline (e.g. Blackwater), the results include sensitivity testing of the additional latent mainline capacity.

3.6 Transitional Arrangements

ACAR26 includes no new Transitional Arrangements (TA), as no further TAs have been approved since ACAR25.

While AN's development of the Collinsville passing loop (relocate signals) project has progressed, the DNC outcomes in ACAR26 assume no utilisation of the passing loop. This reflects the fact that a decision on the prudency and efficiency of the project had not been finalised at the time the ACAR modelling was undertaken.

4. Stakeholder Engagement and Feedback

CNCC undertook extensive consultation on the Proposed System Operating Parameters (SOP) for ACAR26, reflecting the central role of the SOP in defining the inputs to the Model and ensuring the robustness of DNC outcomes.

The consultation process serves two related and important purposes:

- First, to ensure that the IE's interpretation of operational data is being accurately played back to asset owners, and that the transformation of source data into modelling assumptions is correctly understood and represented.
- Second, and critically, to test the IE's understanding of changes in asset performance relative to prior years, including identifying whether observed differences reflect genuine changes in operations rather than misinterpretation or inconsistencies in the underlying data.

As was the case in prior years, CNCC engaged face-to-face with all service providers (AN, above rail operators and terminal owners/operators) and sought feedback from producers in relation to their assets.

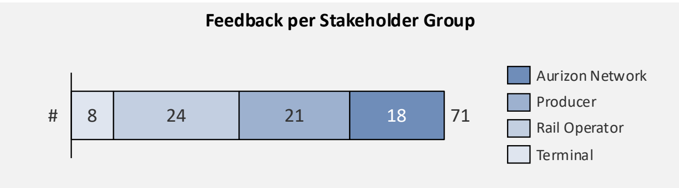
4.1 SOP Consultation Overview

Total engagement statistics for the ACAR26 stakeholder engagement are summarised in Figure **7** below. Overall, the level of stakeholder engagement remains strong and constructive, with feedback increasingly detailed and focused as stakeholders become more familiar with how the IE uses their data and how the Model interprets system performance. The increasing maturity of feedback is supported by ongoing engagement throughout the year, which provides additional opportunities for the IE to clarify assumptions, address questions and explore potential improvements alongside the formal SOP consultation process.

Figure 7 - ACAR26 SOP consultation overview

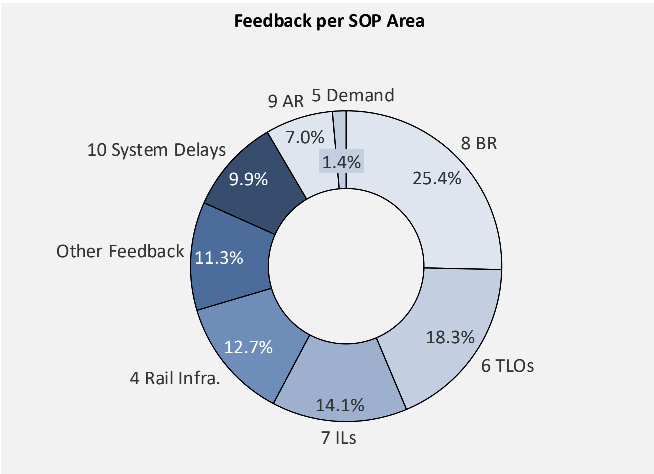
ACAR26 - SOP Consultation Feedback

The SOP consultation process received **71** individual feedback items from **13** individual stakeholders



Action taken on Feedback

SOP / ACAR assumptions amended	Clarification provided - no amendment required	Identified for future ACAR review
27%	55%	18%



4.2 Nature of Feedback and Outcomes

All feedback was assessed by the IE using a consistent, evidence-based approach. Changes were implemented only where supported by verified data, transparent rationale and consistency with the ACAR framework.

Stakeholder feedback received during the SOP consultation broadly resulted in one of three outcomes:

- Approximately 27% of feedback items resulted in amendments to SOP and/or ACAR assumptions, where the IE was able to reasonably substantiate the stakeholder's position and implement the change.
- 55% of feedback was addressed through clarification with stakeholders, with no changes required to the SOP or ACAR.
- The remaining 18% of feedback items were identified for further consideration in future ACAR reviews. These relate to matters where further refinement may be warranted, but where implementation was not feasible within the current ACAR cycle due to limitations in Model functionality or data availability.

While not all stakeholder positions could be adopted, all feedback was considered and documented, with outcomes reflecting the IE's independent judgement and the scope and constraints of the current ACAR26 process.

Items identified for future ACAR review will be carried forward for consideration in subsequent ACAR cycles. Identification does not imply a commitment to implementation.

Table 2 summarises the key themes arising from stakeholder feedback received during the ACAR26 SOP consultation and the corresponding actions taken by the IE.

Table 2 - ACAR26 SOP feedback and outcomes

✅ SOP / ACAR assumption amended   ℹ️ Clarification provided – no amendment required   📌 Identified for future ACAR review

Topic		Themes	IE Action
Below-rail: Sectional Run Times (SRTs)	Technical feedback on the derivation and application of SRTs, including percentile selection and acceleration and deceleration assumptions.	Selective amendments were implemented where analysis identified material issues. Broader matters relating to gradients, automatic system variance (ASV) recording and operational variability were identified for future ACAR review, reflecting limitations in Aurizon Network's current data capture and the need for further reconciliation between reported SRTs and underlying train movement data.	📌
Below-rail: Track Maintenance	Feedback on the new automation of maintenance possessions, including shadow working, emergency and opportunistic maintenance.	Clarification provided on the new automated approach and supporting data sources. Opportunities to extend shadow maintenance concepts to branch lines and an assessment of opportunistic/emergency shadow track maintenance were identified for future ACAR review.	ℹ️ 📌
Train Loadout (TLO)	Feedback on load rate calculations, loading times and payload assumptions compared to stakeholder operational performance data.	SOP assumptions were amended where stakeholder data identified data analysis anomalies. In other cases, existing assumptions and calculations were clarified with stakeholders. Improved linkage between the empty wagon causes and light load payload assumptions was identified for future refinement.	✅ 📌

Topic		Themes	IE Action
Inloader (IL)	Feedback on planned and unplanned inloader maintenance, availability and unload rates, including submissions of revised full demand maintenance inputs by terminals.	SOP assumptions were updated where revised terminal maintenance data was provided or where broader historical analysis supported change.	
Cancellations and Yard Congestion	Feedback on cancellation and yard congestion assumptions under full demand conditions, including treatment of diversions.	Clarification provided on current cancellation logic and approximations used to reflect lower cancellations in a full demand environment. Further assessment of cancellations by planning environment (including ITP and DTP) and diversion impacts was identified for future review, subject to availability of sufficiently mature rolling plan cancellation data.	
Above-Rail Operations	Feedback on above-rail operating assumptions, including consist allocation, train cycles and provisioning practices.	SOP assumptions were amended where supported by contract changes, factual corrections or clear operational evidence. Other matters addressed through clarification of modelling approach and assumptions.	
Demand Modelling and Scaling Assumptions	Feedback on demand scaling, even railing and campaign railing logic.	Clarification provided on application of demand scaling, even railing and campaign railing assumptions. Concepts such as differentiated demand scaling or explicit surge capacity were acknowledged but flagged as outside scope of ACAR.	
Transparency and redactions	Feedback seeking reduced redactions and improved diagnostics to better understand SOP assumptions	Requests for greater transparency and diagnostics were partially addressed in ACAR reporting enhancements. The IE notes that the UT5+ Draft Amending Access Undertaking proposes a mechanism to address transparency while maintaining confidentiality and will consider the applicability of this mechanism in future ACAR processes.	

5. Improvement Opportunities

As part of each ACAR process, CNCC identifies opportunities to improve the modelling approach and the resulting DNC outcomes, including through stakeholder feedback received during consultation, with the objective of better reflecting the operation of the CQCN. While not all improvement opportunities can be addressed within a single ACAR cycle, those identified form part of an improvement program.

For ACAR26, several improvement opportunities identified in previous ACARs have been progressed or resolved, while a range of new opportunities have been identified that will require consideration and where appropriate, progression over multiple future ACAR cycles.

5.1 ACAR25 Opportunities

A range of improvement opportunities were identified in ACAR25. Many of these have been progressed, either in part or in full, as activities undertaken for ACAR26. The status of each opportunity is summarised in **Table 3** below, with additional detail provided after the table.

Table 3 - Status of ACAR25 improvement opportunities

Ref.	Description	Status	
1.	Adjustment of demand methodology to emphasize satisfaction of each origin-destination's contractual demand before servicing additional capacity demand.	COMPLETE	✓
2.	Refinement of unloading activities to capture historical pre and post-load delays specific to each inloader (to replace current standard assumption of 7 and 8 minute respectively).	COMPLETE	✓
3.	Refinement of the Model's generation of secondary delays on a system-by-system basis.	COMPLETE	✓
4.	Potential refinement of Model delay inputs on a sub-system level (e.g. mainline and branch-lines separately).	COMPLETE	✓
5.	Re-examination of the modelled train movements between Callemondah yard to RG Tanna and return to ensure that the Model accurately captures AN's management of this critical section of track infrastructure.	PART COMPLETE (See **Section 7.1.1**)	−
6.	Review of sectional run times: • Potential "first principles" determination of SRTs (rather than AN SRTs) • Examination of section level delays captured as "Automatic System Variance".	EXAMINED BUT DEFERRED (See **Section 7.1.2**)	✕
7.	Review and monitor minor maintenance activity long-term trends after taking overlapping activities into account.	PART COMPLETE (See **Section 7.1.3**)	−
8.	Use AN track condition assessment data to better anticipate TSRs.	NOT UNDERTAKEN (Remaining opportunity)	✕
9.	Re-examination of even railings assumptions for terminals other than DBCT.	NOT UNDERTAKEN (Remaining opportunity)	✕
10.	Extension of Pring yard cancellation-related occupancy to Jilalan and Callemondah.	UNDER CONSIDERATION (See **Section 7.2.2**)	−

5.1.1 Callemondah Train Movements

ACAR26 included a re-examination of Model input parameters associated with train movements between Callemondah yard and RG Tanna. However, stakeholders continued to highlight ongoing operational impacts of route restrictions within RG Tanna, arising from coal type segregation and producer specific stockpile allocation requirements.

These constraints influence train movements approaching the terminal and are difficult to represent fully within the current definition of DNC, given this complex issue lies at the limits of the "TLO to inloader" scope. The IE will consider this aspect of capacity constraints within the broader Callemondah precinct as part of future ACAR work.

5.1.2 Sectional Run Time Improvement

As described in the SOP26, SRT assumptions were subject to intense examination during ACAR26. This review confirmed that AN's standard SRT assumptions (used particularly for scheduling of trains) are based on a standard run time, adjusted using a system-specific standard acceleration and/or deceleration delay time to represent anticipated section times for different train movement types (pass to pass, pass to stop, start to pass and start to stop).

CNCC uses AN's SRT assumptions to derive the Model inputs for train running times and for additional time necessary when trains are required to stop and restart, as outlined in **Table 4**.

Table 4 - Example model interpretation of AN's SRTs

Movement Type:	Pass to Pass	Pass to Stop	Start to Pass	Start to Stop
AN SRTs (minutes):	13	17	18	22

Model Interpretation:	Base SRT	SRT + stop delay	SRT + start delay	SRT + start delay + stop delay
Base SRT (Pass to Pass) (minutes):	13 **(Model input)**	13	13	13
Start/Stop Delays (minutes):	-	+4 Implied Deceleration **(Model input)**	+5 Implied Acceleration **(Model input)**	+9 Implied Acceleration plus Deceleration

As a result, the Model relies heavily on AN's underlying acceleration and deceleration delays assumptions (see **Table 5** below). Analysis indicates that these implied delays appear unusually large when compared with actual data, limited data from above-rail simulations and publicly-available benchmarks. AN are unable to confirm the origin of these assumptions.

Table 5 – AN's Implied stopping and starting delays per coal system

System	AN predominant implied deceleration (stop delay)	AN predominant implied acceleration (start delay)
Newlands-GAPE	2	4
Goonyella	4	5
Blackwater	3	2
Moura	3	2

While the use of these acceleration and deceleration assumptions is unlikely to materially affect AN's current planning and scheduling environment where scheduled stops are relatively limited in the current demand environment - their influence is more pronounced in the ACAR modelling context due to the following factors:

- The Model does not schedule trains. Instead, it operates like a run-when ready operation following the clockface dispatch of empty trains from yards
- The materially higher demand levels tested within the ACAR framework

Together these factors increase the incidence of trains stopping and starting within the Model, for which the resulting additional time driven by the acceleration/deceleration delay assumptions.

This issue is most impactful in the Goonyella system given the magnitude of AN's offsets in that system. Sensitivity testing suggested that reducing these offsets (from 4 and 5 minutes to 1 and 2 mins respectively) could increase

Goonyella system capacity by approximately 600 train paths. However, this issue could not be fully resolved within the ACAR26 timeframe.

The IE has also identified a limitation in current Model functionality, which does not differentiate acceleration and deceleration behaviour between loaded and empty trains. This may be particularly relevant on steeply graded track sections. The IE will investigate this issue further including the case for Model enhancements.

5.1.3 Minor Maintenance

Major track maintenance and renewals activities are planned well in advance through AN's MRSB process. For minor maintenance activities, whether planned or unplanned, the IE must instead rely on historical maintenance data to infer future maintenance requirements and trends.

During ACAR25 consultation, AN highlighted its continued efforts to optimise maintenance practices by overlapping activities within shared possession windows, thereby reducing capacity impacts. As described in the SOP26, ACAR26 introduced an automated process to ingest and analyse AN maintenance data, enabling identification of overlapping ("shadow") maintenance possessions and incorporate these effects into the maintenance trend analysis.

This improvement opportunity is considered "Part Complete", as ACAR26 adopted a conservative application of shadow maintenance - primarily restricting shadow events to the mainline sections. Further extension of this approach to branch line possessions has been identified as a future enhancement.

Stakeholders also raised queries regarding the IE's criteria for identifying minor maintenance. These include "Normal" and "Urgent" maintenance but exclude "Emergency" maintenance (as identified by AN) on the basis that unforeseen emergency maintenance is included in the model via train delays. They highlighted that with the shortening of the train planning horizon via the rolling plan process, emergency possessions were now being scheduled prior to the train planning process. The IE considers that this issue could result in a need to restrict the exclusion of some emergency possessions from minor maintenance history, and this issue will be reviewed for a future ACAR.

5.2 ACAR26 Opportunities – Newly Identified

5.2.1 Revised TSR Methodology

The IE's current approach to modelling anticipated TSRs relies on AN's historical possessions data, which records speed restrictions as a form of possession i.e. the speed over a particular length within a given section of track is restricted to a reduced speed for a specific duration. The IE uses this data to allocate each track section into a low, medium or high TSR category and calculates an average incidence, duration and severity of speed restrictions for each category. These parameters are then applied pseudo-randomly within the Model.

The IE has identified limitations in this approach. In particular, AN's recording of speed restrictions does not represent a complete account of events, as speed limits may change over the life of the restriction but only the final limit (just prior to removal of the restriction) is captured in AN's records.

An alternative approach under consideration is the use of AN's delay records, which capture scheduled and actual delay minutes associated with speed restrictions and may better reflect the duration and impact of speed restrictions.

5.2.2 Cancellations and Diversions

The IE's current representation of train cancellations in the CQCN is rudimentary. Historical train cancellation data for each system is used to identify the percentage of scheduled trains that are cancelled, with adjustments made to exclude cancellations due to mine-related causes ("no coal", on the basis that these are unlikely to be common in a full-demand environment) and rare but extreme events (for example, severe weather events or the CloudStrike global outage). The resulting cancellation rate is applied in the Model by preventing train dispatch to a proportion of dispatch times.

This approach has several shortcomings:

- Cancellations are treated uniformly regardless of timing. Early cancellations (for example, made within the Intermediate Train Plan more than 48 hours prior to scheduled departure), which allow significant opportunity for rescheduling, are treated the same way as last-minute cancellations, which offer little or no opportunity to re-schedule.
- No allowance is made for diversions, where a last-minute change in mine destination can salvage a scheduled departure that might otherwise be cancelled (noting that many such diversions arise from "no coal" issues, which are largely excluded from the ACAR approach).
- With the exception of "no coal" and extreme event adjustments, all cancellation types are treated equally. In practice, many cancellations arise from network disruptions that prevent a consist from completing its prior journey in time and being ready for its next dispatch. These circumstances are often already represented in the Model through delays, and applying cancellations may therefore duplicate effects.

Sensitivity testing continues to confirm that in the current modelling approach, cancellation rates have a minimal impact on DNC outcomes. Despite this, the IE considers there may be value in reviewing and potentially refining the treatment of cancellations and diversions to better reflect operational practice.

5.2.3 Intermediate Signal Representation

There are a number of locations within the CQCN where signals exist within track sections, typically between crossovers on longer sections of track, which represent locations where trains can safely stop. These intermediate signals allow AN train controllers to advance trains closer to the end of the section without waiting for the train ahead to fully clear the next crossover.

Engagement with AN has identified that some intermediate signals can be critical to determining the capacity of that part of the network. A notable example is the YN20/21 signal at the base of Connor's Range in the Goonyella system, which is located in one of the most constrained parts of the network and influences the dispatch timing of the following trains. The IE therefore considers that explicit representation of such intermediate signals may be material to the accurate determination of DNC in some systems.

The Model does not currently include an explicit representation of intermediate signals, and efforts to replicate their effects use existing Model functionality have been unsuccessful. The Model developer, ILC, has confirmed that changes to Model code and functionality would be required to reflect intermediate signal operation within the CQCN.

5.2.4 Yard Infrastructure

The Model contains a simplified representation of major CQCN yards, incorporating all full-length roads but without assigning specific functional roles to those roads. All roads are assumed to be available for arrivals, departures maintenance and provisioning activities for any above-rail operator, where such activities occur on AN infrastructure.

Stakeholder feedback has questioned whether this approach adequately reflects operational practice, particularly where some yards contain functionally distinct areas, such as, for example, dedicated arrival and departure roads at Callemondah.

The IE is considering whether refinements to the current approach are warranted, with the initial focus on three areas:

- Segregation of Jilalan bypass roads from the main yard
- Representation of the Jilalan AO provisioning facility
- Treatment of dedicated arrival and departure roads within the Callemondah yard

5.2.5 Stowage Strategy

As highlighted in the SOP documentation over several years, the Model does not incorporate an explicit stowage strategy to mitigate congestion during certain periods, particularly during major track maintenance.

While the Model does include some mechanisms to mitigate congestion, it does not currently provide the ability to stow trains outside the major yards (Jilalan, Callemondah and Pring). The IE is therefore considering whether Model enhancements could better mimic AN's stowage practices, particularly where empty trains are stowed at or near load points prior to planned track maintenance events.

5.2.6 Train Payload – Cause Driven Approach

Evidence shows that train payloads vary in a given system. Much of this reflects small deviations from intended wagon weights, while more significant variations can arise from:

- Part loading of a train with empty wagons
- Part loading of individual wagons (poor loading practice)
- Full (volumetric) loading of wagons with low density coal

The ACAR represents these outcomes using payload data under the concept of "light-loading". However, this approach does not explicitly Model the underlying causes of payload variation. Instead train payloads are represented using three Model inputs:

- The frequency and magnitude of variation applied to fully loaded trains (based on a set system-wide limit)
- The percentage of trains that to be light-loaded
- The frequency and magnitude of variation applied to light-loaded trains

While this approach reflects many observed payload outcomes, it applies correlation not causality. As a result, changes in train behaviour may not affect payloads outcomes in the Model in the same way they do in practice. A common example is late-arriving trains, which in reality may depart without all wagons being loaded.

The IE will investigate whether aspects of train behaviour or operating conditions could be used to inform payload outcomes more directly in future ACARs.

6. Newlands and GAPE Systems

6.1 Newlands-GAPE Rail Infrastructure

The Newlands System refers to the rail infrastructure comprising the rail corridor from the terminal at NQXT to Newlands mine (although this TLO is now decommissioned). The Newlands System rail infrastructure is also used by GAPE System traffic (traffic utilising the rail corridor from North Goonyella Junction to Newlands Junction and generally originating in the Goonyella System) and for traffic from Bravus' Carmichael Private Network. A map of the Newlands and GAPE systems is provided in **Figure 8** below.

Figure 8 - Newlands and GAPE systems

The close integration of the GAPE and Newlands systems mean that these systems are effectively modelled as one system for the purposes of capacity assessment. As a result, reporting for these systems is provided primarily on a combined basis. For the purposes of strict compliance with UT5, which requires reporting on each system, separate

Newlands and GAPE capacity information is included in **APPENDIX A: Newlands system information** and **APPENDIX B: GAPE system information**.

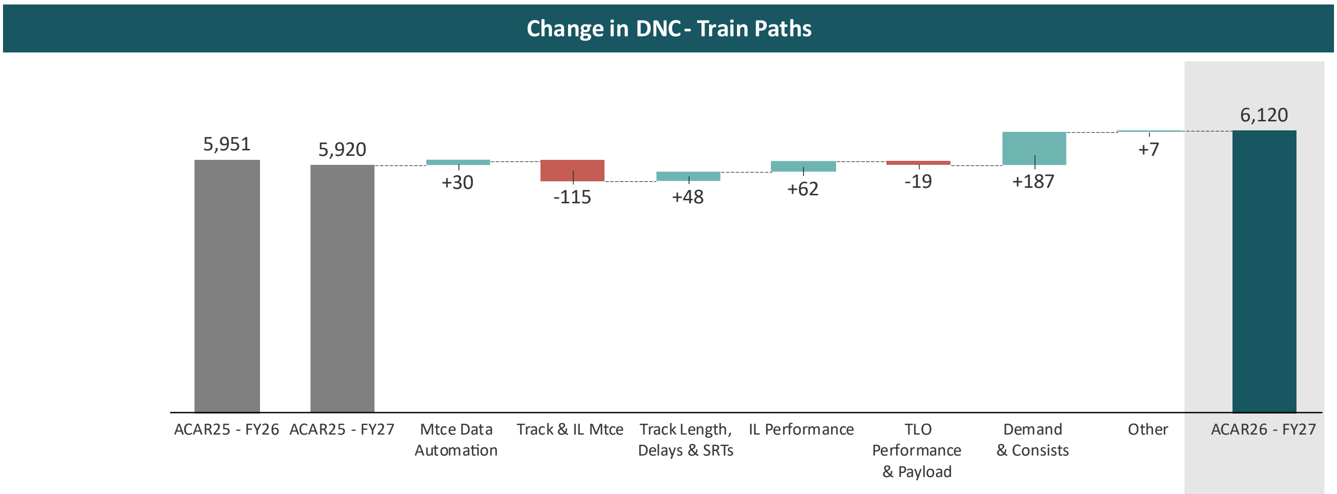
6.2 Deliverable Network Capacity

6.2.1 Changes Since ACAR25

The combined Newlands-GAPE System DNC has seen an increase in FY27 capacity of 200 trains since ACAR25. In addition, a slight increase (~0.3%) in median payload has seen capacity in tonnage terms increase further to 39.8Mt.

Figure 9 provides an indicative breakdown of the changes from ACAR25 to ACAR26 for FY27, the most significant of which are discussed in more detail in the remainder of this section.

Figure 9 – Indicative Newlands and GAPE changes from ACAR25 to ACAR26 – FY27

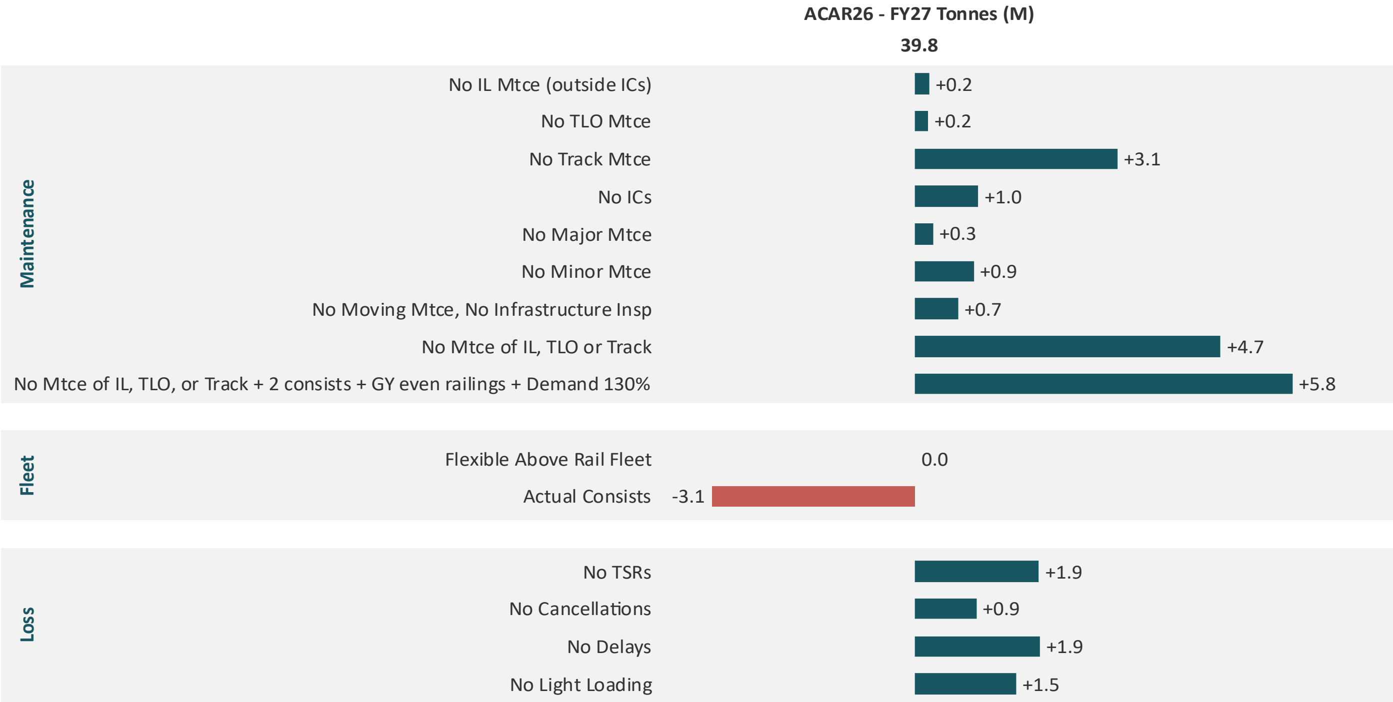


Tonnes (M)	**38.7**	**38.5**	0.2	-0.7	0.3	0.4	-0.1	1.2	0.0	**39.8**

6.2.2 Key Input Sensitivities

An assessment was also undertaken of the impact of changes to key operating parameters on the Newlands-GAPE System DNC. These impacts, expressed in tonnes are shown in **Figure 10** below. Sensitivities cases are assessed across the whole CQCN and therefore may include second-order impacts arising from other systems.

Figure 10 - Newlands and GAPE sensitivity impact to DNC for key operating parameters – FY27



6.3 Modelling Changes

6.3.1 Maintenance Data Automation

As outlined in **Section 5.1.1**, for ACAR26 CNCC changed how AN's maintenance data is processed by automating the treatment of both forward-looking MRSB and historical minor maintenance, including the treatment of concurrent maintenance activities.

To assess the impact of this change, CNCC repeated ACAR25 using the new process. This had little impact in Newlands-GAPE, with an increase in capacity of 30 train paths (~0.2Mt).

6.3.2 Inloader and Track Maintenance

Changes to maintenance assumptions for both inloaders and track (including both MRSB and minor maintenance) resulted in a minor reduction to capacity of 115 train paths (0.7Mt).

The most significant changes within the Newlands-GAPE system were an increase in the duration of major inloader shuts and shorter shuts not aligned with rail closures. Total inloader maintenance hours occurring outside track closures [redacted]

The remaining reduction primarily reflects the FY27 MRSB track possession profile. While changes to Newlands-GAPE MRSB activities were modest compared to FY26 and an apparent reduction in anticipated minor maintenance activities, the IE considers the capacity reduction to be a secondary effect of the corresponding increase in Goonyella system capacity arising from the FY27 MRSB program (see **Section 9.3.3**).

6.3.3 Track Length, Delays and SRTs

On a whole-of-system basis, delays in Newlands-GAPE improved from ACAR25 to ACAR26, with a longer time to failure (TTF) and shorter time to repair (TTR). The change from system-wide treatment of delays to a separate mainline and branch line approach (see **Section 5.1.3)** also improved capacity for the Newlands-GAPE system in ACAR26 as delays on the trunk (mainline and Branch 1B McNaughton to Newlands Junction), which is currently the system constraint, were better than the system. The net impact was an increase in capacity of approximately 50 train paths (~0.3Mt).

Minor changes to SRTs had minimal impact on capacity.

6.3.4 Inloader Performance

The review of inloader unloading rates (see **Section 5.1.4)** resulted in a lower minimum unload rate cutoff and higher upper cutoff rate at [redacted]

In contrast, a review of above-rail operator data identified an increase in combined pre and post unload delays, resulting in a minor reduction in capacity.

Overall, changes to inloader performance resulted in a net increase in Newlands-GAPE capacity of approximately 60 train paths (0.4Mt).

6.3.5 TLO Performance

The review of TLO performance identified mixed changes in individual TLO efficiency, with one improving and another declining. However, the dominant impact was an increase in observed pre and post-load delays at Newlands-GAPE TLOs.

The combined effect was a reduction in system capacity of approximately 20 train paths (~0.1Mt).

6.4 Demand Presentation and Consists

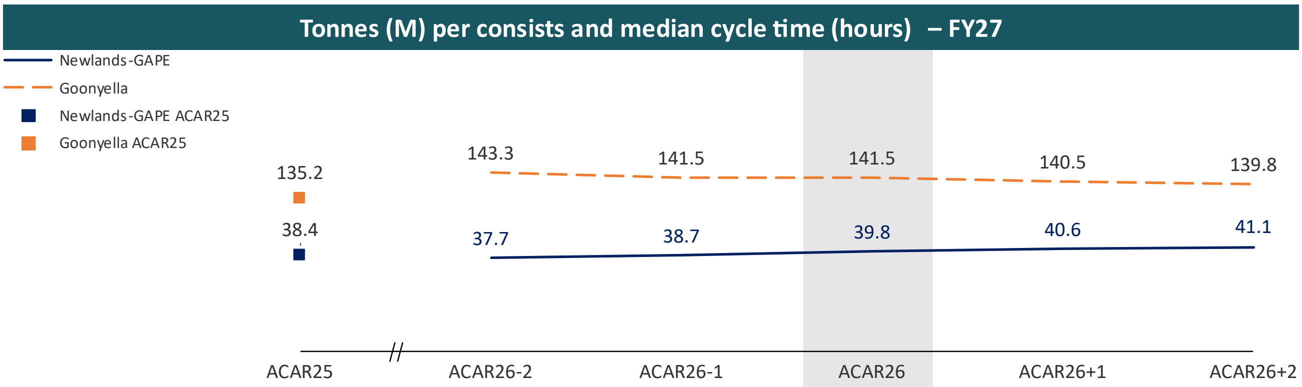
FY27 demand in the Newlands-GAPE system is largely unchanged from previous assessments, both in overall magnitude and in its distribution across mines.

As in prior ACARs, the IE reviewed the number of consists to ensure that above rail capacity does not present a material constraint on DNC. Based on this analysis (refer **Figure 11**), the IE increased the number of consists modelled in ACAR26 from 18 to 19, partially reversing the reduction made in ACAR25.

Consistent with findings in ACAR25, allowing both Aurizon Operations and Pacific National to service all Newlands-GAPE mines (excluding the Carmichael mine) had little impact on DNC. However, the increase in consist numbers improved the evenness of origin-destination achievement rates.

The additional consist increased Newlands-GAPE system capacity by approximately 190 trains paths (~1.2Mt). This increase is broadly consistent with the overall change in Newlands-GAPE system capacity observed between ACAR25 to ACAR26.

Figure 11 - Newlands-GAPE consist sensitivity



	ACAR25	ACAR26-2	ACAR26-1	ACAR26	ACAR26+1	ACAR26+2
Newlands-GAPE Consists:	18	17	18	19	20	21
Newlands Cycle time *:	12.3	11.6	11.9	12.5	12.6	12.9
GAPE Cycle time:	25.0	25.2	25.8	26.0	26.9	27.4

* Cycle time excludes the Carmichael –NQXT mine, as a significant portion of this movement occurs on private infrastructure.

6.5 Cycle Time

To better represent cycle times within the Newlands system, cycle times are now presented excluding Carmichael rail traffic. This change reflects that a significant portion of Carmichael train movements occur on the Carmichael Railway Network, outside the Newlands system.

Cycle times in the Newlands system have not changed significantly from ACAR25 (refer **Table 6**). GAPE cycle times have increased by 1.0 hours. The IE considers that this is partly attributable to the increase in Newlands-GAPE consists and that GAPE traffic is likely to also be affected by the increase in Goonyella consists and higher volume of traffic in the Goonyella system in ACAR26.

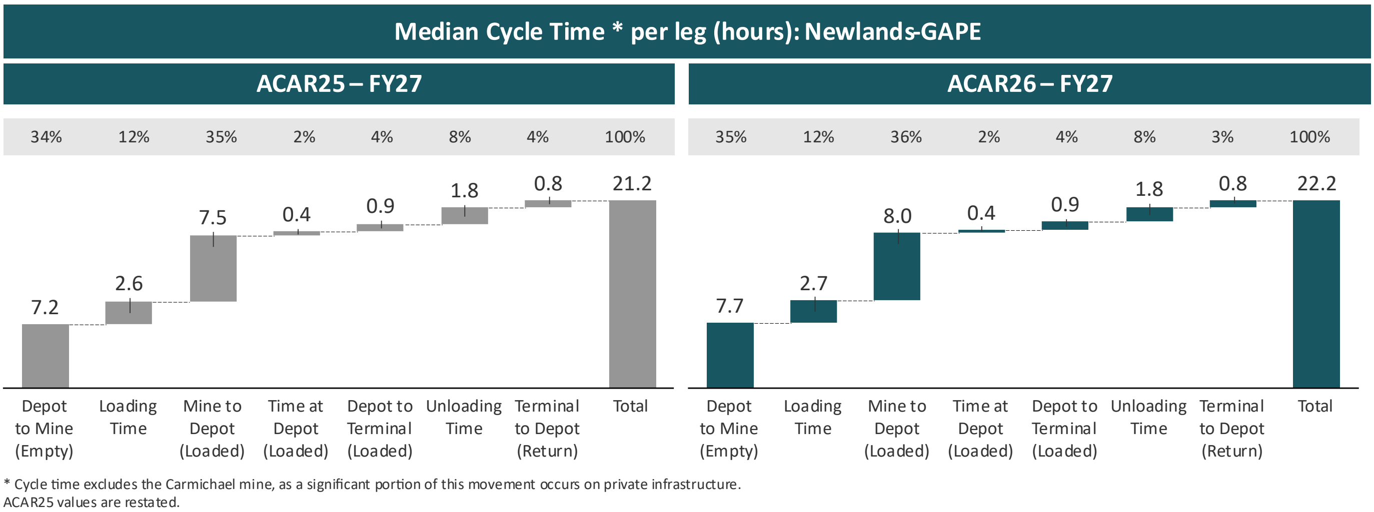
Table 6 – Newlands-GAPE cycle time

Median Cycle Time (Hours)	FY26 (ACAR25*)	FY27 (ACAR25*)	FY27 (ACAR26)	FY27 Change
Newlands *	12.4	12.3	12.5	1%
GAPE	24.9	25.0	26.0	4%

* Cycle time excludes the Carmichael mine, as a significant portion of this movement occurs on private infrastructure.
ACAR25 values are restated.

As shown in **Figure 12** the increase in cycle time is driven predominantly by increases in the depot to mine (empty) and mine to depot (loaded) legs.

Figure 12 – Newlands-GAPE cycle time per leg



6.6 DNC and Available Capacity/Existing Capacity Deficit (ECD)

The FY27 DNC of 6,120 train paths represents an increase of 200 train paths relative to ACAR25 FY27 DNC. With committed capacity of 7,468 train paths, this leaves the Newlands-GAPE System with an **existing capacity deficit** of 1,348 train paths in FY27, equivalent to ~8.7Mt at the median system payload.

Model results for later years in the ACAR period show a significant reduction in the ECD from FY29 onwards, with the ECD reducing to approximately 280 train paths per year (~1.9Mt).

Late in the ACAR26 process the IE identified an anomaly in the contract information provided by AN regarding the eligibility of certain Newlands-GAPE access agreements for renewal. Under UT5, the IE must assume that any contracted capacity with renewal rights will be renewed. This anomaly resulted in an understatement of Newlands-GAPE committed capacity from FY28 onwards.

Since ACAR23, the IE's assessment of committed capacity had incorrectly shown a reduction of approximately 1.6Mt between FY27 and FY28. After correction of the contract information, there is no longer a material reduction in committed capacity between FY27 and FY28.

As this issue was identified late in the ACAR26 process, a manual correction has been applied to committed capacity, while DNC has not been re-assessed. The IE does not consider that DNC outcomes would change materially for the affected years, as sufficient demand was modelled to fully test the network capacity.

Capacity outcomes for all years of the ACAR period are outlined in **Figure 13** (train paths) and **Figure 14** (tonnes).

Figure 13 – Newlands-GAPE summary for FY27 to FY31 (train paths)

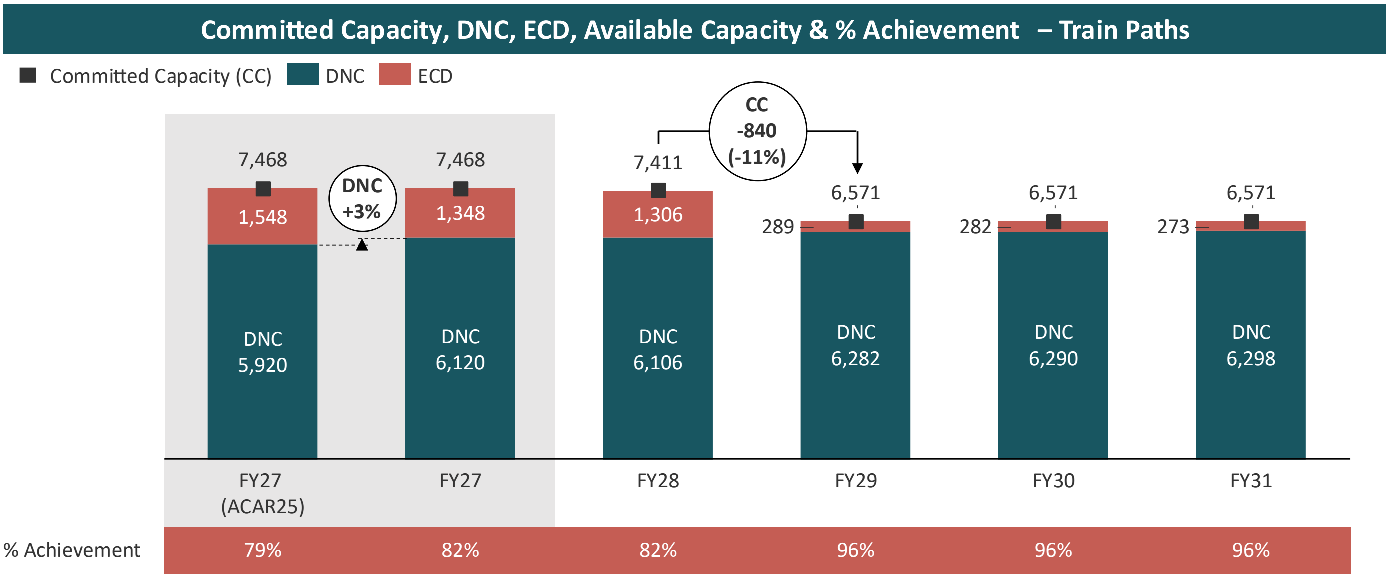
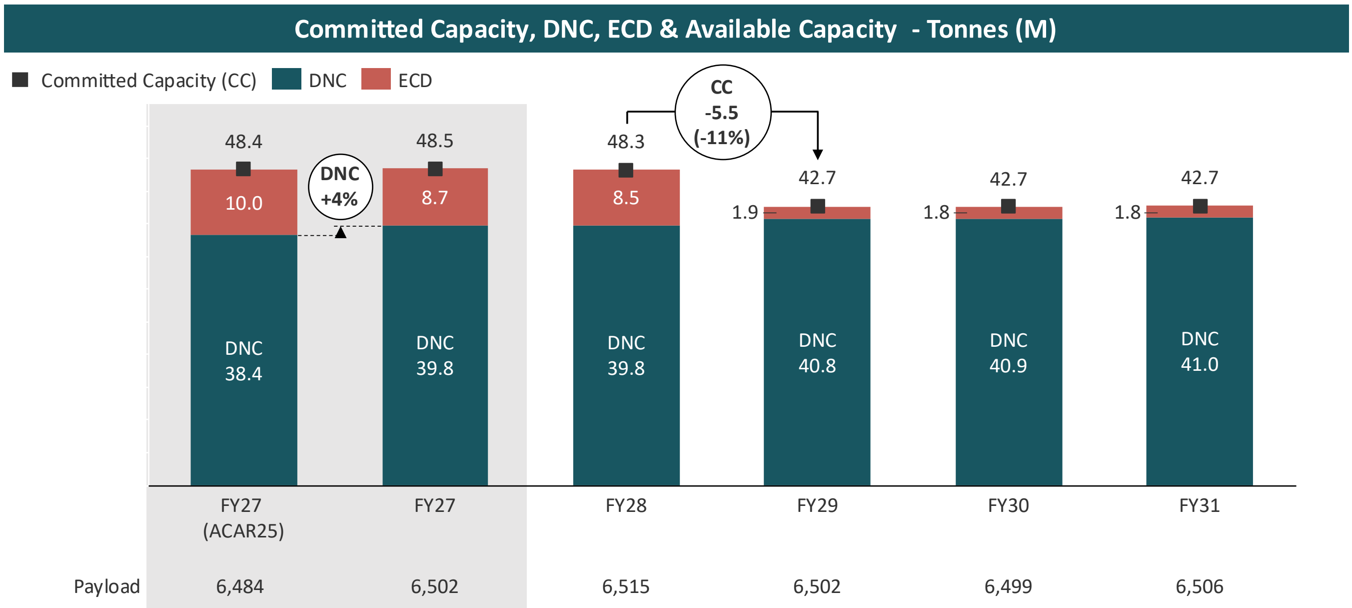


Figure 14 – Newlands- GAPE summary for FY27 to FY31 (tonnes)



The DNC for each of the Newlands and GAPE systems over the five-year assessment period are shown in **APPENDIX A: Newlands system information** and **APPENDIX B: GAPE system information.**

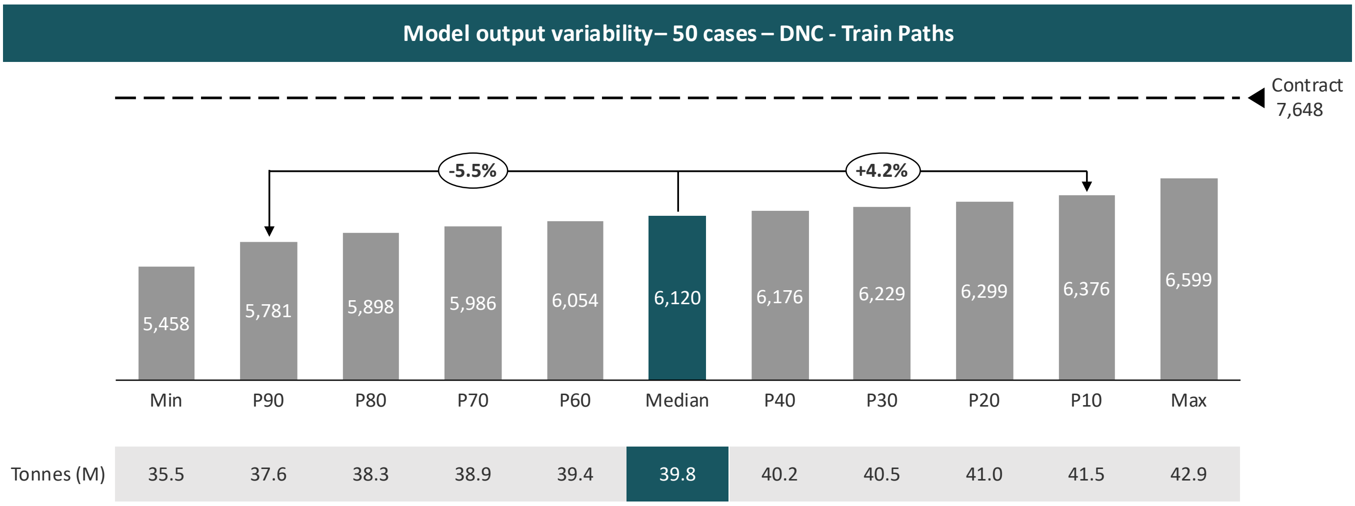
6.7 Model Variability

The ACAR26 Newlands-GAPE System DNC for FY27 of 6,120 train paths represents the median of 50 Model simulation runs.

As shown in **Figure 15,** the P90 to P10 range of FY27 DNC outcomes spans from 5,781 to 6,376 train paths, representing a variability range of ~10%. This indicates slightly higher modelled variability compared with ACAR25, which exhibited an 8% range**.**

Notably, none of the simulated runs achieved the level of committed capacity for FY27, indicating that the ECD persists across a wide range of plausible operating conditions.

Figure 15 - Newlands-GAPE FY27 DNC – model output variability



6.8 Monthly Capacity Variability

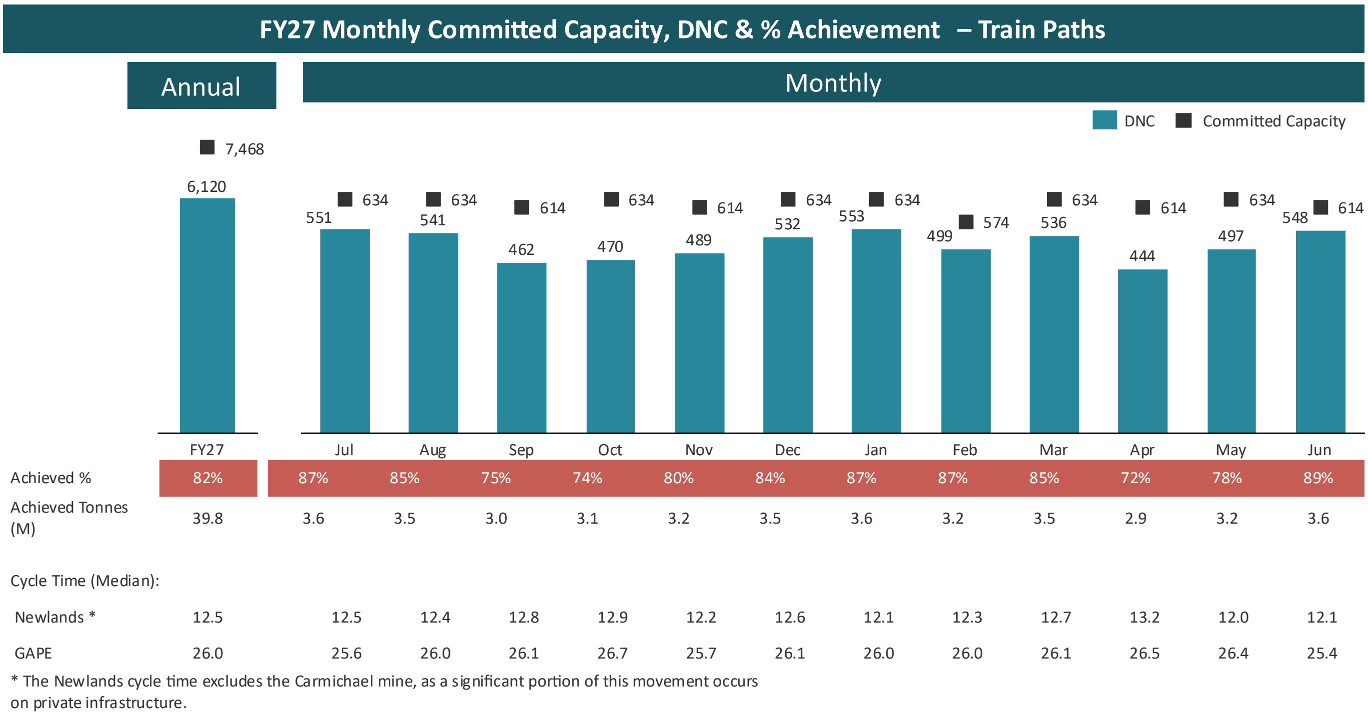
Although DNC is typically discussed in annual terms, the IE is required to determine system capacity on a monthly basis.

For FY27, monthly capacity in the Newlands-GAPE System (shown in **Figure 16**) is moderately stable, ranging from ~444 to 553 train paths per month. This range is not materially different from FY26 results reported in ACAR25 (440 to 534 trains).

This indicates that the increase in annual DNC of 200 train paths has been delivered through a more even monthly capacity profile than FY26.

Monthly capacity results for the full five-year period of the ACAR period are presented in **APPENDIX A: Newlands System Information** and **APPENDIX B: GAPE System Information**.

Figure 16 – Newlands-GAPE FY27 monthly capacity



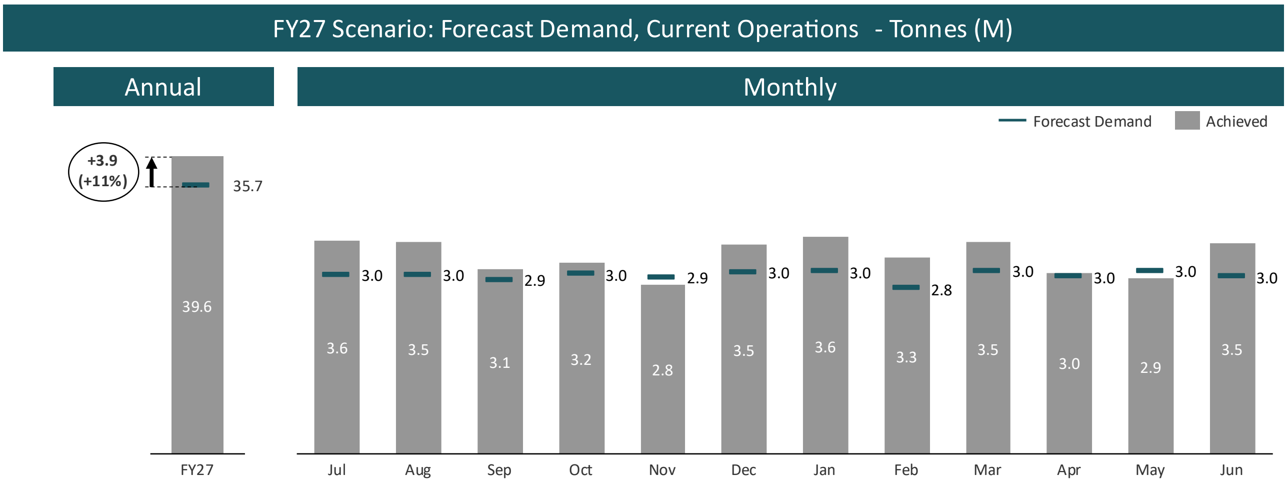
6.9 Forecast Demand, Current Operations Scenario

As introduced in ACAR25, the IE has examined a scenario for the Newlands-GAPE System that more closely reflects current levels of demand and current operating conditions, including consist numbers and observed inloader shutdowns and cancellations.

The results of this scenario, shown in **Figure 17**, are similar to ACAR25. Under current operating conditions, system capacity is likely to be sufficient to meet forecast demand in all months except November, which is affected by planned network closures.

The IE notes that the second closure period straddles April and May, with its impact spread across both months. This reduces the apparent magnitude of the closure impact in any single month.

Figure 17 – Newlands-GAPE system FY27 scenario



Cycle Time (hrs) *	FY27	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Newlands	12.4	12.3	12.6	12.7	13.0	11.7	12.4	12.3	12.5	12.7	13.0	11.5	12.1
GAPE	23.8	23.5	24.0	23.9	25.0	22.7	23.8	24.0	23.9	24.1	24.4	23.7	23.4

* Cycle time excludes the Carmichael mine, as a significant portion of this movement occurs on private infrastructure.

6.10 Branch Line Capacity and System Constraints

To test the capacity limits of different sections of the Newlands-GAPE System, the IE undertook a series of Model sensitivity analyses (refer to **Table 7**). These sensitivities involve increasing demand on individual sections of the system to test and identify their practical operating limits.

Consistent with ACAR25, the results indicate that the primary system constraint remains within branch line 1B, based on longest headway - currently Almoola to Birralee (noting that this section straddles the mainline and branch 1B). As such the maximum achievable capacity on this section is aligned with the assessed system DNC. Addressing this constraint is the objective of the proposed re-activation of the Collinsville passing loop, which is currently under consideration.

The analysis continues to indicate that branch line 2A (the "Northern Missing Link"), which serves GAPE traffic, has additional latent capacity and is sufficient to meet all current GAPE committed capacity. Sensitivity testing suggests that, in the absence of other Newlands system demand, this section could theoretically accommodate up to approximately 40Mt per year. However, in practice, using this level of capacity would adversely impact Goonyella throughput, constraining the extent to which this latent capacity can be realised.

Table 7 - Branch line sensitivity per month

Branch Line Capacity in excess of Committed Capacity - FY27													
Line	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Total**
1B - Newlands Junction to McNaughton Junction	-85	-95	-150	-165	-125	-100	-80	-75	-100	-170	-135	-65	**-1,345**
2A - North Goonyella Junction to Newlands Junction	+75	+80	-25	-45	+65	+40	+95	+75	+80	0	-30	+105	**+515**

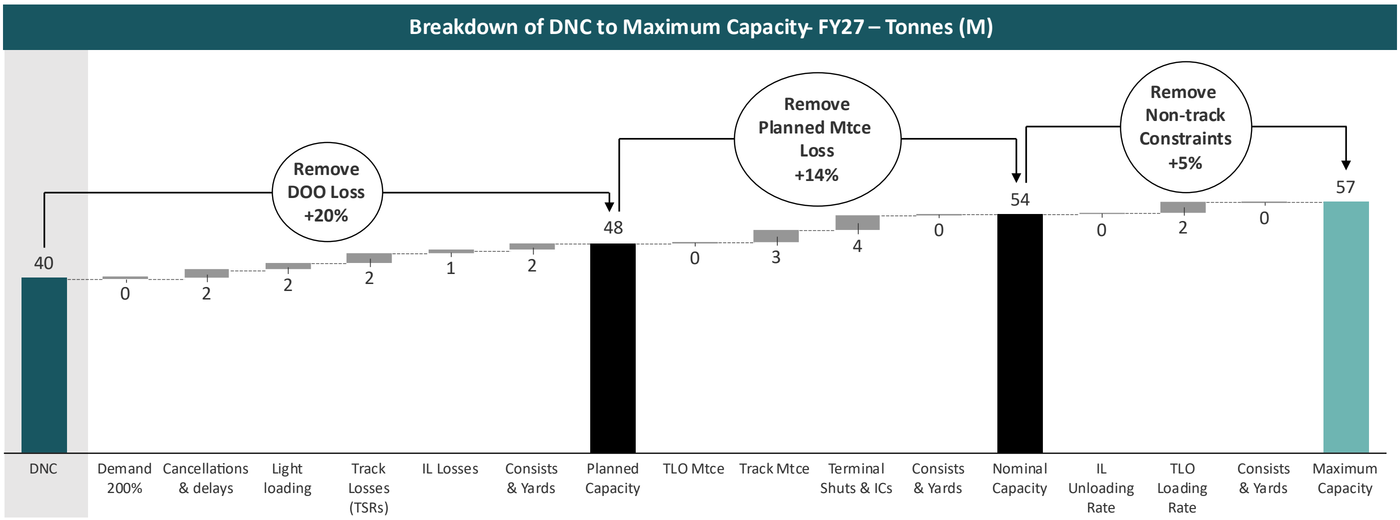
6.11 Reconciliation to Maximum Capacity

As introduced in ACAR25, the IE has prepared a comparison between DNC and a theoretical, unconstrained capacity for the Newlands-GAPE System. **Figure 18** illustrates how the successive removal of operational and maintenance constraints affects system capacity.

The results were very similar to ACAR25. Removing operating losses increases capacity to a level close to the current committed capacity of 48.5Mt, while removing planned maintenance constraints increases capacity to above 50Mt.

Further unconstraining the terminal inloaders and TLOs, by increasing loading and unloading rates to 200% of ACAR assumptions, increases theoretical capacity to 57Mt. The IE notes that terminal unloading rates do not appear to be a binding constraint on overall system capacity.

Figure 18 – Newlands-GAPE System Maximum Capacity



6.12 Capacity Risks and Opportunities

ACAR26 identifies the Newlands-GAPE system as the only system within the CQCN with an ECD. Under UT5 ACAR requirements, particularly the obligation to assume that any contracted capacity with renewal rights will be renewed, this ECD is projected to persist across the entire next five-year assessment period.

At the time of writing, the IE is assessing the proposed Collinsville passing loop signal relocation transitional arrangement. This arrangement would re-enable use of the loop by all above-rail operators, reducing the longest operating headway in the Newlands system and improving system capacity. Modelling suggests that this project has the potential to remove the current ECD.

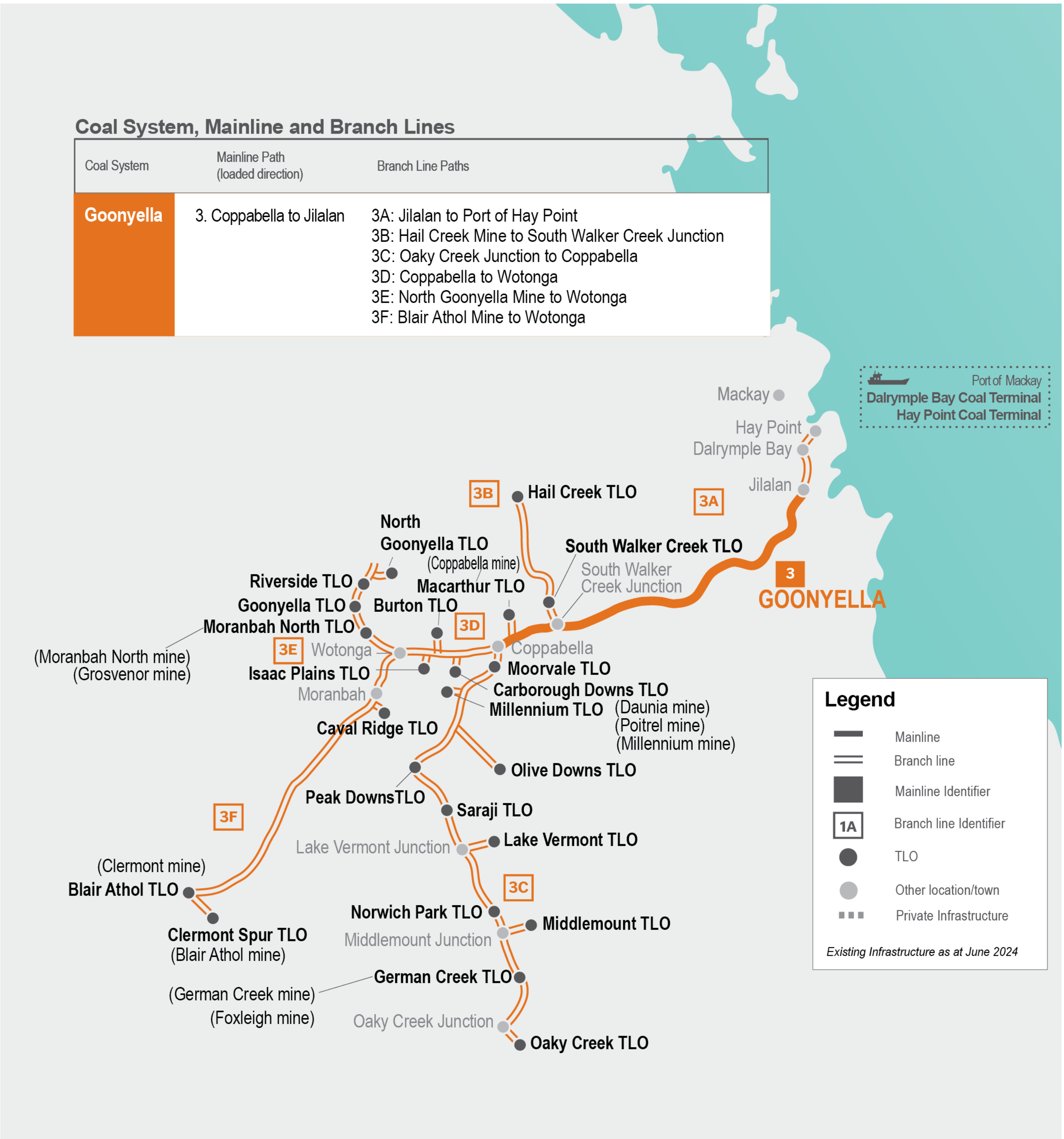
Realistically, the outlook for future Newlands-GAPE capacity depends on the extent of continuation of GAPE demand in FY28 and beyond, which is expected to become clearer between now and the next ACAR report in early 2027.

7. Goonyella System

7.1 Goonyella Rail Infrastructure

Figure 19 illustrates the mainline and branch lines that comprise the Goonyella System. This incorporates the rail infrastructure connecting the Port of Hay Point, namely the Hay Point Coal Terminal and Dalrymple Bay Coal Terminal, to the Hail Creek, Clermont and North Goonyella mines, as well as the junction with the Blackwater System at Oaky Creek and all spur lines connecting coal mine loading facilities to these corridors.

Figure 19 - Goonyella system



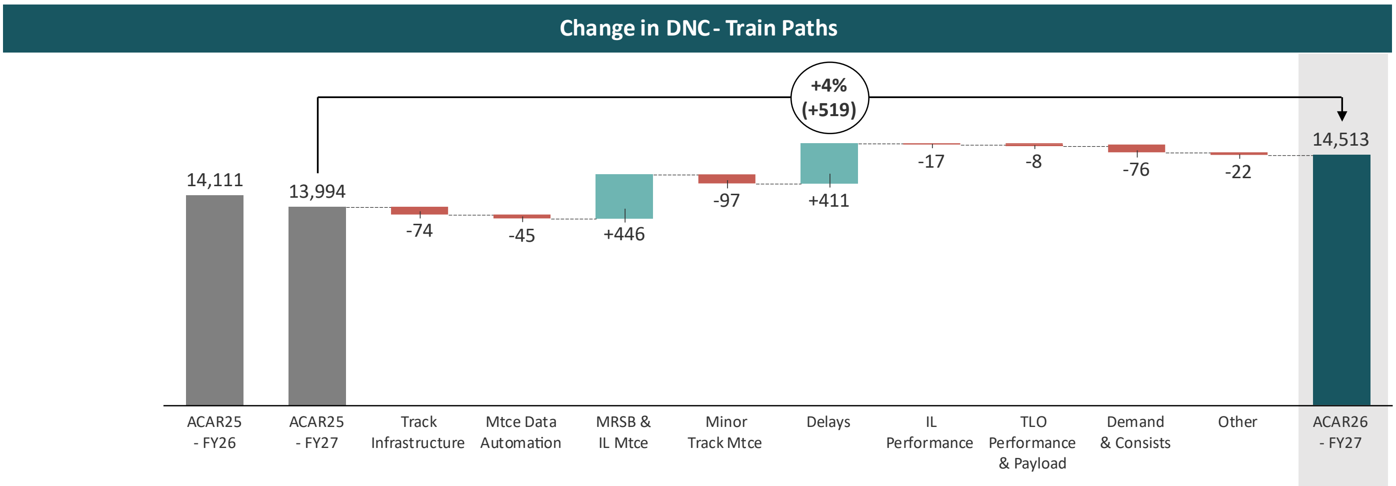
7.2 Deliverable Network Capacity

7.2.1 Changes since ACAR25

In ACAR26, the FY27 Goonyella system DNC shows a material increase of ~520 train paths (+4%), with capacity now assessed at 14,513 train paths. When combined with a slight increase in median payload, this equates to a 4% increase in capacity in tonnage terms to 141.5Mt.

Figure 20 provides an overview of the changes between ACAR25 and ACAR26 for FY27. These changes reflect a combination of capacity increases and reductions, with the most significant drivers discussed in the sections below.

Figure 20 – Indicative Goonyella changes from ACAR25 to ACAR26 – FY27

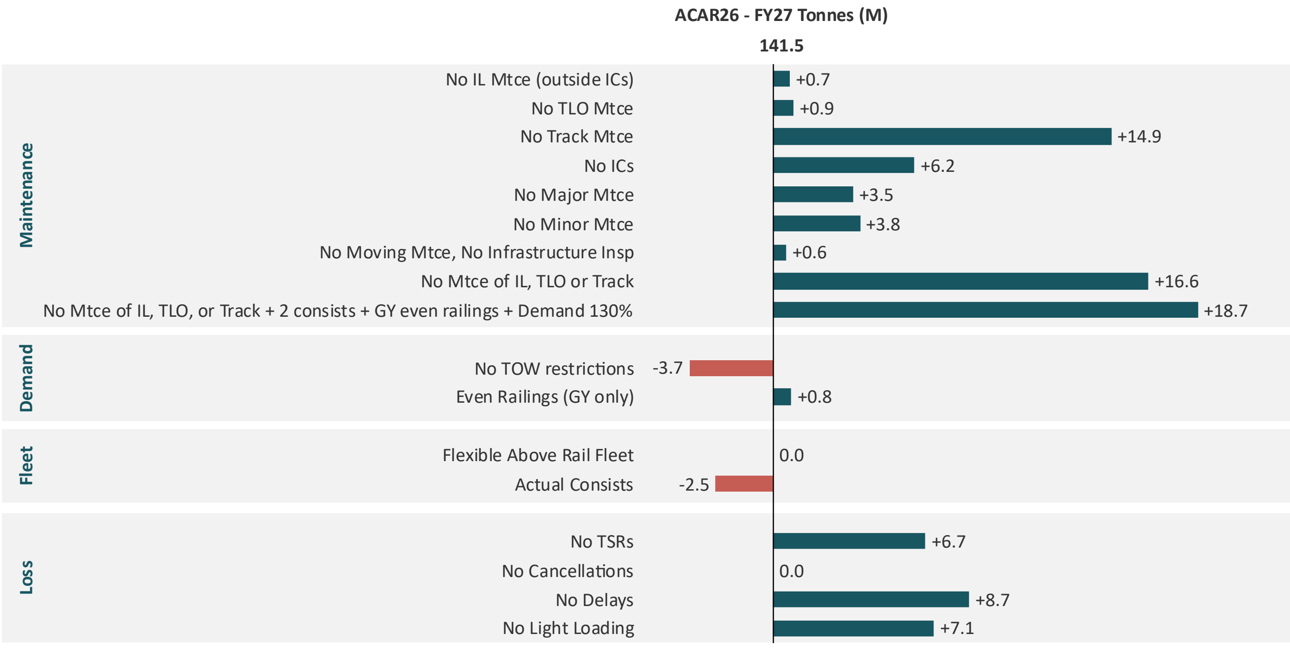


Tonnes (M)	**137.5**	**136.4**	-0.7	-0.4	4.3	-0.9	4.0	-0.2	-0.1	-0.7	-0.2	**141.5**

7.2.2 Key Input Sensitivities

An assessment has also been undertaken of the impact of changes to key operating parameters on the Goonyella System DNC. These impacts, expressed in tonnes are shown in **Figure 21** below. Sensitivities cases are assessed across the whole CQCN and therefore may include second-order impacts arising from other systems.

Figure 21 - Goonyella sensitivity impact to DNC of key operating parameters – FY27



7.3 Modelling Changes

As displayed in **Figure 20**, the two most significant contributors to the increase in Goonyella system capacity in ACAR26 are changes to track and terminal maintenance and system delays. These factors, along with a range of smaller changes, are described below.

7.3.1 Track infrastructure

During preparation of ACAR26, CNCC undertook a review of track section lengths used in the Model, which form the basis for delay generation. This review identified an error in the representation of the Yukan location.

Since the ICAR process, the Model has included three roads at Yukan: an up road, a down road and a holding road. Closer examination revealed that the holding road is not of a sufficient length to accommodate a Goonyella length train (2.1 kilometres).

As a result, the Yukan holding road has been removed from the Model. This change reduced Goonyella system capacity by approximately 70 train paths (~0.7Mt).

7.3.2 Maintenance Data Automation

As outlined in **Section 5.1.1**, CNCC implemented changes in ACAR26 to how AN's maintenance data is processed. Within the Goonyella system, these changes had little overall effect on capacity.

Applying the automated process to track maintenance inputs from ACAR25 FY26 resulted in a reduction in Goonyella system capacity of 45 train paths (~0.4Mt). This suggests CNCC's previous manual approach was slightly conservative in its assessment of the maintenance impacts overall.

When considering the subset of this process relating to specifically to MRSB maintenance, including integrated closures and major single-line maintenance, the reassessment resulted in a small increase in capacity. This suggests that the previous manual treatment of MRSB activities was slightly conservative and had marginally overstated their capacity impact.

By contrast, the re-assessment of minor maintenance activities resulted in a small decrease in capacity, indicating that the previous approach had under-estimated the impact of minor maintenance. This reassessment also removed double-counting where minor maintenance activities occurred concurrently with other maintenance activities, however, this adjustment had little effect on overall Goonyella system capacity.

Overall, the capacity impacts arising from changes to major and minor maintenance partially offset one another, and neither resulted in material change to Goonyella system capacity.

7.3.3 Terminal and Track Maintenance

Taken in aggregate, changes to terminal and track maintenance between FY26 and FY27 increased Goonyella system capacity by approximately 350 train paths (3.4Mt).

This net increase reflects a combination of reduced terminal maintenance, changes in the profile of MRSB track maintenance, and an increase in minor maintenance activity. Each of these components is described below.

Terminal Maintenance

Goonyella system gross inloader maintenance hours (i.e. without consideration of track closures) included in ACAR26 reduced by 20% compared with ACAR25. This reduction would result in a substantial increase in capacity when considered independently of track maintenance.

Track Maintenance MRSB

MRSB maintenance inputs include integrated closures and major maintenance. Modelling of the FY27 MRSB regime indicates that the capacity impact of MRSB maintenance has decreased compared with FY26, providing a substantial uplift in Goonyella system capacity under ACAR26.

To understand this impact better, the IE examined the various elements of MRSB maintenance.

Integrated Closures

Integrated closures primarily comprise full system shuts and branch line shuts identified by AN. In addition, the IE reclassifies other maintenance possessions as integrated closures where they:

a) close all tracks in a particular section of the network, and
b) have a duration of 24 hours or more.

This reclassification is required because the Model suspends train dispatch where all tracks on the system mainline are expected to be closed for 24 hours or more. The IE notes that no maintenance reclassification events occurred in the Goonyella system in FY27.

AN's MRSB shows that full system shuts reduce from 392 hours in FY26 to 300 hours in FY27. Branch line shuts outside system shuts increase from a single 60 hour shut in FY26 to two 60 hour events in FY27; however, the second FY27 shut affects only load points south of Lake Vermont and is not expected to significantly impact system capacity.

On balance, the change in integrated closures is estimated to improve Goonyella system capacity by approximately 150 train paths, although this impact has not been specifically quantified within the Model.

Major Maintenance

Major maintenance possessions within the MRSB (excluding integrated closures) fall into three main categories:

- Dual line maintenance, closing both tracks of a duplicated track section
- Single line maintenance, closing one track on either a duplicated or single line section

- Ballast cleaning machine (BCM) activities which typically occupy a single track over one to three sections for a specific duration (generally 24 hours or more). During this period, a series of short possessions are also taken on the adjacent track, generally around 30 minutes each 3-4 hours; despite this AN categorises BCM events as single line maintenance.

The FY27 MRSB includes more planned BCM events occurring outside system shuts than FY26 (12 events totalling 443 hours in FY27, compared with 9 events totalling 368 hours in FY26). However, assessment of BCM event severity - considering both duration and section run time indicates that the average FY27 BCM event is less impactful than those in FY26. As a result, the overall capacity impact of BCM changes is expected to be neutral.

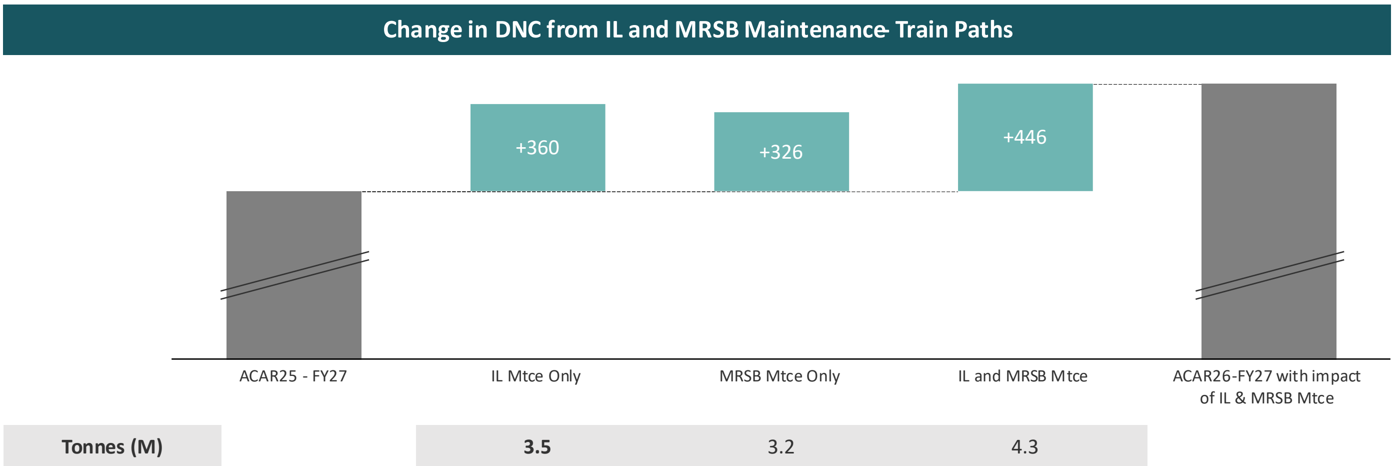
By contrast, dual line maintenance reduces sharply in FY27 particularly on the main line sections from Jilalan yard and the DBCT and Hay Point terminals. Given the significant capacity impact of dual line maintenance, the IE estimates this reduction improves capacity by approximately 100 train paths.

Single line maintenance hours showed a notable increase, approximately 50% higher compared to FY26. While this increase has not been modelled in isolation, but overall MRSB track maintenance outcome improved capacity by approximately 320 train paths (~3.2Mt). This suggests that the increase in single line maintenance has a neutral to slightly positive effect when considered alongside reductions in more disruptive possession types.

Alignment of Terminal and Track Maintenance

The combined impact of changes to inloader and MRSB maintenance between FY26 to FY27 is moderated by the degree of alignment between terminal and track maintenance activities (as shown in **Figure 22**).Nevertheless, the net effect is an increase in Goonyella system capacity of approximately 440 train paths (~4.3Mt).

Figure 22 - Goonyella changes from ACAR25 to ACAR26 for IL and MRSB maintenance – FY27



Track Maintenance – Minor Maintenance

Analysis of minor maintenance hours shows a continuing trend toward increasing minor maintenance hours observed over the previous three years. In isolation, this increase would reduce capacity by ~140 train paths.

However, applying the new automated process to remove historical shadow maintenance, where minor maintenance overlaps with other maintenance activities, reduces this by ~40 train paths. The resulting net reduction in capacity due to minor maintenance is therefore ~90 train paths (~0.9Mt) relative to FY26.

7.3.4 Delays

The Goonyella system experienced a significant improvement in capacity in ACAR26 from both updated delay data for FY25 and a refinement to the modelling approach for delays. As described in **Section 5.1.3**, delays are now treated separately for mainline and branch lines rather than on a system-wide basis.

Across the Goonyella system, delay performance improved in FY25 compared to CY24. While the median incidence of delays improved slightly, the median duration of delays fell by approximately 20% from 43 minutes to 35 minutes.

Disaggregation of the delay data identified that the Goonyella mainline, identified as the Goonyella system constraint, performs better with respect to delays than the system average. Accordingly, the revised delay methodology, which applies delay performance by corridor rather than system-wide, further improved assessed capacity outcomes.

The combined effect of the updated delay inputs and the revised delay treatment resulted in a Goonyella system capacity increase of approximately 400 train paths (~4.0Mt).

7.3.5 Terminal Unloading Performance

As outlined in **Section 5.1.4**, a review of terminal inloader unloading rates was undertaken in ACAR26. This review resulted in minor reductions in unloading rates, primarily due to the relaxation of upper and lower cutoff thresholds used to identify valid train performance data.

While specific adjustments were made to address wet weather effects and certain mine-specific performance issues, a minor reduction in unloading rates was still observed across the system.

The effect of lowering unloading rates was partially mitigated by updates to pre and post-load delay assumptions, informed by a review of terminal and above-rail operator data. Pre and post-load delays [redacted] per train, while [redacted] depending on the inloader.

The net effect of these changes was a reduction in Goonyella system capacity of 17 train paths (~0.2Mt).

7.3.6 TLO Performance and Payload

In accordance with standard ACAR practice, TLO loading rates and payload assumptions were reviewed for ACAR26. This review identified no material changes, and consequently there was little observable impact on capacity in the Goonyella system.

7.4 Demand Presentation and Consists

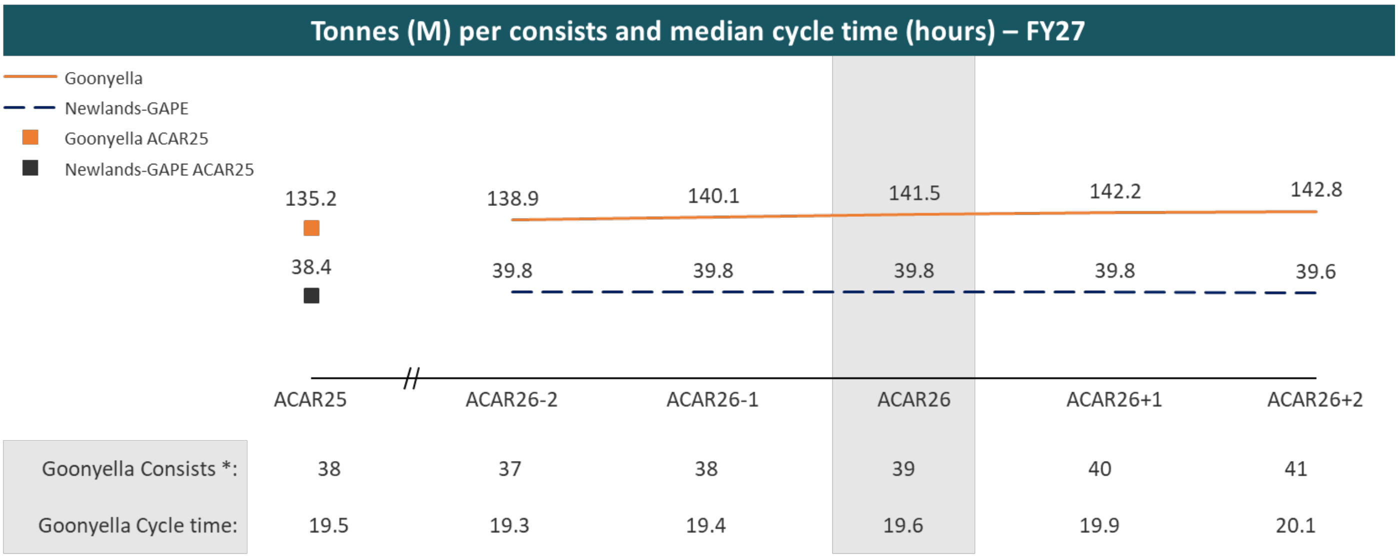
There are no significant changes in the level or distribution of committed capacity for the Goonyella system in ACAR26 compared with ACAR25. Despite this, the IE undertook a review of optimised consist numbers to confirm that above rail capacity does not constrain DNC.

This review identified 39 consists as providing an appropriate balance between throughput, cycle time and consist utilisation. This represents an increase of one consist over ACAR25. The IE notes that the ACAR25 incorrectly reported 40 consists as the optimised level, whereas the Model was optimised at 38 consists.

The additional consist in ACAR26 reflects the system's ability to make use of additional above-rail assets, arising from the improvements in inloader and track maintenance and improved delay performance discussed in earlier sections.

As shown in **Figure 23**, the additional consist delivers an increase in throughput of approximately 1.4Mt, at the cost of an increase in average cycle time of 10-15 minutes.

Figure 23 - Goonyella consist sensitivity



* The ACAR25 consist value has been corrected to rectify a misstatement in the ACAR26 report.

Above-rail operators are allocated to mines based on FY25 railings, supplemented by information provided operators and producers regarding expected future railing patterns.

Allocation of optimised consist numbers to individual operators and fleet types (diesel vs electric, where applicable) was undertaken to balance overall system throughput with origin-destination achievement. In ACAR26, adjustments were made to diesel consist numbers and to the allocation of diesel consists to additional load points to achieve sufficient origin-destination performance while maintaining reasonable asset utilisation. These adjustments did not result in a material reduction in overall Goonyella system.

A sensitivity test reflecting the actual number of consists currently operating in the system (35), indicates that Goonyella system capacity would reduce by approximately 2.5Mt relative to the optimised case.

7.5 Cycle Time

Compared with FY27 in ACAR25 (38 consists), median cycle time in ACAR26 increased very slightly to 19.6 hours, as shown in **Table 8**.

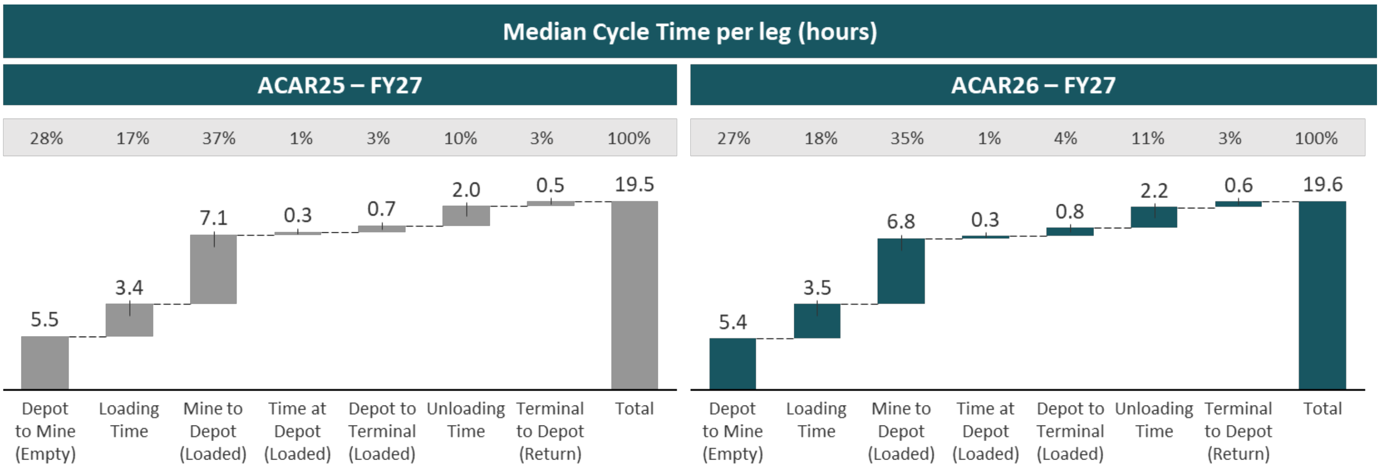
For contextual reference, the actual median cycle time in the Goonyella system in FY25 was 18.1 hours, and 18.3 hours when considering only trains originating and terminating at Jilalan. ACAR modelling suggests that in a full-demand environment, cycle times would increase by 1 to 1.5 hours.

Table 8 - Goonyella cycle time

Median Cycle Time (Hours)	FY26 (ACAR25*)	FY27 (ACAR25*)	FY27 (ACAR26)	FY27 Change
Goonyella	19.3	19.5	19.6	0%

As shown in **Figure 24** , the cycle time increase was driven largely by increases in time in the port mini-cycle (including unloading time) offset by improvements in the depot to mine (empty) and mine to depot (loaded) legs. This is consistent with the main factors increasing DNC i.e. lower impact of track maintenance and better delay performance on the main line, with poorer performance between the depot and port.

Figure 24 – Goonyella cycle time per leg



7.6 DNC and Available Capacity/Existing Capacity Deficit

FY27 committed capacity for the Goonyella System is essentially unchanged at 13,964 train paths.

The improvements in DNC discussed above increase FY27 Goonyella DNC to 14,513 train paths. This results in Available Capacity of at least 550 train paths in FY27 and beyond.

A slight improvement in median payload also contributes to a 5% increase in capacity in tonnage terms, to 141.5Mt.

Capacity outcomes for all years of the ACAR assessment period are outlined in **Figure 25 (**train paths) and **Figure 26** (tonnes).

Figure 25 - Goonyella summary for FY27 to FY31 (train paths)

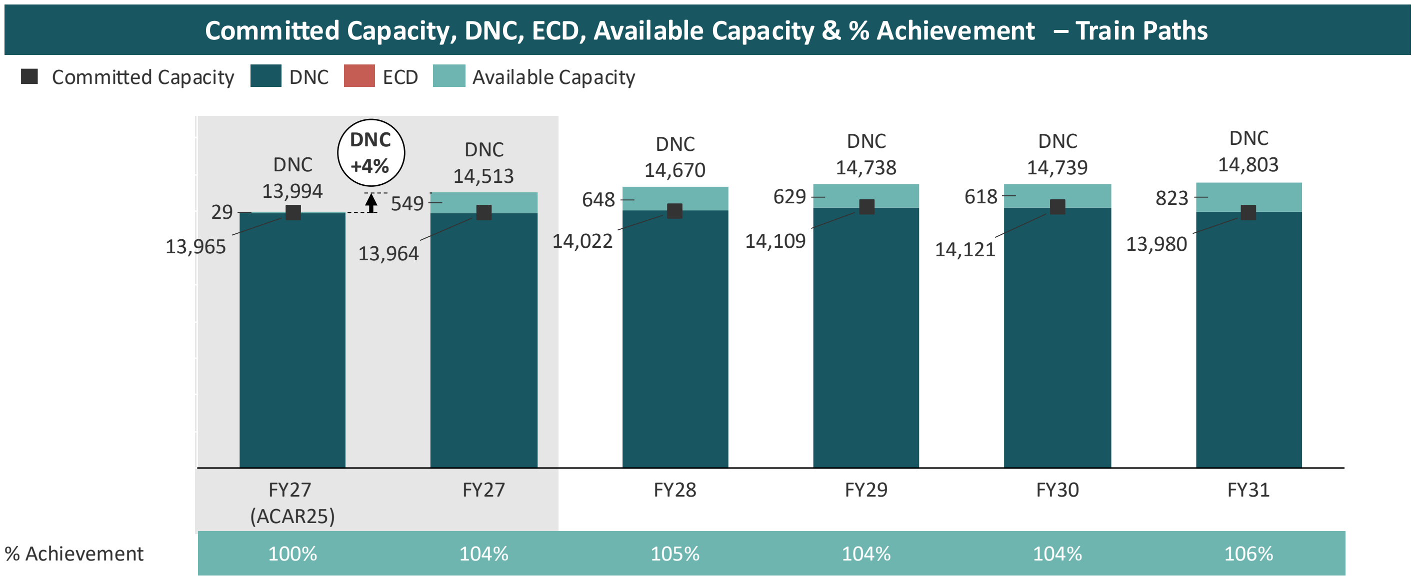
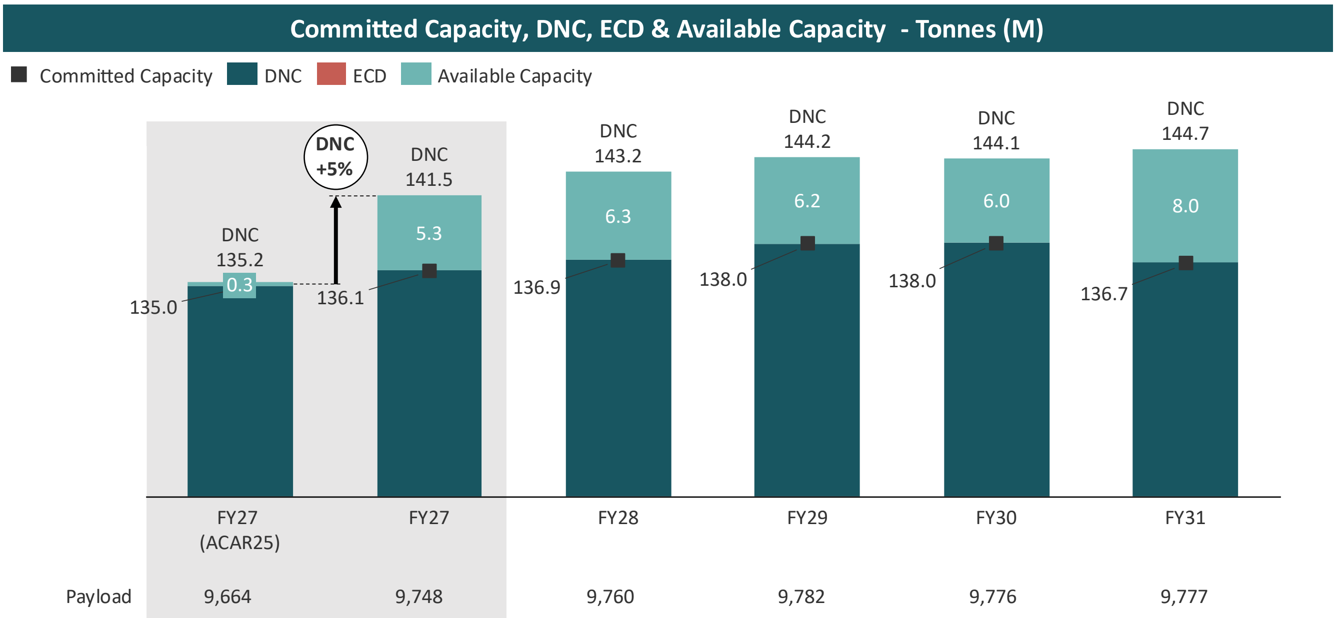


Figure 26 - Goonyella summary for FY27 to FY31 (tonnes)



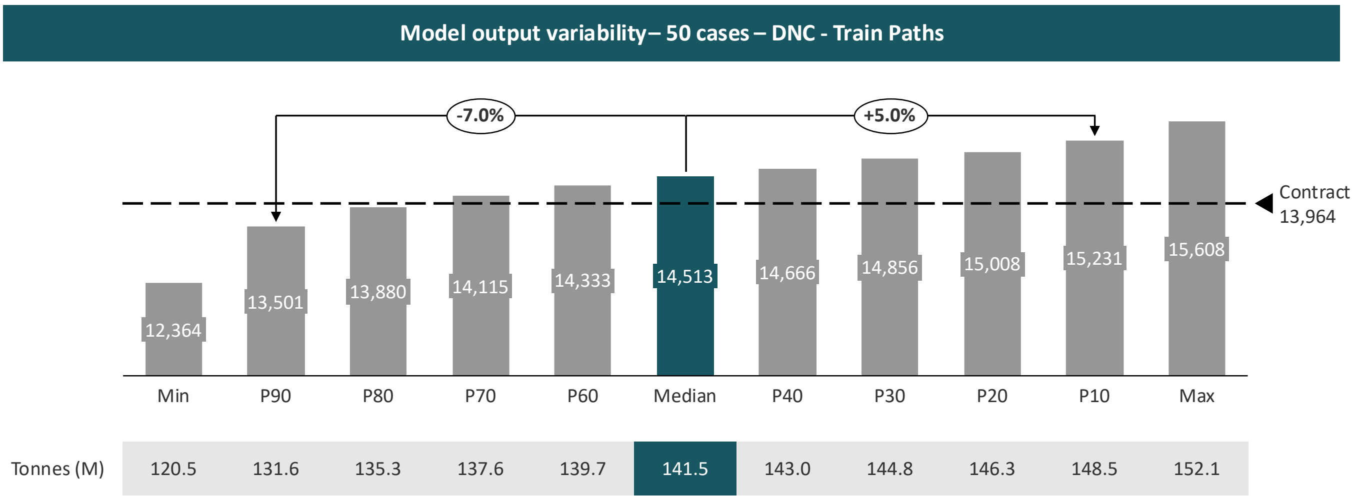
7.7 Model Variability

The ACAR25 Goonyella System DNC for FY27 of 14,513 train paths represents the median outcome of 50 Model simulation runs.

As shown in **Figure 27,** the P90 to P10 range of FY27 DNC outcomes spans from 13,501 to 15,231 train paths, representing a variability range of 12%.

Approximately 25% of the Model simulation runs did not achieve the level of committed capacity for FY27, indicating that while P50 capacity exceeds committed demand, there remains a degree of variability under plausible operating conditions.

Figure 27 - Goonyella FY27 DNC – model output variability



7.8 Monthly Capacity Variability

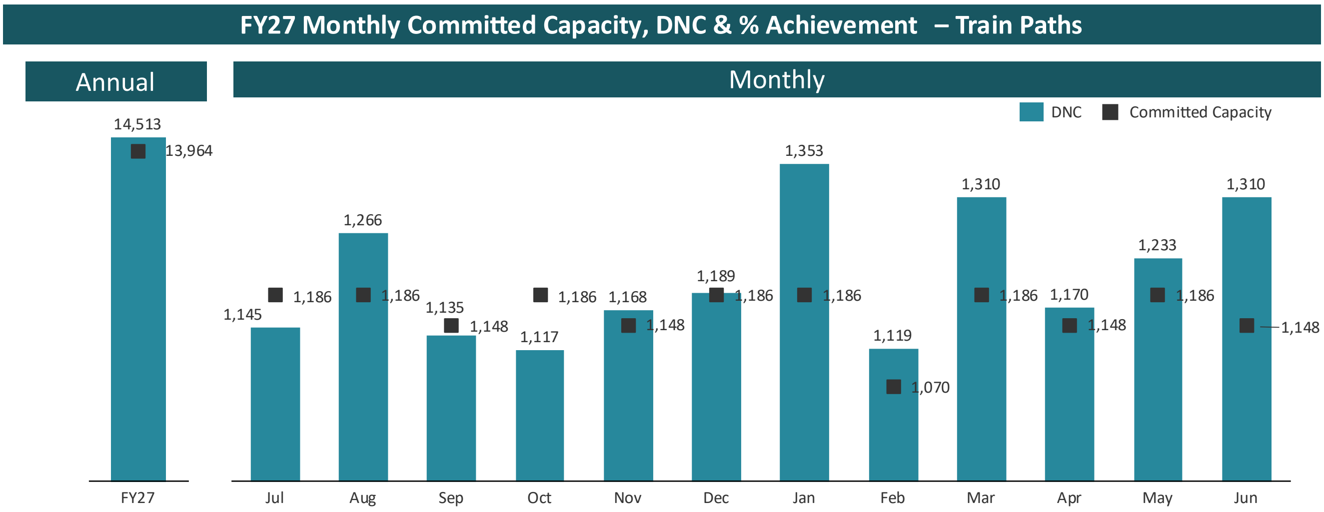
Monthly capacity in the Goonyella System for FY27 (refer **Figure 28**) shows a similar overall pattern to previous years, with capacity in the first half of the year noticeably affected by terminal and track maintenance activities. However, the extent of this impact is less pronounced than in previous years.

Capacity in December is lower than typically observed, reflecting a 36-hour integrated closure between Coppabella and the terminals. This closure represents a rescheduling of the January closure observed in the prior year. As a result, aggregate capacity across December and January is broadly unchanged from the prior year.

Monthly DNC falls materially below committed capacity only in July and October. The majority of the increase in annual DNC is delivered between January to March, suggesting that annual outcomes will remain susceptible to weather-related uncertainty during this period.

Monthly capacity results for the full five-year ACAR period is shown in **APPENDIX C: Goonyella System Information**.

Figure 28 – Goonyella System FY27 monthly capacity



	FY27	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Achieved %	104%	97%	107%	99%	94%	102%	100%	114%	105%	110%	102%	104%	114%
Achieved Tonnes (M)	141.5	11.2	12.3	11.1	10.9	11.4	11.6	13.2	10.9	12.8	11.4	12.0	12.8
Cycle Time (Median):	19.6	21.6	19.1	19.5	20.3	20.4	19.6	18.9	19.1	19.2	19.1	19.8	18.6

7.9 Forecast Demand, Current Operations Scenario

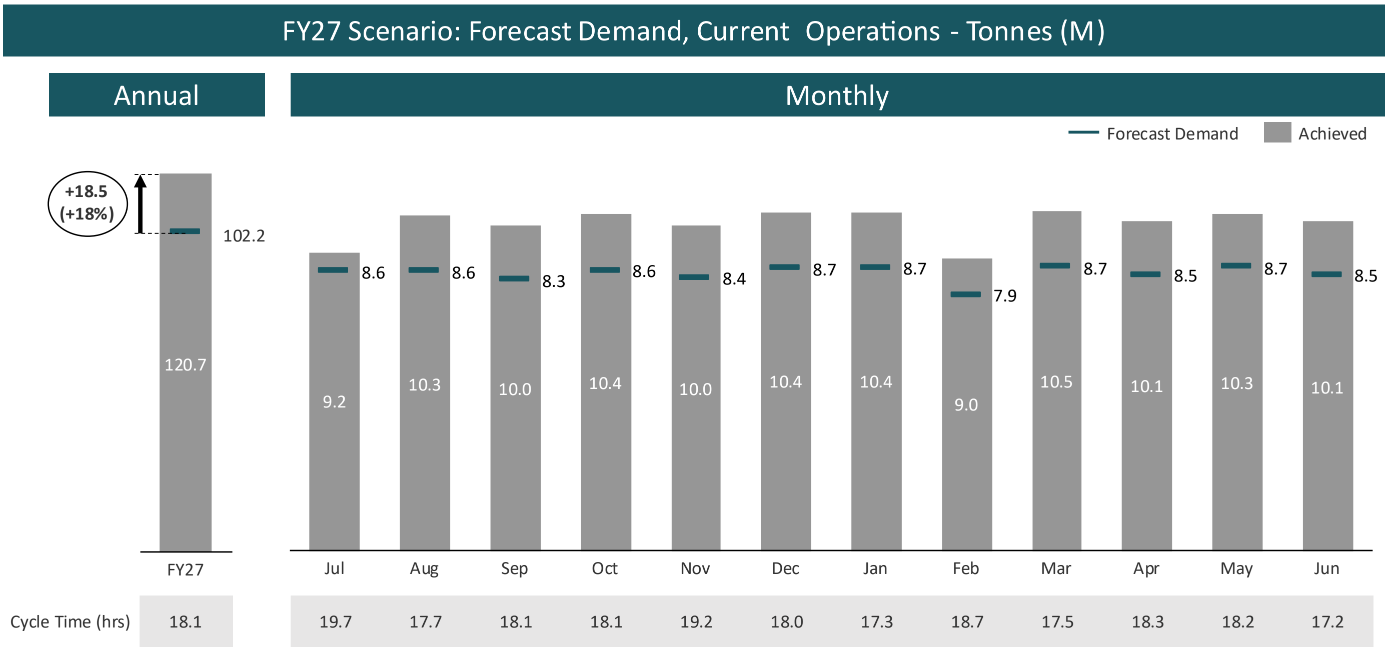
For ACAR25, the IE has examined a scenario for the Goonyella System that more closely reflects current levels of demand and current operating conditions.

For this scenario, demand is represented using the FY26 annual volume forecasts by origin-destination prepared by AN for submission to the QCA, drawing on producer forecasts where available. The scenario assumes only the consists presently operating in the system, with cancellation rates unaltered from AN's data.

The results of this scenario, shown in **Figure 29**, suggest that current system capacity is sufficient to meet forecast demand in all months. Demand and capacity are most closely aligned in July, largely due to the impact of terminal maintenance. The longer cycle times observed in that month appear to be driven by a significant mainline BCM activity between Mindi and Coppabella early in the month.

Overall, expected cycle times appear reasonably stable and show less variability than in ACAR25, ranging from 17.2 to 19.7 hours.

Figure 29 – Goonyella system FY27 scenario



7.10 Branch Line Capacity and System Constraints

For ACAR26, the IE continues to consider that the primary constraint in the Goonyella System remains the mainline between Coppabella and the port terminals. Sensitivity testing confirms that the system capacity remains particularly sensitive to transit times between Hatfield and Yukan, incorporating the steep gradients through Connors Range.

Within the constraints imposed by the mainline, the IE has re-assessed the capacity of each branch line in the Goonyella system. Consistent with ACAR25, sensitivity testing indicates that even modest increases in branch line throughput (in the order of 5%) result in a reduction in overall system throughput, reflecting the dominance of the mainline constraint.

As a result, branch line capacities are tested to the point at which the total system throughput reduced to the level of committed capacity. Given the increase in system DNC of approximately 500 train paths, this reassessment resulted in higher assessed capacities for all branch lines in ACAR26.

While all branch lines exhibit some additional capacity in FY27, the North Goonyella branch remains the most constrained branch line in the system.

Table 9 - Branch line sensitivity per month

Branch Line Capacity in excess of Committed Capacity - FY27													
Line	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Total**
3B - Hail Creek Mine to South Walker Creek Junction	+85	+90	+85	+60	+115	+85	+115	+95	+110	+90	+100	+115	**+1,145**
3C - Oaky Creek Junction to Coppabella	+105	+130	+95	+70	+100	+105	+170	+130	+160	+110	+140	+165	**+1,480**
3D - Coppabella to Wotonga	+110	+115	+100	+75	+120	+105	+125	+110	+125	+110	+110	+135	**+1,340**
3E - North Goonyella Mine to Wotonga	+20	+65	+35	+35	+20	+45	+80	+55	+85	+45	+55	+95	**+635**
3F - Blair Athol Mine to Wotonga	+95	+125	+100	+90	+95	+115	+150	+115	+150	+115	+30	+155	**+1,335**

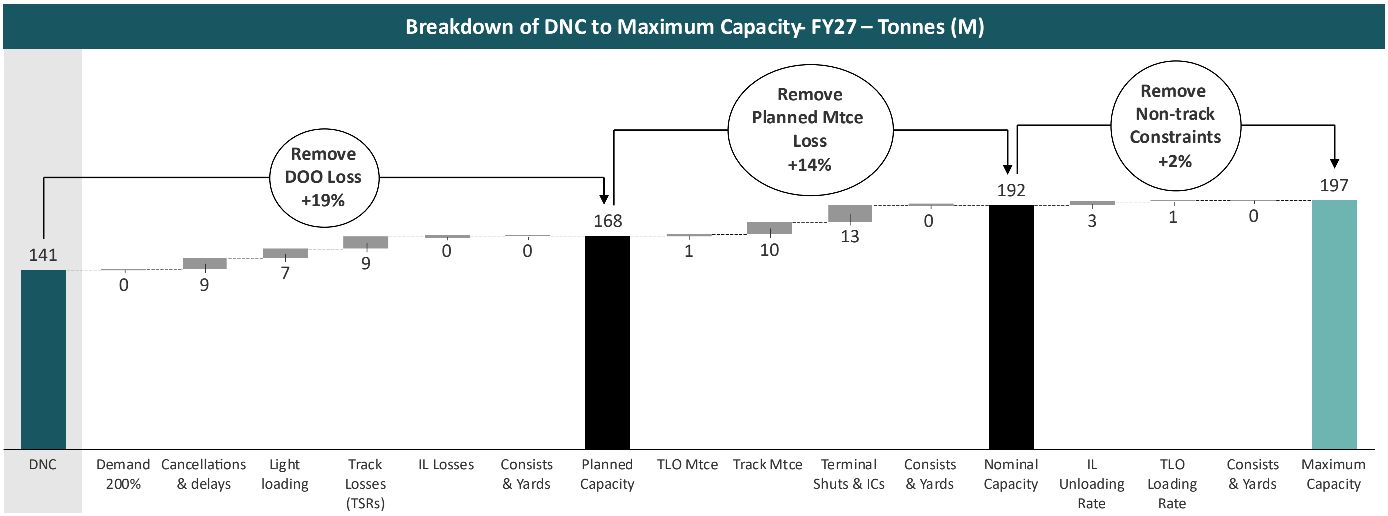
7.11 Reconciliation to Maximum Capacity

As in ACAR25, the IE has undertaken a series of Model sensitivity cases that progressively relax system constraints, including day of operations losses, planned maintenance losses and non-track constraints.

The results are broadly consistent with ACAR25. While the assessed Maximum (theoretical) Capacity remains essentially unchanged, reductions in inloader unloading rates have resulted in lower assessed Nominal Capacity.

Figure 30 illustrates the relative contribution of each constraint category and highlights the potential for operational improvements to release latent system capacity.

Figure 30 – Goonyella system maximum capacity



7.12 Capacity Risks and Opportunities

The Goonyella System remains the CQCN system in which track capacity and demand are most closely matched. The available capacity of ~550 train paths identified in ACAR26 represents a substantial increase relative to prior capacity assessments.

While part of this increase reflects refinements to the IE's treatment of delays within the system, a substantial uplift in capacity arises from changes in AN's planned maintenance and renewals regime (MRSB maintenance).

The MRSB possession profile in FY27 has less impact on capacity than in FY26, despite involving a greater number of possession hours. This represents a positive development if it represents a sustained improvement in how necessary maintenance and renewals are executed. However, if this outcome proves to be temporary or coincidental, there is a risk that capacity impacts may increase again in future ACAR assessments, with implications for the sustainability of additional contractual commitments made on the basis of ACAR26.

Modelling undertaken during ACAR26 reinforces the view that headways through Connors Range between Hatfield and Yukan remain the most significant constraint within the Goonyella system. Accordingly, the IE continues to examine opportunities to improve both the modelling of this crucial section and the understanding of associated capacity constraints.

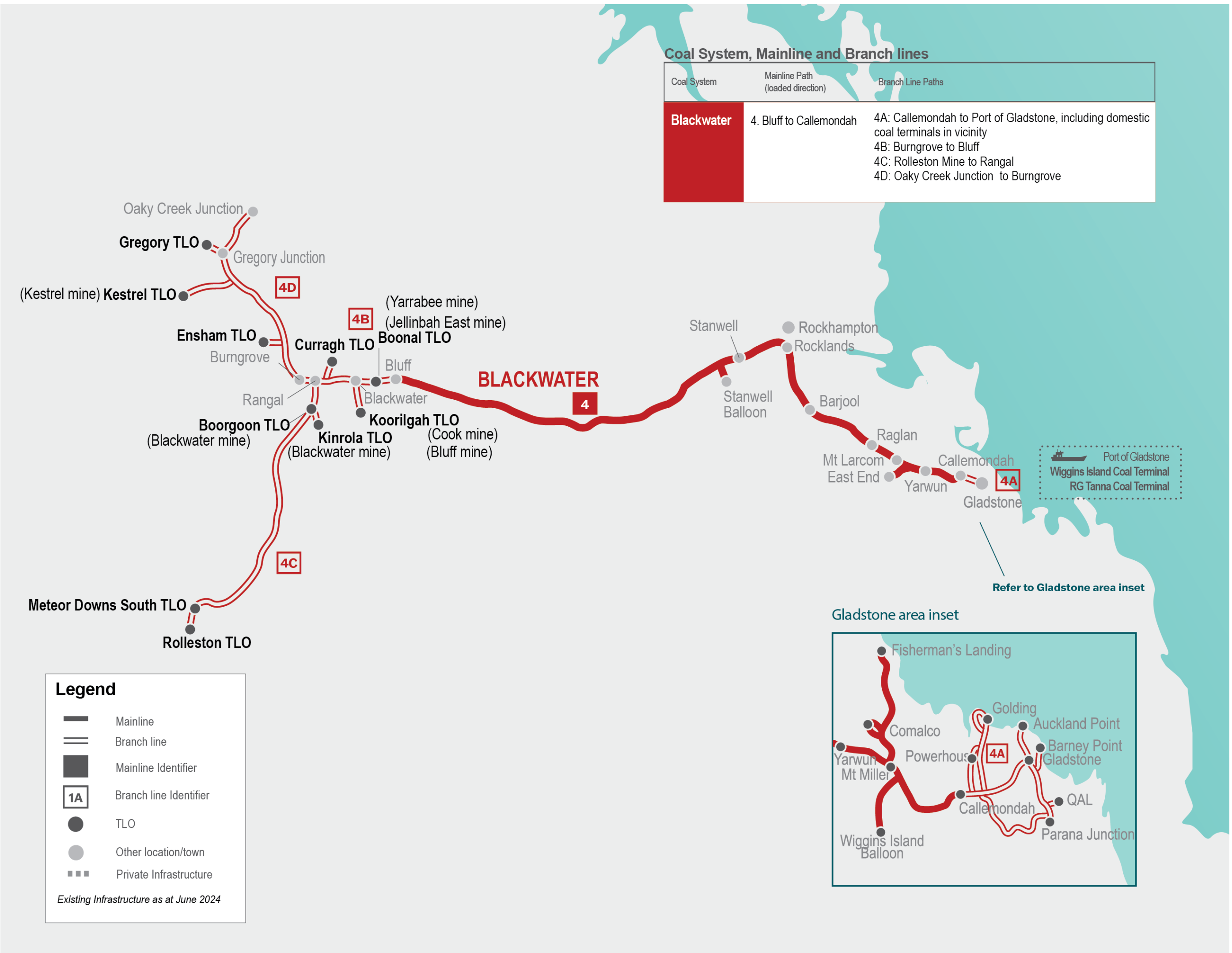
8. Blackwater System

8.1 Blackwater Rail Infrastructure

The Blackwater System, shown in **Figure 31**, includes the mainline and branch lines comprising the rail corridor from terminals at the Port of Gladstone (Wiggins Island Coal Export Terminal and RG Tanna Coal Terminal) to Rolleston mine, Oaky Creek Junction and spurs lines connecting coal mine loading facilities to those corridors. The system also supports a number of domestic coal users.

Much of the Moura System traffic uses the Blackwater System branch between Callemondah and the Port of Gladstone, including RG Tanna and the Gladstone Power Station. This creates a strong operational interface and interdependency between these two systems.

Figure 31 - Blackwater system



8.2 Deliverable Network Capacity

8.2.1 Changes since ACAR25

The Blackwater System FY26 DNC increased by ~280 train paths (3%) to 10,296 train paths when compared with ACAR25.

The increase was primarily driven by an improvement in CNCC's ability to assess the impact of AN maintenance activities on capacity (suggesting the IE's analysis was too conservative in prior periods). This change was partially offset by:

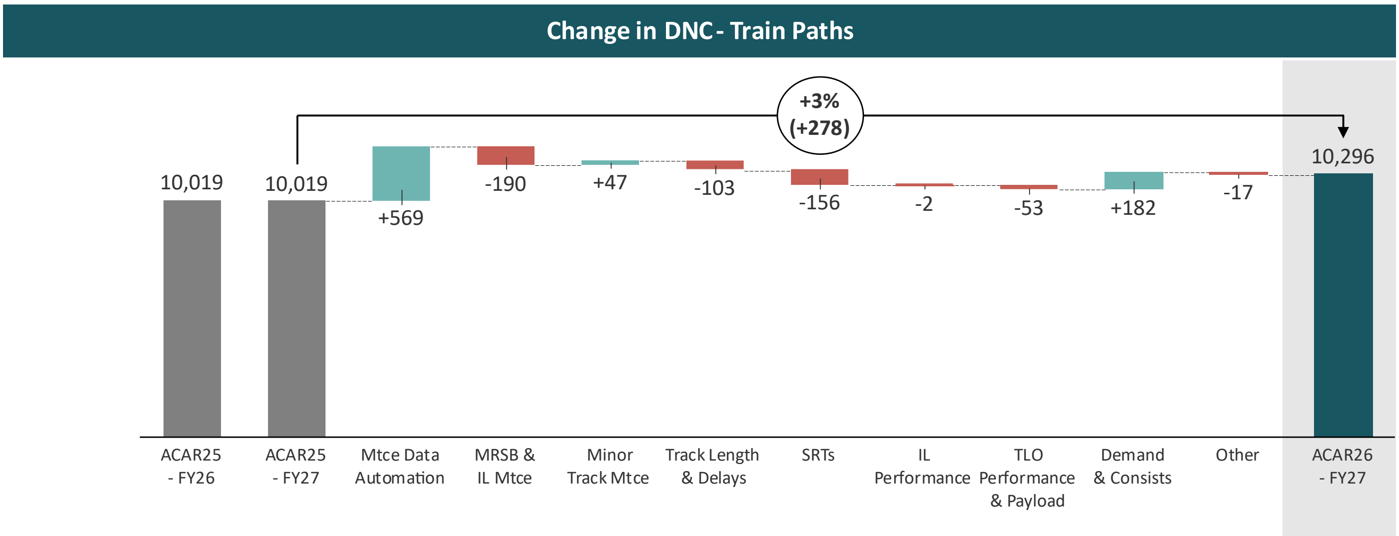
- reductions in capacity associated with AN track maintenance (the net effect of MRSB and minor maintenance), and
- reductions due to changes in the modelling of the Callemondah yard precinct.

In addition, changes in the demand mix reduced contractual capacity directed to RGTCT and the associated constraints around Callemondah, reducing the impact of those constraints and increasing network capacity.

With no discernible change in median payload, capacity in tonnage terms also increased ~3% over ACAR25 FY27 to 83.1Mt.

The changes to FY27 capacity are shown in **Figure 32** and discussed further in subsequent sections of this report.

Figure 32 - Blackwater changes from ACAR25 to ACAR26 – FY27



Tonnes (M)	**80.9**	**80.9**	4.6	-1.5	0.4	-0.8	-1.3	0.0	-0.4	1.5	-0.1	**83.1**

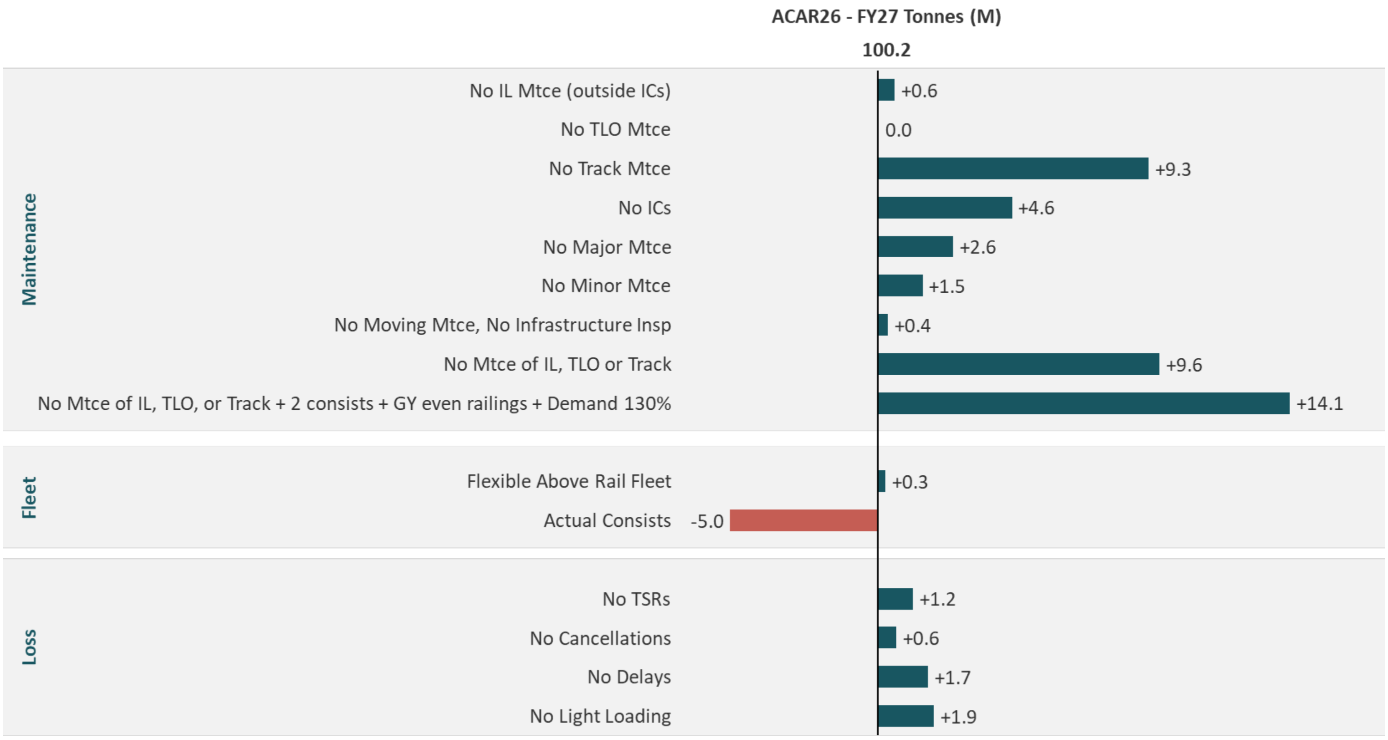
As highlighted in ACAR25, the Blackwater and Moura systems share a rail dispatch depot (Callemondah), a primary export terminal (RG Tanna Coal Terminal (RGTCT)) and a domestic customer (Gladstone Power Station). As a result, the capacities of the two systems are closely linked and, to some extent, inversely related (i.e. the release of constraints on one system can reduce throughput on the other).

8.2.2 Key Input Sensitivities

An assessment was also undertaken of the impact of changes to key operating parameters on the Blackwater system DNC. These impacts, expressed in tonnes, are shown in **Figure 33**. Due to the interconnected nature of the Blackwater and Moura systems, the sensitivity impact has been assessed on a combined basis. Sensitivities cases are assessed across the whole CQCN and therefore may include second-order impacts arising from other systems, particularly Goonyella.

Sensitivity losses arising from TSRs and delays in the Blackwater system is several times lower than in the Goonyella system, reflecting the relatively lower influence of track-related constraints on Blackwater system capacity.

Figure 33 – Blackwater & Moura sensitivity impact to DNC of key operating parameters – FY27



8.3 Modelling Changes

8.3.1 Maintenance Data Automation

As outlined in **Section 5.1.1**, for ACAR26 CNCC implemented a change in how it processes AN's maintenance data. The effect of these changes was most significant in the Blackwater system.

The majority of the ~570 train path (~4.6Mt) increase in capacity associated with this change resulted from improved interpretation of the footprint of AN's maintenance activities. The improvement was observed across both MRSB maintenance and minor maintenance, and reflects a more accurate representation of historical and planned maintenance within the Model.

In addition, approximately 90 train paths of the improvement resulted from the identification and adjustment for historical "shadow" maintenance activities, which has been enabled by the new automated approach.

The IE attributes the scale of the capacity effect in the Blackwater system to the overall length of the mainline and branch line network, the configuration of certain mainline areas (particularly cross-overs), and the complexity of the Callemondah yard precinct. This complexity is heightened by the interaction between Blackwater and Moura train movements through Callemondah, which created challenges for the IE's previous manual methodology that have now been largely addressed.

The length of the Blackwater system also appears to afford greater opportunity for AN to pursue shadow maintenance activities relative to the more geographically concentrated systems.

Verification of the revised maintenance data analysis has provided the IE with confidence that the new methodology produces more robust capacity outcomes and provides an improved basis for identifying and correcting data issues when they arise.

8.3.2 Terminal and Track Maintenance

Taken in aggregate, changes to terminal and track maintenance between FY26 and FY27 reduced Blackwater system capacity by approximately 140 train paths (1.1Mt). The components and their contribution to this reduction are described below.

Terminal Maintenance

Minor reductions in terminal maintenance [redacted] yield a modest capacity benefit for the Blackwater system of approximately 40 train paths (~0.3Mt).

Track Maintenance - MRSB

As discussed in **Section 5.1.1**, track maintenance inputs include AN's planned major maintenance programs, including integrated closures, consistent with the approved MRSB scope.

Full system shuts in the Blackwater System reduce from 8 shuts totalling 506 hours in FY26 to 6 shuts totalling 400 hours in FY27. This reduction is slightly offset by the inclusion of a 60-hour Gregory branch line shut in November. The capacity benefit of the reduction in integrated closures is outweighed by a significant increase in single-line maintenance, which increases from 1,760 hours in FY26 to 2,380 hours in FY27.

The effect of the changes to MRSB maintenance is a reduction in capacity of approximately 200 train paths (~1.6Mt).

Due to overlaps in maintenance events, the combination of terminal and MRSB maintenance impacts reduce capacity by 190 train paths (~1.5Mt).

Track Maintenance – Minor Maintenance

There is little change in expected minor maintenance compared with FY26. However, the exclusion of maintenance activities that occur concurrently with more impactful mainline maintenance yields an improvement of ~50 train paths (~0.4Mt) in FY27.

8.3.3 Track Length and Delays

During 2025, the IE reviewed a range of modelling settings, including sectional run times and track lengths. Track length does not directly influence train running times, which are defined separately via the SRT settings. Track length is, however, a key driver for the modelling of delays, with delay events triggered as a function of train kilometres over a section.

The review identified a number of track sections modelled with negligible length (0.001 km). In many cases this setting reflects the way the Model represents track configuration in combination with AN's SRT data, for example where passing loops are treated as a single point by AN but must be represented as multiple elements within the Model (each end and the two tracks between the ends).

However, the IE did identify several sections where a more accurate representation of track length was required to better replicate observed delay behaviour. Many of these sections are located within the Blackwater port precinct, between Callemondah yard and the RGTCT inloaders.

These changes were implemented alongside refinements to the modelling of delays, transitioning from a system wide approach to explicit modelling of mainline, port line and branch line delays, as discussed in **Section 5.1.3**. For the Blackwater system, delays in the port precinct are more frequent and of longer duration than the system average. Given that this precinct represents the primary system constraint, the combined effect of the updated track length and delay parameters was a reduction in system capacity of approximately 100 trains (~0.8Mt).

8.3.4 Sectional Run Times

As part of the same review discussed in section 10.3.3 above, sectional run times within the Model were also examined. Many of the sections identified as having minimal track lengths were also found to have SRTs set to zero.

To better reflect observed train movement data, the IE increased SRTs for selected track sections within the Callemondah precinct.

While the changes to individual SRTs were small in the context of a full train journey, the concentration of these changes within the most constrained area of the Blackwater system resulted in a reduction of capacity of approximately 160 trains (~1.3Mt).

8.3.5 Inloader Performance

Consistent with the approach applied to other systems, a comprehensive review of Blackwater system terminal unload rates was undertaken. The resulting changes were assessed as inconsequential to overall system capacity.

8.3.6 TLO Performance and Payload

There were few changes to train payloads or TLO loading rates in the Blackwater system, however the review of pre-load delays identified that pre-load times for many Blackwater TLOs were longer in practice than in the ACAR25 model. Adjustments to these inputs saw a capacity reduction of approximately 50 train paths (~0.4Mt).

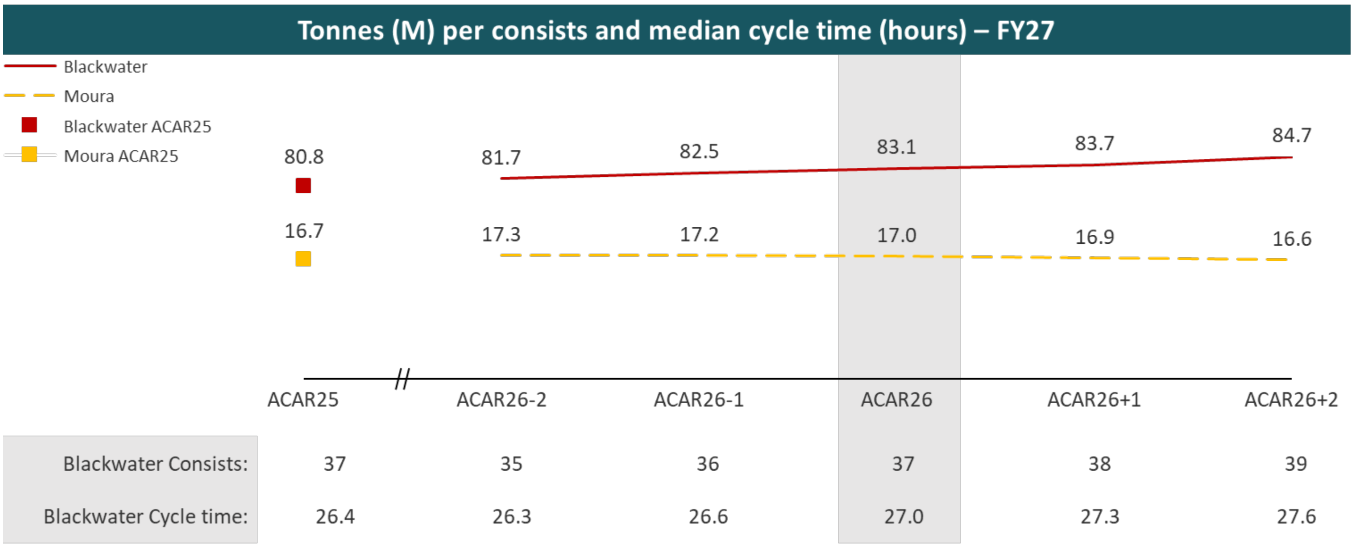
8.4 Demand Presentation and Consists

For ACAR26, committed capacity in the Blackwater system decreases from 9,713 in FY26 to 9,465 in FY27. This reduction in demand is predominantly associated with capacity directed to RGTCT.

As the Callemondah precinct serving RGTCT currently represents the primary constraint in the Blackwater system, and demand is applied at 120% of all origin-destination contracted capacity, the reduction in the proportion of demand destined for RGTCT reduces the severity of this constraint. This, in turn, increased modelled system throughput and the DNC of the Blackwater system as a whole. The net effect of the demand change is an increase of approximately 180 train paths (~1.5Mt).

Consistent with standard ACAR practice, the IE optimised Blackwater system consist numbers for ACAR26 and elected to make no change to the total number of consists, which remains at 37. This compares with 32 actual consists advised by the two above-rail operators, noting that some substitution between Blackwater and Moura consists may occur in practice.

Figure 34 - Blackwater consist sensitivity



8.5 Cycle Time

Median cycle time in the Blackwater System increased by 0.6 hours in ACAR26, consistent with an overall improvement in capacity while consist numbers remain unchanged (see **Table 10**).

This was observed through increases to loaded waiting times at Callemondah and increased travel times to and from the RGTCT terminal, partly offset by reduced mainline travel times (empty and loaded), reflecting the changes to delays and SRTs discussed above (see **Figure 35**).

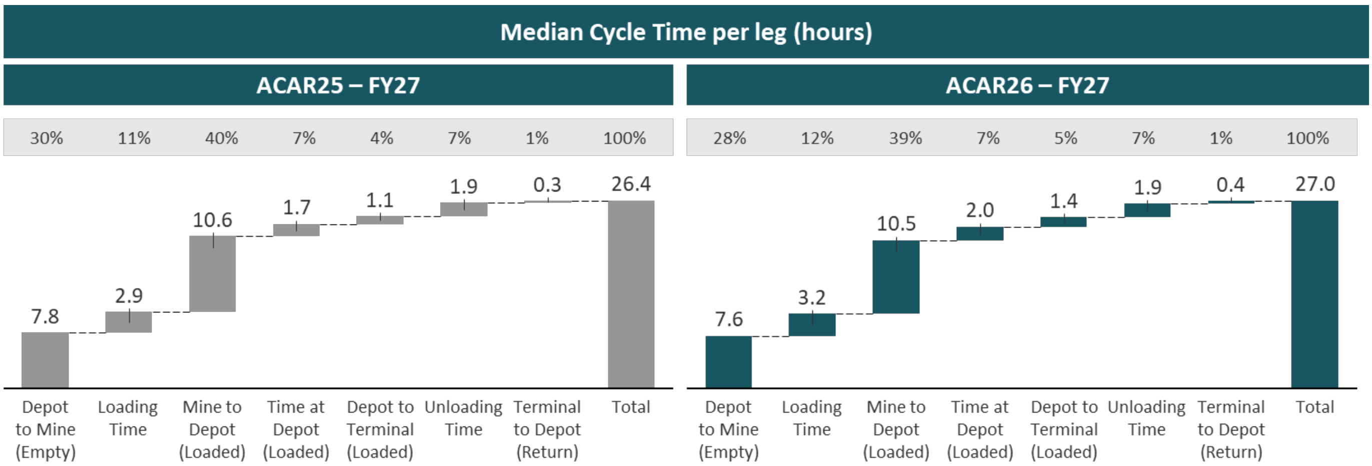
For comparison, FY25 actual median cycle time in the Blackwater system was 24.9 hours, reducing to 23.9 hours for services originating and terminating at Callemondah, suggesting that a full-demand environment would see cycle times increase by 2 to 2.5 hours.

Table 10 - Blackwater cycle time

Median Cycle Time (Hours)	FY26 (ACAR25*)	FY27 (ACAR25*)	FY27 (ACAR26)	FY27 Change
Blackwater	26.4	26.4	27.0	2%

* ACAR25 values are restated.

Figure 35 – Blackwater cycle time per leg



8.6 DNC and Available Capacity/Existing Capacity Deficit

As discussed in **Section 10.4**, expected committed capacity in the Blackwater system for FY27 has reduced by approximately 270 train paths from ACAR25 FY27 (and by ~250 train paths from FY26). Further reductions in committed capacity are projected from FY28 to FY31, resulting in an overall reduction of almost 800 train paths (~6.4Mt) across the ACAR period. These later reductions are driven largely by decreased demand at domestic terminals, which are generally less constrained than RGTCT. It is noted, however, that the relative ease with which capacity can be transferred to domestic terminals in the Blackwater system suggests this issue may reflect access holders' capacity strategies rather than a fundamental shift in underlying demand.

The increase in DNC, coupled with the reduction in committed capacity over the five year period, leaves the Blackwater System being able to meet all contracted capacity throughout the FY27-FY31 ACAR period. Available capacity is estimated to be at least ~830 train paths (equivalent to 6.7 Mt) over this period.

Over the longer term, a gradual shift in demand away from domestic terminals diminishes the benefit observed in FY27 from reduced RGTCT-directed demand. As a consequence, longer-term Blackwater system capacity reduces, with DNC declining by approximately 300 train paths by FY31.

Capacity outcomes for all years of the ACAR period are outlined below in **Figure 36** (train paths) and **Figure 37** (tonnes).

Figure 36 - Blackwater summary for FY27 to FY31 (train paths)

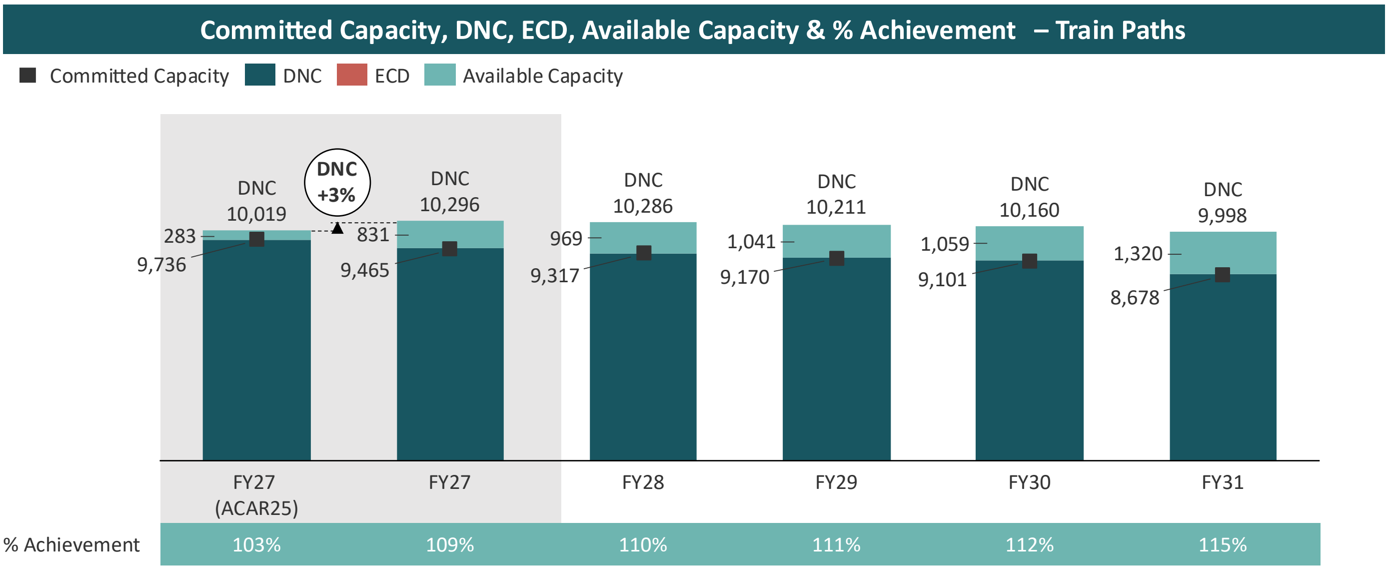
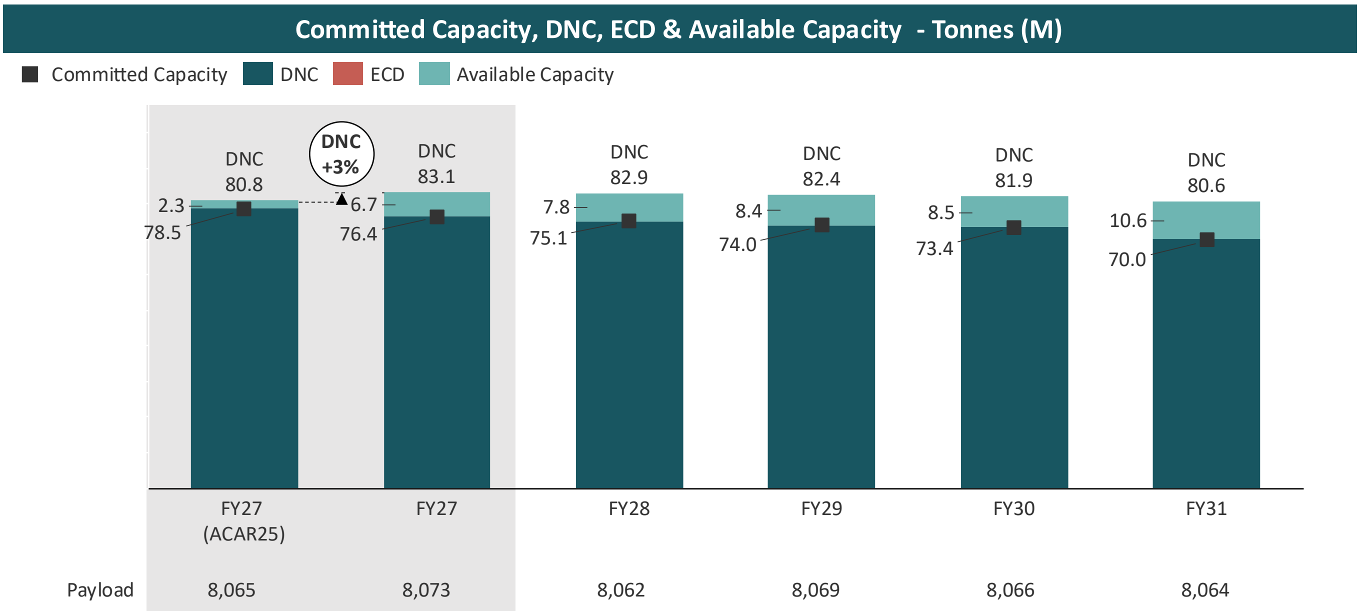


Figure 37 - Blackwater summary for FY27 to FY31 (tonnes)

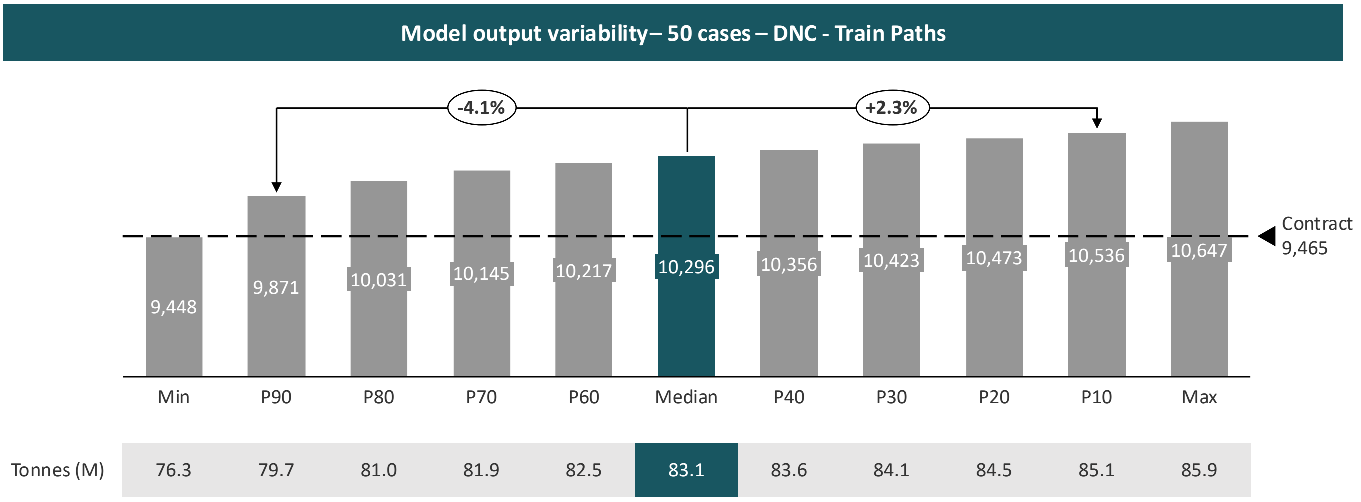


8.7 Model Variability

The ACAR25 Blackwater System DNC for FY27 of 10,296 train paths was derived from the median of 50 Model simulation runs. The P90 to P10 range of DNC outcomes spans from 9,871 to 10,536 train paths, representing a variability of ~6%, as shown in **Figure 38**.

At the FY27 committed capacity, 98% of simulated runs achieved the required throughput.

Figure 38 - Blackwater FY27 DNC – model variability



8.8 Monthly Capacity Variability

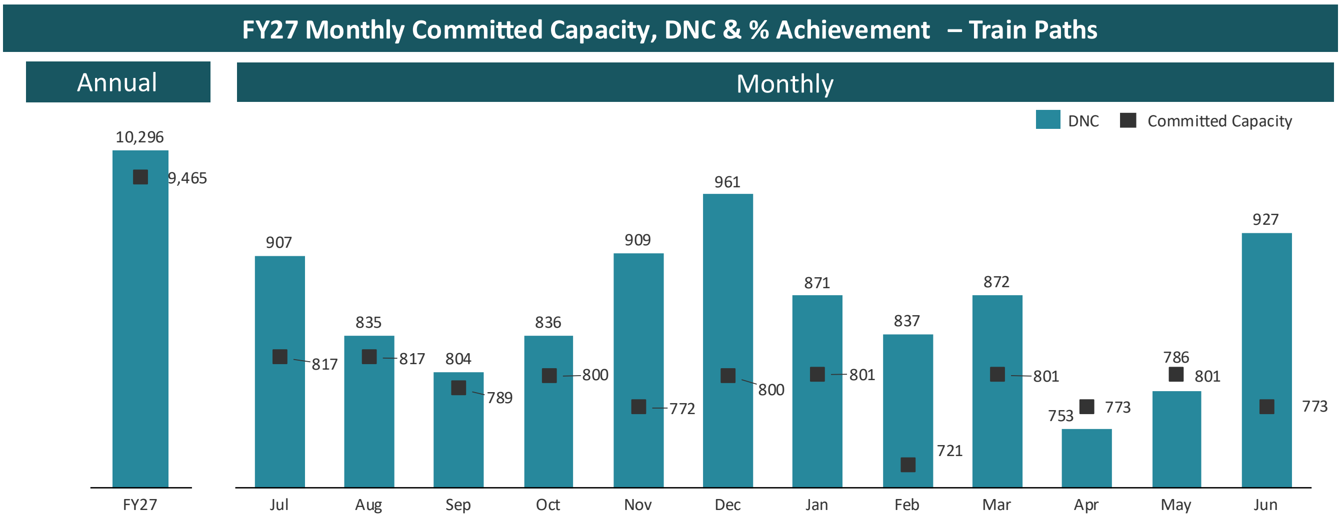
An examination of modelled results on a monthly basis indicates that throughput is broadly consistent with an annual available capacity of 831 trains for FY27. The results suggest that committed capacity can be delivered in all but two months of the year, with DNC falling below contract only in April and May, as shown in **Figure 39**.

This outcome is consistent with concentration of track maintenance events during this period, including two lengthy full system shuts and three BCM events, two of which are ~60 hours in duration and separated by only 36 hours.

August and September also exhibit capacity outcomes only marginally above contracted levels, suggesting relatively tight capacity conditions early in the financial year.

Monthly capacity outcomes for the full five-year period of the ACAR Model are shown in **APPENDIX D: Blackwater System Information**.

Figure 39 - Blackwater system FY27 monthly capacity



	FY27	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Achieved %	109%	111%	102%	102%	105%	118%	120%	109%	116%	109%	97%	98%	120%
Achieved Tonnes (M)	83.1	7.3	6.7	6.5	6.7	7.3	7.8	7.0	6.8	7.0	6.1	6.3	7.5
Cycle Time (Median)	27.0	27.3	27.2	26.6	26.6	27.1	26.5	26.6	27.1	27.5	27.9	27.4	26.5

8.9 Forecast Demand, Current Operations Scenario

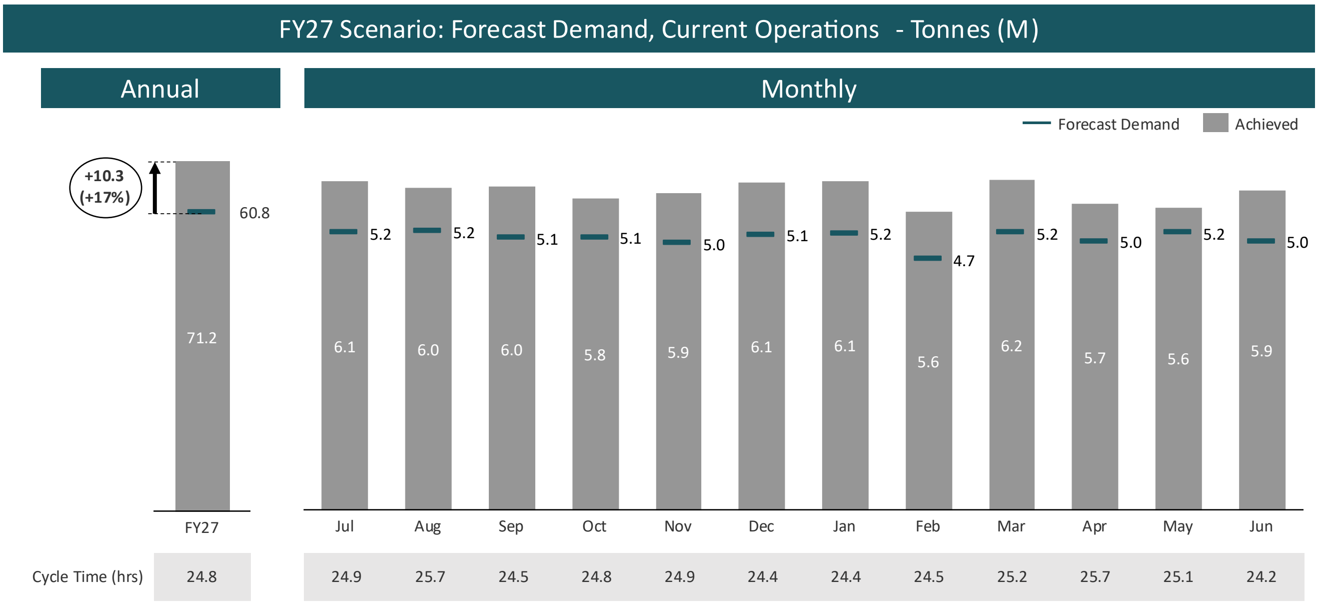
As introduced in ACAR25, the IE has examined a scenario for the Blackwater System that more closely reflects current levels of demand and current operating practices.

Consistent with the ACAR25 approach, demand in this scenario is represented by the FY27 annual volume forecasts for each origin-destination pair prepared by AN for submission to the QCA, drawing on producer forecasts where available. To service this demand, the scenario assumes only consists currently operating within the system, with cancellation rates unaltered from AN’s data.

Under this scenario, forecast demand is 5% lower than FY26, at 60.8Mt. As shown in **Figure 40,** the results suggest that system capacity is sufficient to meet this level of demand in all months of the year.

Cycle times are stable across the year, ranging from 24.2 to 25.7 hours. These outcomes are slightly higher than FY25 actual performance, where actual tonnage was ~57Mt, reflecting the higher forecast demand applied in this scenario.

Figure 40 – Blackwater system FY27 scenario



8.10 Branch Line Capacity and System Constraints

The IE has undertaken a series of Model sensitivity analyses to test the capacity limits of the Blackwater system branch lines. The results continue to support the IE's previous conclusion that that the binding constraint in the Blackwater System remains Branch 4A, between Callemondah to the Port of Gladstone (i.e. the shared track network between Callemondah and RGTCT).

This finding aligns with the results discussed earlier in this chapter, where modelling changes that increased constraints within the Callemondah precinct resulted in reductions in DNC, while changes that reduced demand pressure on Callemondah led to improvements in DNC.

The sensitivity testing indicates that the Blackwater mainline continues to have significant latent capacity above the most constrained track (Branch 4A), suggesting that additional demand of up to ~225 trains per month (~90 on average) could be accommodated to WICET (but not to RGTCT).

Sensitivity testing of capacity of branch line serving the Blackwater system mines produced results broadly consistent with ACAR25, once changes in contracted capacity for FY27 are taken into account.

Table 11 - Blackwater system branch line sensitivity per month (capacity in excess of committed capacity)

Branch Line Capacity in excess of Committed Capacity- FY27													
Line	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Total**
4A - Callemondah to Port of Gladstone	+110	+5	+25	+20	+150	+175	+55	+135	+85	-25	-35	+170	**+870**
4 - Bluff to Callemondah	+210	+60	+115	+90	+225	+305	+180	+215	+145	-5	+50	+330	**+1,920**
4B - Burngrove to Bluff	+210	+60	+115	+90	+225	+305	+180	+215	+145	-5	+50	+330	**+1,920**
4C - Rollestone Mine to Rangal	+110	+70	+70	+85	+140	+165	+105	+125	+105	+65	+65	+165	**+1,270**
4D - Oaky Creek Junction to Burngrove	+90	+70	+65	+70	+95	+135	+80	+95	+85	+40	+50	+135	**+1,010**

8.11 Reconciliation to Maximum Capacity

As introduced in ACAR25, the IE has undertaken a series of modelled scenarios to further examine the factors that determine system DNC. These scenarios progressively relax system constraints to reconcile DNC with an estimate of maximum system capacity, considering three categories of constraint: day of operations losses, planned maintenance losses, and non-track constraints.

This approach illustrates the relative contribution of different constraint types and highlights the potential of improvements to release latent capacity.

The ACAR26 analysis differs slightly from ACAR25 in two respects:

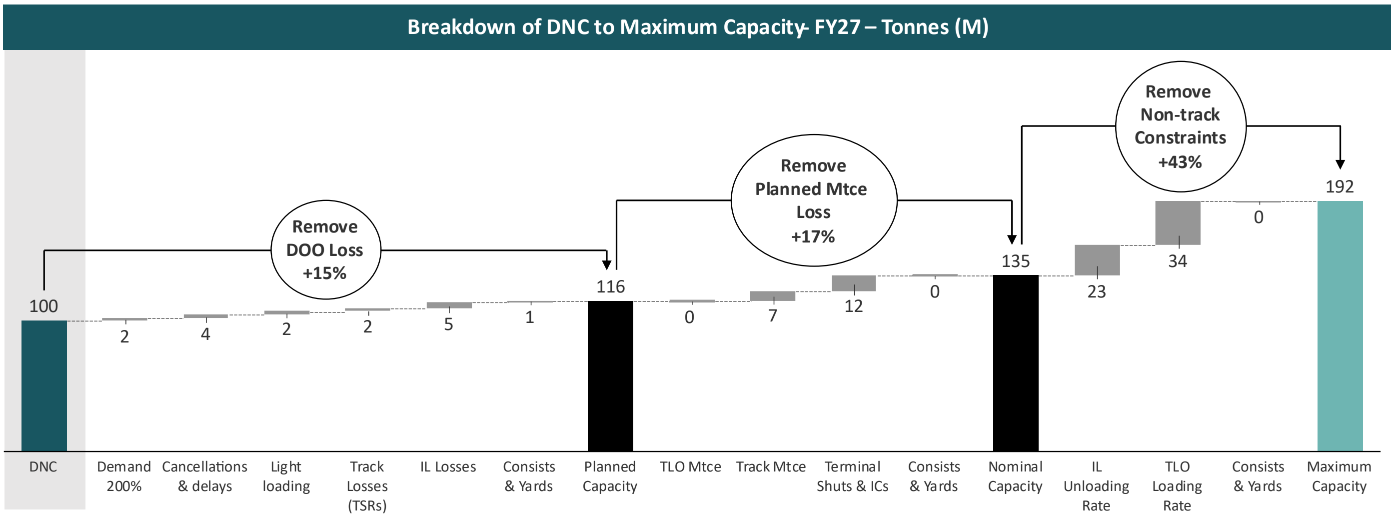
- demand is increased to 200% in the initial modelling step (see **Figure 41**) to ensure sufficient demand is available as constraints are progressively removed, and
- the opportunity for additional consists is assessed at each major step of the analysis.

The capacity attributed to day-of-operations losses has increased relative to ACAR25, likely reflecting the availability of unconstrained demand from the outset of the assessment. The Nominal Capacity step remains broadly comparable to ACAR25 (at 136Mt), as losses associated with planned maintenance (particularly track maintenance) are lower than in ACAR25, consistent with the changes reflected in DNC outcomes since that time.

The most significant change in the assessment of Maximum Capacity since ACAR25 relates to non-track constraints, particularly TLO loading rates. In ACAR25 the relaxation of IL unloading rates and TLO loading rates was combined under the heading “IL Loading Rate” (sic)). In ACAR26, these constraints are distinguished more explicitly.

The 34Mt increase in throughput associated with relaxing TLO loading rates suggests that these constraints were not fully removed in the ACAR25 Maximum Capacity assessment. This outcome is also consistent with the operational reality that several of Blackwater system TLOs serving significant committed capacity supply both RGTCT and WICET, which may act as a binding constraint under current operating arrangements.

Figure 41 – Blackwater and Moura systems maximum capacity



8.12 Capacity Risks and Opportunities

ACAR26 results suggest that the Blackwater System’s ability to accommodate full contracted capacity over the coming years is more robust than was assessed in ACAR25.

Notwithstanding this improvement, ACAR26 outcomes highlight the importance of understanding the trade-offs associated with different approaches to the execution of necessary maintenance and renewal activities. In particular, the observed shift in AN’s MRSB possessions strategy from integrated closures toward more extensive single-line maintenance activities appears to have reduced capacity. This underscores of the need to carefully consider how alternative maintenance strategies influence network throughput and the distribution of impacts across system participants.

Train interactions between Callemondah and RGTCT remain among the most complex aspects of modelling operations within the CQCN. While further improvements have been made to the representation of this precinct in ACAR26, stakeholder feedback continues to reinforce the importance of ensuring the Model reflects operational practice as closely as possible. This includes the treatment of constraints associated matching RGTCT dump stations to specific areas of the stockyard, including operational requirements related to the handling and segregation of different coal types, which can affect track capacity.

Changes in the balance of demand between export and domestic terminals observed in ACAR26 have also highlighted the need for continued refinement of how shifts represented in the Model. Accurately capturing these effects is important to ensure that potential capacity impacts are well understood and that insights regarding system behaviour under alternative demand scenarios are appropriately informed.

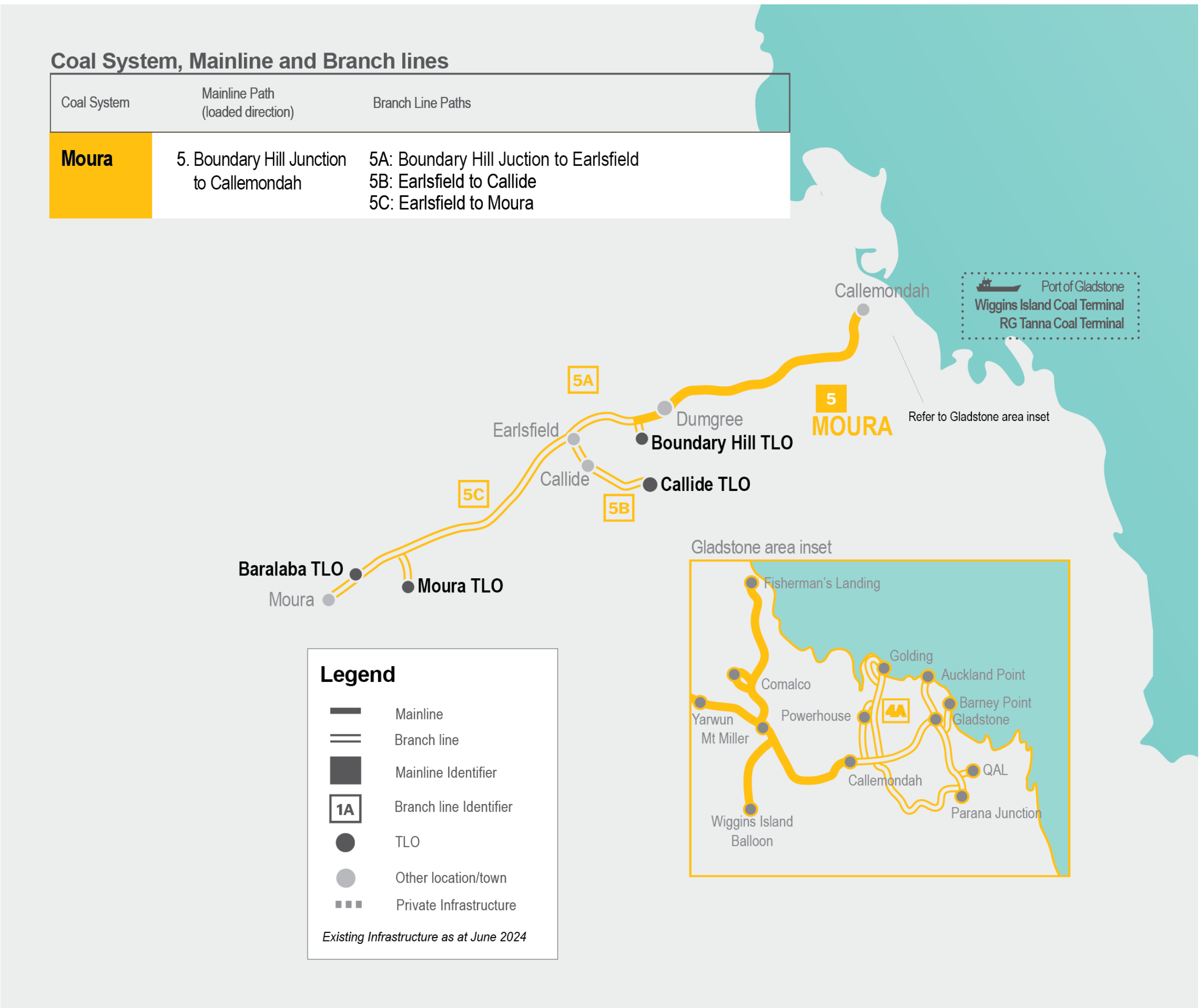
9. Moura System

9.1 Moura Rail Infrastructure

The Moura System (shown in **Figure 42**) comprises the rail infrastructure from Callemondah to Moura and Callide, together with spur lines connecting coal mine loading facilities to those corridors. Moura System traffic also uses branch line 4A of the Blackwater system between Callemondah and the Port of Gladstone, including shared track routes through Gladstone to QAL.

ACAR26 modelling reinforces that capacity outcomes in the Moura system are heavily influenced as much by interactions with the Blackwater system as by activities within the Moura system itself.

Figure 42 - Moura system



9.2 Deliverable Network Capacity

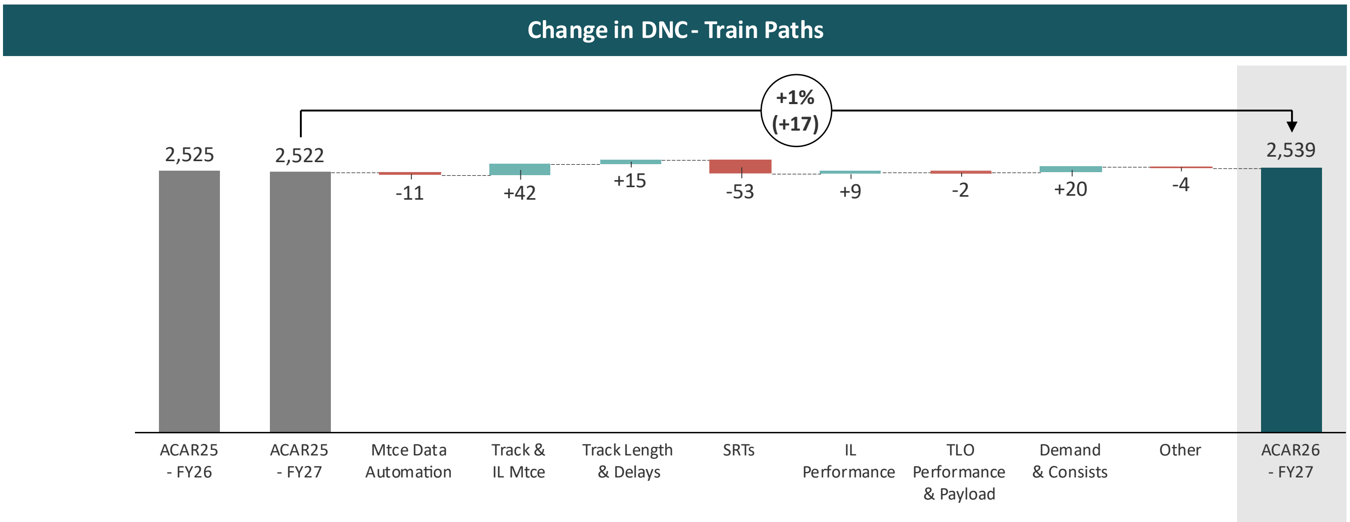
9.2.1 Changes since ACAR25

As was the case in ACAR25, ACAR26 results indicate minimal changes in the assessed DNC of the Moura System. The primary factor affecting system capacity continues to be performance of the Blackwater System, specifically the interaction between Blackwater and Moura services competing for shared unloading capacity at RG Tanna terminal.

FY27 DNC for the Moura system has increased marginally to 2,539 train paths, representing an increase of 15 train paths (less than 1%) more than ACAR25 FY26. Modelled payload has also increased slightly, resulting in an uplift in capacity expressed in tonnes to 17.0Mt.

Changes observed in Moura system capacity are shown in **Figure 43**. The IE observes that most aspects of change appear to be the inverse of changes in the Blackwater system, reflecting the shared nature of constraints at RGTCT.

Figure 43 - Moura indicative changes from ACAR25 to ACAR26 – FY27



Tonnes (M)	**17.0**	**16.9**	**-0.1**	0.3	0.1	-0.4	0.1	0.0	0.1	0.0	**17.0**

9.2.2 Key Input Sensitivities

An assessment was also undertaken of the sensitivity of DNC to changes in key operating parameters for the combined Blackwater and Moura systems. These impacts, expressed in tonnes, are shown in **Figure 33** at **Section 10.2.2** of this report.

Sensitivity cases are assessed across the whole CQCN and therefore may include second-order impacts arising from other systems.

9.3 Modelling Changes

9.3.1 Maintenance Data Automation

Changes to CNCC's processing of AN maintenance data, as outlined in Section 5.1.1, resulted in a small reduction (~10 train paths) in Moura system capacity, when ACAR25 FY26 data was reassessed. This impact is associated with Moura trains accessing RGTCT and reflects changes in the interpretation of maintenance activity affecting shared infrastructure.

9.3.2 Terminal and Track Maintenance

Terminal Maintenance

Minor reductions in terminal maintenance (outside of track closures) at RGTCT have a negligible impact on the Moura system.

Track Maintenance

The IE's assessment of FY27 track maintenance activities, including both MRSB and minor maintenance, indicates a capacity improvement of approximately 40 trains (~0.3Mt) for the Moura system.

For FY27, the MRSB features one integrated closure of 60 hours dedicated to the Moura system. This closure extends for a further 24 hours on the branch line from Earlsfield to Moura. In addition, three Blackwater system closures, totalling 244 hours, also impact Moura services through shared infrastructure.

9.3.3 Track Length and Delays

There was relatively little change in the overall impact of delays within the Moura System compared with ACAR25. Refinements to the delay methodology resulted in the longer delay durations being represented in the port precinct compared with the system average, while the frequency of delay events remained largely unchanged. Mainline sections benefited slightly under the revised approach.

The net effect of these changes was an increase in system capacity of approximately 15 train paths (~0.1 Mt).

9.3.4 Sectional Run Times

No changes were made to SRTs or acceleration/deceleration delays within the Moura system in ACAR26. However, updates to SRTs within the Blackwater system port affect Moura trains accessing RGTCT in the same way as Blackwater trains, as discussed in **Section 10.3.4**.

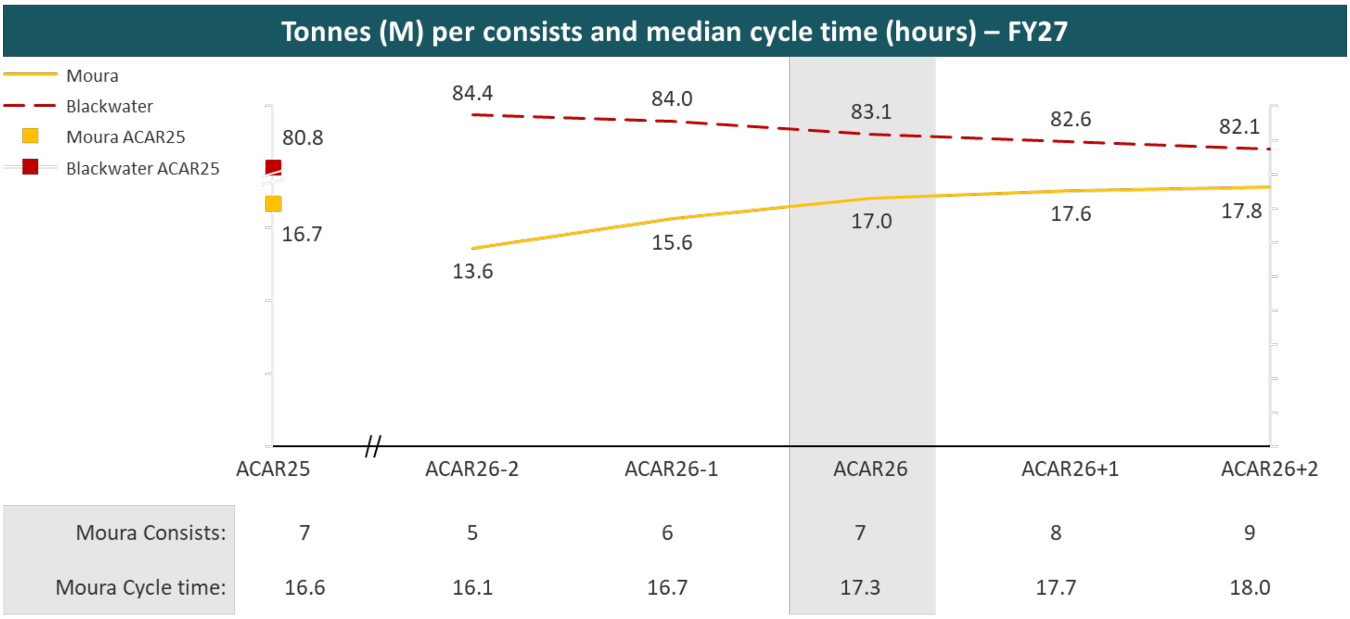
The effect of these changes was a reduction of approximately 50 train paths (~0.4 Mt) in the Moura system.

9.4 Demand Presentation and Consists

Committed capacity in the Moura system for FY27 has increased by approximately 90 train paths compared with ACAR25 and will remain at this level throughout the ACAR period. This increase is accompanied by a minor change in the mix of domestic and export destinations.

As outlined above, there are no significant changes to Moura system Model inputs in ACAR26. Nonetheless, the IE undertook the standard consist optimisation process, which showed, unsurprisingly, that no change to consist numbers was warranted. Accordingly, consist numbers for ACAR26 remain unchanged from previous ACAR assessments, with 7 trains assumed for the Moura system. These consist arrangements comprise a mix of Blackwater length trains and shorter consists tailored to Moura system operating requirements.

Figure 44 - Moura consist sensitivity



9.5 Cycle Time

The FY27 median modelled train cycle time for the Moura System of 17.3 hours, representing an increase of 0.7 hours since ACAR25. As shown in **Figure 45**, this improvement is attributable additional time spent within the Callemondah precinct and in transit to and from RGTCT, consistent with the delay and SRT changes discussed in **Sections 11.3.3** and **11.3.4**.

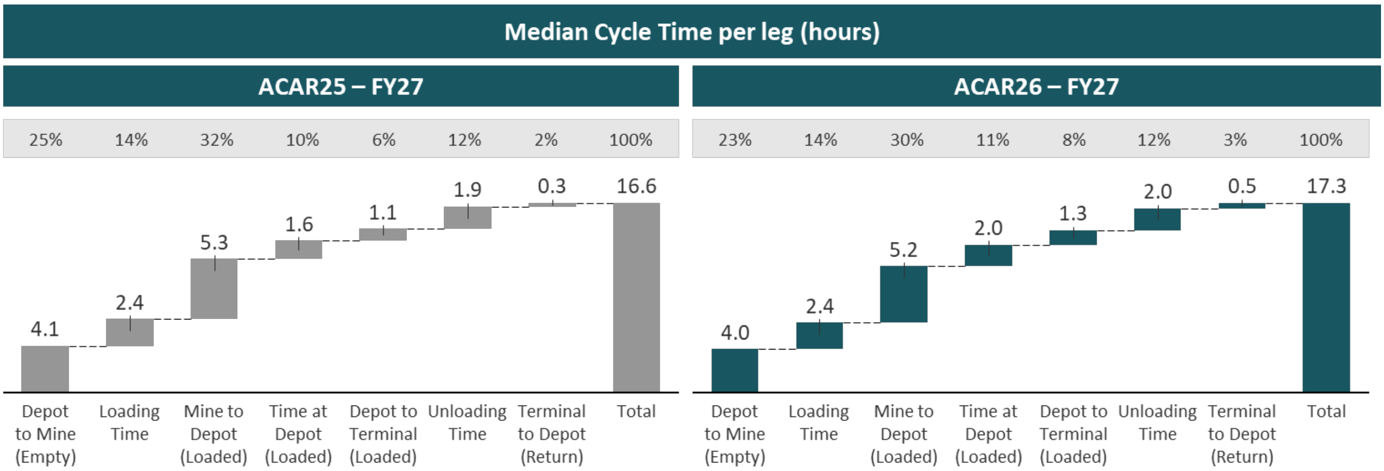
For reference, actual median Moura cycle time in FY25 was 17.4 hours for trains departing and returning to Callemondah.

Table 12 - Moura cycle time

Median Cycle Time (Hours)	FY26 (ACAR25)	FY27 (ACAR25)	FY27 (ACAR26)	FY27 Change
Moura	18.4	18.6	17.3	-7%
Median Cycle Time (Hours)	**FY26 (ACAR25*)**	**FY27 (ACAR25*)**	**FY27 (ACAR26)**	**FY27 Change**
Moura	16.6	16.6	17.3	4%

* ACAR25 values are restated.

Figure 45 – Moura cycle time per leg



9.6 DNC and Available Capacity/Existing Capacity Deficit

FY27 DNC for the Moura system is largely unchanged since ACAR25, increasing by just 17 train paths. As shown in **Figure 46**, the increase in committed capacity since ACAR25, discussed in **Section 11.4**, results in a reduction in available capacity of approximately 70 to 80 train paths in the early years of the ACAR period. This impact moderates to approximately 60 train paths by FY30, before increasing again in FY31, reflecting a coincident reduction in Blackwater system DNC in that period.

In tonne terms, capacity increases more substantially, with a 2% increase in modelled payload resulting in Moura system DNC rising to 17.0Mt.

Capacity outcomes for all years of the ACAR period is outlined below in **Figure 46** (train paths) and **Figure 47** (tonnes).

Figure 46 - Moura summary for FY27 to FY31 (train paths)

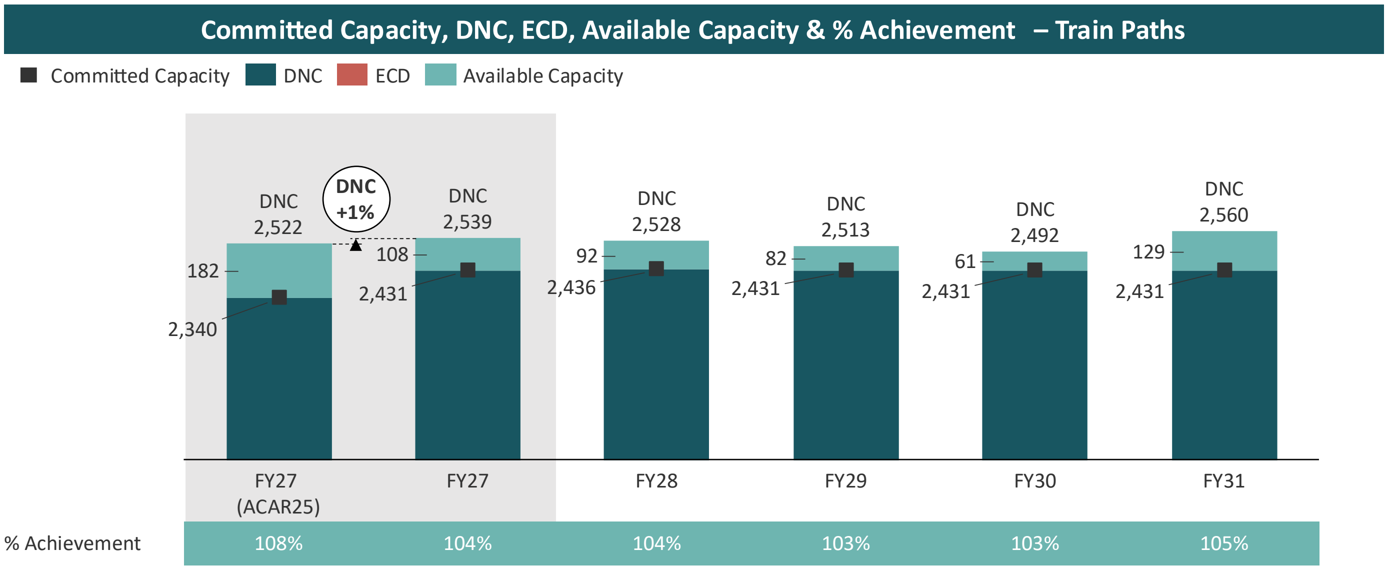
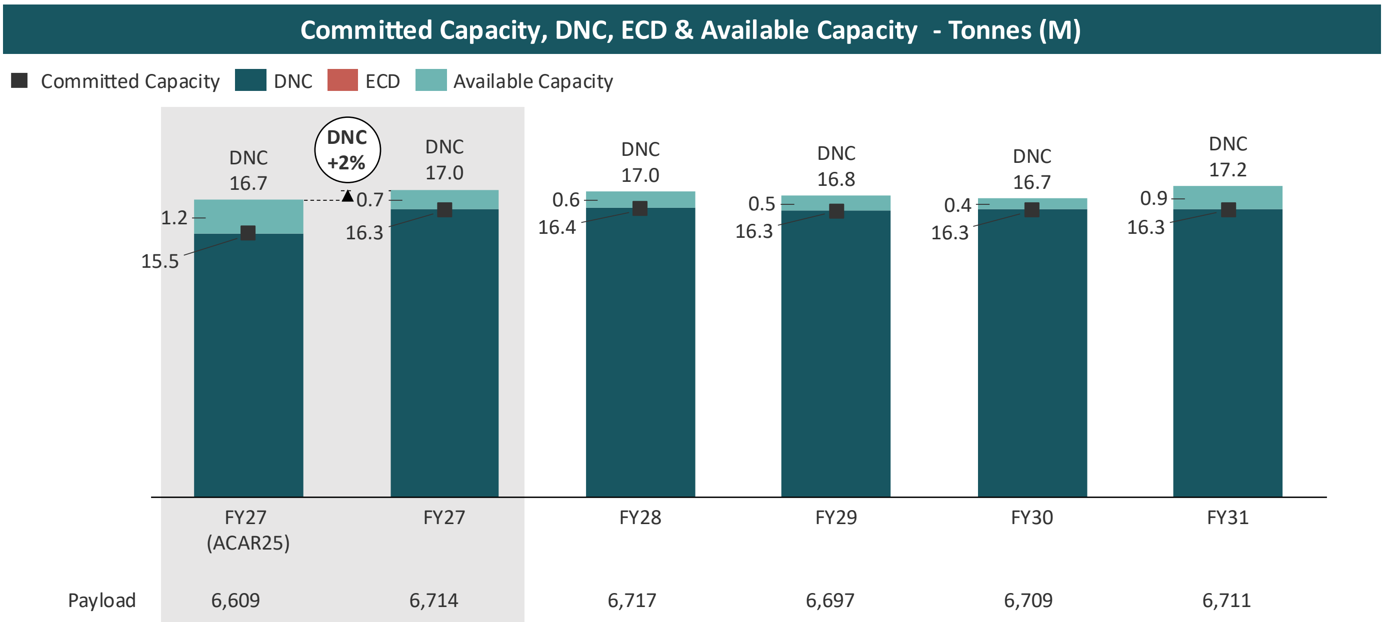


Figure 47 - Moura summary for FY27 to FY31 (tonnes)

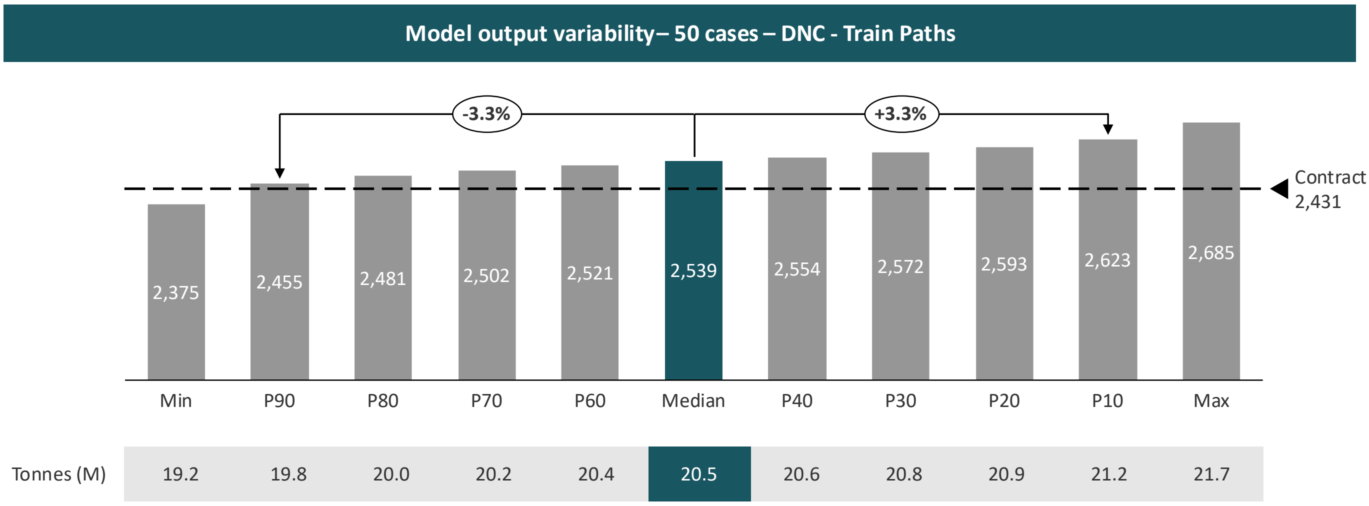


9.7 Model Variability

The ACAR25 Moura System DNC for FY27 of 2,539 train paths was derived from the median outcome of 50 modelled simulation runs. The P90 to P10 range of the DNC was from 2,455 to 2,623 train paths as shown in **Figure 48,** indicating a variability range of ~6%.

Committed capacity for FY27 was achieve in 90% of runs. This represents a slight reduction from ACAR25, in which all simulation runs achieved committed capacity.

Figure 48 - Moura FY27 DNC – model variability



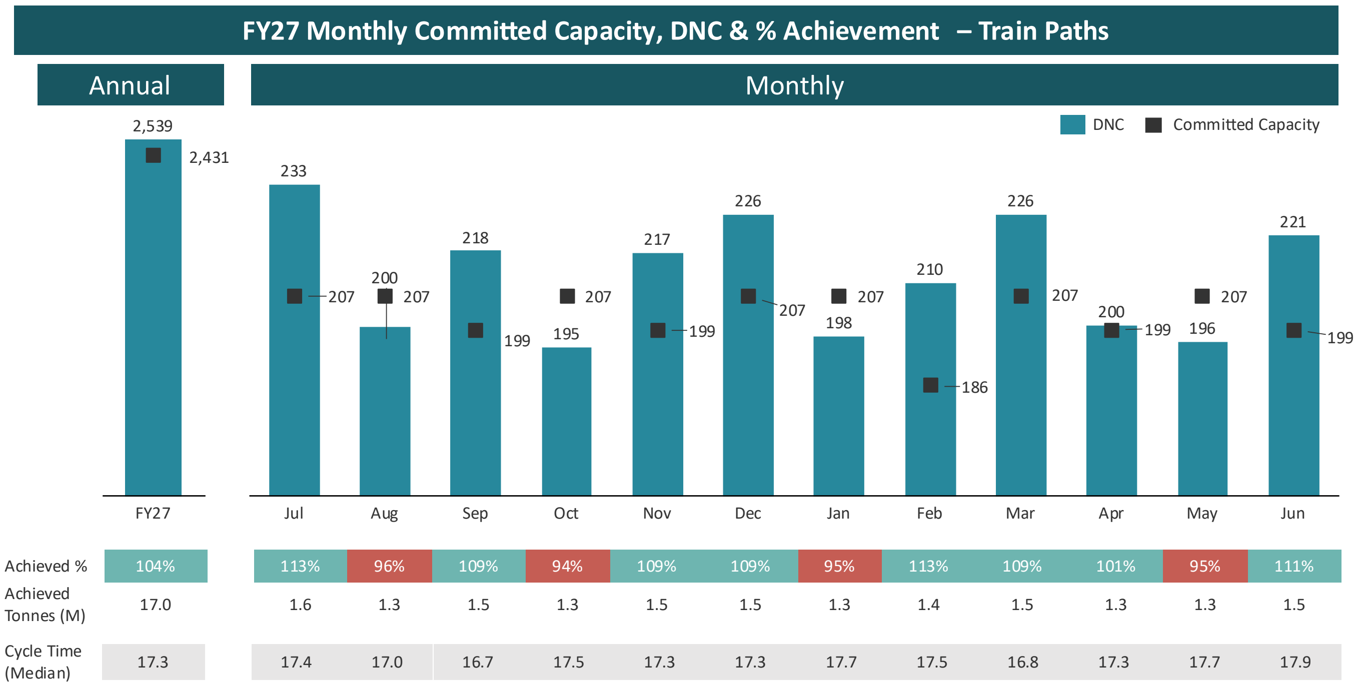
9.8 Monthly Capacity Variability

FY27 monthly capacity and contract achievement in the Moura system largely reflect the impact of four integrated closures occurring in August, October, January and May. These months correspond to periods in which modelled capacity falls below contracted levels as shown in **Figure 49**.

Outside these closure periods, monthly capacity is in the range of 210-230 train paths.

Monthly capacity for the full five-year period of the ACAR Model is shown in **APPENDIX E: Moura System Information.**

Figure 49 – Moura System FY27 monthly capacity



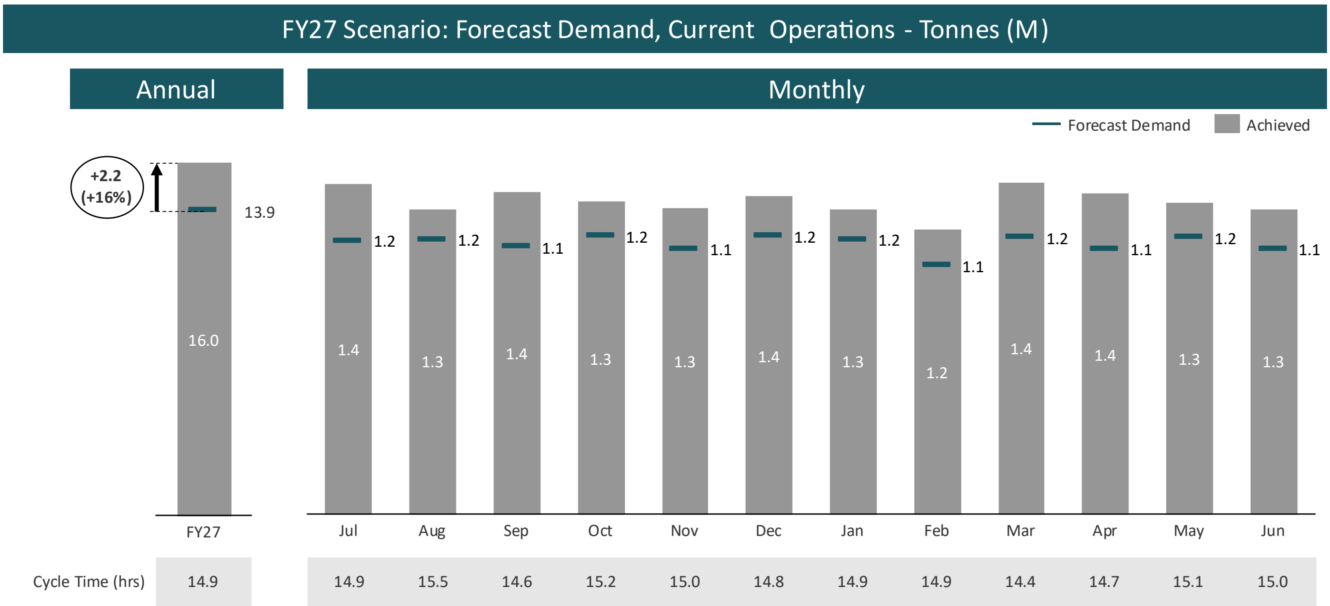
9.9 Forecast Demand, Current Operations Scenario

The IE notes that recent levels of throughput in the Moura system have been much closer to committed capacity levels than in other systems. In FY25 throughput totalled 2,187 train services compared with a FY25 contracted level of 2,304 train services.

Nonetheless, as in ACAR25, the IE has examined a scenario for FY27 that uses demand represented by the FY27 annual volume forecasts for each origin-destination prepared by AN for submission to the QCA, and with unadjusted cancellation rates. Terminal and track maintenance assumptions and consist numbers remain unchanged, reflecting current operating conditions for these inputs.

As shown in **Figure 50**, sufficient capacity is expected to be available to meet forecast FY27 demand in all months of the year. Comparison with the DNC outcomes suggests that, under this scenario, no shortfall will be evident in the system closure months of August, October, January and May. This outcome is likely due to the Blackwater system forecast demand being approximately 20% below contract, which provides additional capacity at RGTCT for Moura services during these otherwise constrained months.

Figure 50 – Moura system FY27 scenario



9.10 Branch Line Capacity and System Constraints

The IE has undertaken a series of Model sensitivity analyses to identify potential constraints within the Moura System and its branch lines. This analysis included scenarios in which demand in the Blackwater System was reduced to ensure that unloading capacity at RGTCT was fully available to Moura system trains.

Consistent with the findings in ACAR25, the analysis indicates that there are no significant constraints on the Moura system branch lines. The results suggest that, where additional capacity through to RGTCT is available, Moura System branch lines would not be the constraint.

The monthly results of this analysis are outlined below in **Table 13**.

Table 13 - Moura system branch line sensitivity per month

Branch Line Capacity in excess of Committed Capacity FY27													
Line	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Total**
5 - Boundary Hill Junction to Callemondah	+100	+60	+90	+50	+85	+85	+60	+95	+105	+70	+55	+85	**+940**
5A - Boundary Hill Junction to Earlsfield	+100	+60	+90	+50	+85	+85	+60	+95	+105	+70	+55	+85	**+940**
5B - Earlsfield to Callide	+50	+45	+60	+40	+50	+45	+50	+65	+85	+60	+60	+65	**+675**
5C - Earlsfield to Moura	+95	+70	+85	+55	+85	+90	+55	+85	+95	+65	+60	+80	**+920**

9.11 Reconciliation to Maximum Capacity

As was the case in ACAR25, the IE has undertaken a series of Model scenarios to illustrate the factors that restrict modelled throughput relative to DNC. These scenarios progressively relax restrictions on the system by removing three main constraints: day of operations losses, planned maintenance and non-track constraints.

This sensitivity testing was conducted on a combined Blackwater-Moura system basis in order to illustrate the relative contribution of different constraint categories and to highlight the relative potential for operating improvements to release latent capacity. The results of this analysis are included in **Section 10.11** of this report.

9.12 Capacity Risks and Opportunities

There appear to be few material capacity risks specific to the Moura System. Moura system capacity outcomes will continue to be affected by constraints within the Blackwater system, particularly within the Callemondah precinct, as outlined in **Section 10.**

The IE will continue to refine the representation of these interactions within the Model to ensure alignment with observed operating practices, consistent with the modelling improvement described in **Section 7.1.1**.

10. Abbreviations

The following abbreviations may be used throughout this document:

ABBREVIATION	MEANING
ACAR	Annual Capacity Assessment Report
AN	Aurizon Network
CQCN	Central Queensland Coal Network
CY	Calendar Year
DBCT	Dalrymple Bay Terminal
DNC	Deliverable Network Capacity
ECD	Existing Capacity Deficit
FSS	Full System Shut
FY	Financial Year
GAPE	Goonyella to Abbott Point Expansion
HPCT	Hay Point Coal Terminal
ICAR	Initial Capacity Assessment Report
IE	Independent Expert
Model	CQCN Dynamic Simulation Model
MRSB	Maintenance, Renewal & Strategy Budget
Mt	Tonnes per annum in Millions
NQXT	North Queensland Export Terminal
NRG	Gladstone Powerhouse
QAL	Queensland Alumina Limited
QCA	Queensland Competition Authority
RIG	Rail Industry Group
RCS	Remote Control Signalling
RGTCT	RG Tanna Coal Terminal
SOP	System Operating Parameters
SRT	Sectional Running Time
TAs	Transitional Arrangements
TLO	Train Load Out
TSE	Train Service Entitlement
TSR	Temporary Speed Restriction
UT5	Aurizon Network 2017 Access Undertaking
WICET	Wiggins Island Coal Export Terminal

APPENDIX A: Newlands System Information

UT5 requires the IE to determine DNC for each system in the CQCN. Capacity modelling for Newlands and GAPE systems has been undertaken on a combined basis, reflecting their shared mainline infrastructure and common capacity constraint.

To meet UT5 requirements, the IE has nevertheless presented DNC results separately for each system. These results allocate DNC and ECD to individual origin-destination pairs based on the combined modelling outcomes, without attributing or apportioning the source of any capacity deficit between the two systems.

Figure A1: Newlands summary for FY27 to FY31 (train paths)

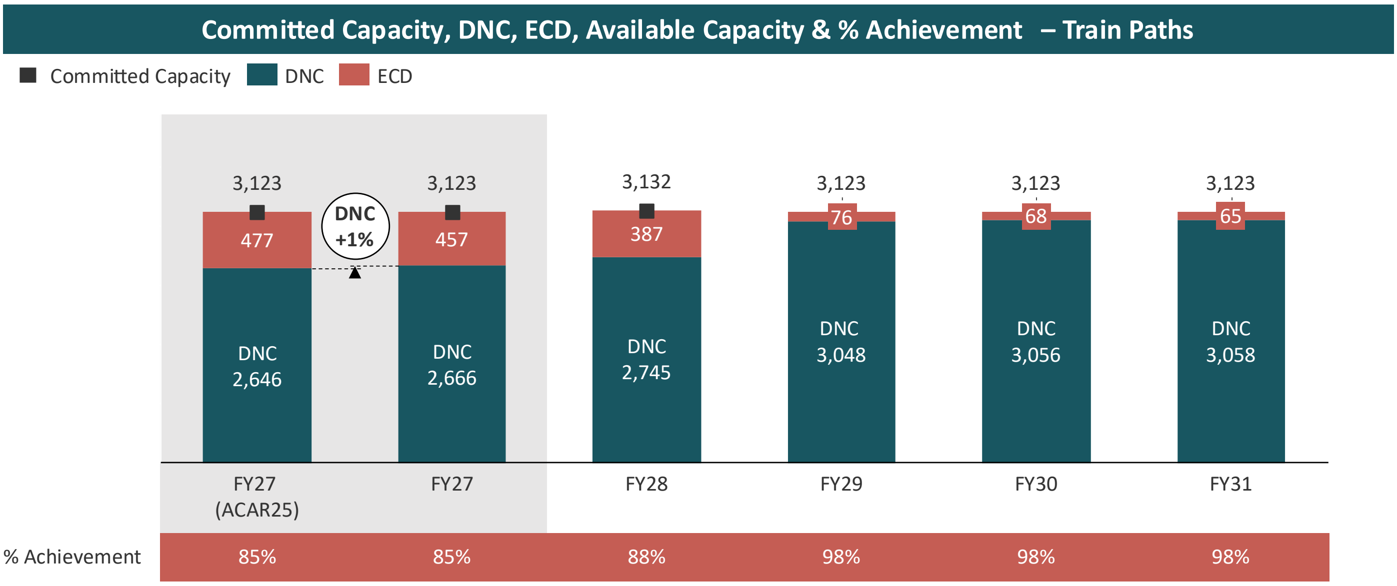


Figure A2: Newlands summary for FY27 to FY31 (tonnes)

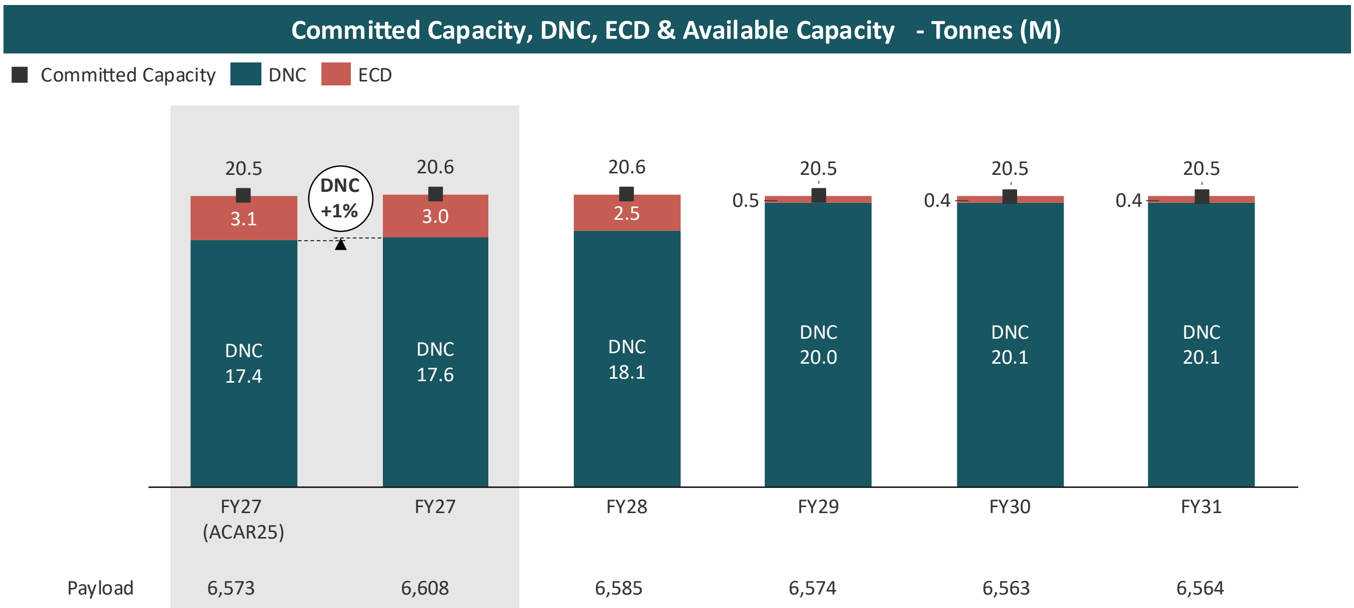
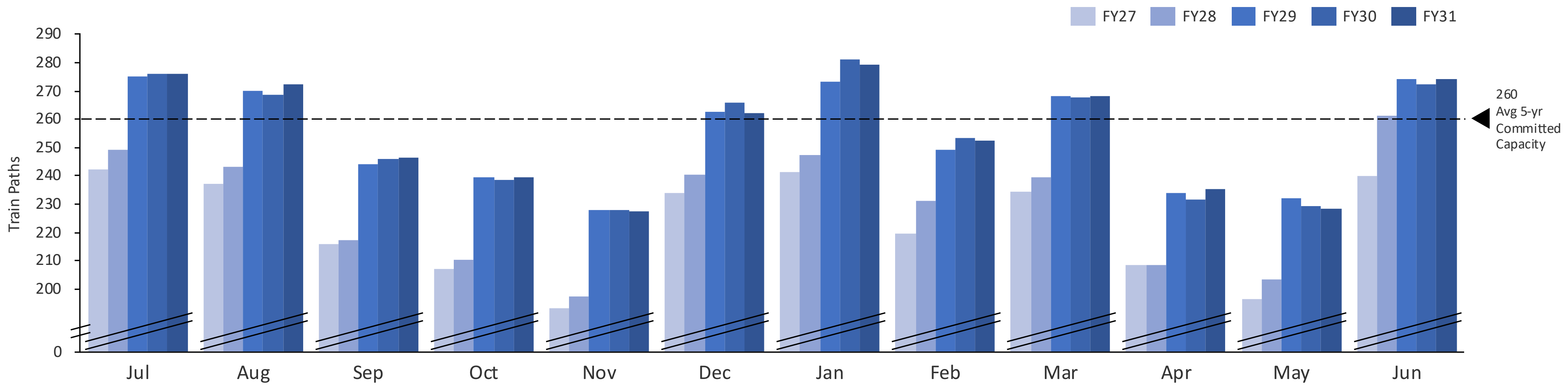


Figure A3: Newlands system DNC per month per year



	Month											
Year	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
FY27	242	237	216	207	193	234	241	220	234	208	196	240
FY28	249	243	217	210	197	240	247	231	239	208	203	261
FY29	275	270	244	239	228	263	273	249	268	234	232	274
FY30	276	269	246	239	228	266	281	253	268	232	229	272
FY31	276	272	246	239	227	262	279	252	268	235	228	274

APPENDIX B: GAPE System Information

UT5 requires the IE to determine DNC for each system in the CQCN. Capacity modelling for Newlands and GAPE systems has been undertaken on a combined basis, reflecting their shared mainline infrastructure and common capacity constraint.

To meet UT5 requirements, the IE has nevertheless presented DNC results separately for each system. These results allocate DNC and ECD to individual origin-destination pairs based on the combined modelling outcomes, without attributing or apportioning the source of any capacity deficit between the two systems.

Figure B1: GAPE summary for FY27 to FY31 (train paths)

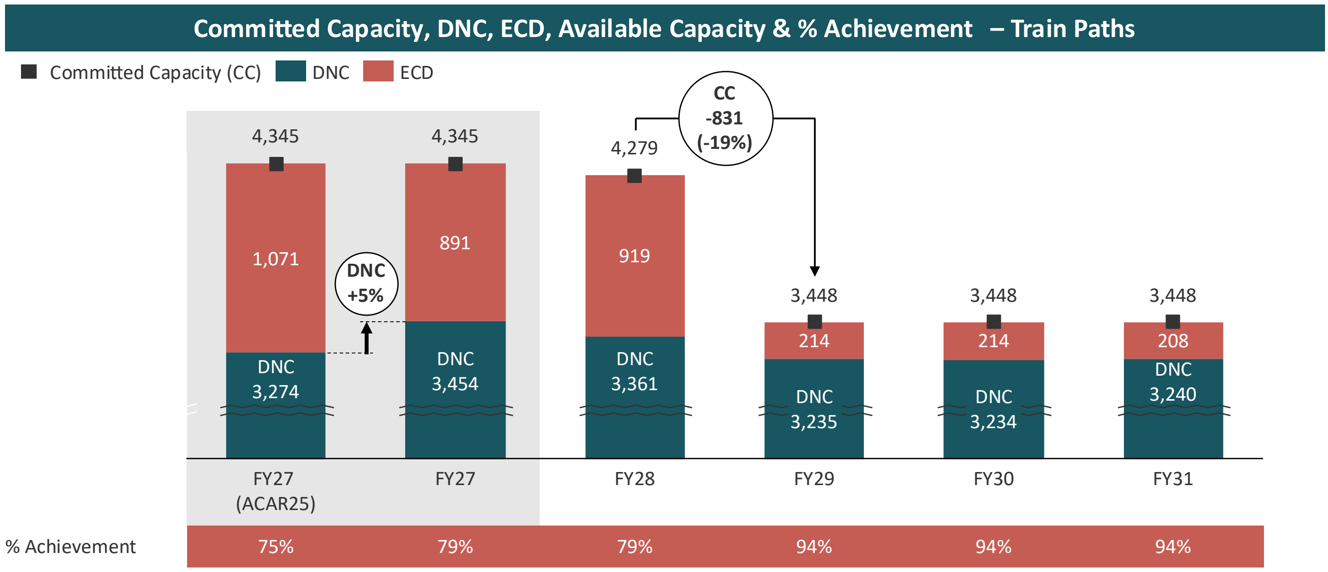


Figure B2: GAPE summary for FY27 to FY31 (tonnes)

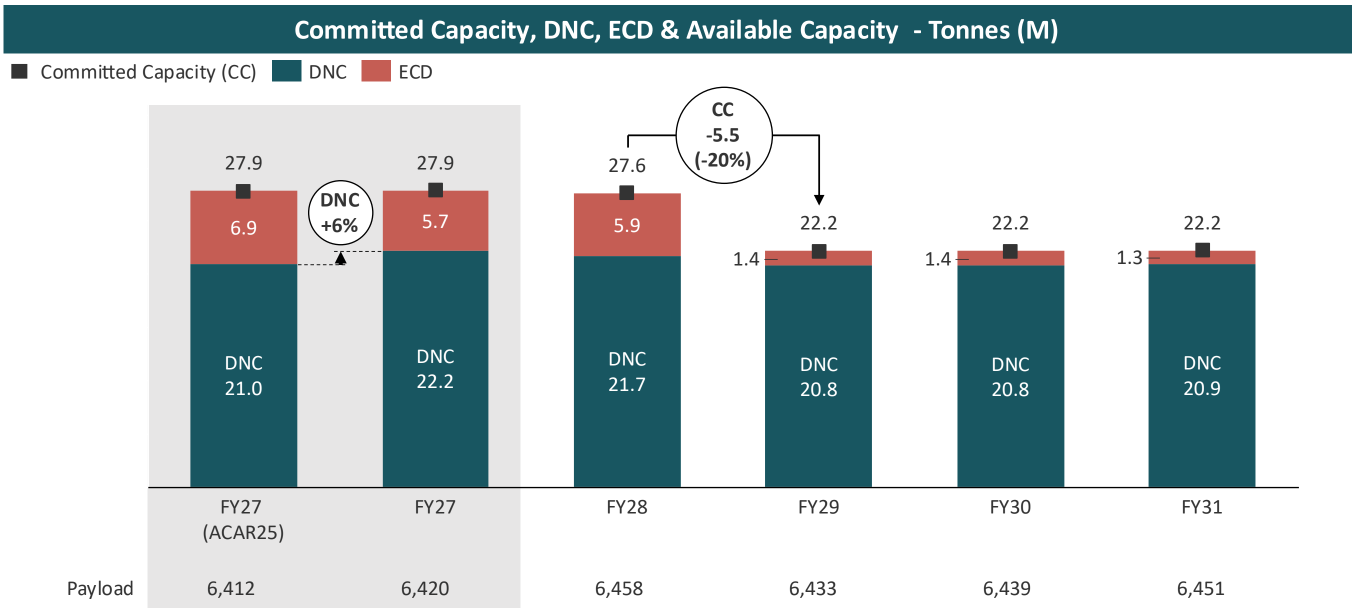
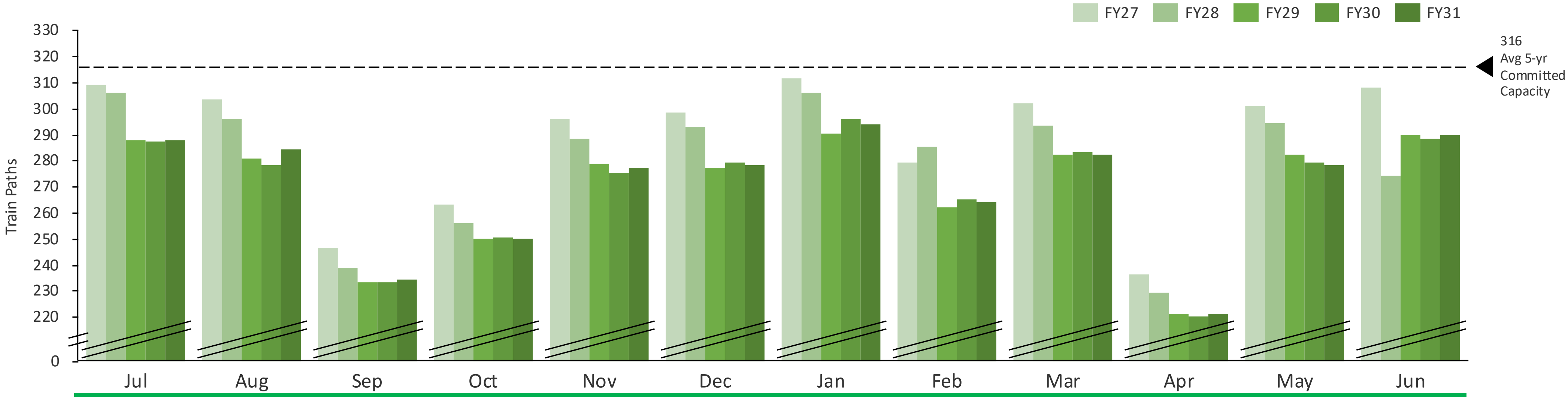


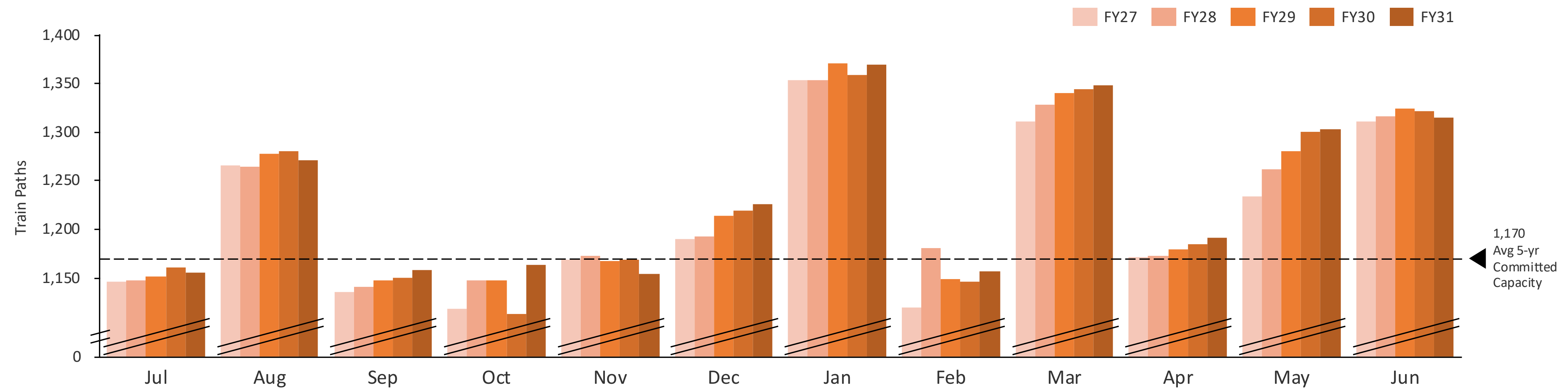
Figure B3: GAPE system DNC per month per year



	Month											
Year	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
FY27	309	304	247	263	296	299	312	279	302	236	301	308
FY28	306	296	239	256	289	293	306	285	294	229	295	274
FY29	288	281	233	250	279	277	291	262	282	221	282	290
FY30	287	278	233	251	275	279	296	265	283	220	279	289
FY31	288	284	234	250	277	278	294	264	282	221	278	290

APPENDIX C: Goonyella System Information

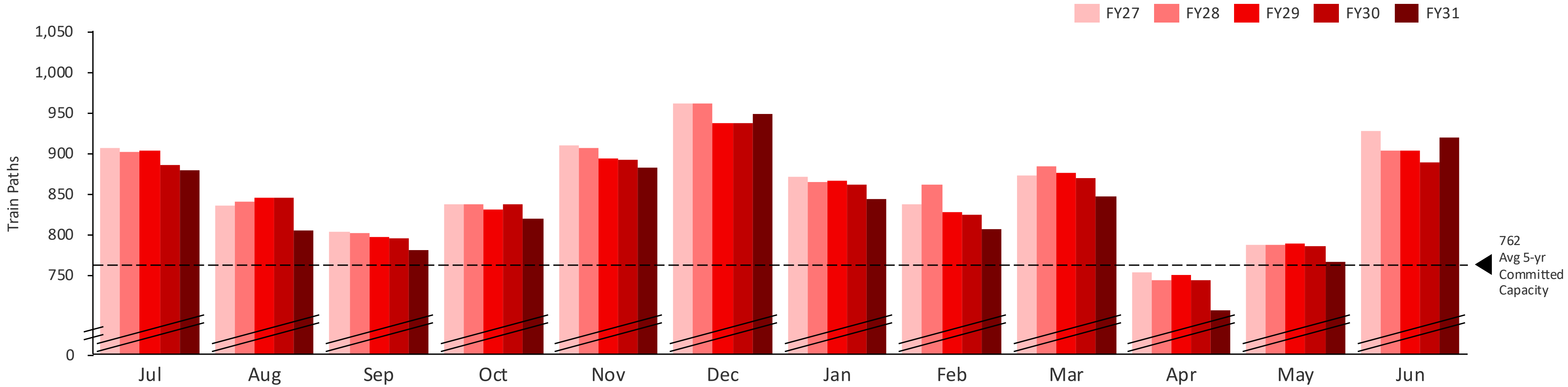
Figure C1: Goonyella system DNC per month per year



	Month											
Year	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
FY27	1,145	1,266	1,135	1,117	1,168	1,189	1,353	1,119	1,310	1,170	1,233	1,310
FY28	1,147	1,264	1,140	1,147	1,172	1,193	1,353	1,180	1,327	1,172	1,262	1,316
FY29	1,151	1,277	1,146	1,147	1,167	1,214	1,370	1,148	1,340	1,178	1,279	1,323
FY30	1,160	1,280	1,150	1,113	1,168	1,218	1,359	1,146	1,344	1,184	1,299	1,321
FY31	1,155	1,270	1,157	1,163	1,153	1,225	1,369	1,156	1,348	1,191	1,302	1,314

APPENDIX D: Blackwater System Information

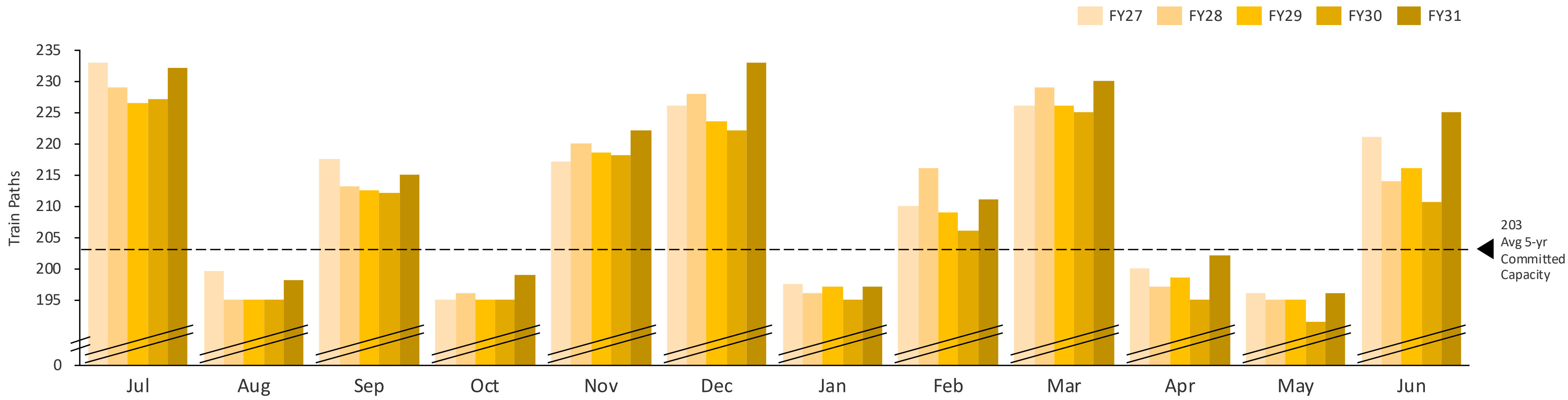
Figure D1: Blackwater system DNC per month per year



	Month											
Year	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
FY27	907	835	804	836	909	961	871	837	872	753	786	927
FY28	901	840	802	836	906	961	864	862	884	743	787	902
FY29	902	845	797	830	893	937	865	827	876	749	789	902
FY30	886	844	795	836	892	937	861	824	869	743	785	889
FY31	879	804	781	819	882	947	843	806	846	706	766	919

APPENDIX E: Moura System Information

Figure E1: Moura system DNC per month per year



	Month											
Year	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
FY27	233	200	218	195	217	226	198	210	226	200	196	221
FY28	229	195	213	196	220	228	196	216	229	197	195	214
FY29	227	195	213	195	219	224	197	209	226	199	195	216
FY30	227	195	212	195	218	222	195	206	225	195	192	211
FY31	232	198	215	199	222	233	197	211	230	202	196	225