



Economic Regulation Authority

Draft determination of Arc Infrastructure depreciated optimised replacement costs and depreciation schedule

Attachment 3: Optimisation

26 March 2026

Acknowledgement of Country

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We acknowledge their continuing connection to culture and community, their traditions and stories. We commit to listening, continuously improving our performance and building a brighter future together.

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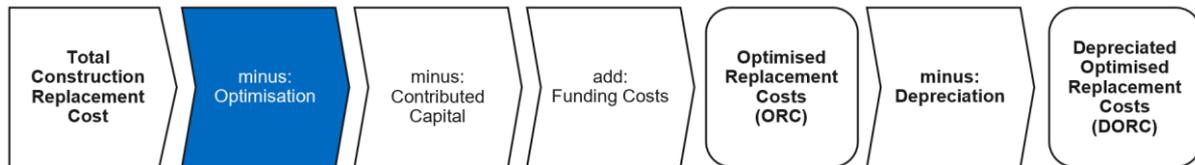
Note

This attachment relates to the optimisation component of the DORC

This attachment forms part of the ERA's draft determination on the Arc DORC and Arc Depreciation Schedule. It should be read in conjunction with all other parts of the draft determination, which comprises of the following documents and attachments:

- Overview
- ERA's draft determinations of depreciated optimised replacement costs by route section
- ERA's draft determinations of depreciated optimised replacement costs (model)
- ERA's draft determinations of depreciation schedule (model)
- Attachment 1: Information used by the ERA
- Attachment 2: Total construction replacement costs
- **Attachment 3: Optimisation (this document)**
- Attachment 4: Capital contributions
- Attachment 5: Funding cost during construction
- Attachment 6: Depreciation
- Attachment 7: DORC summary
- Attachment 8: Depreciation schedules

Attachment 3. Summary



The optimised asset configuration for a route is the asset configuration, constructed at least cost, that has the capacity to meet the actual and reasonably projected demand, within the physical constraints of the existing railway corridor.

The optimised asset configuration is established by adjusting the existing asset configuration as required to meet the actual and reasonably projected demand.

The goal of optimisation is to prevent the railway owner from recovering costs of an inefficient or overbuilt network. Optimisation ensures that costs reflect the costs facing an efficient new entrant.

Arc's Costing Principles state that the level of service associated with the actual and reasonable projected demand is defined in terms of maximum axle loads, maximum train speeds and maximum train lengths.

In its Costing Principles, Arc has undertaken to identify redundant assets, assess modern equivalent asset capability against existing capacity, assess the demand forecast to identify required changes, determine the value of optimisation and adjust the replacement cost by that value. The net present value of the difference between forecast operating cost of actual railway infrastructure and optimised infrastructure is also subtracted from the asset replacement cost.

In its Costing Principles, Arc has undertaken to provide a 10-year demand forecast based on 10 years of historical demand data. Arc has described demand in terms of maximum axle loads, train speeds and train lengths. Arc has defined demand as equal to the level of service and therefore has proposed that the current asset is required to be maintained at its present level of service to meet current and future demand. Arc has therefore stated that optimisation of assets is not required on account of its assessment of current and projected future levels of demand.

Arc has nonetheless proposed some optimisation associated with an alternative lower-cost procurement strategy. This strategy would involve Arc providing ballast, sleepers, rail, turnouts, plant and equipment directly from its own suppliers, and not from the contractor constructing the network. Under this strategy, contractor indirect costs may be reduced to a 5 per cent margin.

Arc proposed additional optimisation amounts which would result from the removal of some redundant passing loops and route sections. Arc did not propose any optimisation associated with closed, or non-operational routes.

Stakeholders disagreed with Arc's definition of demand and therefore its estimation of forecast demand. Stakeholders also submitted that non-operational routes should be removed during optimisation. Submissions also noted it was unclear how the optimisation, identified at network group level by Arc, was applied to individual route sections.

The ERA's assessment of optimisation is based on the following factors:

- Level of service demand
- Optimisation due to alternative lower-cost procurement
- Optimisation of passing loops and redundant route sections
- Optimisation of non-operational route sections.

These are discussed below.

Level of service demand

Arc defined demand in terms of maximum axle loads, train speeds and train lengths. On this basis, Arc has claimed that there is no scope for optimisation on account of projected demand.

The ERA considers that Arc's approach conflates concepts of demand and capacity. The difference is that, while the capacity may be required in terms of track specifications, demand levels must be assessed on the basis of the actual freight task, for example on the basis of gross tonne kilometres (GTK).

In response to a request by the ERA, Arc provided GTK data. RPI's analysis of the GTK data supports the position that demand factors do not substantiate a case for optimisation.

Optimisation due to alternative lower-cost procurement

The majority of Arc's proposed optimisation is due to savings from a proposed alternative procurement strategy, whereby Arc would procure track assets and plant assets directly (and at the same cost as indicated by the Tier 1 contractor), but would install those assets itself, or under a separate construction contract. In Arc's statement, the proposed optimisation savings have been allocated entirely to track assets, and the optimisation of plant and equipment assets is unclear.

Further, the calculation of Arc's optimisation savings associated with the reduction of contractor's margins to 5 per cent is not transparent and the resulting optimisation does not result in a reduction of 5 per cent.

The ERA does not accept Arc's proposed optimisation based on alternative procurement as the alternative procurement scenario is not consistent with the costings provided by a Tier 1 contractor for replacement of all network assets. In addition, the scenario may not be practically feasible, as the entire network including plant, equipment and workshop/manufacturing facilities do not exist at the outset, and so Arc would therefore not have the necessary means to undertake the construction project internally.

Furthermore, consideration of an alternative procurement scenario is not appropriate in the context of optimisation, but rather is relevant as part of considering construction replacement costs.

Arc has stated that it may provide further information to show how an alternative procurement may be reconciled with the conventional Tier 1 procurement costing adopted by the ERA. The ERA's approach - constructing the entire rail network - is detailed in Attachment 2 Total Construction Replacement Cost. The ERA invites further stakeholder submissions in conjunction with any further information from Arc on this matter.

Optimisation of passing loops and redundant route sections

Arc has identified 2.8 km of redundant route sections and a total of 33.6 km of loops that it claims may be optimised from the asset base on the basis of train lengths. Arc has proposed the removal of loops which are more than 300m shorter than the maximum train length and loops which exceed the maximum train length have been shortened to match the relevant maximum train length. Routes which have been identified as redundant due to no realistic prospect of re-entering into service have also been removed.

The ERA does not accept Arc's proposal on the optimisation of loops because maximum train lengths do not influence the use of loops by shorter trains. A loop may still be required for use by shorter trains even if it cannot accommodate the maximum train length. For example, the optimal operation of the rail network may have a smaller train use the loop as the longer train continues along the route.

Optimisation of non-operational route sections

Arc has not optimised any non-operational route sections from its asset base but rather has removed associated replacement values through depreciation.

The ERA has optimised out all non-operational routes on the basis that it is the most appropriate treatment for non-operational assets. The ERA has identified the route between Picton and Greenbushes as non-operational and has removed that route section from the asset base.

Level of Service Demand

1. An assessment of optimised replacement cost for a route is underpinned by an agreed level of service demand for that route.

Arc Infrastructure Proposal

2. Arc's Costing Principles require that the optimised asset configuration is based on a ten year demand forecast based on ten years of historical demand data.
3. Arc's level of service demand statement specifies axle loads, train lengths and speeds for each route section. Arc sets out its historical existing and forecast demand on the following basis:¹
 - Historical demand – defined in terms of the number of years in the last 10 years there has been an agreement in place for that level of services. This is shown in section 5 of Arc's level of service statement.
 - Existing demand – defined in terms of axle loads, speeds or train lengths, for which there was at least one agreement in place as at 31 December 2024. Existing (at 31 December 2024) agreements by axle load and speed, or train length are shown in section 6 of Arc's level of service statement.
 - Forecast demand – defined in terms of maximum train lengths for each route section. Section 4 of Arc's level of service statement provides a table showing maximum train lengths for each route section, and provides that "unless otherwise stated, this is the level of service demand forecast for the next ten years".
4. With regard to the forecasting method adopted, the level of service statement states that:²
 - where an agreement for access existed during the prior 10 years, the maximum level of service required by those agreements on those route sections is taken as the reasonably forecast level of service demand for the next 10 years, on the basis that this demand is expected to continue; otherwise
 - where there has been no agreement for access during the prior 10 years (in particular, on non-operational lines), the reasonably forecast level of service demand for the next 10 years is taken to be equivalent to the level of service when the section was last operational, on the basis that future tasks will require at least that level of service because it is typically modest relative to modern railway infrastructure; otherwise
 - where a Route section is a siding, yard, or similar non-mainline part of the network, a network wide level of service is taken as the reasonably forecast level of service demand for the next ten years, on the basis that the future tasks utilising those sections will be subject to the same safe operating limits that currently apply.

¹ Arc Infrastructure *Level of Service Demand Forecast Statement* pp. 5-7.

² Arc Infrastructure *Level of Service Demand Forecast Statement* p, 6.

5. On this basis, Arc's report states that its consultant has:³
- “reviewed the level of service statement provided by Arc and concluded future required capacity of the assets is not likely to be lower than that provided by the existing assets, where demand is defined in terms of maximum axle loads, train speeds and train lengths. On this basis, there is no scope for optimisation by applying this principle.”
6. Arc stated that “the review did not explore the need to increase the level of service beyond that offered by the existing railway infrastructure.”⁴
7. Arc has submitted that:⁵
- the future required capacity of the assets is not likely to be lower than that provided by the existing assets
 - there is no opportunity to reduce the replacement costs to resolve any inconsistencies between the level of service provided by the modern equivalent asset (MEA) and the existing assets.
8. Arc submitted that its proposed optimisation reflects efficient service provision to the extent that it:⁶
- eliminates surplus capacity by identifying and removing redundant assets
 - allows for the modernisation of technology
 - considers route realignment where appropriate by accounting for recent and relevant projects.
9. Arc's statement did not examine any potential for an increase in the level of service beyond that offered by the existing railway infrastructure.

Comments in submissions

AEMC

10. AMEC submitted that Arc's level of service statement should be rigorously tested against real market conditions. AMEC submitted that it is flawed analysis to assume that historical use is an accurate prediction of future requirements. AMEC submitted that the analysis should be based on current arrangements, aligned to terms and dates. AMEC submitted that a discussion or survey of future customers would be a reasonable expectation.⁷

³ GHD Advisory, *Applicable Railway Infrastructure DORC Final Report – Arc Infrastructure Pty Ltd*, 06 June 2025, p. 70.

⁴ GHD Advisory, *Applicable Railway Infrastructure DORC Final Report – Arc Infrastructure Pty Ltd*, 06 June 2025, p. 70.

⁵ GHD Advisory, *Applicable Railway Infrastructure DORC Final Report – Arc Infrastructure Pty Ltd*, 06 June 2025, p. 70.

⁶ GHD Advisory, *Applicable Railway Infrastructure DORC Final Report – Arc Infrastructure Pty Ltd*, 06 June 2025, p. 70.

⁷ Association of Mining and Exploration Companies, *Submission on Depreciated Optimised Replacement Cost (DORC) valuation of Arc Infrastructure's railway assets*, July 2025, p. 5.

11. AMEC submitted that service levels may be costed higher than what access seekers currently obtain or use, and that this would occur if Arc has upgraded routes beyond current performance requirements.⁸

Aurizon

12. Aurizon submitted that Arc has made insufficient valuation adjustments to reflect additional maintenance costs associated with assets being constructed to less than modern equivalent asset, with Arc recognising only limited instances of higher costs.⁹
13. Further, Aurizon submitted that the valuation should be adjusted to reflect the operating cost penalty imposed on rail operators, where they are unable to operate train services in a way that would be permitted if assets were constructed to MEA standard.¹⁰

CBH

14. CBH submitted that operating restrictions exist on the current network which impose additional costs on users that would not be experienced if the proposed MEA network was in place. It argues that Arc's depreciated optimised replacement costs should be adjusted to reflect these additional operational costs, using publicly available operational cost information.¹¹
15. CBH submitted that the net present value of rail user operating costs can act as a proxy for the reduced value attributable to existing assets compared with new assets. A DORC value without such a reduction would imply that users place the same value on existing assets as they would on MEA assets.¹²
16. CBH has monetized, as an example, some of these additional costs based on publicly available operation information. CBH estimated that the reduced payload associated with operating on the current 16 TAL lines versus the MEA of 19 TAL (Toodyay to Miling; Goomalling to McLevie; Burakin to Beacon and Tilley to Perenjori) has a present value of \$2.4 million over 10 years. Applying travel time savings associated with the 19 TAL on other routes (Morawa to Mullewa) of 27 per cent to all 16 TAL lines results in \$6.5 million over 10 years. CBH argued that Arc should provide the remaining asset life for each asset class in years to assist with these calculations.¹³

⁸ Association of Mining and Exploration Companies, *Submission on Depreciated Optimised Replacement Cost (DORC) valuation of Arc Infrastructure's railway assets*, July 2025, p. 2.

⁹ Aurizon, *Arc Infrastructure Proposed Depreciated Optimised Replacement Cost Submission to ERA*, 11 August 2025, p. 6.

¹⁰ Aurizon, *Arc Infrastructure Proposed Depreciated Optimised Replacement Cost Submission to ERA*, 11 August 2025, p. 6.

¹¹ CBH Group, *CBH submission on Arc Infrastructure's statement of the depreciated optimised replacement cost and statement of the depreciation schedule published on 16 June 2025*, 11 August 2025, p. 56.

¹² CBH Group, *CBH submission on Arc Infrastructure's statement of the depreciated optimised replacement cost and statement of the depreciation schedule published on 16 June 2025*, 11 August 2025, p. 56.

¹³ CBH Group, *CBH submission on Arc Infrastructure's statement of the depreciated optimised replacement cost and statement of the depreciation schedule published on 16 June 2025*, 11 August 2025, pp. 56-57.

17. CBH submitted that it does not disagree with the outcome of Arc's demand analysis for the operational lines CBH utilises, but that it considers there are several issues with Arc's approach to defining demand, as follows:¹⁴
- The level of service statement reflects Arc's view of network service levels. It does not reflect a 10-year demand forecast. It represents existing, historical and forecast demand in terms of the number of agreements, instead of tonnages or GTKs as was the case in the ARTC DORC report and other regulatory demand analyses.
 - The failure of Arc to provide this information makes it difficult to assess the appropriateness of required service levels, as agreement tonnages that may impact service levels can range drastically from hundreds or thousands of tonnes to millions of tonnes. CBH states that "Arc's LOS Demand Statement should be amended to reflect tonnage or GTKs".
 - Arc should reference the level of service statement in the relevant sections of its Report.
 - Arc's methodology or rationale for arriving at forecast demand is inappropriate as it is "not reasonable to assume that demand observed over the past ten years will necessarily continue" and "where there has been no demand for over ten years, it is not reasonable to assume demand for services will exist in the future unless there is clear evidence to support such a position. If there is no foreseeable demand on non-operational lines, no level of service is required, and this should be reflected."
18. CBH submitted that the forecasts represented in Arc's level of service demand forecast statement should reflect existing contracts and potential future contracts only where there is evidence to suggest they are reasonably likely to exist in the future.¹⁵
19. CBH submitted that there are significant differences between the level of service provided by the MEA specification and existing assets. CBH submitted that where this occurs, it warrants some adjustment, either to the modern equivalent asset specification and associated costs, or by optimisation.¹⁶

Pacific National submission

20. Pacific National submitted that new assets constructed to modern standards might be expected to have greater service capacity. Pacific National wrote "where a significant difference exists, the lower service capability of the existing assets should be reflected in the depreciation adjustment". Pacific National provided two examples:¹⁷
- Whether substituting concrete for timber sleepers inherently allows higher service standards with respect to axle loads and train speeds.
 - Whether modern equivalent signalling assets allow for more efficient train control, and so greater average speeds to be achieved. Pacific National wrote "if any such

¹⁴ CBH Group, *CBH submission on Arc Infrastructure's statement of the depreciated optimised replacement cost and statement of the depreciation schedule published on 16 June 2025*, 11 August 2025, pp. 31-33.

¹⁵ CBH Group, *CBH submission on Arc Infrastructure's statement of the depreciated optimised replacement cost and statement of the depreciation schedule published on 16 June 2025*, 11 August 2025, p. 34.

¹⁶ CBH Group, *CBH submission on Arc Infrastructure's statement of the depreciated optimised replacement cost and statement of the depreciation schedule published on 16 June 2025*, 11 August 2025, p. 33.

¹⁷ Pacific National, *Submission Arc Infrastructure's statement of the depreciated optimised replacement cost and statement of the depreciation schedule*, 11 August 2025, p. 7.

differences in service quality are likely, then we submit that the ERA should consider whether corresponding depreciation adjustments should be made to reflect the inherently lower value of the existing assets”.

21. Pacific National submitted that the depreciated optimised replacement cost determination should include a downward adjustment for the difference in value to users of the lesser service potential of the actual asset. Pacific National noted the higher operating and maintenance costs of the existing asset due to factors such as age, configuration, construction materials, and a shorter period until renewal or replacement of assets is required.¹⁸

RP Infrastructure advice

22. RPI has advised it is of the view that Arc has conflated demand with capacity. Arc’s submission assumes that capacity represents demand, with existing capacity (in terms of maximum loads, speeds and lengths) taken to represent forecast demand.¹⁹
23. While the Code states that the demand forecasts are to “take into account” the physical capacity of the routes, Arc has forecast demand on the basis of the capacity of routes. RPI advises that this does not necessarily mean that the measured costs are incorrect, but rather that the required supporting information underpinning forecast demand has not been used nor provided to the ERA.
24. That information is important for assessing required adjustments to the proposed depreciation schedule (based on straight-line depreciation) to take into account of risks and uncertainties facing railway owners, access seekers or access holders under s20(4) of the *Railways (Access) Act 1998*. It is also important for the purposes of transparency for all stakeholders.
25. RPI has advised that consideration of rail freight demand (e.g. tonne-kilometres) provides a better forecast as it allows factors including the following to be taken into consideration:²⁰
 - the volume of freight moved over a specific distance
 - the mode share (rail versus road)
 - freight train paths
 - the use of rail at ports
 - the reliability and efficiency of rail operations and government policies affecting these.

¹⁸ Pacific National, *Submission Arc Infrastructure’s statement of the depreciated optimised replacement cost and statement of the depreciation schedule*, 11 August 2025, pp. 3-4.

¹⁹ RP Infrastructure, *Initial Report (Review of Arc Infrastructure’s Sections 47J and 47K submissions) FINAL*, 6 January 2026, p. 27.

²⁰ RP Infrastructure, *Initial Report (Review of Arc Infrastructure’s Sections 47J and 47K submissions) FINAL*, 6 January 2026, p. 27-28.

26. RPI advised that a freight task-based demand forecast will provide a more realistic estimate of volumes based on current and near-term developments, rather than simply relying on maximum track capacity.²¹
27. For example, if a demand forecast is required for a closed route, using the level of service when a line was last used as the basis of the forecasts creates a risk that access seekers will be required to pay for infrastructure that is underutilised. It is important that an operator is prevented from recovering the full cost of underutilised infrastructure based on hypothetical or aspirational volumes.
28. RPI noted that the redundancies identified in Tables 5-1 and 5-2 in the RPI report are mostly loops and sidings, with this having a limited impact on potential for overcharging on mainlines.²²
29. In summary, RPI has identified three areas of disagreement with Arc's approach to forecasting level of service demand:
- Firstly, in assuming that the maximum train length and loads and speeds reflect the forecast demand for the next 10 years, Arc has effectively assumed away the problem, which is to demonstrate that the capacity available, based on both the infrastructure and any operational constraints (including any related constraints at ports or terminals etc) is sufficient to meet the forecast demand for freight on that route for the next 10 years.
 - Secondly, RPI advised that if the analysis of demand is confined to maximum train lengths, Arc's rationalisation for its proposed optimisation of passing loops can be justified. Nonetheless, in practical commercial terms, there are agreements for shorter length trains, such that these loops may still be used and should therefore remain part of the asset base.²³
 - Thirdly, RPI did not agree with Arc's assumption made in section 2.5 (b) of the LOS Statement that where there has been no Agreement granting Access during the prior ten years (in particular, on non-operational lines), the reasonably forecast Level of Service demanded for the next ten years is taken to be equivalent to the Level of Service when the section was last operational.²⁴
30. RPI requested that the ERA arrange the provision of adequate historical gross tonne kilometre (GTK) data by Arc to enable an assessment of Arc's level of service demand forecast. The specific data sought by RPI, in relation to this request was:
- historical and forecast GTK data (2014 - 2024 and 2025 – 2035)

²¹ RP Infrastructure, *Initial Report (Review of Arc Infrastructure's Sections 47J and 47K submissions) FINAL*, 6 January 2026, p. 28.

²² RP Infrastructure, *Initial Report (Review of Arc Infrastructure's Sections 47J and 47K submissions) FINAL*, 6 January 2026, p. 27.

²³ For example, Table 5.8 in Arc's LOS Statement presents the following for part of Route 1. It shows that for the 1. SG Avon Yard to West Merredin section of the Avon to Kalgoorlie route, in 10 of the last 10 years there was at least one agreement for a 700m train length, in 4 years there was at least one agreement for a 900m train length, for 8 of those years there was at least one agreement for a 1,400m train length and for 10 of the last 10 years there was at least one agreement for a 1,800km train length. RP Infrastructure, *Initial Report (Review of Arc Infrastructure's Sections 47J and 47K submissions) FINAL*, 6 January 2026, p. 27.

²⁴ RP Infrastructure, *Initial Report (Review of Arc Infrastructure's Sections 47J and 47K submissions) FINAL*, 6 January 2026, p. 27.

- number of wagons in the maximum train length
 - capacity of wagons for each axle load
 - tonnage of the maximum train length for each axle load
 - number of loaded trains to carry the forecast GTK for each route section
 - theoretical and practical capacity.
31. Arc did not provide this information on request. On 4 September 2025, the ERA issued a notice under section 21 of the *Railways (Access) Act 1998* requiring Arc Infrastructure to provide, among other things, the historical and forecast GTK data.²⁵
32. This information was provided by Arc on 15 September 2025. RPI was able to use this data as a basis for forecasting. RPI also utilised Bureau of Infrastructure and Transport Economics (BITRE) 2022 rail freight forecasts for Australia which provide a basis for GTK forecasting.
33. On the basis of its analysis of historic GTK data - RPI agreed with Arc's proposal that existing capacity is sufficient to meet forecast demand for the next ten years.²⁶
34. RPI recommended that optimisation be assessed on reasonable forecasts of demand for rail freight and required capacity, based on:²⁷
- Historical growth for a sample of route sections relevant to earlier ERA cost determinations for Arc to assess whether existing capacity is likely to be sufficient to meet future demand under various annual growth rates.
 - Stakeholder submissions where these identify instances where levels of service are inappropriate for current demand or where there may be commercial penalties that may need to be taken into consideration by the regulator.
35. RPI referred to clause 2(4) Schedule 4 to the Code which prescribes the way that costs are to be considered for inclusion, namely on the basis of "access that is reasonably projected to occur, based on a ten year forecast of demand, and taking into account the physical capacity of the route or routes concerned".²⁸
36. RPI referred to Arc's Costing Principles which require Arc to "assess demand forecast to identify any required service capacity of assets" and to "provide a ten year demand forecast based on ten years of historical demand data and provide a clear explanation of the forecasting method".

²⁵ Section 21 allows the ERA to require by notice in writing a railway owner to send the regulator a statement setting out such information as is specified in the notice.

²⁶ RP Infrastructure, *Initial Report (Review of Arc Infrastructure's Sections 47J and 47K submissions) FINAL*, 6 January 2026, p. 25.

²⁷ RP Infrastructure, *Initial Report (Review of Arc Infrastructure's Sections 47J and 47K submissions) FINAL*, 6 January 2026, p. 25.

²⁸ RP Infrastructure, *Initial Report (Review of Arc Infrastructure's Sections 47J and 47K submissions) FINAL*, 6 January 2026, p. 27.

37. RPI referred to the following regulatory approaches to these forecasting issues in other jurisdictions:²⁹
- Guidance and requirements outlined by the ACCC and IPART in relation to this issue.
 - The methodology GHD used to forecast demand in its October 2021 report “Developing a Regulatory Asset Base value for the Australian Rail Track Corporation Interstate Network, using the Depreciated Optimised Replacement Cost method”, for the ACCC.
 - Network Rail’s analysis of forecast freight and implications for capacity for the Office of Rail and Road (ORR).
38. Having referred to these matters, RPI concluded that an approach similar to these examples is required for the ERA to meet the objectives of the *Railways (Access) Act 1998* and to achieve sufficient transparency for all relevant stakeholders.³⁰
39. RPI provided a table showing analysis of GTK demand over a number of routes for which GTK demand reductions are apparent, table 20 of the RPI report.³¹
40. RPI recommended that optimisation of any of these routes should be made by a modification to the depreciation amounts calculated for each route, and not as an optimisation of asset amounts within each affected route section.³²
41. RPI has recommended that provision in the level of service statement that “the level of service for non-operational lines to be equivalent to the level of service when the section was last operational” not be accepted by the ERA. RPI recommended this on the basis that assets not being used should not be included in the RAB.³³
42. RPI advised that it is not useful to apply the maximum levels (length or weight) in the context of optimising loops, as these loops may be utilised by less than maximum levels of service (i.e. shorter trains or lesser axle loads). That is, maximum levels are not necessarily the most efficient levels of service.³⁴
43. RPI advised that the reasonableness of optimising passing loop route kilometres is not established on the evidence presented by Arc. RPI has recommended that these passing loop route kilometres should not be optimised from the asset base.³⁵

²⁹ RP Infrastructure, *Initial Report (Review of Arc Infrastructure’s Sections 47J and 47K submissions) FINAL*, 6 January 2026, p. 28.

³⁰ RP Infrastructure, *Initial Report (Review of Arc Infrastructure’s Sections 47J and 47K submissions) FINAL*, 6 January 2026, p. 28.

³¹ RP Infrastructure, *Initial Report (Review of Arc Infrastructure’s Sections 47J and 47K submissions) FINAL*, 6 January 2026, p. 57.

³² RP Infrastructure, *Initial Report (Review of Arc Infrastructure’s Sections 47J and 47K submissions) FINAL*, 6 January 2026, pp. 32.

³³ RP Infrastructure, *Initial Report (Review of Arc Infrastructure’s Sections 47J and 47K submissions) FINAL*, 6 January 2026, p. 27.

³⁴ RP Infrastructure, *Initial Report (Review of Arc Infrastructure’s Sections 47J and 47K submissions) FINAL*, 23 October 2025, pp. 25-26.

³⁵ RP Infrastructure, *Initial Report (Review of Arc Infrastructure’s Sections 47J and 47K submissions) FINAL*, 6 January 2026, p. 25.

44. The BITRE forecasts are outlined in the RPI report.³⁶ On the basis of a continuance of the trend towards the substitution of road for rail freight to 2035, and the relatively modest overall increases in indicated rail freight demand, RPI has advised that it is reasonable to expect that forecast demand may be met by the current capacity of the network.³⁷

ERA Considerations

45. The level of service demand is an important factor underpinning an assessment of a route's replacement cost.
46. The ERA agrees with RPI that the level of service demand is measured by the demand for the network and not the capacity of the network to meet demand. This is in accordance with Arc's Costing Principles, which specifies service demand in terms distinct from the definition of level of service, and provides that Arc will "provide a ten year demand forecast based on ten years of historical demand data".
47. As mentioned earlier, at RPI's recommendation, the ERA sought and received additional gross tonne kilometre (GTK) demand information from Arc under its powers to request information under section 21.
48. RPI analysed the GTK data provided by Arc and provided an assessment of historical GTK service demand for all routes, which has informed the ERA's consideration of specific comments made in submissions relating to specific routes.
49. The ERA notes the BITRE information is at an aggregate level and the BITRE acknowledgment that there may be differences at a more granular level. The BITRE report forecasts total domestic freight increasing until 2050.
50. RPI also received information from the BITRE (September 2025), which supports the assumed growth rates that it has used to form the view that current capacity (service levels) is sufficient for meeting forecast reasonable demand for the next decade.³⁸
51. For its draft decision the ERA is satisfied that the demand is reasonably likely to exist in the future.
52. The ERA has noted and considered the AMEC and CBH submissions regarding the level of service implications for the specification of the modern equivalent asset for all routes.
53. AMEC submitted that Arc's modern equivalent asset specification should be tested against real market conditions.

³⁶ RP Infrastructure, *Initial Report (Review of Arc Infrastructure's Sections 47J and 47K submissions) FINAL*, 6 January 2026, p. 29.

³⁷ RP Infrastructure, *Initial Report (Review of Arc Infrastructure's Sections 47J and 47K submissions) FINAL*, 6 January 2026, p. 32.

³⁸ RP Infrastructure, *Initial Report (Review of Arc Infrastructure's Sections 47J and 47K submissions) FINAL*, 6 January 2026, p. 28-9.

54. The concerns about the mismatch of current service capacity and the MEA specification assumed by Arc is discussed further in this draft decision Attachment 6 Depreciation.³⁹ The ERA acknowledges that the service capability difference requires consideration and recognises that any adjustment could take the form of an optimisation adjustment or a depreciation adjustment. The ERA seeks information from stakeholders to better understand current operational limitations on routes. This additional information will help inform the ERA of whether targeted adjustments for specific routes are needed to account for the limitations of service capabilities and how an adjustment could be calculated and applied.
55. RPI provided an analysis of the GTK data for each route section. The analysis of GTK by route section has revealed that the current level of service can continue into the future.
56. Submissions raised concerns regarding the level of service for non-operational lines being made equivalent to the level of service when the section was last operational, as was proposed by Arc. The ERA notes that although Arc's Costing Principles require that costs include only those costs in respect of access that is reasonably projected to occur, based on a ten-year forecast of demand and taking into account the physical capacity of the route(s) concerned, for non-operational route sections there is little expectation of demand over the next ten years.
57. Having considered the submissions and reviewed RPI's assessment, the ERA agrees that the level of service for non-operational lines not be made equivalent to the level of service when the section was last operational, as was proposed by Arc. The ERA has optimised non-operational routes by removing their value from the total construction replacement cost.
58. The ERA considers that the adjustments to optimisation outlined above adequately address the concerns raised in submissions. In particular, the ERA has considered the GTK data, as suggested by CBH, and has made adjustments to optimisation consistent with views on the cost of closed routes, submitted by CBH and KML, and for reduced service demand on other specific routes mentioned in submissions.

³⁹ ERA draft decision Attachment 6 Depreciation, under heading "Limitations of service capability adjustment".

Optimisation

59. The optimisation stage of the depreciated optimised replacement cost valuation process removes from the replacement cost any inefficiently built or unused installed assets that form the basis for the modern equivalent asset specification and which are not necessary to service current customer demand. This is consistent with customers paying no more than is prudent for the provision of the service.
60. The optimised asset configuration is defined as that which has the capacity constructed at least cost, to meet the actual and reasonably projected demand, within the physical constraints of the existing railway corridor.
61. The optimised asset is arrived at by:
 - assessing capacity of the replacement asset against existing asset capacity
 - identifying redundant assets, including those not required to meet forecasts of service demand.
62. Arc's Costing Principles address optimisation and place requirements on the railway owner to:⁴⁰
 - identify redundant assets
 - assess modern equivalent asset (MEA) capability against existing asset capacity
 - assess demand forecast to identify any required changes in service capacity of assets
 - determine the value of the optimisation
 - adjust the replacement cost by the optimisation to calculate the depreciated optimised replacement cost.
63. The level of service across the network is summarised in the Arc report Appendix Level of Service.⁴¹

⁴⁰ Arc infrastructure, *Costing Principles*, 11 July 2024, p. 11.

⁴¹ GHD Advisory, *Applicable Railway Infrastructure DORC Final Report Arc Infrastructure Pty Ltd*, 6 June 2025, pp. 186-205.

Arc Infrastructure Proposal

64. Arc's statement included an optimisation amount equal to \$2,803 million. Optimisation amounted to approximately 9 per cent of Arc's estimated optimised replacement cost of \$30,053 million.⁴²
65. Arc has submitted that it has:⁴³
- Reviewed the demand forecast and identified any required changes in service capacity of assets.
 - Compared the capability of the MEA used as the basis for the replacement cost with the capacity of the existing assets and rectified any areas of unjustifiable inconsistency.
 - Identified and removed redundant assets.
66. Arc provided a definition of redundant railway infrastructure as railway infrastructure that is no longer required to be used due to replacement with other railway infrastructure, changes in standards, advancements in technology or due to it not being relevant to providing the forecast level of service demand.⁴⁴
67. Arc submitted that railway infrastructure that is either disposed of or stranded is not included in the definition of optimisation, where:⁴⁵
- Disposed assets are railway infrastructure which have been decommissioned and removed from the network.
 - Stranded assets are railway infrastructure which have been taken out of service because of lack of demand.
68. The optimised asset configuration provided by Arc is a result of applying these principles, the application of which is summarised as follows:⁴⁶
- Review of demand forecast - Arc submitted that its level of service statement shows required capacity of the assets is not likely to be lower than that provided by the existing assets. Arc submitted that there is no scope for optimisation by applying this principle. Arc's report did not explore the need to increase the level of service beyond that offered by the existing infrastructure.

⁴² GHD Advisory, *Applicable Railway Infrastructure DORC Final Report Arc Infrastructure Pty Ltd*, 6 June 2025, p. iii.

⁴³ GHD Advisory, *Applicable Railway Infrastructure DORC Final Report Arc Infrastructure Pty Ltd*, 6 June 2025, p. 70.

⁴⁴ GHD Advisory, *Applicable Railway Infrastructure DORC Final Report Arc Infrastructure Pty Ltd*, 6 June 2025, p. 15.

⁴⁵ GHD Advisory, *Applicable Railway Infrastructure DORC Final Report Arc Infrastructure Pty Ltd*, 6 June 2025, p. 70.

⁴⁶ GHD Advisory, *Applicable Railway Infrastructure DORC Final Report Arc Infrastructure Pty Ltd*, 6 June 2025, p. 70.

- Comparison of MEA capability – Arc submitted that the MEAs used as the basis for the replacement cost provide no opportunity to reduce the replacement cost to resolve any inconsistencies between the level of service provided by the MEA and the existing assets.
 - Removal of redundant assets - Arc showed seven sections identified as redundant in Table 5-1 of its report.⁴⁷ Arc provided that this track is redundant in accordance with the definition in the Costing Principles, and the associated replacement costs are optimised out in its model.⁴⁸
69. Arc has identified 2.8 km of redundant track and optimised loops by reducing total loop length by 33.6 km. Arc removed redundant control centres at Picton and Avon as these services are now provided from Midland and Canning Vale centres.⁴⁹
70. The sections identified as redundant are shown in Table 5-1 of the Arc statement.⁵⁰
71. Arc identified those loops that were more than 300m shorter than the maximum train length and removed them as they were insufficient to service the maximum train length. Where loops exceeded the maximum train lengths they were shortened to match.
72. The majority of Arc's optimisation amounts are accounted for by Arc's proposed "alternative procurement scenario" which proposes a direct supply of track assets (ballast, sleepers and rail and turnouts) and which Arc has therefore costed on the basis of Arc managing the procurement of these assets itself. This would require the removal of these items from the Tier 1 contractor's costing of replacement assets, and the inclusion of these costs on the basis of direct procurement by Arc.
73. Adoption of this procurement strategy would require the removal of markups for contractor risk allowance, contractor preliminaries and overheads from the construction replacement cost and the addition of a 5 per cent allowance to cover railway owner direct supply management.
74. Arc's statement identified the optimisation of track assets as detailed in Table 3.1.

⁴⁷ GHD Advisory, *Applicable Railway Infrastructure DORC Final Report Arc Infrastructure Pty Ltd*, 6 June 2025, p. 71.

⁴⁸ GHD Advisory, *Applicable Railway Infrastructure DORC Final Report Arc Infrastructure Pty Ltd*, 6 June 2025, p. 70.

⁴⁹ GHD Advisory, *Applicable Railway Infrastructure DORC Final Report Arc Infrastructure Pty Ltd*, 6 June 2025, p. 91.

⁵⁰ GHD Advisory, *Applicable Railway Infrastructure DORC Final Report Arc Infrastructure Pty Ltd*, 6 June 2025, p. 71.

Table 3.1: Arc's optimisation of assets

Optimisation of assets	(\$ million)
Right-of-way assets – Formations, Access Roads	15
Track Assets – Sleepers, Rail Ballast, Turnouts (alternative procurement and redundant track)	2,749
Signalling and Communications	26
Buildings – Control Centres, Maintenance Facilities	17
TOTAL	2,810

Source: GHD Advisory, *Applicable Railway Infrastructure DORC Final Report Arc Infrastructure Pty Ltd*, 6 June 2025, p. 94.

75. The Arc statement provides explanation for how optimisation amounts for access roads and formation were calculated and where these optimised assets are located on a network group basis.⁵¹

Comments in submissions

AEMC

76. AMEC submitted that optimisation should eliminate unused assets and under-utilised assets (e.g. sidings, duplicate lines, overbuilt structures). AMEC submitted that all redundant assets should be optimised out. AMEC submitted that this determination should scrutinise all assets not required for actual and reasonably projected demand.⁵²

Aurizon

77. Aurizon submitted that Arc has retained non-operational routes in the valuation, even though it accepts that they are not required to meet future demand. Aurizon submitted that, while Arc has depreciated many of these assets on these routes to zero, its approach inflates its estimated construction time (and funding cost) and presents a misleading view of the extent of depreciation applied to the operating network.⁵³
78. Aurizon submitted that, more generally, Arc's implementation of optimisation is very unclear, particularly in terms of factors that have resulted in the optimisation of track assets, and their relationship, if any, with other asset types.⁵⁴

⁵¹ GHD Advisory, *Applicable Railway Infrastructure DORC Final Report Arc Infrastructure Pty Ltd*, 6 June 2025, p. 75.

⁵² Association of Mining and Exploration Companies, *Submission on Depreciated Optimised Replacement Cost (DORC) valuation of Arc Infrastructure's railway assets*, July 2025, p. 3.

⁵³ Aurizon, *Arc Infrastructure Proposed Depreciated Optimised Replacement Cost Submission to ERA*, 11 August 2025, pp. 27-28.

⁵⁴ Aurizon, *Arc Infrastructure Proposed Depreciated Optimised Replacement Cost Submission to ERA*, 11 August 2025, p. 28.

79. Aurizon submitted that Arc has inappropriately specified MEA as like-for-like rebuild of existing assets using modern materials and construction methods, rather than the modern asset design appropriate to meet required service standards. Clear examples are formations and signalling/communications/ control systems. This has the potential to result in excessive replacement cost estimates, insufficient application of depreciation and insufficient valuation adjustments for non-MEA assets.⁵⁵

CBH

80. CBH noted Arc's statement that "railway infrastructure that is either disposed of or stranded is not included in the definition of optimisation." CBH contend that this is "peculiar and inconsistent with the proposed approach in relation to the removal of redundant sidings." That is, optimisation is intended to ensure the minimum asset build can meet actual or reasonably forecast demand, such that no demand would imply no service level is required so that such assets are removed in order to optimise the asset base. These could conceivably be disposed or stranded assets.⁵⁶
81. CBH submitted that Arc's statement has adopted too prescriptive an interpretation of the Costing Principles, which could have led them to adopting a narrow view of what can be optimised. CBH noted that the ARTC DORC Report (GHD) is consistent with CBH's view on this issue.⁵⁷
82. CBH submitted that Arc has proposed gold plated asset specifications that do not reflect the lowest current cost to replace railway infrastructure. CBH submitted that specifications are not appropriately differentiated by gauge, tonne axle load (TAL) or use (mainline vs siding).⁵⁸
83. CBH contended that there are significant differences between the level of service provided by the MEA specification and existing assets. Where this occurs, it warrants some adjustment, either to the MEA specification and associated costs, or through optimisation.⁵⁹
84. CBH was supportive of removing non-operational (redundant) route sections that are not required to meet current or reasonably forecast demand from the asset base.⁶⁰
85. CBH was supportive of the optimisation of loops by either reducing their length or removing them entirely but notes that these costs and the reduction in track kilometres should be clearly outlined and validated.⁶¹

⁵⁵ Aurizon, *Arc Infrastructure Proposed Depreciated Optimised Replacement Cost Submission to ERA*, 11 August 2025, p. 4.

⁵⁶ CBH Group, *CBH submission on Arc Infrastructure's statement of the depreciated optimised replacement cost and statement of the depreciation schedule published on 16 June 2025*, 11 August 2025, pp. 31-34.

⁵⁷ CBH Group, *CBH submission on Arc Infrastructure's statement of the depreciated optimised replacement cost and statement of the depreciation schedule published on 16 June 2025*, 11 August 2025, pp. 31-34.

⁵⁸ CBH Group, *CBH submission on Arc Infrastructure's statement of the depreciated optimised replacement cost and statement of the depreciation schedule published on 16 June 2025*, 11 August 2025, p. 14.

⁵⁹ CBH Group, *CBH submission on Arc Infrastructure's statement of the depreciated optimised replacement cost and statement of the depreciation schedule published on 16 June 2025*, 11 August 2025, p. 32.

⁶⁰ CBH Group, *CBH submission on Arc Infrastructure's statement of the depreciated optimised replacement cost and statement of the depreciation schedule published on 16 June 2025*, 11 August 2025, p. 33.

⁶¹ CBH Group, *CBH submission on Arc Infrastructure's statement of the depreciated optimised replacement cost and statement of the depreciation schedule published on 16 June 2025*, 11 August 2025, p. 33.

86. Other points raised by CBH in relation to optimisation of various assets include:⁶²
- Arc should provide specific principles, methodology and assumptions used in relation to right-of-way assets.
 - Given the \$2.7 billion in adjustments to track assets, ERA should ensure civil structures, associated track structures and miscellaneous assets are optimised accordingly.
 - Arc should provide specific principles, methodology and assumptions used in the optimisation of track infrastructure at a Code route segment level so that they can be reviewed and validated.
 - CBH was unclear why Arc proposed the installation of a fibre optic cable for the entire track between Avon and Esperance, noting it is unclear whether this is consistent with the requirements of a radio based train control system, or the categorisation proposed by Arc.
 - Costing for radio towers fails to account for the precedent in the Australian rail industry for utilising existing Telstra towers to support railway radio infrastructure. There is a minimum of 4G coverage across the entire controlled network except for a small section of approximately 10 km near Northern Gulley, east of Geraldton. CBH argues that radio towers should not be included in the DORC, which should only encompass the telecommunications equipment installed on the existing Telstra towers to enable radio based train control.
 - CBH was comfortable with the approach to optimise buildings.

RP Infrastructure advice

87. RPI identified differences from Arc for its estimate of optimisation. RPI's estimated optimisation was \$3,740 million. This optimisation amounted to approximately 19 per cent of RPI's estimated optimised replacement cost of \$20,285 million.⁶³
88. This compares to Arc's proposed optimisation of \$2,810 million or approximately 9 per cent of Arc's estimated optimised replacement cost of \$30,053 million.⁶⁴
89. RPI advised that in specifying that the maximum service capacity to meet the forecast demand, the Costing Principles allow for a maximum level of service to be accommodated. Thereby anything over the maximum service capacity would be inefficient.⁶⁵

⁶² CBH Group, *CBH submission on Arc Infrastructure's statement of the depreciated optimised replacement cost and statement of the depreciation schedule published on 16 June 2025*, 11 August 2025, pp. 32-34.

⁶³ RP Infrastructure, *Initial Report (Review of Arc Infrastructure's Sections 47J and 47K submissions) FINAL*, 6 January 2026, p. ii.

⁶⁴ RP Infrastructure, *Initial Report (Review of Arc Infrastructure's Sections 47J and 47K submissions) FINAL*, 6 January 2026, p. ii.

⁶⁵ RP Infrastructure, *Initial Report (Review of Arc Infrastructure's Sections 47J and 47K submissions) FINAL*, 23 October 2025, p. 32.

90. RPI advised that while it may be useful to consider, say, a maximum train length in the context of infrastructure which is under-specified, it is not useful to apply this principle to optimise loops, as loops may be utilised by less than maximum levels of service. That is, maximum levels are not necessarily the most efficient levels of service.⁶⁶
91. RPI advised that more data on capacity usage is required to enable a meaningful assessment of the Arc proposal to optimise 33.6 km of the total loop length from the base.⁶⁷ RPI has recommended that the identified 33.6 km of loop track not be optimised from the asset base.
92. RPI recommended optimising non-operational routes from the asset base.⁶⁸ Arc's proposed optimisation amounts did not include all non-operational routes.
93. RPI recommended adjusting Arc's estimated optimisation to retain optimisation due to redundant route sections and the removal of some extension of loops.⁶⁹
94. RPI rejected optimisation due to Arc's alternative procurement. RPI advised that the consideration of an alternative procurement scenario is not appropriate in the context of optimisation and, if it were to be considered, would be considered in the context of construction replacement costs. Attachment 2 details considerations around the approach to developing the total construction replacement cost.
95. RPI has recommended optimisation of total construction replacement cost totalling \$3,740 million. The optimisation includes the relevant proportions of railway owner costs and contractor's on-costs included in the total construction replacement costs subject to this optimisation.
96. RPI's optimisation by asset class compared to Arc's proposal is detailed in Table 3.2.

⁶⁶ RP Infrastructure, *Initial Report (Review of Arc Infrastructure's Sections 47J and 47K submissions) FINAL*, 6 January 2026, p. 32.

⁶⁷ RP Infrastructure, *Initial Report (Review of Arc Infrastructure's Sections 47J and 47K submissions) FINAL*, 6 January 2026, p. 32.

⁶⁸ RP Infrastructure, *Initial Report (Review of Arc Infrastructure's Sections 47J and 47K submissions) FINAL*, 6 January 2026, p. 32.

⁶⁹ RP Infrastructure, *Initial Report (Review of Arc Infrastructure's Sections 47J and 47K submissions) FINAL*, 6 January 2026, p. 32.

Table 3.2: RPI total optimisation by asset class

(\$ million)	Arc	RPI
Right of Way	15	546
Civil Structures	0	783
Level Crossings	0	2
Track	2,749	1,985
Signalling and Communications	26	406
Buildings	17	17
Miscellaneous	0	0
Total	2,810	3,740

ERA Considerations

97. The ERA estimates the optimisation amount at \$2,269 million. Optimisation amounts to approximately 12 per cent of the ERA's estimated total construction replacement cost of \$18,500 million.
98. This compares to Arc's proposed optimisation of \$2,810 million, which approximately 8.5 per cent of the combined total of Arc's proposed network replacement cost and asset development costs of \$32,862 million.⁷⁰
99. Optimisation amounts arrived at by the ERA are detailed by route section in the ERA's DORC model published with this determination.
100. The ERA notes that stakeholders have raised concern with Arc's optimisation methodology. This stakeholder feedback on optimisation included:
- That all redundant assets and non-operational routes should be optimised out.
 - That Arc's implementation of optimisation was not transparent.
 - Concern that Arc had inappropriately specified a modern equivalent asset as like-for-like rebuild of existing assets, rather than the modern asset design appropriate to meet required service standards.
101. The Costing Principles require Arc to identify redundant assets, assess MEA capability against existing asset capacity and assess demand forecast to identify any required changes in service capacity of assets. The ERA considers that Arc has adequately outlined the required principles for optimisation.

⁷⁰ Arc does not calculate an equivalent figure to the ERA's total construction replacement cost. The sum of Arc's proposed network replacement cost and asset development cost provides an approximation.

102. The ERA considers that Arc's consideration of redundant and stranded assets is inadequate as Arc did not optimise out any significant non-operational and closed routes. Route lengths optimised by Arc amount to less than 3 kilometres.
103. The ERA has noted that the Picton-Lambert route (Code route 13) has been closed since 2006. In its model, Arc has nominated the Picton-Greenbushes section of this route as being open, and part of the SWM network group. At the same time, Arc nominated the Greenbushes to Lambert section of this route as non-operational.
104. The ERA has removed the Picton-Greenbushes route section from the SWM network group and denoted it non-operational, thereby classifying the entire route 13 as non-operational. This adjustment addresses concerns raised in AMEC, Aurizon and CBH submissions.
105. The ERA agrees with RPI's recommendation that the optimisation amounts associated with Arc's proposed alternative procurement strategy not be accepted. This is because optimisation is not the appropriate context in which to consider an alternative procurement strategy, as advised by RPI, and also as an alternative procurement costing for track assets would significantly alter the scope of the Tier 1 contractor's tender and would be expected to alter the quoted construction replacement costs of all other assets.
106. The ERA also considers that for a ground-up rebuild of the network, including of the necessary plant equipment, workshops and manufacturing facilities required to install the rail, Arc would not be able to undertake this work in-house. Further, the ERA was unable to verify the alternative procurement scenario optimisation amounts as proposed by Arc, as the associated net on-costs did not reconcile. Attachment 2 details considerations around the approach to developing the total construction replacement cost.
107. The ERA agrees with RPI's advice that it is not useful to consider a maximum train length to optimise loops, as loops may be utilised by less than maximum levels of service. That is, maximum levels are not necessarily the most efficient levels of service.⁷¹
108. The ERA considers that more data on capacity usage is required to enable a meaningful assessment of the proposal to optimise 33.6 km of the total loop length from the asset base.⁷² The ERA has not optimised the identified 33.6 km of loop track from the asset base.

⁷¹ RP Infrastructure, *Initial Report (Review of Arc Infrastructure's Sections 47J and 47K submissions) FINAL*, 6 January 2026, p. 32.

⁷² RP Infrastructure, *Initial Report (Review of Arc Infrastructure's Sections 47J and 47K submissions) FINAL*, 6 January 2026, p. 32.

Question 3.1

Do stakeholders have data or relevant information relating to the capacity usage of the 33.6 km of loops which Arc proposed to optimise from its asset base?

109. The ERA has considered CBH's comment that the cost of radio towers should be optimised from the asset base and that only the equipment required to be installed on towers should be included. CBH has stated that there is a precedent in the Australian rail industry for utilising existing Telstra towers to support railway radio infrastructure.
110. Excluding tower costs in this manner would not be transparent and would not be consistent with establishing the lowest current cost to replace the railway infrastructure with assets that have the capacity to provide the level of service that meets the actual and reasonably projected demand.
111. The ERA considers that because Arc already has 114 radio masts in place that there is reason to treat these as RAB assets, and that it is not appropriate to redirect the associated capital costs as operating costs associated with rental payments.
112. The ERA has considered CBH's comments relating to the extent of fibre optic cable installation on the Hampton to Esperance route. RPI has confirmed that for signalling option A, fibre optic cable is specified by Arc as the MEA only on the Kalgoorlie to Hampton section of this route.
113. The ERA considers that RPI's approach to optimisation and the considerations of service level demand based on gross tonne kilometres, provides a more representative assessment than that provided by Arc, and addresses the concerns of Aurizon and CBH in that respect. The ERA agrees with RPI's adjustments to Arc's identified optimisations based on the analysis of gross tonne kilometre service demand data.
114. The ERA agrees with RPI's assessment that it is not appropriate to optimise route section assets on the basis of demand defined in gross tonne kilometre terms.
115. The retention of Arc's proposed signalling and communications optimisation was recommended by RPI on the basis that those signalling assets are located on non-operational routes. The ERA considers that Arc's proposed signalling and communications optimisation is due to the optimisation of loops and redundant route sections.⁷³ Therefore, this recommendation has not been accepted by the ERA, as the ERA has not accepted the optimisation of those loops and redundant route section.
116. The ERA's draft determination for optimisation compared to Arc's proposal is detailed in Table 3.3.

⁷³ GHD Report Table 5-6, p. 83. This table indicates that the \$26.3 million proposed optimisation is allocated across all network groups and not solely non-operational routes.

Table 3.3: ERA's total optimisation by asset class

(\$ million)	Arc	ERA
Right of Way	15.0	109.1
Civil Structures	0.0	124.3
Level Crossings	0.0	2.0
Track	2,749.0	1,975.1
Signalling and Communications	26.0	58.3
Buildings	17.0	0.0
Miscellaneous	0.0	0.0
Total	2,810.0	2,268.8

117. The ERA has arrived at an optimisation amount across all routes of \$2,269 million. The difference between Arc's recommended optimisation amount and the ERA's optimisation figure is \$541 million. This difference is due to:

- The ERA has not accepted Arc's proposed savings due to alternative procurement.
- The ERA has not accepted Arc's proposed optimisation of passing loops.
- The difference between Arc's and the ERA's assessment of the replacement cost of non-operational routes. The ERA has optimised out non-operational routes.
- The majority of the ERA's estimated optimisation applies to track asset class which comprise 87 per cent of the total optimisation.

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