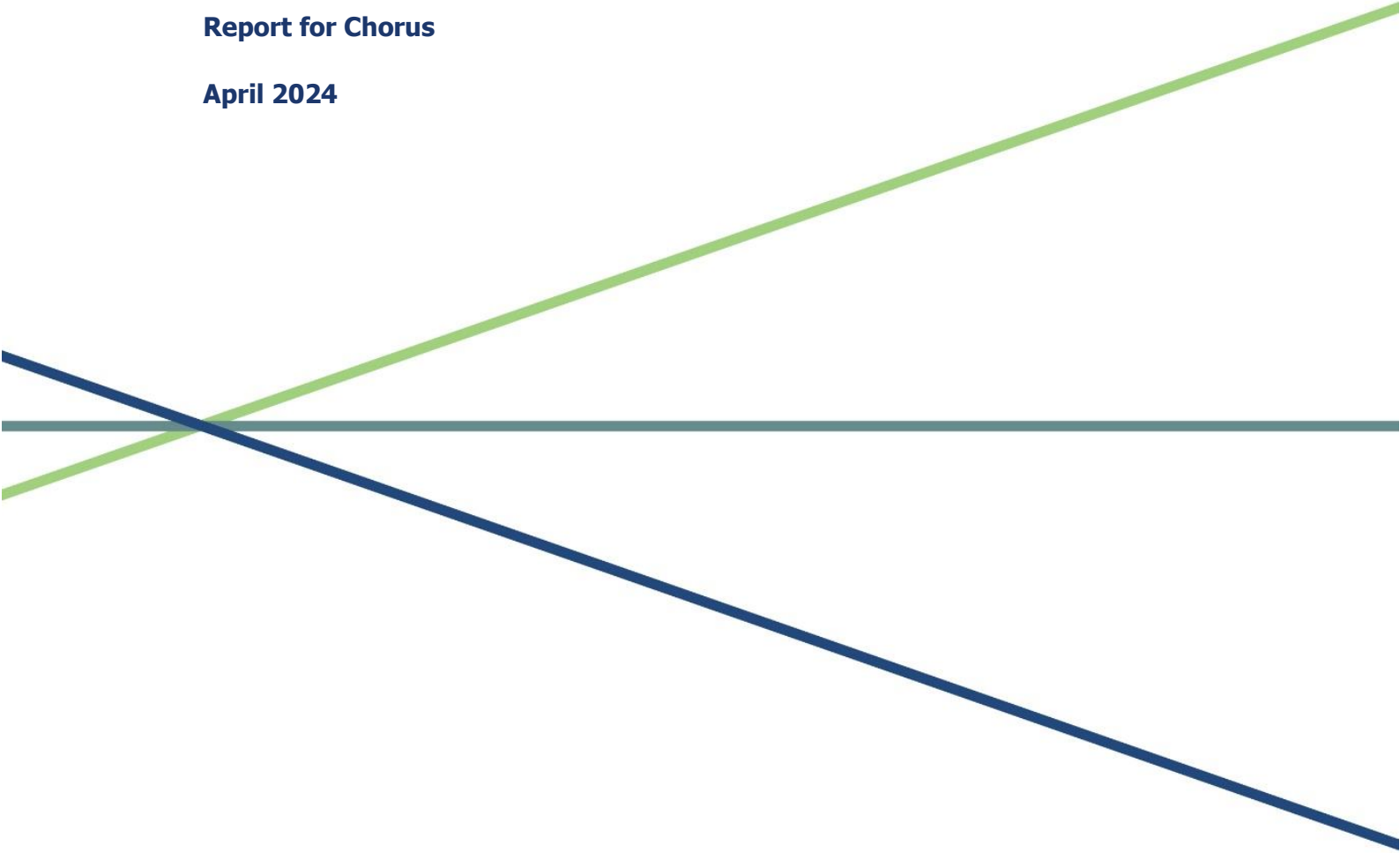


# Smoothing of revenue for RP2

Report for Chorus

April 2024



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## 1. Introduction and summary of conclusions

### 1.1 Background and scope of our advice

#### 1.1.1 Depreciation during the first regulatory period

1. Chorus's maximum allowable revenue (MAR) for the first regulatory period was determined using depreciation that was derived on the following basis:
  - a. Chorus's core fibre assets were depreciated using straight line depreciation on regulatory asset values that were escalated for inflation, over the anticipated useful lives of those assets, and
  - b. The loss asset was depreciated using the tilted annuity method of depreciation with a real tilt factor of -13 per cent – the high negative tilt factor implies a depreciation rate that was substantially more front-ended than straight line depreciation.<sup>1</sup> A front-ended method of depreciation was applied to the loss asset in recognition that a new entrant into the sector would not need to replicate the loss asset, and so this asset is particularly susceptible to the risk of becoming stranded.
2. The Commission recognised that applying standard depreciation to Chorus's core fibre assets left Chorus exposed to some stranded asset risk (principally in relation to assets that would be stranded if competition emerged for Layer 2 services), and so provided an asymmetric risk premium as compensation. The allowance provided was 10 basis points per annum on the average RAB for the year.
3. Unlike the other firms for which the Commission undertakes price-quality regulation, Chorus faces material constraints to pricing aside from its MAR. These constraints are:
  - a. the prices for anchor products, which have the effect of directly constraining the price that Chorus can charge for those products and indirectly constraining the prices for all products for which the anchor products are a substitute, and other constraints that reduce Chorus's ability to meet customer demands (for example, the requirement under the Telecommunications Act to set geographically consistent prices), and
  - b. the constraint that is placed by competitors, with fixed wireless services currently the most material.<sup>2</sup>

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<sup>1</sup> The remaining life for the financial loss asset was calculated as the weighted average remaining life of the physical assets that gave rise to the loss asset – and, more specifically, it was calculated as the weighted harmonic average – which was 14.2 years.

<sup>2</sup> Chorus provides a discussion of the recent changes to the competitive landscape for regulated fibre services in a recent submission to the Commission's current consultation on the assessment framework for the fibre deregulation review (Chorus (2024), Draft assessment framework for fibre deregulation review, February). The principal competitive constraints that it identifies include fixed wireless (expansion of 4G and introduction of 5G) as noted, as well as entry of low earth orbit satellite services and the increasing fibre deployment by non-LFCs (para.40). It also notes that consolidation has occurred amongst RSPs, non-Chorus LFCs have had their geographic restrictions on fibre building removed, and that the closure of copper is occurring at a faster rate than previously expected (para.40).

4. It was anticipated by Chorus when the MAR was determined for RP1 that the MAR would be recoverable under the prices that Chorus expected to be chargeable within these constraints.

### **1.1.2 Outcomes for RP1 and expectations for RP2**

5. Contrary to the expectation for RP1, Chorus has been unable to recover the MAR in full for the period and expects to have a material wash-up amount at the start of RP2.
6. If the current approach to depreciation is maintained, Chorus would expect its under-recovery against the MAR to increase substantially during RP2. This is driven principally by the large increase in interest rates since the MAR for RP1 was determined.<sup>3</sup>
7. If there is no change to current approach to depreciation and the MAR increases during RP2, then Chorus will not lose the shortfall of revenue. Rather, the shortfall would be calculated and carried-forward in a future regulatory period as a wash-up. The ability to carry-forward such amounts currently is provided for under section 196 of the Telecommunications Act, and carrying-forward this under-recovery is also required to preserve NPV=0.
8. The focus of this report is whether the under-recoveries should continue to accrue as a wash-up, or whether a pro-active measure or measures should be undertaken to reduce the potential size of the wash-up accrual. One option to achieve this is to alter the depreciation method or settings for some or all of the fibre assets, but alternative measures also exist. These alternatives are canvassed in this report.

## **1.2 Summary of conclusions**

### **1.2.1 Possible options to deal with the under-recovery of MAR**

9. We have identified four options to preserve NPV=0 in the context where (absent any change) Chorus's MAR for RP2 would exceed the amount of revenue Chorus could reasonably expect to recover given its constraints on pricing.
  - a. *Option 1*: "do nothing", in which case the under-recovery of revenue would flow into the wash up account, to be recoverable in future regulatory periods.
  - b. *Option 2*: regulatory depreciation for Chorus's core fibre assets could be changed so that the MAR is reduced to equate with the revenue that is expected to be recoverable over RP2.

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<sup>3</sup> The risk-free rate of return that was applied to estimate Chorus's cost of capital for RP1 was 0.5 per cent. At the time of writing this report, the yield on NZ Government securities with a yield to maturity of 4 years (the term of RP2) is approximately 4.6 per cent.

- c. *Option 3*: regulatory depreciation for Chorus's financial loss asset could be changed so that the MAR is reduced to equate with the revenue that is expected to be recoverable over RP2.
- d. *Option 4*: an amount of revenue could simply be deferred until a future regulatory period, with a new regulatory (financial) asset created to keep track of the deferred amounts (this would be treated in the same manner as a RAB asset).

## 1.2.2 Recommended approach and reasons

10. Of these options, we recommend applying option 2, namely adjusting the depreciation method and settings for Chorus's core fibre assets so that the MAR is reduced to the level that Chorus expects to be able to recover over RP2. More specifically, we recommend adjusting the depreciation of the core fibre assets that are least vulnerable to becoming stranded.<sup>4</sup> Our principal reasons for this recommendation are as follows:
  - a. *Reducing uncertainty and transparency* – we think that the wash up account should not be used for a carry-over and accrual of substantial unrecovered revenue in circumstances where this is expected at the start of the regulatory period as this would be a departure from the standard use of wash up accounts,<sup>5</sup> which would be likely to create confusion and uncertainty. Customers would find it difficult to understand a MAR decision (as there would be an expectation that the MAR *would not* be recoverable). In addition, the size of the wash up account would likely grow much larger than anticipated and be disproportionate to the limited rules governing how it may be drawn down.
  - b. *Transparency and consistency with the deregulation mechanism* – we think it is more transparent to focus any adjustments to depreciation on those individual assets where there is greater discretion as to the timing of cost recovery (i.e., where stranded asset risk is the lowest). In addition, we think that focussing the adjustment to depreciation in this manner is most consistent with what appears to be assumed in the deregulation adjustment provisions in the IMs (see discussion below).
  - c. *Changes to IMs required* – our recommended option could be implemented under the IMs as they currently stand, whereas option 4 (deferred revenue and creation of a new financial asset) would require changes to the IMs.
11. We further recommend giving effect to our recommended option by applying tilted annuity depreciation to the assets in question, and solving for the tilt factor that results in the target outcome for the MAR. We recommend using the tilted annuity because it is very flexible and so well suited to this purpose, as well as familiar to the Commission and already applied by Chorus for the FLA. In addition, we recommend assuming that

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<sup>4</sup> In our view, this means not applying changes to depreciation to the assets the Commission considered more at risk of becoming stranded when the Commission calculated Chorus's asymmetric risk allowance. These were the L2 assets that were vulnerable to stranding from potential future access to unbundled L1 services.

<sup>5</sup> Wash up accounts are normally used to adjust for the difference between forecasts and actual outcomes during a regulatory period, and so have an expected value of zero at the commencement of a regulatory period.

the wash up balance at the end of one regulatory period is assumed be applied in full during the next regulatory period.<sup>6</sup>

12. Lastly, when deriving the depreciation adjustment, two important implementation issues arise.<sup>7</sup>
  - a. *Revenue uncertainty* – it is important for the revenue constraint that is assumed when deriving depreciation for RP2 to reflect an optimistic scenario of the revenue that may be achievable. This will make the depreciation option equivalent to the current arrangements (i.e., relying upon the wash up). If the revenue constraint were simply set at the revenue that Chorus expected under its pricing constraints,<sup>8</sup> and conditions turned out to be better than forecast (e.g., demand was higher), then Chorus would need to reduce its prices to meet its revenue cap, whilst simultaneously back-ending depreciation because of its price constraints. This outcome would be counterintuitive and imply an overall increase in Chorus’s stranded asset risk (and so not generate an expected NPV=0).
  - b. *Apply the final decision inputs* – it is important for the calculation of the depreciation adjustment to apply the inputs that are applied in the final MAR calculation. There is a risk that, if the depreciation adjustment was calculated and locked in at an early stage (for example, based on Chorus’s proposal), but the MAR inputs were then changed, that the MAR would not equate with the revenue that Chorus expects to be recoverable. If the MAR was below the level that Chorus could otherwise achieve, then Chorus may be forced to reduce its prices to meet the revenue cap, which in turn would imply an overall increase in Chorus’s exposure to stranded asset risk (and so not generate an expected NPV=0) compared to the current arrangements.

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<sup>6</sup> As discussed in section 4.2, whether wash ups for Chorus are applied in full in the next regulatory period or applied over an extended period is unlikely to affect the prices that Chorus charges (these will be set with reference to Chorus’s external pricing constraints), but rather will affect how Chorus’s overall regulatory financial capital is split between the wash up account and the RAB.

<sup>7</sup> The effect of these implementation issues is that it is recommended that Chorus’s revenue cap be set at a level whereby it would be unlikely that the cap would bind and cause Chorus to reduce its prices to meet that cap. While this may sound odd for a regulated business, it needs to be borne in mind that this is a situation whereby Chorus is unable to charge the prices that would recover standard depreciation, and so the depreciation allowance (and MAR) is to be adjusted downwards to match the constraints on Chorus’s pricing. The intent, therefore, is to avoid inadvertently causing Chorus to back-end its capital cost recovery even further, and so increase its stranded asset risk (and not meet expected NPV=0). It would be a different issue if Chorus’s revenue cap was calculated using standard depreciation and compliance with that cap caused Chorus to lower its prices – this latter outcome is the standard result for a regulated utility.

<sup>8</sup> Expected revenue refers to the probability weighted average of the possible outcomes of revenue. Thus, revenue could turn out to be higher (e.g., if demand is higher than forecast) or lower.

## 2. Regulatory framework and principles

### 2.1 Requirements of the Input Methodologies and the Telecommunications Act

13. The Input Methodologies currently require depreciation to be calculated according to a GAAP consistent method unless the Commission is satisfied that applying an alternative method:<sup>9</sup>
  - (a) *better promotes the purpose of Part 6 of the Act;*
  - (b) *where relevant, best gives, or is likely to best give, effect to s 166(2)(b) of the Act; and*
  - (c) *where relevant, is consistent with the Commission's smoothing of prices or revenue under s 197 of the Act.*
14. Part 6 of the Act requires the promotion of the long-term benefit of consumers by promoting the outcome of a competitive market, so as to deliver a range of stated outcomes, which include to have an incentive to invest, and to limit the ability for suppliers to extract excessive profits.
15. Section 166(2)(b) also refers to the goal of promoting competition directly in telecommunications markets (i.e., rather than regulating to mimic this outcome) where this is relevant:

*to the extent that the Commission or Minister considers it relevant, to the promotion of workable competition in telecommunications markets for the long-term benefit of end-users of telecommunications services.*
16. Section 197 contemplates that there may be a smoothing of revenue between regulatory periods where:

*in the Commission's opinion, it is necessary or desirable to do so to minimise any undue financial hardship to a regulated fibre service provider or to minimise price shocks to end-users.*
17. Section 197 is silent as to the mechanism that should be used to give effect to long term revenue smoothing, which could be achieved by either a simple shift of MAR between regulatory periods (adjusted to create NPV neutrality), or by changes to the rate of depreciation. The Input Methodologies contemplate that this smoothing would be achieved by the latter approach, i.e., by a change to the rate of depreciation.<sup>10</sup>
  - (1) *For the purposes of clause 3.3.2, unallocated depreciation and depreciation calculated for any core fibre asset or the financial loss asset for any regulatory*

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<sup>9</sup> Input Methodologies, clause 3.3.2(5) and (6).

<sup>10</sup> Input Methodologies, clause 3.3.3.



*period may instead be calculated by the Commission in a manner it thinks fit under s197 of the Act.*

## **2.2 Economic principles, smoothing and depreciation**

18. It is evident from the relevant provisions of the Telecommunications Act and the IMs that economic principles are a key factor in the choice of depreciation method.
19. The choice of depreciation method affects two matters that are important from an economic perspective.
20. First, the choice of depreciation method affects the likelihood that costs will be recovered, and so whether the outcome of expected NPV=0 is achieved.
  - a. A key example affecting the gas transmission sector is that, whilst there are currently few constraints on the prices that could be charged through to customers, the combination of technological change and government policy on carbon emissions means that a hard constraint will arise in the future as to the revenue that transmission pipelines will be able to recover. Thus, if depreciation is excessively slow now, there may be too much capital remaining to be recovered in the future when recoverability is more constrained.
  - b. In recognition of this, the Commission has allowed the gas transmission businesses to reduce the remaining lives of their assets when applying straight line depreciation, so that more costs can be recovered whilst the capacity to recover those costs remains relatively unconstrained.
21. Secondly, in circumstances where the capacity to recover costs is relatively unconstrained, the choice of depreciation method will affect the time-path of prices over time, which may in turn affect the efficiency with which the network is used.
22. To this end, the Commission has preferred depreciation to be calculated on a straight-line basis over the technical lives of assets and on an inflation-revalued asset base. Its reasons for such an approach to capital cost recovery include that it would be likely to deliver a long-term time path of prices that is approximately constant in real terms. The Commission considered that prices that are approximately constant (or “level”) in real terms would be approximately consistent with the outcomes of competitive markets, and likely to maximise the efficiency with which the infrastructure would be used over its life, although other factors may also bear upon this (such as whether the technology is stable).<sup>11</sup>
23. The goals of achieving an expected NPV=0 outcome and the efficiency of asset utilisation may generate different preferred depreciation methods, as is the case for the gas transmission pipelines in the example provided in paragraph 20.a above. Economic

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<sup>11</sup> Commerce Commission (2023), Input Methodologies Review: Risk and Incentives Topic Paper, December, para.3.17.

principles suggest that priority should be given to achieving expected NPV=0,<sup>12</sup> given that a discussion about the best way to encourage the efficient use of infrastructure, and the fairness of those charges, presupposes that the necessary investment has occurred in the first place. Thus, economic principles suggest that the choice of depreciation method could be structured as two sequential decisions.

24. First, determine the depreciation method that is expected to generate efficiency in the use of assets under the (potentially hypothetical) assumption that prices will be relatively unconstrained by competition or other factors (e.g., government policy changes in the case of gas transmission).
25. Secondly, determine whether a constraint on chargeability of prices will arise under this price path, and then vary the depreciation method and price path accordingly so that the effect of chargeability constraints is minimised and expected NPV=0 is achieved. The precise adjustment required to achieve expected NPV=0 would depend on the nature of the constraint on pricing.
  - a. The example of gas transmission above was one where the constraints on prices and revenue are likely to increase over time (i.e., as government policies on decarbonisation bind).
  - b. In contrast, Chorus faces immediate constraints to its revenue recovery (i.e., via the anchor product prices and competition).
26. Applying a priority to achieving expected NPV=0 over efficiency of use of assets is consistent with how the Commission has determined depreciation allowances in practice.
27. The Telecommunications Act implies that two further objectives of depreciation may be to smooth prices as necessary to avoid “price shock” for customers and “undue financial hardship” for the regulated business. We observe that both of these objectives presuppose that the regulated business (Chorus) has some flexibility over its pricing, so that a change to the regulatory depreciation method can affect Chorus’s prices (and hence affect whether there is a price shock or whether Chorus suffers undue financial hardship). However, as Chorus faces external pricing constraints, these additional objectives are not directly applicable at the current time.

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<sup>12</sup> An important contributor to achieving expected NPV=0 in the context of Chorus is to ensure that, during the period when Chorus is not able to recover the standard MAR (i.e., because of external pricing constraints), the regulatory regime does not inadvertently cause Chorus to lower its prices further. This outcome would cause Chorus’s overall stranded asset risk to increase, and so not achieve an expected NPV=0 outcome. Under the current arrangements (i.e., where under-recoveries simply flow through to the wash up) this issue does not arise; however, if Chorus’s MAR is reduced to equate with the revenue that Chorus may achieve given its constraints (e.g., depreciation is reduced), then it is appropriate to align the MAR to an optimistic scenario for revenue. This will ensure that, if conditions (e.g., demand) turns out to be better than expected, Chorus is able to recover more of its capital costs, rather than being required to reduce its prices.

## 2.3 Impact on competition – section 166(2)(b)

28. Cost recovery in a workably competitive market is fundamentally different to that in a regulated sector. In a competitive market, unlike in a regulated sector, there is no regulatory asset base that counts down over time as capital is recovered resulting in prices longer recovering capital costs if the point were reached where the RAB is fully depreciated. Rather, in a competitive market, whether a firm is able to recover its cost – or indeed whether the firm is able to recover more than its cost – depends on the evolution of the market (and matters like customer preferences and technological change) after the investment has been made. In a competitive market a firm will recover its capital investment when – and if – this is permitted under the prices that it is able to charge.
29. In terms of the matter at hand, Chorus anticipates that it will not be able to recover its MAR in RP2 when calculated using standard depreciation. Instead, Chorus will propose to alter depreciation so that the MAR that currently is unable to be recovered will be “parked” until the time when market circumstances permit those costs to be recovered (noting there is the chance that market circumstances will change adversely so that costs cannot be recovered, and so assets will be economically stranded). Recovering the amount of capital that is consistent with the amount that is possible given the constraints of competition is entirely consistent with what occurs in a competitive market, and so we think that this cannot be held to have an adverse effect on competition in the market.
30. Indeed, Chorus’s proposal to reduce the rate of depreciation to align with the return of capital that is possible within the constraints of competition (as well as the anchor product regime) is unlikely to result in a change in prices in the market. Rather, inherent in the proposal is that Chorus’s prices will be set in line with its external constraints, and depreciation will be calibrated to be consistent with this.
  - a. We acknowledge that setting prices that are very low – which could be based on a very low rate of depreciation – could, under certain circumstances, be held to have an adverse effect on competition. For example, if depreciation was lowered to the point that the regulated prices were materially lower the prices of substitute services offered by competitors, and so forced competitors from the sector, such a lowering of depreciation would have gone further than merely meeting the competition, and would not be something that ordinarily would be seen in a competitive market. Subject to the caveats below, such a deferral of depreciation may be objected to under section 166(2), and especially if the initial displacement of competitors is expected to dissuade other potential competitors from entering in the future.
  - b. However, Chorus’s proposal is to calibrate depreciation based upon revenues that reflect a view of how prices (as well as demand) may evolve over RP2 – and indeed an optimistic view of how they may evolve – rather than to move the market price,<sup>13</sup> and so the grounds for this objection would not be made out.

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<sup>13</sup> The rationale for adopting an “optimistic scenario” in relation to Chorus’s revenue constraint is addressed in paragraph 12.a and section 4.3.

- c. In any event, Chorus is regulated because it is considered to have market power, which pre-supposes that it has a cost advantage over its competitors. Thus, if Chorus's prices are low, but this merely reflects its cost advantage over its competitors, and may indeed be required by the regulatory regime, then the encouragement of actual competition would appear not to be relevant in those circumstances.<sup>14</sup>

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<sup>14</sup> We observe that the section 1662(b) makes the promotion of (actual) workable competition a requirement only “to the extent that the Commission or Minister considers it relevant”.

### 3. Mechanisms to address the inability to recover the MAR in RP2

#### 3.1 Options and assessment criteria

31. We have identified four options to encourage an expected NPV=0 outcome in the context of the constraints to Chorus's pricing for RP2. We note at the outset that these different mechanisms would all be designed to achieve the same objective (i.e., NPV=0), and so the differences between them may appear subtle, although the significance of Chorus's expected under-recovery during RP2 implies that subtle differences may nonetheless be important.
  - a. First, there is the "do nothing" option, and rely on the "wash up" provisions in section 196 of the Telecommunications Act to allow the under-recovery to be carried-forward to the future.
  - b. Secondly, there is the option of altering the depreciation method (or settings to the current depreciation method) for Chorus's core fibre assets (i.e., not including the loss asset) so that the MAR for RP2 more closely matches the revenue that is considered recoverable in view of the constraints to Chorus's pricing.
  - c. Thirdly, there is the option of altering the depreciation method (or settings to the current depreciation method) for Chorus's financial loss asset so that the MAR for RP2 more closely matches the revenue that is considered recoverable in view of the constraints to Chorus's pricing.
  - d. Fourthly, there is also the option of proposing a defined shift in revenue from RP2 to a nominated future regulatory period, with adjustments made to preserve NPV=0 (i.e., adding in a time value of money allowance at the regulatory WACC).
    - i. It is assumed here that this method would involve the Commission defining a new financial asset to keep track in a transparent manner of the MAR that had been deferred.
    - ii. The "deferred MAR financial asset" would then be depreciated (and so the deferred MAR recovered) once the constraints to Chorus's revenue permitted this.
32. It is assumed in all these options that the implementation of the method of depreciation would be reviewed periodically to ensure that the inputs retained currency. For example, if the remaining lives of core fibre assets were reviewed upwards, then that change would be implemented, noting that such a change would reduce the likely under-recovery in RP2.
33. In terms of the factors that should guide the choice between the options, the following would appear to be the most important:
  - a. the choice of mechanism can be explained and defended against the Purpose Statement (principled)

- b. the choice is likely to be enduring, given that the mismatch between MAR and recoverable revenue may well persist for the next few regulatory periods
- c. the choice can be implemented relatively simply, for example, without requiring changes to legislation or to the Input Methodologies
- d. the mechanism promotes certainty for Chorus and other interested parties that revenue that is deferred (by whatever method) will be recoverable in *regulatory* terms in the future (we note here that the Commission cannot insulate Chorus from the *market* risk of adverse movements in the market not allowing it to recover deferred revenue), and
- e. within options between which customers may be indifferent, any commercial advantages to Chorus from one option over another is considered.

## 3.2 Assessment against the options

### 3.2.1 Principled

#### *Overall outcome*

- 34. The outcome of applying any of the options identify above, if implemented appropriately, would be to achieve an expected NPV=0 outcome. That is, the revenue that Chorus is unable to recover during RP2 would be recoverable (in a regulatory sense) in a future regulatory period. Thus, the outcome generated by all the options would in our view be consistent with the Purpose Statement.
- 35. One important implementation matter relates to the options whereby Chorus's MAR is reduced (e.g., by back-ending depreciation) to pre-empt the effect of Chorus's external pricing constraints. Care is required when applying these options to ensure that the revenue cap that is determined is unlikely to require Chorus to lower its prices (i.e., whilst simultaneously back-ending recovery because of its external pricing constraints) if, for example, demand turns out to be higher than forecast. In practice, the revenue constraint that is assumed when deriving Chorus's MAR should reflect an optimistic view of its external pricing constraints. We discuss this issue further in section 4.3.

#### *Ad hoc element of depreciation is principled*

- 36. One of the outcomes of the depreciation options described above is that the method by which the depreciation allowance is calculated would change over time, namely that:
  - a. whilst the constraints to pricing operated, depreciation would be calculated as the amount that is recoverable given those constraints, but
  - b. once the constraints cease to operate, regulatory depreciation would be calculated according to more standard regulatory principles (i.e., deriving from an inquiry into how cost recovery should be spread over time).
- 37. Whilst this has the appearance of an ad hoc approach to depreciation, it is the natural effect of the depreciation needing to satisfy multiple objectives, namely:

- a. as a priority, resulting in an expected NPV=0 outcome, and
  - b. subject to this, resulting in cost recovery being structured over time in a manner that, amongst other things, minimises the price effect on demand for Chorus's services and encourages an efficient use of infrastructure.
38. Moreover, we note that the apparently ad hoc nature of the depreciation calculation is also implicit in the other options – that is, the amount of cost that is assumed to be recovered in a period will be determined by expectations as to the amount that is able to be recovered in that period.

***Beyond the normal use for a wash up account***

39. One concern that we would have with Option 1 (do nothing and rely on the wash up account) is that the purpose of a wash up account is normally limited to correcting for differences between what was forecast for a regulatory period and what eventuates, and where the amounts therefore should be relatively modest in magnitude. Indeed, the remaining items that are to be washed up – such as connection volumes and inflation outcomes – have these characteristics. That is, the ex ante expectation is that the value of the wash up for any regulatory period will be zero. Moreover, the legislative requirement for a revenue wash up (section 196) is tied to the operation of a revenue cap form of price control. We read this an intent that the wash up would be used to correct principally for differences between forecast and actual demand during a regulatory period (which is standard where a revenue cap is applied) rather than to manage a fundamental misalignment between the MAR and the revenue that is able to be recovered.
40. In our view, using the wash up to correct for a fundamental misalignment between the MAR and the revenue that is recoverable in light of the pricing constraints is not transparent and has the potential to cause confusion about regulatory intention when the MAR is being set. In addition, the size of the wash up account would likely grow much larger than had been anticipated, and so pose a risk to customers (and Chorus) given that there are relatively few rules around the rate at which the wash up account can be drawn down. Thus, we think that, of the mechanisms that could be used to generate an outcome that is consistent with the Purpose Statement, the use of the wash up is inferior.

***Transparency benefits from not altering treatment of the financial loss asset***

41. Whether the MAR is aligned with the revenue that is able to be recovered under Chorus's pricing constraints depends on the overall regulatory depreciation allowance. At first sight, it would appear irrelevant as to whether overall depreciation was adjusted by changing the depreciation for the fibre loss asset, core fibre assets, or even just a component of the latter. We comment below that there may be simplification benefits from making changes to how the financial loss asset is depreciated (see section 3.2.3).
42. In our view, there are two key reasons for retaining the current treatment of the financial loss asset, which means concentrating any change in depreciation to the core fibre assets.
43. First, the transparency of the regime will be enhanced by focussing the adjustment of depreciation on those assets for which there is flexibility in relation to the timing of cost



recovery. When the Commission determined the current fibre prices in 2021, it accepted that the financial loss asset was subject to a high degree of stranded asset risk as such an asset would not need to be replicated by a new entrant into the market.<sup>15</sup> The stranded asset risk that is associated with the financial loss asset has not changed. Thus, in practice, to the extent that cost recovery is being further deferred from the present to the future, this deferral must relate only to the core fibre assets. Continuing the current depreciation treatment for the financial loss asset would make the source of the deferred recovery more transparent.

44. Secondly, the Telecommunications Act provides the flexibility for parts of the regulated fibre service to be deregulated (i.e., if workable competition emerges). The fibre IMs then permit the Commission to remove from the RAB the assets that are applied to provide the deregulated service. The potential for individual assets to be removed from the RAB in the future means that it becomes important how individual assets are depreciated (i.e., it is not just the overall depreciation of the RAB that will matter). We conclude from this that the depreciation that is applied to individual assets should reflect the nature/character of those individual assets, including their individual risk of becoming stranded. For the current matter, the deferral of depreciation should be concentrated on those assets that have the least risk of becoming stranded, which excludes:
- a. the financial loss asset, and
  - b. the core fibre assets that the Commission identified as having a greater risk of stranding (i.e., the layer 2 assets that would be avoided by possible future unbundled access to layer 1 services).

### 3.2.2 Enduring

45. All of the options could, in principle, be applied over multiple regulatory periods to align the MAR with the revenue that it is possible for Chorus to receive given its pricing constraints.
46. However, we have a concern about the potential for confusion to be created if Option 1 (relaying up the wash up) is pursued because, as already mentioned above, the use of a wash up provision to align a price path with expected chargeability of prices is not the intended or typical use of wash up provisions in regulatory regimes. Where confusion about regulatory intention occurs, a risk arises that future regulatory decisions (most likely being made by different people in the regulatory body) will not reflect the intention (most likely implicit) of previous decisions, reducing certainty for all parties.
47. As noted above, under the law, the Commission is currently required to apply a wash up in relation to revenue (section 196). However, this legislative requirement only applies whilst a revenue cap form of price control is required to be applied to Chorus. There is the potential for the requirement for a revenue cap to be removed (i.e., if the conditions

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<sup>15</sup> This is because the financial loss asset resulted from the UFB being rolled out ahead of demand, whereas a new entrant would invest to supply an established market.



for a “reset date” are triggered), in which case the requirement for a revenue wash up to be applied under section 196 also falls away.

48. There is a risk that if these changes occur then a belief may be created that there is no longer a rationale for a revenue wash up. However, this would be incorrect – the ordinary rationale for a revenue wash up would fall away (i.e., to support a revenue cap); however, the need to align the MAR with the revenue that can be recovered under the pricing constraints would remain. This confusion would be avoided by not using the wash up mechanism to address the longer-term misalignment between the MAR and the revenue that is recoverable.

### 3.2.3 Simplicity in implementation

#### *Can be implemented without changes to the legislation or IMs*

49. The first three options can be implemented for RP2 with no change to the law or the Input Methodologies.
50. Option 4 (the direct revenue shift) would require changes to the Input Methodologies to allow the new financial asset to be created, carried forward and treated as akin to a RAB asset when prices are being determined, and in parallel for ID purposes.
51. We note that the legislative requirement to apply a wash up may fall away in the future (i.e., if a revenue cap is no longer required under section 195) as we discussed above. However, the Commission would continue to have the discretion to apply a wash up if it chose to, and the wash up scheme contained in the current IMs does not rely upon (or even refer to) the section 196 requirements, and so Option 1 would not appear to require possible future changes to the IMs.

#### *Simplification of depreciation*

52. As discussed earlier, there are currently two methods of depreciation employed for Chorus’s assets:
  - a. straight line depreciation is applied for Chorus’s core fibre assets, and
  - b. tilted annuity is applied for Chorus’s financial loss asset, with the “tilt factor” implying a front-ended profile of depreciation.
53. One possible option to align Chorus’s MAR with the revenue that is recoverable given the existing pricing constraints would be to change the method of depreciation for the financial loss asset back to straight line depreciation. The additional flexibility required to align Chorus’s MAR with the forecast constrained revenue could then be achieved by adjustments to the remaining life of the assets, with the potential to apply this adjustment to only the remaining life of the financial loss asset.<sup>16</sup>

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<sup>16</sup> It is understood that using straight line depreciation for the financial loss asset, and extending its life, could cause a sufficiently large change to the MAR to equate the MAR with the revenue expected under the pricing constraints, but that the change required to the asset lives would be large.

54. Pursuing this option would have the advantage of simplifying how Chorus depreciates its assets, with straight line depreciation applied across all assets. However, as discussed earlier, it would also (in our view) reduce transparency and be inconsistent with the operation of the deregulation provisions. This is because:
- a. the mechanism would suggest that the recovery of the financial loss asset was being deferred, when in fact the deferral would be better interpreted as a deferral of recovery of core fibre assets (i.e., given that the financial loss asset is subject to enhanced risk of asset stranding), and
  - b. the logic underpinning the remaining life of the financial loss asset – namely, reflecting the weighted average remaining life of the assets that gave rise to the financial losses – would be lost.
55. We also note that the adjustment to the RAB that exists under the IMs where assets are deregulated assumes implicitly that individual assets are depreciated according to their distinct characteristics.<sup>17</sup> Using the financial loss asset to align the MAR and expected revenue would be inconsistent with the assumption implicit in this clause.

### 3.2.4 Degree of security of recovery to Chorus

56. The deferral of MAR that Chorus proposes is an amount that, absent any constraints to Chorus's prices, could have been recoverable in RP2. This criterion relates to the degree of certainty that may attach to the recovery of that deferred MAR in the future.
57. In the Commission's decisions in relation to the firms that are regulated under Part 4 of the Commerce Act, as well as for Chorus,<sup>18</sup> the Commission has been consistent in its view that single assets should not be removed from the RAB in circumstances where market movements may mean that part of a network is no longer being used or is being used more lightly. The Commission's standard principle that assets should be retained in the RAB suggests that adjustments to the MAR via changes to depreciation – the result of which is that the deferred recovery causes the RAB to be higher by an equivalent amount – are likely to be perceived as offering the greatest security of future recovery. This would apply to Options 2 and 3.
58. In terms of Option 4 (the transparent deferral of MAR and creation of an associated financial asset), the degree of security of future recovery would depend on how that new option is given effect through changes to the IMs. It would be possible for Option 4 to be given effect in a manner that provides an equivalent level of security that the deferral will be recoverable as the depreciation options.
59. The option that may create a higher degree of perceived risk of future recovery risk is the reliance on a wash up mechanism. This reflects the fact that the Commission has in other sectors implemented restrictions to the extent to which a positive wash up may be recoverable in future periods. For example, the current EDB PQ determinations limit the

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<sup>17</sup> Clause 2.2.6(3).

<sup>18</sup> An exception exists in relation to fibre services in the situation where competition develops to the point where a service (and maybe comprising a geography) can be deregulated. In this case, the associated assets can be removed from the RAB, but price controls will also be removed.

amount of revenue under-recovery that can be carried-forward to 20 per cent of revenue.<sup>19</sup> In addition, arguments were made by the RSPs when the fibre IMs were determined that the ability to carry forward unearned revenue via a wash up should be constrained.<sup>20</sup>

60. The objections to carrying-forward large wash up balances have stemmed from the assumption that the role of the wash up will be to deal with differences between forecast and actual outcomes for the regulatory period. As we discussed earlier, this is different to the role the wash up would perform in addressing the issue raised in this report, which is to adjust for the anticipated difference between MAR and actual revenue in the period ahead (and where that anticipated difference may extend for several regulatory periods). As noted earlier, this unusual use for a wash up has the potential to create misperceptions of the cause of a large wash up balance, which in turn may translate into a risk of recovery.

### 3.3 Conclusion

61. In our view, altering the depreciation method for the core fibre assets is the preferred mechanism for aligning the MAR for RP2 – as well as for other RPs where the issue persists – with the revenue that Chorus expects to receive given the constraints to its pricing. This mechanism is:
- a. consistent with the standard objective for depreciation in a regulatory context, namely to determine the longer-term time path of cost recovery
  - b. transparent, in that the deferral of costs can be targeted to those assets whose costs can in fact be deferred (i.e., where the risk of asset stranding is minimised), and is consistent with the deregulation adjustment mechanism in the IMs
  - c. can be done without any changes to the existing regulatory regime, and
  - d. promotes the most certainty that deferred costs will be recoverable in the future.
62. The mechanism that we would rank second is to identify and defer an amount of revenue and keep a record of that deferral (akin to creating a new financial asset). However, implementing that mechanism would require changes to the IMs.
63. We do not favour the other mechanisms because:
- a. *Wash up* – it is unusual to use the wash up to address issues that are anticipated over the regulatory period ahead (wash ups are normally used to address differences between forecasts and actual outcomes). Consequently, using a wash up to address the difference between the MAR and expected revenue may create confusion and uncertainty.

<sup>19</sup> Commerce Commission (2019), Electricity Distribution Services Default Price-Quality Path Determination 2020, clause 4.2.

<sup>20</sup> See, for example, Vodafone (2018), New regulatory framework for fibre: Submission on Commission's proposed approach, December, pp.22-23.

- b. *Change depreciation to the financial loss asset* – this will reduce the transparency inherent in this asset being singled out as being subject to higher stranded asset risk than the core fibre assets, and is inconsistent with the operation of the deregulation provisions. In addition, changes to how the financial loss asset is depreciated may not be sufficient alone to equate the MAR with the constrained revenue, meaning that additional adjustments would be required.
  
- 64. How the depreciation option should be implemented is the topic of section 4.

## 4. Implementing the depreciation option

### 4.1 Tilted annuity depreciation proposed

65. The objective is to vary depreciation so that the MAR for a regulatory period aligns to an optimistic view of the revenue that is expected,<sup>21</sup> given the constraints to Chorus's pricing. It is proposed that the tilted annuity method be applied for this purpose.
66. The tilted annuity method generates a depreciation allowance that causes the total allowance for capital costs (aside from taxation) to grow at a predetermined rate (the tilt factor). This means that, by varying the tilt factor, the extent to which the depreciation of an asset is front-ended or back-ended in real terms can be altered through variations in this single parameter.<sup>22</sup> The method is therefore very flexible and so suitable for the task at hand. Aside from that, the tilted annuity depreciation method can be applied in a similar manner to any other depreciation method in that:
- a. the asset will be fully depreciated over the life that is applied in the calculation, and
  - b. the method delivers a rate of depreciation that is applicable to the assets in existence at the commencement of each regulatory year.
67. It is also noted that Chorus already applies tilted annuity depreciation in relation to the financial loss asset, and so its application has been embedded within Chorus's systems and it is a method with which the Commission is familiar.

### 4.2 Calculation steps

68. As discussed earlier, the regulatory depreciation allowance that best meets the Purpose Statement – and economic principles more generally – can be thought of as comprising two components.
- a. First, there is the depreciation allowance that would be calculated if there was no revenue constraint or stranding risk for the asset. That is, the depreciation method that would result in the recovery of costs over time that maximises the use of the asset.
  - b. Secondly, there is an adjustment required to the “unconstrained” depreciation to achieve NPV=0 (or better achieve NPV=0) in the face of pricing constraints, which may be designed to address:
    - i. potential future constraints, and/or
    - ii. existing constraints.

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<sup>21</sup> We discuss in section 4.3 why the revenue forecast should be an optimistic view.

<sup>22</sup> Depreciation is front ended if more than half of the depreciation falls in the first half of the asset's life, and back-ended if less than half falls in the first half of the asset's life. Straight line depreciation sits between these two.

69. We also concluded that the (downward) adjustment to depreciation should be focused on those assets for which there is more freedom over when the costs are recovered, which means leaving the current depreciation approach in place for the assets that are most exposed to stranded asset risk.
70. In terms of the **first step**, we note that the EDBs and TransPower both apply straight line depreciation over the technical lives of assets and have (or soon will have) their RABs indexed for inflation. The same method has also been applied by the Commission as the standard method for regulated fibre services. Therefore, we propose to assume that straight line depreciation over the technical lives of assets and with the RAB indexed for inflation is the depreciation method that would be applied if there were no constraints to pricing.
71. In terms of the **second step**, we observe that:
- a. The financial loss asset is currently being depreciated at an accelerated rate in view of its higher exposure to stranded asset risk. This depreciation method should therefore be assumed to continue in the modelling.
  - b. The Commission's discussion of Chorus's stranded asset risk concluded that Chorus was subject to material stranded asset risk in relation to the fibre assets that would be stranded by unbundled layer 1 access, and it was this potential that gave rise to the stranded asset risk allowance (of 10 basis points per annum). In contrast, the Commission concluded that Chorus's exposure to stranded asset risk in relation to the communal assets was immaterial. Consistency with this would imply retaining the same depreciation settings for the assets that are exposed to the material risk, and so focussing the adjustment to depreciation (i.e., deferral) on the remainder.
72. The remainder of the **second step** is an empirical exercise, which is to derive the adjustment to depreciation that is required to cause the MAR to align with expected revenue (determined under an optimistic scenario). Within the framework of the tilted annuity depreciation method, this step is essentially a goal seeking exercise, whereby the real tilt factor is varied until the target MAR is achieved.
73. One further issue where a choice exists is whether the wash up that exists at the start of the new regulatory period (including the forecast amount for the final year) should be assumed to be extinguished during the new regulatory period, or whether it should be assumed to be recovered over an extended period. In practical terms, whether the wash up is assumed to be corrected for in the next regulatory period is unlikely to affect the prices that Chorus charges (as these will be set in line with Chorus's external pricing constraints), but rather will affect how Chorus's overall regulatory financial capital divides between the wash up account and the RAB.<sup>23</sup>

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<sup>23</sup> That is, if the wash up account is assumed to be recovered wholly during the new regulatory period, then the depreciation required to align Chorus's MAR with its external pricing constraints would be lower, and so the RAB would be higher. In contrast, if the wash up is assumed to be spread over a number of future regulatory periods, then the wash up balance during the new regulatory period would be higher and the RAB would be lower. The sum of the wash up account and RAB would be identical, however.

74. In our view, the most appropriate treatment would be to assume that the wash up correction occurs during the new regulatory period. We say this because:
- a. if the wash up reflected only the correction of errors in forecasts during the preceding period, then it is appropriate for that correction to occur immediately, and
  - b. if the wash up reflects the longer term impact of Chorus’s pricing constraints, then the arguments we presented in section 3 imply that it would be better for this shortfall to be reflected in a higher RAB (via lower depreciation) rather than a higher wash up account.

### 4.3 Addressing uncertainty when implementing the proposed mechanism

75. There are two sources of uncertainty that, if not addressed appropriately, may result in the recommended depreciation option to be inferior to simply continuing with the current arrangements (i.e., relying upon the wash up mechanism).
- a. *Revenue uncertainty* – the revenue constraint that is used to calibrate Chorus’s depreciation will be a forecast, and actual revenue may be higher or lower than that forecast. If there was no change from the current arrangements – that is, any under-recovery were simply allowed to flow through into the wash up account – and Chorus’s ability to earn revenue was higher than expected (e.g., demand was higher than forecast), then Chorus would retain that additional revenue and the wash up calculated for the regulatory period would be lower. For this same outcome to be generated under the “depreciation” option, it would be necessary to set the MAR based on an optimistic scenario about the revenue Chorus may generate (i.e., include a degree of headroom). By optimistic, we mean a forecast of revenue for the regulatory period that Chorus is unlikely to be able to exceed during the regulatory period given its external pricing constraints.
    - i. If, instead, the depreciation allowance was calculated based upon the expected revenue over the regulatory period,<sup>24</sup> and Chorus’s ability to earn revenue turned out to be better than expected, then Chorus would need to reduce prices in order to meet its revenue cap.
    - ii. This would mean that Chorus would be back-ending depreciation because of the external constraints on its prices, while simultaneously being required to reduce its prices, which is counter-intuitive. The result would be an overall increase in Chorus’s exposure to stranded asset risk (and so not generate expected NPV=0), and so be inferior to the existing arrangements (i.e., reliance on the wash up mechanism).
  - b. *Regulatory decision uncertainty* – a further issue arises in relation to the timing of the “goal seeking” calculation, given the likelihood that the Commission will form different views on some matters than what Chorus has proposed. The principles discussed in this report suggest that the depreciation that is derived for a regulatory

<sup>24</sup> Expected revenue refers to the probability weighted average of the possible outcomes of revenue. Thus, revenue could turn out to be higher (e.g., if demand is higher than forecast) or lower.

period should be consistent with the inputs that are applied in the final MAR calculation.

- i. We note that there is a risk that, if the depreciation adjustment was calculated and locked in at an early stage (for example, based on Chorus's proposal), but the MAR inputs were then changed, that the MAR could be set below the level of revenue that Chorus could otherwise achieve.<sup>25</sup>
- ii. This outcome would imply an overall increase in Chorus's exposure to stranded asset risk (and so not generate expected NPV=0), and be inferior to the outcome that would be achieved under current arrangements (i.e., simply relying upon the wash up mechanism).

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<sup>25</sup> This is a situation where Chorus is unable to charge the prices that would recover standard depreciation, and so the depreciation allowance is to be adjusted downwards. There would be no cause for complaint if Chorus's MAR was calculated using standard depreciation and that MAR was below what Chorus could recover from customers – this latter outcome is the standard result for a regulated utility.