



Telecommunications Review: Cost-Benefit Analysis of Proposed Regulatory Changes to the Telecommunications Service Obligation

30 October 2025

Introduction and summary

1. The Telecommunications Review is focused on the regulatory system in telecommunications across several workstreams, including the Telecommunications Service Obligation (TSO). The TSO is intended to ensure that price-capped fixed line voice telephone services are available at residential addresses in rural communities.
2. The requirement to provide the TSO falls on Spark, to make a retail voice telephone service available at the relevant addresses, and Chorus, to provide Spark with the network input service to support the retail service. This network input is provided using Chorus's copper network, although the TSO is 'technology-neutral', and Chorus can use an alternative technology if it so chooses.
3. Chorus is currently in the process of withdrawing its copper network, with the intention to retire its network by 2030 as demand for telecommunications services over copper continues to fall and the infrastructure nears the end of its life.¹ However, we understand that this withdrawal assumes that the TSO will be removed, and that if this were not the case it would need to continue to operate the copper network beyond 2030.
4. Our recommendation is to abolish the TSO through a phased approach, allowing a smooth transition to alternative technologies for telecommunications end users accessing services under the TSO.

¹ Commerce Commission (2025), "Copper Services Investigation under section 69AH of the Telecommunications Act", Recommendation to the Minister for Media and Communications on the future of copper regulation – final report, 21 August, at [3.12]. Hereinafter, the Commission's document is referred to as "Copper Services Investigation 2025".

5. This appendix sets out the results of a cost-benefit analysis (CBA) of the option of phasing out the TSO.
6. In summary, in the factual where the TSO is phased out (relative to a counterfactual where the TSO remains in place), we estimate:
 - a. Net consumer surplus benefits of \$24m in 2025 present value terms over a 10-year timeframe. This consists of the benefit to consumers currently on the copper network who are able to transition to lower priced mobile or fixed wireless services, net of some costs to copper customers who only have the option to transition to higher-priced satellite services;
 - b. Net producer surplus benefits of \$15m in 2025 present value terms over a 10-year timeframe. This consists of the avoided copper network maintenance, IT, and electricity costs to Chorus that it will no longer incur from transitioning customers off the copper network; and
 - c. Total net benefits of \$39m in 2025 present value terms over a 10-year timeframe, being the sum of the consumer and producer surplus benefits.
7. Based on sensitivity testing of the key inputs into the above results, a plausible range for the net benefits is \$13m to \$51m in 2025 present value terms over a 10-year timeframe.

Methodology and Results

8. An assessment of the costs and benefits of regulatory changes to the TSO requires specification of the factual and counterfactual: the state of the world with and without the regulatory change being assessed. The factual is the proposal to abolish the TSO through a phased approach. The factual also assumes that the Commerce Commission's recommendation to remove regulation from the copper network is accepted by the Minister for Media and Communications. We assess this against a counterfactual of the status quo, where Chorus and Spark are required to maintain the TSO indefinitely. A key difference between the factual and the counterfactual is that Chorus can withdraw the copper network by 2030 in the factual, whereas the requirement to maintain the TSO in the counterfactual requires Chorus to continue operating the copper network beyond 2030.
9. We evaluate the costs and benefits in terms of both consumer surplus impacts (i.e., costs and benefits falling on residential users of telecommunications services) and producer surplus impacts (i.e., costs and benefits falling on Spark and Chorus as providers of the TSO, and other telecommunications providers).

Consumer surplus impacts

10. In terms of consumer surplus impacts, residential consumers subject to the TSO (which we refer to as 'TSO consumers') will, in the counterfactual, be able to continue to receive voice telephone services over the copper network. In the factual, these consumers will need to shift to an alternative technology, such as a mobile phone network, a fixed

wireless access (FWA) broadband network, or a low earth orbit (LEO) satellite network. In general, a starting point in economic analysis is to assume that consumers rationally choose a particular product over its alternatives, and therefore we might assume that TSO consumers are rationally choosing copper over alternative technologies. Thus, if forced to switch from copper to an alternative technology in the factual (due to the withdrawal of the copper network), TSO consumers might experience some loss of consumer surplus.

11. However, we received consistent information from both regulated parties and the Commerce Commission that many TSO consumers may in fact increase their surplus if shifting off copper to an alternative technology. First, the Commerce Commission found that several alternatives to rural copper connections are available at a similar or cheaper price,² and these generally compare favourably with respect to performance.³ Second, we understand from submitters that while some people perceive a benefit of copper services to be that the phone line works in a power cut, this is a misconception, and the copper network does in fact require electricity to continue to operate. The Commerce Commission has similarly noted that copper landlines are powered by cabinets and exchanges, which have limited battery backup in the event of an outage.⁴
12. An alternative explanation is that TSO consumers are rational but remain on the copper network due to switching costs. That is, despite there being a consumer surplus gain in switching from copper to an alternative technology, the costs of switching outweigh the surplus gain. These costs could include the time and effort to research alternatives and setup with a new provider, psychological costs (e.g., related to a fear of change), and learning costs related to a new product. They may also include capital budget constraints, where households may fail to switch because of the need to incur upfront costs of an alternative technology (e.g., satellite).
13. However, we assume that these costs are minimised in both the factual and counterfactual, because Chorus is actively supporting consumers to transition from the copper network, such as through minimising the time and effort of researching alternatives, and helping overcome psychological barriers. For example, Chorus notes that customer outcomes are the key to delivering on its copper withdrawal strategy,⁵ and that it is “prioritising encouraging and enabling customer transition and migration.”⁶ In addition, our recommendation to provide targeted financial support to low-income households helps overcome any capital budget constraints.
14. Accordingly, our approach is to assume that switching costs are minimised, and thus many TSO consumers will experience consumer surplus gains if supported in their switch from copper to an alternative technology. Consistent with this, we note the

² Copper Services Investigation 2025, at [3.68], [3.99], and [3.166].

³ Copper Services Investigation 2025, at [3.76], [3.102], and [3.183].

⁴ Copper Services Investigation 2025, at page 99.

⁵ Chorus Investor Day 2024 presentation, at slide 67.

⁶ Chorus Investor Day 2024 presentation, at slide 68.

Commission's comment in its Copper Services Investigation that "current copper broadband customers have alternatives available to them that provide a better-quality service, at a similar or cheaper price."⁷

15. To quantify the benefit of this consumer surplus increase in the factual relative to the counterfactual, we have used publicly available data on the number of rural copper connections, and the price of a retail telecommunications voice service over either copper or an alternative technology.
16. We note that not all rural copper connections are TSO connections, because the TSO applies only to residential addresses with a phone line as at 20 December 2001. Chorus has estimated that 27% of copper connections (across the entire country) are subject to the TSO.⁸ However, this includes copper lines in fibre areas where the TSO does not apply, and therefore the TSO proportion in non-fibre areas will be higher. We assume it to be 33%.
17. However, it is plausible that the ongoing requirement to maintain the TSO in the counterfactual affects not only TSO customers but also non-TSO rural copper connections. This is because Chorus would need to continue to maintain the copper network (to support the TSO) in the counterfactual, and may therefore have weaker incentives to transition both TSO and non-TSO rural customers off the copper network. Accordingly, our base case approach is to use all rural copper customer connections (although we sensitivity test this to account for TSO connections only).
18. In particular, we use the following data:
 - a. Chorus connections data on its copper connections in non-fibre rural areas,⁹ on a quarterly basis from September 2023 through to June 2025.¹⁰ Of those rural copper connections, 98% are within coverage of a 4G or 5G mobile network,¹¹ 96% are within coverage of a FWA network,¹² and any property with a sufficient line of site to the sky can access a LEO satellite service.¹³
 - b. Spark data on the price (as at September 2025) of a copper voice-only landline of \$70.70/month,¹⁴ and a copper (ADSL or VDSL) voice and broadband bundled connection of \$131.99/month.¹⁵ These prices reflect the price that consumers will

⁷ Copper Services Investigation 2025, at [3.125].

⁸ Chorus Investor Day 2024 presentation, at slide 70.

⁹ That is, where Chorus and other LFC fibre is not available.

¹⁰ Sourced from Chorus's Connection Updates, available at: <https://company.chorus.co.nz/investors/financial-reports/quarterly-connection-updates> and <https://company.chorus.co.nz/investors/investor-announcements>.

¹¹ Copper Services Investigation 2025, at [3.157.1].

¹² Copper Services Investigation 2025, at [3.53.1],

¹³ Copper Services Investigation 2025, at [3.53.5]. We note that those who can access a LEO satellite service may not necessarily be "100%" of premises in rural copper areas. However, as we do not have precise data on those who can access a LEO satellite service, and to ensure the analysis is tractable, we have assumed 100% of premises can access satellite.

¹⁴ [Landline plans | Spark NZ](#)

¹⁵ [Broadband plans - Fibre, Wireless, Portable and more | Spark NZ](#)

pay for copper connections in the counterfactual. This is likely to be a conservative estimate of the price for retail copper services: in the Copper Services Investigation, the Commission notes that, with deregulation of copper services (which the Commission recommended), Chorus will be able to price the wholesale copper service at a higher price, which will likely raise the price of retail copper services;¹⁶

c. Data on the price that consumers would face in the factual, if they were to switch off the copper network to an alternative technology. Specifically:

- i. **For copper voice-only landline users where 4G mobile is available:**¹⁷ we assume that these users would switch to a mobile phone plan. While there are numerous plans that these users could switch to, with a range of prices (from \$8 to \$95 per month),¹⁸ to make the analysis tractable we have assumed that users would switch to Spark's \$50/month mobile plan.¹⁹
- ii. **For copper voice-only landline users where 4G mobile is not available:** we assume that these users would need to switch to a satellite service. For this we use Gravity's price (as at September 2025) for its rural 30 plan, of \$79/month.²⁰ To this we add a Gravity landline connection, of \$29/month provided by Kiwi VoIP, and a one-off set-up charge of \$59.²¹ Gravity also has an initial install and kit cost of \$1,499 although we note that the Commission has noted these upfront costs may fall as new competitors enter.²²
- iii. **For copper voice and broadband bundle users where FWA is available:** because these users are already on broadband, we assume they will want to switch to a service that also has broadband (rather than just a mobile phone service), and will therefore switch to FWA where this is available. While various FWA plans are available, with a range of prices (from \$50 to \$189 per month for 4G FWA),²³ to make the analysis tractable we have assumed that users would switch to Spark's Rural Wireless Lite plan at \$105.99/month (including a landline connection).²⁴ We acknowledge that this plan includes a data cap (of 200GB), compared with unlimited data under Spark's copper plans in the factual, which may mitigate some of the consumer surplus gains from switching customers. On the other hand, rural customer satisfaction levels tend to be higher for FWA than

¹⁶ Copper Services Investigation, at [3.124].

¹⁷ While 4G may be available, as the Commission states (Copper Services Investigation 2025, footnote 151) "actual performance will likely vary for consumers, particularly in rural areas, so commercial availability (coverage that allows consistent quality voice calls) is expected to be lower than this". As we are not able to measure the 'commercial availability' of 4G, we have not accounted for it in our analysis.

¹⁸ Copper Services Investigation 2025, at Table 3.7.

¹⁹ [Mobile Plans: Unlimited Data with Endless Pay Monthly plans | Spark NZ](#)

²⁰ [Everyday Satellite | Broadband Plans | Gravity Internet NZ](#)

²¹ [Starlink VoIP NZ - Kiwi VoIP - Seamless Home Phone](#). We have added GST to the excluding GST prices reported on this webpage.

²² Copper Services Investigation 2025, at [3.74].

²³ Copper Services Investigation 2025, at Table 3.3.

²⁴ [Broadband plans - Fibre, Wireless, Portable and more | Spark NZ](#)

for copper across a range of metrics.²⁵ On balance, we consider it reasonable to assume that copper and FWA plans are relatively similar in terms of quality, and thus all the consumer surplus gains can be reflected in price differences between the factual and counterfactual.²⁶

- iv. **For copper voice and broadband bundle users where FWA is not available:** we assume that these users will switch to a satellite service. For this we use the same price as described above for voice-only customers, where the price covers the monthly price for Gravity’s satellite service and monthly price for a separate VoIP landline. We also account for the upfront equipment and installation costs as noted above.

19. A summary of these different pricing inputs is provided in Table 1 below.

Table 1: Summary of pricing inputs

Customer type	Copper price	FWA/mobile/satellite price
Copper voice-only where 4G mobile is available	\$70.70/month	\$50/month (mobile)
Copper voice-only where 4G mobile is not available	\$70.70/month	\$108/month (satellite) \$59 one-off set-up \$1,499 one-off for equipment and installation
Copper voice and broadband where FWA is available	\$131.99/month	\$105.99/month (FWA)
Copper voice and broadband where FWA is not available	\$131.99/month	\$108/month (satellite) \$59 one-off set-up \$1,499 one-off for equipment and installation

20. To calculate the consumer surplus benefits of switching off copper to an alternative technology, we first forecast Chorus’ copper connections in the factual and counterfactual through to the end of 2035 (a 10-year period, beginning at the start of 2026). In the counterfactual, we assume that connections continue to fall at the compound average rate of decrease over 2023-2025 (-7.7% per quarter for voice only connections and -5.8% per quarter for voice and broadband connections). In the factual, we assume that removal of the TSO allows Chorus to accelerate consumers switching off the copper network, and we implement this by assuming twice the rate of decrease used in the counterfactual (-15.4% per quarter for voice only connections and -11.6% per quarter for voice and broadband connections) through to 2030. To reflect Chorus’

²⁵ Copper Services Investigation 2025, at Figure 3.11.

²⁶ This point (that all the consumer surplus gains can be reflected in price differences between the factual and counterfactual) also applies to copper customers switching to 4G mobile or satellite.

full withdraw of the copper network by 2030 in the factual, we further assume that in 2030 connections decrease linearly to reach zero by December 2030.

21. Having determined copper connections in the factual and counterfactual, we calculate the connections that switch to 4G mobile, FWA, and satellite based on the coverage percentages referred to above. In each year of our analysis (from 2026 to 2035), we multiply the number of connections on each technology by the annual price for the relevant copper, mobile, FWA, or satellite plan (while also accounting for the satellite equipment and installation cost). This gives the total annual cost incurred in each year by these connections.
22. We then calculate the net present value (in 2025 dollars) of the annual stream of costs from 2026 to 2035 in the factual and counterfactual. The difference between the factual and counterfactual present values represents the net consumer surplus gain. Intuitively, the surplus gain arises because in the factual consumers switch from copper to lower priced mobile and FWA plans at a faster rate than they do in the counterfactual. While some customers switch to higher priced satellite plans (and therefore face a consumer surplus loss), this only partially offsets the consumer surplus gains.
23. In Table 2 we set out the resulting annual consumer surplus gains for the different categories of switching customers. In aggregate, the net consumer surplus benefit of switching customers off the copper network is \$24m in present value terms over a 10-year period.

Table 2: NPV of net consumer surplus gain for customers switching off copper

Customer category	NPV of total cost in the counterfactual	NPV of total cost in the factual	Difference in NPVs
Voice-only customers	\$47.2m	\$44.5m	\$2.7m
Voice and broadband customers	\$465.4m	\$444.5m	\$20.9m
Total NPV of net consumer surplus gain			\$24.0m

Producer surplus impacts

24. To quantify producer surplus impacts, we analyse how the profitability of Chorus and Spark (and any other telecommunications providers) will change between the factual and the counterfactual. We quantify two profitability impacts, which arise because the copper network is retired by 2030 in the factual but not in the counterfactual. First, in the factual Chorus and Spark will avoid the costs of complying with the TSO earlier than they will in the counterfactual. Second, in the factual Chorus will avoid the expenditure of operating and maintaining the copper network earlier than it will in the counterfactual. We describe how we have quantified these impacts in more detail in the following paragraphs.

25. First, Chorus and Spark provided data on their annual costs of complying with the TSO, which includes costs related to mandatory service quality reporting requirements. While we do not report these costs due to confidentiality of the data, we have included the earlier avoidance of compliance costs in the factual (relative to the counterfactual) as a relevant producer surplus benefit.
26. Second, with falling copper connections in both the factual and counterfactual, Chorus can reduce its expenditure on operating and maintaining the copper network. Chorus would also avoid any incremental capital expenditure associated with the copper network, along with the cost of capital of the copper network investment. However, as customers switch from Chorus' copper network to non-Chorus FWA, mobile, or satellite networks, Chorus will also lose the copper revenue it would have otherwise earned. The relevant change in producer surplus to capture in our analysis is the difference between Chorus' revenue and costs (including the cost of capital).
27. Unfortunately, however, we do not have sufficient data to quantify the difference between Chorus' revenue and costs (including the cost of capital) for the copper network. However, some evidence suggests that this difference will be negative. In particular, the Commerce Commission states that "[t]he investment case for broadband services over copper is increasingly challenging, with any new capital investment unlikely to be recovered from consumers who remain using a copper broadband service. This would likely become increasingly uneconomic for Chorus and could impose inefficient investment costs on Chorus."²⁷ If Chorus cannot recover its incremental investment costs, then it is unlikely to also earn sufficient revenue to earn a return on its existing capital investment in the copper network.
28. As an alternative to using the difference between revenue and costs as a measure of producer surplus (which, as above, is likely to be negative), we use as our best estimate of producer surplus Chorus' copper operating cost in non-fibre areas. For this we have used Chorus data from its 2024 Investor Day presentation, which show that Chorus had 3,500 copper cabinets in non-fibre areas as at 30 June 2024, and that the shutdown of the copper network allows it to save \$2,500 per cabinet annually in electricity costs and avoided network maintenance.²⁸
29. Using these data and Chorus' copper connections as at 30 June 2024 (of 92,000), we calculate a value of 0.038 cabinets per copper connection. Using the factual and counterfactual copper connections (determined using the assumptions underlying the consumer surplus calculations), we use this 0.038 figure to calculate the decreasing trend in the number of cabinets as copper connections fall (in both the factual and counterfactual). From this we calculate the annual operating costs for cabinets (at \$2,500 per cabinet) in the factual and counterfactual, and compare the net present

²⁷ Copper Services Investigation 2025, at [3.117]. A similar point is made in respect of copper voice services at [3.209].

²⁸ Chorus Investor Day 2024, slide 71.

value of these costs over a 10-year period. The net producer surplus benefit is the difference in costs between the factual and counterfactual.

30. We recognise that copper cabinets may not be decommissioned in direct proportion to falling copper connections, since not all connections associated with a particular cabinet will be removed at the same time. Therefore, our approach should only be considered a proxy for Chorus's avoided operating costs, and represents best efforts using publicly available data.
31. Chorus also incurs costs associated with the IT system underlying the copper network. We understand that these costs are largely fixed, although there is some evidence that they have been decreasing in recent years as the copper network is retired. In FY24, Chorus reported copper IT costs of \$10m, falling to \$8m in FY25 (an annual decrease of 20%).²⁹ We assume that these costs fall at the same annual rate of 20% per annum in the counterfactual. In contrast, in the factual we assume that Chorus can decrease these costs at a much faster rate, because it is able to more quickly retire the copper network. We assume that these IT costs decrease linearly through to 2030.
32. Table 3 sets out the difference in the operating cost between the factual and counterfactual. Intuitively, in the counterfactual, copper connections fall at a slower rate than in the factual, so Chorus continues to incur IT costs and the costs of operating and maintaining its copper cabinets over a longer time period. The result is a cost saving in the factual relative to the counterfactual of \$8.8m in present value terms over a 10-year period.

Table 3: NPV of net producer surplus gain for customers switching off copper

NPV of opex cost in the counterfactual	NPV of opex cost in the factual	Difference in NPVs
\$39.8m	\$24.8m	\$15.0m

33. As Chorus retires its network, it has been able to recycle and sell the copper, with a trial in 2025 contributing \$3m to revenue.³⁰ While do not have sufficient information or data to rigorously quantify the revenue from a faster rate of copper retirement in the factual and counterfactual, we note that this will be an additional producer surplus benefit.
34. If TSO connections are loss-making to Spark (in terms of producer surplus), then there will also be a benefit to Spark in the factual relative to the counterfactual from removing these loss-making connections at a faster rate. In addition, if copper customers transition to a Spark FWA or mobile plan, then Spark will benefit from the increased producer surplus at a faster rate in the factual relative to the counterfactual. There will also be a faster rate of producer surplus gain to other providers (e.g., of satellite services) that customers transition as the copper network is shutdown. These are all

²⁹ Chorus FY25 Results Presentation, p.20.

³⁰ Chorus FY25 Results Presentation, p.14.

potential producer surplus gains, although we do not have sufficient information or data to quantify them.

Total surplus benefits

35. We quantified consumer surplus benefits of \$24m and producer surplus benefits of \$15m. The resulting total surplus net benefit in the factual relative to the counterfactual is therefore approximately \$39m in present value terms over a 10-year timeframe.

Sensitivity testing

36. In Table 4 we report our base case net benefit results, along with the following sensitivities (where in each case we vary only the relevant parameters to isolate their impact):

- a. Scaling down Chorus’s historical connections data (for each quarter from September 2023 through to June 2025) by 33%, to reflect our estimate of TSO connections;
- b. Using the range of prices for mobile plans reported in the Commission’s Copper Services Investigation, \$8-\$95/month;
- c. Using the range of prices for FWA plans reported in the Commission’s Copper Services Investigation, \$50-\$189/month; and
- d. Using Gravity’s higher priced residential satellite plan, costing \$99/month.

37. The results generally show positive net benefits, with the exception of the FWA price plan at the high end of the range (\$189/month). However, given that consumers have a range of FWA plans to choose from, it is unlikely that those moving from copper would switch to a materially higher-priced plan. A more plausible range for the FWA price might be that given in the Commerce Commission’s Telecommunications Monitoring Report 2025, which reports rural average prices for 4G FWA of \$91/month to \$138/month (with the range depending on the data cap).³¹ Using this range of FWA prices yields net benefits in the range of \$13m through to \$51m.

Table 4: Sensitivity testing of net benefit results

Sensitivity test	Net benefit (present value over 10 years)
Base case	\$39m
TSO connections as 33% of total copper connections	\$23m
Mobile plan price in range of \$8-\$95/month	\$32m-\$44m
FWA price plan in range of \$50-\$189/month	-\$28m-\$83m
FWA price plan in range of \$91-\$138/month	\$13m-\$51m
Satellite price plan of \$159/month	\$38m

³¹ Commerce Commission (2025), “2024 Telecommunications Monitoring Report”, Table 26.