A short response to the Frontier Economics paper 'Response to Feasey Report'

1. The Frontier paper[1] makes three points, which I address in turn.

The pricing constraint from Fixed Wireless Operators

2. First, Frontier challenge my view that Fixed Wireless services do not provide a strong competitive constraint upon the prices charged by LFCs[2]. They do this on the basis that:

    a. LFCs have low marginal costs of supply, which I understand to mean they could lower prices for fibre connections to levels close to or below the marginal costs of supply for Fixed Wireless Operators who have unutilised cellular capacity.

    b. Fixed Wireless Operators have unutilised cellular capacity and, if they don't, their incremental cost of adding cellular capacity is low

3. I agree with Frontier that these are relevant considerations and that low barriers to and costs of expansion promote competition between rival networks. But Frontier ignore another important consideration for the Fixed Wireless Operators, which is that using cellular network capacity to serve fixed wireless customers imposes a significant opportunity cost upon them if that capacity could instead be used to service mobile users. This is because mobile users represent a much more profitable use of a given amount of cellular network capacity. The Commission reports monthly mobile data volumes in New Zealand at around 7GB and fixed volumes at around 480GB per connection[3]. In simple terms that shows that a single Fixed Wireless connection is equivalent, in network capacity terms, to almost 70 mobile connections[4]. Average revenue for mobile is around $55/month and about $90/month for fibre, so on this basis $/GB is around $7.8 for mobile services and $0.187 for fixed, a difference of over 40x[5]. I recognise that users of Fixed Wireless

[1] https://comcom.govt.nz/__data/assets/pdf_file/0034/368269/Chorus-Frontier-Economics-on-Feasey-Report-25-July-2025.pdf

[2] I note the Frontier paper appears to been commissioned by all the LFCs and so assume their arguments relate to all LFCs. I do not know whether competitive conditions differ for different LFCs but the Frontier paper suggests they do not.

[3] p. 13 at https://www.comcom.govt.nz/assets/pdf_file/0025/367054/2024-Telecommunications-Monitoring-Report-30-June-2025.pdf

[4] The position is more complex because peak hour capacity drives network costs, but I am just illustrating the obvious point.

[5] Op cit p.78 and 244.

connections may consume less data, on average, than users of fibre connections, but even if they consume a fraction of the volume they will still be much less profitable than a mobile user in terms of $/GB[6].

4. This means that, given the choice, a Fixed Wireless Operator will always allocate or reserve capacity for mobile services rather than for fixed services. This is particularly so in a competitive market for mobile services, where capacity constraints and poor quality service could otherwise lead to a loss of the mobile customer. In contrast, if the Operator does not allocate wireless capacity to fixed services it can always use an LFC fibre connection to supply the customer instead. Only if the Operator does not need the cellular capacity for mobile services are they likely to use it for fixed wireless services.

5. Frontier may argue that Fixed Wireless Operators will deploy additional network capacity in their cellular network specifically to meet demand for fixed services, over and above what is required for mobile, and that they will prefer to do this than buy an LFC fibre connection. I agree they might do this when the marginal cost of capacity expansion on the cellular network is low[7]. That would be the case if all that were required is to activate an additional wireless carrier, for example. But the Fixed Wireless Operator will have to add a lot of capacity to serve a relatively small number of fixed wireless connections compared to any mobile use. This means I expect any capacity upgrades to support fixed wireless to be a low priority for any mobile Operator. Once these low cost capacity expansion options have been exhausted, the costs of upgrading RANs or adding additional cell sites are, in my view and experience (and in the view of the various technical experts I consulted on this question), very materially higher for the Fixed Wireless Operator than the cost of buying an individual fibre connection from an LFC.

6. The Commission could ask for evidence of Fixed Wireless Operators in New Zealand investing in capacity augmentation specifically for fixed wireless. The evidence I have seen, which includes the need to subsidise the Rural Capacity Upgrade Programme and ‘stop sell’ actions taken by Fixed Wireless Operators when capacity is not available, is consistent with my view that investment in cellular capacity is driven mobile user demand.

[6] This would be so unless margins for fixed services were many times higher than for mobile, which they are not. I note that average revenues from Fixed Wireless Connections are lower than the $90/month fibre revenue I assume here, which would offset lower data volumes to some degree.
[7] On p.12 Frontier make various points about additional mid-band spectrum and ‘technological advancement’. I am not persuaded these will reduce the costs of augmenting capacity and, even if they do, I remain of the view that the incremental cost would exceed the cost of purchasing a fibre connection from an LFC.

7. I recognise there is some unutilised capacity today because mobile operators around the world have already invested in 5G network capacity and been left disappointed by the user demand[8]. Mobile operators in New Zealand have been more cautious than those in many other countries (with coverage currently only at around 40% of the population), and so there may be less unutilised 5G capacity available in New Zealand than elsewhere. What is available can and likely will be used to support Fixed Wireless services - but only until a more profitable mobile application comes along (if it ever does). The same applies to investments in 4G coverage in rural areas, which may leave some cells with capacity that is unutilised by mobile users and can be used for Fixed Wireless. But that does not mean that Fixed Wireless Operators will invest in dedicated 5G network capacity to support fixed wireless services and, again, I have seen no evidence that Fixed Wireless Operators in New Zealand are doing or intend to do this.

8. I note that Chorus itself thinks Fixed Wireless Operators can be persuaded to migrate existing high usage Fixed Wireless users onto its fibre network to release capacity for more profitable mobile users or low usage Fixed Wireless Users[9]. In Vodafone we used to call this reallocation of capacity from less profitable to more profitable uses 'yield management'. If Chorus thought Fixed Wireless Operators could expand cellular capacity to accommodate additional fixed wireless demand at a low cost, as Frontier suggest, then it is not clear to me why Chorus would be highlighting this commercial opportunity to its investors. Chorus do not suggest they will have to cut prices of fibre connections to achieve this migration and I do not expect that they will.

9. Turning to the LFCs, if they think the Fixed Wireless Operators are capacity constrained with respect to fixed wireless services, as I think they will for the reasons just explained, then the volume of fibre connections they will lose to Fixed Wireless if they raised prices will be determined by those constraints. Frontier ignore switching costs but churn rates in European markets with competing networks in the same geographic area are low once households have undergone the disruption and cost of having a new fibre connection installed at their home[10]. I do

[8] Growth in mobile data consumption in recent years has generally been behind industry expectations, in part because of relatively low 5G take up.
[9] Slide 26 of the latest results presentation states that one FY26 activity is 'opportunities to assist MNOs with FWA high data user migration', at https://assets.ctfassets.net/7urik9yedtqc/nzx-doc-450317/13dcf8c3807c9d93d5d68934b93855c8/2_Chorus_FY25_Investor_Presentation.pdf. There is no suggestion that Chorus intends to cut prices to do this.
[10] I note that in an earlier paper Frontier asserted that switching costs to fixed wireless are low. I agree it is not difficult to acquire a fixed wireless connection, but Frontier ignore the substantial sunk costs that households have incurred to obtain a fibre connection, including the installation of internal wiring and a new NTP. Economists may disregard sunk costs but householders don't. All the evidence I have seen outside of New Zealand suggests levels of switching away from fibre, once installed, to other technologies is low. So far as I am aware neither Chorus nor the RSPs have published evidence on how many users switch from fibre to fixed wireless but I expect the numbers to be low. See para 3.5 https://comcom.govt.nz/__data/assets/pdf_file/0022/362623/Frontier-Economics-reasonable-grounds-analysis-24-September-2024.pdf

not doubt there is a price increase at which some LFC households would disconnect their fibre but I think it would have to be substantial and that Fixed Wireless Operators will not be able to accommodate many new connections in any event. They will be a relatively weak competitive constraint on the LFCs as a result.

10. In terms of LFCs lowering prices, I do not agree with Frontier that LFCs have low marginal costs of supply. Whilst the access network has been built, the cost of installing a fibre connection to an individual households is not trivial. In any event, as Frontier argue elsewhere in their report, Chorus will set its prices with a view to recovering its total costs over time, not just marginal costs. These total costs are substantial. As I said in my fibre report, I would not expect that LFCs would be prepared to cut fibre prices to a point where a Fixed Wireless Operator with unutilised wireless capacity available for fixed services could be persuaded to leave that capacity idle and choose a fibre connection instead. I accepted in the fibre report that a Fixed Wireless Operator facing capacity constraints and with more profitable mobile users to serve might be persuaded to migrate some existing Fixed Wireless users to a fibre connection at a later date, and that this derisks to decision to allocate capacity to fixed wireless in the first instance[11]. I note in paragraph 8 above that Chorus seems to think so too.

11. I also think it is important to distinguish between what we observe today and what the future might hold. Chorus may have different incentives from the other LFCs in this context because it currently incurs costs maintaining a copper network which it would prefer to avoid. Chorus' incentives are therefore to migrate customers away from the copper network as quickly as possible. Chorus also has strong incentives to maximise the utilisation of the fibre network it has built and recover its fixed costs and I expect it to set prices with this objective in mind. Crucially, I consider that Chorus will have these commercial incentives and will behave in the same way irrespective of whether it faces competition from Fixed Wireless Operators or not.

12. I also think the incentives to lower prices are more acute today than they will be in the future. That is because the copper decommissioning incentive disappears once Chorus has decommissioned the copper network and has avoided the costs. The maximising fibre take up incentive is strong today because new fibre network deployment and copper decommissioning are prompting households to choose a new broadband provider. This as a period when there is an element of 'competition for the market' between the different technologies and pricing is at its most acute. Chorus is rightly seeking to maximise take up of fibre connections and has said it is

[11] See paragraph 31 of the fibre report

targeting an 80% share of homes passed by 2030[12]. RSPs are seeking to minimise their costs of providing fixed broadband connections by using fixed wireless network capacity where available.

13. My assessment of the competitive constraint from Fixed Wireless Operators looks beyond 2030 to consider how competition might work once copper users have been redistributed between the various technologies. Chorus aims to have an 80% share, which is generally regarded as sufficient to exercise market power. I see no reason why it will not achieve this and there is no suggestion it expects to have to cut prices to do so. There may then be sufficient excess cellular network capacity to accommodate most of the other 20%. For the reasons already explained, I consider it would make little commercial sense for Chorus to compete for the remaining 20% by cutting prices.

14. Frontier make the point that my analysis of Chorus' incentives does not apply to the other LFCs. I agree with respect to avoiding the costs of maintaining copper networks but I think otherwise the same maximising take up incentive applies and I am not aware of the other LFCs facing other pricing constraints which Chorus does not encounter. I noted in my report that the other LFC's pricing had not diverged from Chorus' to date[13]. It may be that they are following Chorus' example to avoid the risk of the PQ regime being extended to them. I remain unconvinced that prices are explained by reference to competition from Fixed Wireless Operators.

15. Finally, Frontier ignore Chorus' decision to unilaterally increase speeds for its most popular fibre product, first by 3x (from 100 Mb/s to 300 Mb/s) and then by 5x (to 500 Mb/s). Frontier may say this is evidence of a concern that Chorus would otherwise lose these fibre users to Fixed Wireless services. I do not find that very convincing. In my view the more plausible explanation is that Chorus is exploiting the capacity advantage it has over the Fixed Wireless Operators by encouraging its users to consume more data, a strategy which appears to be working[14]. The effect of this is that serving broadband users over Fixed Wireless networks will become ever less profitable for the Fixed Wireless Operators as fewer and fewer fixed connections can be accommodated within a given amount of capacity. This means that, absent large additional investments in dedicated fixed wireless network capacity (which I do not expect the Operators to make), Fixed Wireless Operators will become less effective competitors to the LFCs in the future than they have been in the past or, more precisely, the share of the broadband users allocated to

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[12] p. 34 at https://assets.ctfassets.net/7urik9yedtqc/7CX3EHrHpsiftuUux1dkok/19a917f066ee91faf05b0430e7f4c2f1/chorus-investor-day-2024-presentation.pdf

[13] Para 78

[14] There is good evidence that faster connections induce higher data consumption, including in New Zealand, see slide 9 at https://assets.ctfassets.net/7urik9yedtqc/nzx-doc-450317/13dcf8c3807c9d93d5d68934b93855c8/2_Chorus_FY25_Investor_Presentation.pdf

Fixed Wireless connections will be lower. I therefore expect Chorus to continue to acquire connections beyond 80% as mobile user demand for cellular capacity displaces fixed wireless connections and as fixed data usage growth means cellular networks support fewer remaining fixed wireless connections

Relevant competitive benchmark

16. Second, Frontier quote a part of paragraph 137 of my report in which I say the current revenue allowance, which includes the recovery of costs incurred in prior periods, may not be a proxy for a competitive level of prices. They offer several interpretations of this statement and conclude 'We do not think that any of them can provide a basis for a finding that competitive prices would be lower than those observed in the market. Such a position can only be arrived at by taking an extreme view of how firms would invest and seek profits in a workably competitive market'.

17. I think Frontier misunderstand what I am saying here. I am not saying in that paragraph or anywhere else in the report that the prices Chorus charges today are above a competitive level or that they are being inflated by the recovery of past costs. I do not make any assessment in my report of whether Chorus' current prices are at a competitive level or not. Nor am I suggesting that I would expect prices in a competitive market to reflect short term marginal costs or anything like that. Nor am I suggesting that firms should not be able or are not able to recover costs sustained in the past.

18. When the entire paragraph is read I think it is clear that I am simply cautioning against drawing firm conclusions from the relationship between the revenues Chorus earns and the revenue allowance in a single or particular year. This is in response to arguments that Chorus made in the fibre deregulation review that the Commission should infer the presence of competitive constraints from Chorus' failure to fully recover the revenue allowance in recent years. I highlight in the paragraph and in paragraph 138 which follows that the revenue allowance for a given year depends upon the operation of various moving parts in the PQ methodology which allow the Commission to shift costs and hence allowed revenues between years and between periods. In my view this means that a single year or couple of years in which revenues fall below the revenue allowance could reflect these adjustments rather than being evidence of competitive pricing constraints at work.

19. Aside from technical adjustments which influence the revenue allowance, I could have mentioned the different points in the market's development and in Chorus' strategy which I have referred to earlier in this note. Frontier discuss penetration pricing strategies in section 3.3 of their paper.

There is no disagreement between us on any of this and I consider it reinforces my point, which is that the cost recovery over time profile implied by the mechanics of the PQ regime may not match the profit maximising way in which Chorus seeks to recover its costs. A misalignment between the two is not evidence of anything other than that these may be misaligned.

20. I note Frontier do not say in their paper that we should infer the presence of pricing constraints from the fact that Chorus' revenues have been below the revenue allowance in recent years[15]. I view any disagreement between us on this point as of minor importance. The key issue for me is the direct evidence on the strength of the pricing constraints themselves.

Chain of substitution

21. Frontier challenge my conclusion that substitution between different fibre broadband services may not be effective or sufficiently effective to mean that any competitive (or regulatory) constraints on lower speed products translate into effective constraints on all other products. They cite a recent decision by the ACCC as concluding that they would be.

22. I am, as Frontier suggest, intellectually attracted to anchor products as a possible alternative pricing constraint to the current PQ regime. But in practical terms I think it would be a very bold move for the Commission to dismantle the PQ regime and rely only upon anchor products, since if they prove to be ineffective there is no easy way back for the Commission. The evidence of anchor products providing an effective pricing constraint would need to be quite compelling for me to take that risk. I noted in my report that no European regulator has yet been prepared to take it.

23. My view is that the evidence from New Zealand, at least to date, is not compelling. Chorus itself claims that its prices are constrained by competition from fixed wireless rather than any regulated anchor product.

24. I might recommend the Commission take a risk if I thought the existing PQ regime were proving problematic by, for example, inhibiting investment or innovation. I am not aware Chorus or the other LFCs have argued that it is. Their argument seems to be that the PQ regime does not

[15] In their previous paper Frontier say it is reasonable to assume that current prices are at competitive levels because Chorus is pricing below the revenue allowance, see para 2.3.2 at https://comcom.govt.nz/__data/assets/pdf_file/0022/362623/Frontier-Economics-reasonable-grounds-analysis-24-September-2024.pdf. Frontier have to make this assumption to undertake a SSNIP test (to determine whether Chorus could profitably raise prices above the competitive level. I understand why they adopt this assumption but I do not agree that revenues below the revenue allowance for a couple of years allows us to make that inference.

represent a binding constraint on their prices and so is redundant. This suggests to me they think the main adverse impact is the costs of implementing a redundant regime, costs which they would prefer to avoid.

25. I said in the report I thought these implementation costs were now largely sunk so the forward looking costs (which I agree with Frontier is what we should be concerned with) should be modest. Frontier say it is ‘far from obvious’ that the costs of introducing an anchor product regime are higher than those associated with retaining the PQ regime. I do not know, but comparison of implementation is not the only factor to consider. I have considered the costs of implementation alongside the relative risks and relative benefits of the different regulatory approaches in coming to my overall judgment.

Empirical evidence

26. Frontier’s general approach in their paper is to suggest that the assessment is uncertain in the absence of empirical evidence to populate economic models. I agree that economic modelling can often be useful, although I think consideration of how firms behave, what their commercial strategies are and what they tell their investors can also be informative if you have significant industry experience, as I do.

27. The empirical evidence necessary to answer some of these questions can only be generated and will be held by the market participants themselves, including the LFCs[16]. In my view it is not sufficient for market participants to instruct economic consulting firms to produce papers rehearsing economic theory devoid of any empirical data. If the LFCs have data to support the claims made in the Frontier paper then they ought to provide it to Frontier or the Commission. If they don’t, I think the Commission can reasonably infer that the evidence may not be very supportive of the claims being made in the Frontier paper.

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[16] For example, Chorus could raise prices substantially and try to ascertain how many customers actually switched to a lower cost fibre product or to a Fixed Wireless Service.