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Draft report on whether Spark's Resale Voice Services should be omitted from Schedule 1 of the Telecommunications Act 2001

Draft report under clause 2 of Part 1 of Schedule 3 of the Telecommunications Act 2001

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Associated documents

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Commerce Commission

Wellington, New Zealand

Confidential material in this report has been removed. Its location in the document is denoted by [ ].

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Glossary

ACCC	Australian Competition and Consumer Commission.
ATA	Analogue telephone adaptor.
Baseband services	Commercial services supplied by Chorus that allow the delivery of voice services to end users. The different variants of Baseband services, such as Baseband copper, Baseband IP and Baseband IP Extended, and their relationship with Chorus' Unbundled Copper Low Frequency (UCLF) are detailed in Attachment A.
BBIP	Baseband internet protocol.
BUBA	Basic unbundled bitstream access service.
CPE	Customer premises equipment.
Designated service	A service described in Part 2 of Schedule 1. Includes both price and non-price terms for access.
DSL	Digital subscriber line.
DSLAM	Digital subscriber line access multiplexer.
EC	European Commission.
EFTPOS	Electronic funds transfer at point of sale.
EOI	Equivalence of inputs.
EUBA	Enhanced unbundled bitstream access.
ETP	External termination point is where the Chorus service demarcation point is located at the end user's premises.
FDS	First data switch.
FPP	Final pricing principle.
FWA	Fixed wireless access.
IP	Internet protocol.

ISAM	Integrated Services Access Manager is a modern ethernet-based DSLAM.
ISDN	Integrated services digital network.
LFC	Local fibre company.
LTE	Long-term evolution is a 4th generation mobile technology. Relative to 3rd generation mobile, the LTE specification enables 100 Mbps+ data transmission rates, increased system capacity and shorter transmission latency times.
MBIE	Ministry of Business, Innovation and Employment.
Naked broadband	Retail broadband services that are provided on their own, without being bundled with a voice service.
NRA	National regulatory authority.
PABX	Private automated branch exchange.
PBX	Private branch exchange.
PCM	Pulse code modulation.
POI	Point of interconnection.
POTS	Plain old telephone service is a term used to describe a basic voice service provided over a copper network.
PSTN	Public Switched Telephone Network, as defined in Clause 5 of the Act.
RBI	Rural Broadband Initiative - the name given to the Government's initiative to roll-out a higher-speed broadband access network to rural households.
RSP	Retail service provider.
SIP	Session initiation protocol.
Specified service	A service described in Part 3 of Schedule 1, which excludes the price payable for access to a specified service.
STD	Standard terms determinations are the Commerce Commission's primary mechanism for regulating telecommunications services under the Telecommunications Act 2001.

TSO	Telecommunication Service Obligations.
UBA	Unbundled bitstream access service is a regulated wholesale service provided by Chorus that connects a customer' premises to the first data switch and can be accessed by retail telecommunications providers to provide broadband service over the copper line.
UCLF	Unbundled copper low frequency service is a regulated wholesale service provided by Chorus that enables access to and interconnection with, the low frequency band of the copper line (being the frequency between 300 and 3400 Hz) and can be accessed by retail telecommunications providers to provide voice services. The UCLF service is available from an exchange including on cabinetised lines.
UCLL	Unbundled copper local loop service is a regulated wholesale service provided by Chorus that connects a customer's premise to the local exchange and can be accessed by retail telecommunications providers to provide a voice and broadband service over the copper line.
UFB	Ultra-Fast Broadband is the name given to the Government's initiative to roll-out a fibre access network in New Zealand. The network connects the customer's premises to the retail telecommunications' providers network so they can provide high-speed broadband services and voice over internet protocol (VoIP).
VDSL	Very high bit rate digital subscriber line.
VoIP	Voice over internet protocol is a way to send voice calls over a data connection such as a broadband connection.
Managed VoIP	Managed VoIP service is a publicly available telephone service, using internet protocol, provided through fixed wireless, DSL, cable, and other fixed internet platforms whereby the retail service provider (RSP) controls the quality of service provided.
Unmanaged VoIP services	Software-based VoIP applications, offered exclusively as content-based services on a best-effort basis by providers that are not electronic communications providers (for example, VoIP using Skype, Hotmail, or Yahoo Mail). Some allow calls to mobile numbers and landline numbers.
Zones 1, 2, and 3	The Telecom line density zones known as Zone 1, Zone 2, Zone 3a and Zone 3b are generally used by Telecom to describe those urban density areas of New Zealand served by telephone exchanges with a total line count of greater than 500 lines, and which at 30 June 2008

	together include not less than 80% of total existing PSTN lines.[1]
Zone 4	Areas of New Zealand (except the Chatham Islands) that are not in Telecom Zones 1, 2 and 3.[2]

[1] Rural Broadband agreement between Chorus and MBIE, consolidation version July 2012.

[2] IBID

Executive summary

Purpose

X1 This report sets out our preliminary views on whether we should recommend to the Minister for Communications that Spark's Resale Voice Services (Resale Services) be omitted from Schedule 1 of the Telecommunications Act 2001 (the Act). [3]

X2 The Resale Services provide retail service providers (RSPs) with the ability to rebrand and on-sell a voice service to end users. Schedule 1 of the Act currently contains the following Resale Services:

X2.1 local access and calling service offered by means of fixed telecommunications network;

X2.2 retail services offered by means of a fixed telecommunications network; and

X2.3 retail services offered by means of a fixed telecommunications network as part of a bundle.

Why we are conducting this Schedule 3 investigation

X3 Earlier this year, we conducted a review of 14 services in Schedule 1 of the Act to consider if there were reasonable grounds to commence an investigation into whether any of the services should be omitted from Schedule 1. [4] We found that there were reasonable grounds to investigate whether to deregulate each of the three Resale Services. [5]

X4 Our task is now to investigate, under clause 1(5) of Schedule 3, whether deregulating the Resale Services, by omitting them from Schedule 1 of the Act, would best give effect to section 18 of the Act.

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[3] The resale services are in Schedule 1 to enable them to be regulated if the need arises. If this backstop no longer best gives effect to section 18 of the Act, the services can be "omitted" from the Schedule. In this paper we will sometimes refer to this process as "deregulation" even though there is no actual regulation in place.

[4] We are required to conduct these reviews of the services in Schedule 1 every five-years under clause 1(3) of Schedule 3 of the Act.

[5] Commerce Commission "Commerce Commission's Final Decision on the Review of Designated and Specified Services under Schedule 1 of the Telecommunications Act 2001", 30 June 2016.

Draft recommendation

X5 Our preliminary view is that we will recommend to the Minister for Communications that the three Resale Services are removed from Schedule 1 12 months after the Order in Council is made. In our view removing the Resale Services from the Schedule will best give effect to section 18 of the Act.

X6 In short, having the Resale Services in Schedule 1 is not itself delivering competitive retail pricing or innovation in voice services. Competition has been established, is increasingly effective, and is no longer dependent on access to the Resale Services. Chorus, the local fibre companies and fixed wireless operators all have the infrastructure to offer alternative wholesale voice services to RSPs.

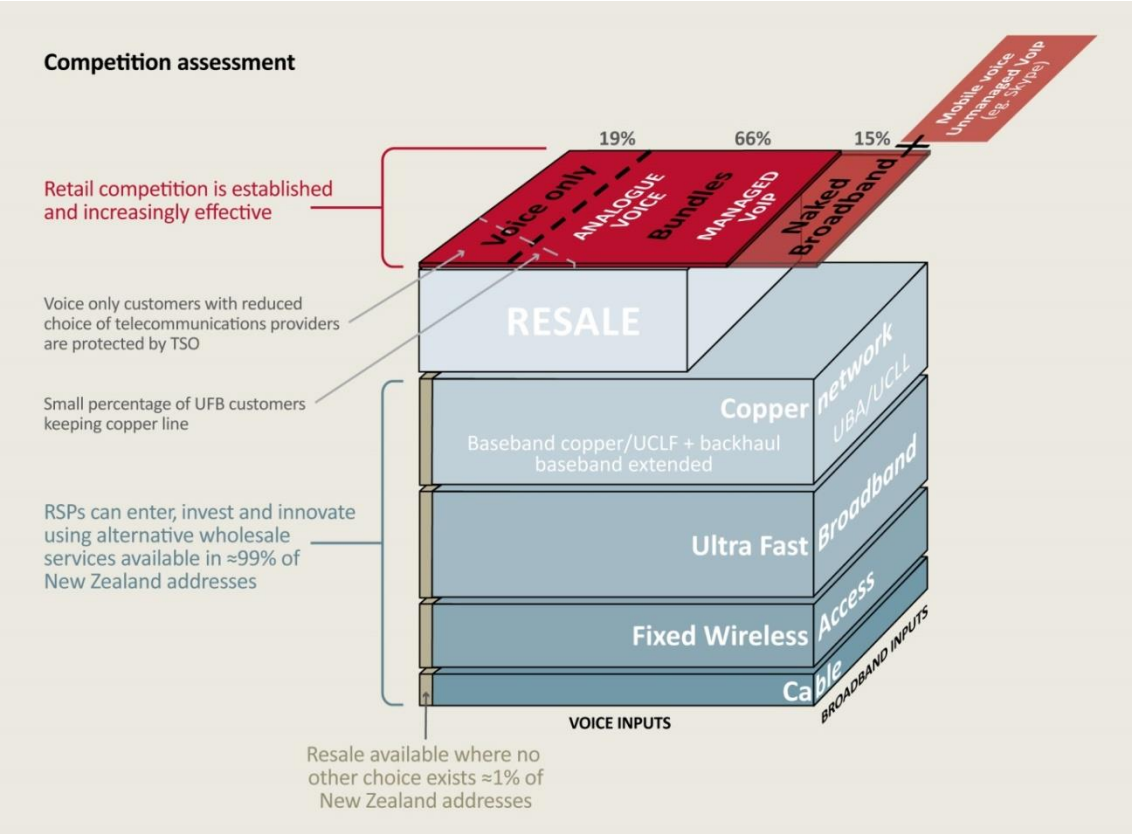
X7 There will be a very small number of end users for whom Spark will be the only option. For these end users the price will continue to be capped by Spark's Telecommunications Service Obligation. Overall the net benefits of deregulating the Resale Services, even if small, will best give effect to section 18.

X8 The recommended transition period will allow RSPs to consider their wholesale options. Should they choose to transition to any of the wholesale alternatives, it will give them time to mitigate any disruptive effects, including the development of necessary business systems.

Competition assessment

X9 Figure X.1 illustrates how the Resale Services and other wholesale inputs are used to provide retail services to end users. For over 99% of commercial and residential addresses, RSPs have at least one alternative wholesale input provided by either Chorus, Local Fibre Companies or fixed wireless operators. These wholesale alternative inputs allow RSPs to supply voice-only services as well as bundles of voice and broadband.

Figure X1 Summary of our reasons to recommend removing resale voice services from Schedule 1



X10 The wholesale alternatives include:

X10.1 wholesale broadband services offered by Chorus (Chorus' unbundled bitstream access (UBA) service, unbundled copper local loop (UCLL) service, and Ultra-Fast Broadband (UFB) services);

X10.2 wholesale voice services offered by Chorus (Baseband copper, Baseband IP and Baseband IP Extended);

X10.3 wholesale broadband services offered by the local fibre companies (UFB services);

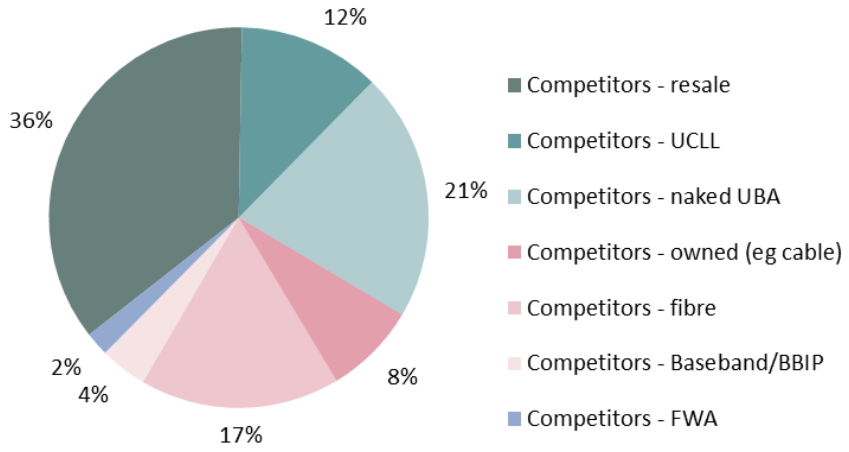
X10.4 wholesale services offered by Vodafone (wholesale fixed wireless access (FWA) services under the rural broadband initiative (RBI)); and

X10.5 providers who have deployed their own networks, such as Vodafone's cable network and FWA operators who have deployed their own towers or have co-located on RBI towers.

X11 Competition from these wholesale alternatives will incentivise Spark to continue supplying the Resale Services. This competition will also constrain Spark from exercising significant market power in respect of the Resale Services.

X12 The increasing availability of, and demand for, these wholesale alternatives by RSPs has resulted in a reduction in the number of Resale lines supplied by Spark. By June 2016, 36% of retail fixed connections supplied by RSPs were based on resale, down from [ ]% in 2014. Figure X2 below summarises the ways in which Spark's retail competitors supply retail fixed connections to end users.

Figure X2 Breakdown of competitor fixed connections (June 2016)



Source: Commerce Commission data

X13 Some of the wholesale alternatives shown in Figure X2 above are not available in respect of all end users. At 97% of end user locations there is access to at least one alternative fixed-line input. At most of the remaining 3% of end user locations, fixed wireless is an alternative wholesale input to Spark's voice service. The last few thousand end user locations, representing less than 1% of all end user locations, have access only to Spark's voice service. The competitive impact on these end users, should the Resale Services be deregulated, is mitigated by the separately regulated TSO price cap. For the most part, these end users are paying at the level of that cap now, so would be unlikely to pay more post-deregulation.

X14 The increasing competition from wholesale alternatives to the Resale Services appears to be having an impact on the price that Spark charges RSPs for the Resale Services. Our evidence is consistent with the Resale Services facing increased competitive pressure from Chorus' wholesale voice services and from other wholesale alternatives.

X15 The information obtained as part of our investigation is consistent with RSPs having the ability to enter, compete and expand in the provision of voice services at a fixed location independent of the Resale Services.

Assessment of benefits and costs of deregulation

X16 In assessing whether the Resale Services should be deregulated, we consider that the net benefits of omitting the Resale Services from Schedule 1 may be small but doing so will best give effect to section 18.

X17 From our analysis the benefits that would arise from removing the Resale Services from Schedule 1 are:

X17.1 avoiding any direct regulatory costs; and

X17.2 avoiding any distortions due to the price or non-price terms of resale as applied.

X18 From our analysis the costs that could arise from removing the Resale Services from Schedule 1 are:

X18.1 any costs to RSPs of bringing forward the development of the business systems needed to use other wholesale inputs;

X18.2 any costs to the small number of customers whose choice of telecommunications suppliers may be reduced.

Chapter 1 Purpose, background and structure of our report

Purpose

1. This draft report provides our preliminary findings and conclusions from the investigation into whether Spark's three resale voice services contained in Schedule 1 of the Telecommunications Act 2001 (Resale Services) should be deregulated by omitting them from Schedule 1 of the Act. The Resale Services are:

    1.1 Local access and calling service offered by means of fixed telecommunications service;

    1.2 Retail services offered by means of a fixed telecommunications network; and

    1.3 Retail services offered by means of a fixed telecommunications network as part of bundle of retail services.

Background

Overview of Resale Services and regulation of Resale Services

2. The provision of local access and calling services means the provision of an access line supplied along with local calling as a single service. Other retail services that are also delivered over an access line are services such as integrated services digital network (ISDN) or Centrex-based services, and value added services such as ‘smartphone’ messaging services such as Call Minder, Call Waiting, and Caller Display services.

3. The resale voice services in Schedule 1 allow access seekers to purchase and resell a range of voice services from Spark. This provides the access seeker the ability to compete at the retail level including by selling voice services as part of their overall package of services.

4. Resale is designed to lower barriers to entry at the retail level, as competitors can enter and supply retail end users with voice services, either on a standalone basis or as part of a bundle with other services (typically broadband services), without having to invest in their own voice equipment.

5. Although the Resale Services are listed in Schedule 1, there is no determination in place which sets the terms on which the services must be supplied.[6] Accordingly, there are no regulated access terms in place for the Resale Services. Instead, the services are currently supplied on a commercial basis with the terms of supply (including price) being subject to commercial negotiations between the parties.

6. However, because the Resale Services are listed in Schedule 1, there is the potential for regulation, if an access seeker or access provider applied for a determination or if the Commission initiated the process for a standard terms determination.[7] We refer to this potential for regulated access terms as 'backstop regulation'.

7. For example, if the local access and calling service were to be the subject of a determination or standard terms determination, the initial pricing principle that would apply would be Spark's standard price for its local residential calling service (as capped by the TSO deed for Local Residential Telephone Service) minus 2%.[8]

Our 2010 investigation into resale services

8. The last investigation into whether resale services should be removed from Schedule 1 took place in 2009-2010.[9] This investigation was in response to a request from Telecom in February 2009, and we decided to launch an investigation in September of that year.

9. At the time there were four resale services that covered broadband, data and voice:

    9.1 Retail services offered by means of Telecom's fixed telecommunications network;

    9.2 Residential local access and calling service offered by means of Telecom's fixed telecommunications network;

    9.3 Bundle of retail services offered by means of Telecom's fixed telecommunications network; and

    9.4 Telecom's fixed telecommunications network as part of bundle of retail services.

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6 A determination is either a determination under Subpart 2 of Part 2 or a standard terms determination under Subpart 2A of the Act.

7 Under sections 20 and 30C of the Act respectively.

8 Schedule 1 of the Act.

9 *Reasons for Commerce Commission decision to investigate Resale services*, 24 September 2009, para 4.

10. At that time, we noted that the original resale determinations had all expired, and that resale services were being offered on commercial terms to access seekers. Therefore, it was considered appropriate to investigate the deregulation of these services as it was possible that the market conditions had changed such that there were sufficient incentives for Telecom to offer the services in the absence of regulation of resale services.[10]

11. We concluded that Telecom faced limited competition in a number of wholesale markets (local access and calling services, wholesale broadband access, and wholesale data services), although the impact of removing regulated resale would differ across these markets depending on the availability of alternative wholesale services. [11]

    11.1 Local access and calling: there were no alternative wholesale services outside the metropolitan areas, and so access seekers relied on resale access. The volume of resold local access services remained substantial and was increasing, particularly in non-metropolitan areas.

    11.2 Wholesale broadband: regulated UBA was a substitute for resold broadband, so removal of regulation of resold broadband was unlikely to adversely impact competition. Competitors were increasingly using bitstream and UCLL services, rather than resold broadband.

    11.3 Wholesale data services: layer 2 access services (such as Telecom's High-Speed Network Service, Unbundled Partial Circuits, and the prospective UFB) allowed competitors to compete with Telecom in supplying data services, and so regulation of resold data services was not warranted.

12. We therefore recommended that the Schedule 1 resale services be changed to confine regulation to resale of local access and calling services, and to remove regulated resale in respect of broadband and data services.[12] We also recommended that the regulated resale of bundles be removed from Schedule 1, but that the retail services offered by means of a fixed telecommunications network (FTN) as part of a bundle be retained because:[13]

> "…bundles can be used to leverage market power inappropriately by firms through offering bundles that cannot be replicated by their competitors and this can lead to

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[10] Ibid, p3, para 15.

[11] Ibid at paras xxi-xxxii.

[12] Ibid, at para xii.

[13] Ibid, at para 217-219.

market foreclosure and barriers to entry – therefore regulation that allows access seekers to obtain and resell specific services only offered in a bundle is a protection provided through regulation."

What has changed since our 2010 investigation?

13. A number of important developments have occurred since our 2010 investigation. These developments include the following.

    13.1 The former vertically-integrated Telecom was structurally separated into what is now known as Chorus and Spark. As a wholesale only operator, Chorus supplies Spark and other RSPs with a range of wholesale services.

    13.2 The unbundled copper low frequency (UCLF) service was introduced as a designated service. The UCLF service provides access at Chorus' exchanges to the low frequency band on the copper line.

    13.3 Chorus now offers a range of wholesale services to RSPs, which can be used to deliver voice services to end users. These include wholesale voice-only services (the Baseband copper, Baseband IP, and Baseband IP Extended services), which are based on the UCLF service.

    13.4 Managed VoIP services which are offered over a broadband connection have emerged as a competitive alternative to analogue voice services.

    13.5 Under the UFB programme, Chorus and the LFCs are offering fibre-based broadband and voice services on a wholesale basis to RSPs.

    13.6 Under the Government's RBI programme, FWA services are increasingly available, supporting the delivery of voice and broadband services in rural areas.

    13.7 Alternative wholesale services, such as UBA, UCLL and UFB-based services, have continued to be used by RSPs. The uptake by non-Spark RSPs of UBA and UFB services has been growing quickly.

14. We have taken the above developments into account in our current investigation.

Schedule 1 reasonable grounds review

15. The decision to start this investigation was based on the assessment we conducted in our review of 14 Schedule 1 services earlier this year.[14] In our final review report on

[14] We are required to conduct these reviews of the services in Schedule 1 every five-years under clause 1(3) of Schedule 3 of the Act.

Schedule 1 services, we concluded that there were reasonable grounds to start an investigation into potentially removing the three resale voice services from Schedule 1 of the Act.[15]

16. In that review we identified a number of wholesale services that had the potential to provide increasingly competitive alternatives to Spark's resale voice services. These wholesale services enabled the delivery of analogue voice services and managed VoIP services to end users, and included the following:

    16.1 Chorus' Baseband services;

    16.2 Chorus' UBA services;

    16.3 UFB-based services offered by Chorus and the LFCs; and

    16.4 FWA networks such as those deployed under the RBI.

17. We considered that the presence of these alternative services provided us with reasonable grounds to investigate whether Spark's resale voice services should be deregulated.

Our process for undertaking this investigation

Process for the draft report

18. We commenced this investigation under Schedule 3 of the Act on 14 July 2016.[16]

19. We must make reasonable efforts to prepare and deliver a final report to the Minister on our recommendation whether to deregulate Spark's Resale Services no later than 120 days from the date of giving public notice of the investigation. We are required to prepare this draft report under clause 2 of Part 1 of Schedule 3.

20. As part of this investigation, we have gathered detailed quantitative and qualitative information from industry participants, by:

    20.1 issuing questionnaires to Spark, RSPs who purchase Spark's Resale Services, and FWA providers on 20 July 2016, which we received responses to on or around 12 August 2016;

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[15] Commerce Commission "Commerce Commission's Final Decision on the Review of Designated and Specified Services under Schedule 1 of the Telecommunications Act 2001", 30 June 2016.

[16] Notification of Commerce Commission's decision to commence investigation into potential omission of certain services of Spark New Zealand Limited from Schedule 1 to the Telecommunications Act 2001, 14 July 2016.

20.2 obtained additional information from industry on substitutes for Spark's Resale Services, and information on competitive constraints that Spark faces in the provision of Resale Services; and

20.3 meeting with providers of customer premises equipment (CPE) in New Zealand.

21. We have taken the above information into account in reaching our preliminary views set out in this draft report.

We invite submissions on our draft recommendation to the Minister

22. We invite submissions on our preliminary views set out in this draft report. Submissions are due by 5pm on 17 October 2016. Your response should be provided as an electronic copy in an accessible form.

23. Submissions should be sent by email to: telco@comcom.govt.nz. If you have any inquiries please contact filomena.antunes@comcom.govt.nz.

24. We intend to publish all submissions on our website. Any confidential information should be clearly marked. When confidential information is provided, submitters should provide both confidential and public versions of their submissions. The responsibility for ensuring that confidential information is not included in a public version of a submission rests with the party making the submission.

Next steps following submissions

25. Cross-submissions will be due on 26 October 2016.

26. We must make reasonable efforts to hold a conference about the proposed recommendation to the Minister.

27. Our consultation process for the investigation will also include a conference that will be held on 1 November 2016. Invitations to the conference and a conference agenda will be sent closer to the date.

28. We aim to publish our final recommendation and report within the 120 day timeframe. In preparing the final report, we will consider all submissions made on the draft report and all information presented or expressed at the conference.

Structure of this report

29. In the following chapters we:

29.1 describe the framework we have used to evaluate whether Resale Services should be omitted from Schedule 1 to best give effect to section 18 (Chapter 2);

29.2 assess how effective the competitive constraints are on Spark's Resale Services based on the competitive constraints identified in Attachment B of the report (Chapter 3);

29.3 balance the costs and benefits of removing Resale Services from Schedule 1 (Chapter 3); and

29.4 outline our conclusions on the application of section 18 and why we recommend Resale Services to be removed from Schedule 1 (Chapter 5).

30. In Attachment A, we provide a description of the regulation of each of the alternative wholesale services.

31. In Attachment B, we identify the competitive constraints on Spark's Resale Services.

Chapter 2 How will we decide whether regulation best gives effect to section 18

Purpose of this chapter

32. This chapter explains the framework that we have used to consider whether regulation of Spark's Resale Voice Services (Resale Services) best gives effect to section 18.

Section 18

33. In reaching our preliminary view on whether the Resale Services should be omitted from Schedule 1, we must consider section 18, and make a recommendation that best gives effect to section 18. [17]

34. Section 18 sets out the purpose of Part 2 and Schedules 1-3 of the Act:

> … to promote competition in telecommunications markets for the long-term benefit of end users of telecommunications services within New Zealand by regulating, and providing for the regulation of, the supply of certain telecommunications services between service providers.

35. Section 18(2) and (2A) identify particular matters that we are required to consider when determining what promotes competition in telecommunications markets for the long-term benefit of end users:

> (2) In determining whether or not, or the extent to which, any act or omission will result, or will be likely to result, in competition in telecommunications markets for the long-term benefit of end users of telecommunications services within New Zealand, the efficiencies that will result, or will be likely to result, from that act or omission must be considered.
>
> (2A) To avoid doubt, in determining whether or not, or the extent to which, competition in telecommunications markets for the long-term benefit of end users of telecommunications services within New Zealand is promoted, consideration must be given to the incentives to innovate that exist for, and the risks faced by, investors in new telecommunications services that involve significant capital investment and that offer capabilities not available from established services.

36. As the High Court has observed, section 18(1) is the "dominant" provision in section 18, and subsections (2) and (2A) "are specified for the purpose of assisting analysis under section 18(1)". In this sense, subsections (2) and (2A) are not isolated

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[17] Telecommunications Act 2001, s 19.

considerations on their own. Rather, they form part of the consideration of whether competition is promoted for the long-term benefit of end users.[18]

37. Put simply, we are required to make a recommendation that promotes competition for the long-term benefit of end users. As part of our assessment for that recommendation we must consider the impact of our decisions on efficiencies as well as investment in new capital intensive telecommunications services.

Applying section 18 to decide whether to deregulate

38. This section sets out our approach to ensuring that our recommendation best gives effect to the purpose set out in section 18.

39. Given the purpose of section 18 is to promote competition for the long-term benefit of end users, we consider that telecommunications services should only be regulated where regulation best gives effect to the promotion of competition for the long-term benefit of end users of those services. Regulation involves costs, including both direct costs and potential distortionary effects on supply-side incentives. If regulation under Schedule 1 is no longer required to best give effect to section 18, the services should be omitted from Schedule 1.

40. We propose the following approach to assess whether omitting the Resale Services from Schedule 1 will best give effect to section 18.

41. We first identify the competitive constraints that might exist in respect of the Resale Services. This includes indirect constraints that might operate at the retail level, as well as direct constraints at the wholesale level.

    41.1 Indirect constraints may limit Spark's market power through the decisions that end users make at the retail level. As discussed further below, if end users are prepared to switch away from retail services that rely on the resale service to retail services that do not rely on the resale service, such switching at the retail level may indirectly constrain Spark's Resale Services.

    41.2 Direct constraints may limit Spark's market power through the decisions that RSPs make at the wholesale level. If RSPs are able to switch away from the Resale Services to wholesale alternatives, such switching at the wholesale level may directly constrain the Resale Services.

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[18] *Chorus Ltd v Commerce Commission* [2014] NZHC 690 at [34]. For a more detailed discussion see Commerce Commission, Determination for Chorus' unbundled copper local loop service [2015] NZCC 37 at [148]–[155].

42. In identifying these constraints, we have taken current market conditions and developments into account. We identified the competitive constraints as follows.

    42.1 To assess indirect constraints we focused on the alternatives for voice services from an end users' perspective. We found that managed voice over IP (VoIP) services are likely to be a close substitute for analogue voice services. Given this, an indirect constraint is likely to operate through the substitutability between analogue voice and managed VoIP services. We also found that unmanaged VoIP services and mobile voice service are less likely to be close substitutes for analogue voice services at this time, but may provide some limited constraint. Accordingly, an indirect constraint provided by these services is unlikely to be sufficiently strong to constrain Spark at this time.

    42.2 To assess direct constraints on the Resale Services, we focused on wholesale alternatives capable of providing analogue services to end users. These included Baseband copper, Baseband IP[19], UCLL, and wholesale inputs capable of providing managed VoIP services, such as FWA, UFB, cable, UCLL and UBA. We generally found that the wholesale alternatives are good substitutes, though in some cases there may be limitations.

43. Attachment A provides a description of these alternative wholesale inputs and the extent to which they are regulated. Attachment B provides more detail on how we have identified the relevant competitive constraints on Spark's Resale Services.

44. Once we have identified the constraints, we assess how effective the constraints are in respect of Spark's supply of the Resale Services, and the trade-off between the benefits and costs of deregulation.

45. We consider the level of competitive constraint faced by Spark with and without backstop regulation. As explained below we examine what constraints Spark would face in the event that these services were omitted from Schedule 1.

46. We have used the following indicators to provide a guide on whether Spark faces increasingly effective competition, and would continue to do so in the absence of regulation of the Resale Services.

    46.1 The competing suppliers provide an independent and effective constraint on the Resale Services. We examine evidence such as movements in wholesale

[19] Baseband IP uses IP but from an end user perspective it fully emulates an analogue voice service.

volume share, as well as pricing of resale voice services and the wholesale alternatives offered by competing providers. We focus on both wholesale only operators and self-supplying operators imposing a competitive constraint. This includes the ability of self supply and/or supply independent of the Resale Services, based on the availability of wholesale alternatives across New Zealand.

46.2 RSPs have the ability to enter, invest and innovate using wholesale alternatives to supply of retail voice services in the absence of regulation of the Resale Services. The regulation of the Resale Services is designed to lower barriers to entry at the retail level by allowing competitors to enter and supply retail end users with voice services without having to invest in their own equipment. Therefore, we examine entry conditions and how competition in the supply of retail voice services has developed, and whether these conditions are likely to be more challenging without resale regulation.

46.3 Any additional constraints limiting Spark's ability to exercise market power in the absence of backstop regulation, in particular Spark's ability to raise prices or to prevent access. This assessment includes consideration of any existing regulation, such as the TSO deed, and the impact of the regulation on Spark's ability to exercise market power.

47. Following our competition assessment we considered what the appropriate regulatory strategy should be based on the level or phase of competition and the net benefits of deregulation. In deciding between regulation and deregulation, we considered that the best option may be positive for competition, but could also be neutral in its impact on competition and just remove costs. In the latter case, it would still "best promote" section 18 because it eliminates costs with no detriment to competition.

48. As noted above, section 18(2) requires us to consider the efficiencies (both static and dynamic) and incentives to innovate that will result or will be likely to result, from the recommendation. In terms of benefits of deregulation, we consider any likely efficiencies as a result of deregulation. In terms of costs of deregulation, we consider any likely inefficiencies as a result of deregulation.

49. We have assessed the likely benefits of deregulation by looking at the avoided costs if the services were removed from Schedule 1, such as avoiding any direct regulatory costs and distortions due to the price or non-price terms of resale as applied. We assess the likely costs of deregulation by analysing Spark's incentives to restrict or raise the price of resale, and the impact on RSPs.

50. We consider that services in Schedule 1 should be omitted if competition is increasingly effective, and the benefits of regulation cannot be justified against direct

costs of regulation and indirect costs, such as distortionary effects on price and non-price incentives. If regulation under Schedule 1 is no longer required to best give effect to section 18, the services should be omitted from Schedule 1.

Our approach in considering the three resale voice services

51. Our focus will be on the local access and calling service offered by means of a fixed telecommunications network.

52. Our recommendation on the local access and calling service will influence the outcome of our recommendation on the retail services offered by means of a fixed telecommunications network, and the retail services offered by means of a fixed telecommunications network as part of a bundle of retail services. The reason for this is that we consider these two services are linked to the local access and calling service.

53. Retail services offered by means of a fixed telecommunications network, i.e. Spark's ISDN and Centrex-based services and value added services (such as messaging services supplied in conjunction with the access line), could not be supplied in isolation from the access line and calling service. For ISDN and Centrex-based services, the emergence of hosted IP-based services allows RSPs to offer similar functionality and features over broadband connections.

54. "Part of bundles" is also likely to be linked to the local access and calling service. As we have previously noted, the bundling of retail services is an important feature of the telecommunications industry, as broadband services are often supplied in a bundle with voice services. The need for a regulated service which provides access to parts of bundles will depend on whether the wholesale inputs required to provide competitive bundles of voice and broadband services are available on either competitive or regulated terms.[20]

[20] Commerce Commission "Review of Designated and Specified Services under Schedule 1 of the Telecommunications Act 2001 [2016] NZCC 13", 5 July 2016, paragraphs 49, 50.

Chapter 3 How effective are the competitive constraints on Spark?

Purpose of this chapter

55. In this chapter we assess the competitive constraints on Spark's ability to exercise significant market power in the absence of regulated resale.

Competitive constraints are increasingly effective

56. Our preliminary view is that Spark is facing sustainable and increasingly effective competition in the provision of Resale Services from a range of wholesale alternatives.

57. There has been an increase in competitive pressure on Spark's supply of Resale Services due to the availability and use of a number of wholesale alternatives. These alternatives include the wholesale services described below.

    57.1 Chorus provides the UBA service, the UCLL service[21] and UFB services, all of which can be used as inputs providing an access line to supply voice and broadband services. Chorus also offers wholesale voice-only services.

    57.2 Local Fibre Companies supply wholesale UFB-based services which can also be used to provide an access line as an input for retail voice and broadband services.

    57.3 Vodafone offers wholesale FWA services in RBI areas, again providing access as an input to voice and broadband services.

58. Spark's resale voice services also face competition where competitors have deployed their own networks, such as Vodafone's cable network (which as well as providing broadband also includes a copper pair to each household on its network) and FWA operators who have their own towers or have co-located on RBI towers. This competition provides a direct constraint for those who self supply, and an indirect constraint via retail substitution for other users of Resale Services.

59. Because of competition from these wholesale alternatives, Spark's share of wholesale services has been declining. Spark's wholesale share is comprised of Spark's retail share plus the proportion of Spark's retail competitors' share which is based on resale. In 2008, 95% of fixed connections were supplied either directly by

[21] For RSPs who have already unbundle at the exchange.

Telecom or by RSPs using Telecom's resale voice services. This proportion had declined to 78% in 2014, and to 69% in 2016.

60. Some of the wholesale alternatives referred to above may not be available to supply all end users. Spark's resale voice services may be the only practical voice service option for RSPs to supply some end users. Spark's resale voice services may remain important to serve end users who either purchase voice-only services or are beyond the geographic reach of some of the competing wholesale services. However:

    60.1 For most end users who are only interested in purchasing voice services, Spark faces competition from Chorus' wholesale voice services, which allow RSPs to offer retail voice services without having to also supply broadband services.

    60.2 For end users who are beyond the reach of other wholesale fixed-line services (such as UFB, UBA, and Chorus' wholesale voice services), the emergence of FWA services (because of the RBI) provides a competitive constraint on Spark in most areas.

61. We have also examined Sparks' pricing of Resale Services. The increasing competition from wholesale alternatives to Spark's Resale Services appears to be having an impact on the price that Spark charges RSPs for its Resale Services. Spark has submitted that competition from wholesale alternatives has resulted in declining Spark resale volumes and prices. Chorus has also acknowledged the competitive pressure between its wholesale voice services and Spark's Resale Services. The evidence that we have seen is consistent with sustainable and increasingly effective competition at the wholesale level.

62. Our assessment of the competitive constraints faced by Spark is set out below, where we first consider how dependent the RSPs are on Spark's Resale Services. This is followed by a consideration of how effective the constraints at the wholesale level are on Spark in the supply of Resale Services, pricing of resale service, conditions of entry and expansion, and whether there are other factors that may constrain Spark if Resale Services were to be omitted from Schedule 1.

The diminishing importance of resale

63. We first look at the development of competitive conditions at the retail level, to identify the extent to which:

    63.1 RSPs are dependent on Spark’s resold services; and

    63.2 resale regulation has actually changed entry conditions.

64. At the retail level, Spark competes with other service providers in the supply of voice services from a fixed location.

65. Spark's competitors offer retail voice services, either on a standalone basis or in bundles with other retail services (such as broadband services) in a number of ways, including using:

    65.1 resold services supplied by Spark;

    65.2 wholesale broadband and voice services supplied by Chorus (such as UBA, UCLL, Baseband and UFB services);

    65.3 wholesale services supplied by the other Local Fibre Companies (LFCs);

    65.4 wholesale FWA services supplied by Vodafone in RBI areas; or

    65.5 their own network infrastructure (such as cable or FWA).

66. Our 2015 Annual Telecommunications Monitoring Report shows that Spark's retail share of fixed connections has been falling, as competitors have been able to enter and expand their retail share using resold services supplied by Spark and, more recently, using wholesale services supplied by Chorus and the LFCs. Spark's retail share has fallen from 80% in 2008 to [ ]% in 2015.[22] Based on information gathered as part of this investigation, we estimate that Spark's retail share of fixed connections declined to [ ] in 2016.[23]

67. Spark's main retail competitors who supply voice services from a fixed location include Vodafone, Vocus, Trustpower, and 2degrees. Table 3.1 below, summarises the number of voice services supplied by these operators in 2016, with a breakdown showing how their retail voice services are supplied.

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[22] Commerce Commission, "2015 Annual Telecommunications Monitoring Report", Figure 11. On a revenue basis, Spark's retail share fell from 78% in 2008 to 56% in 2015. Ibid, page 6.

[23] This includes FWA services. Excluding FWA services, Spark's retail share increases slightly, but remains less than 52%.

Table 3.1 Spark's retail voice competitors (number of voice services from a fixed location, June 2016)

	Spark resale	Chorus				LFC UFB	FWA	Cable	Total retail voice services
		Naked UBA	UCLL	Baseband/ Baseband IP	UFB				
Vodafone	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Vocus	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Trustpower	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
2degrees	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Rural FWA operators	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]

* Vodafone did not provide a split between Chorus and LFC UFB services.

Source: Commerce Commission data.

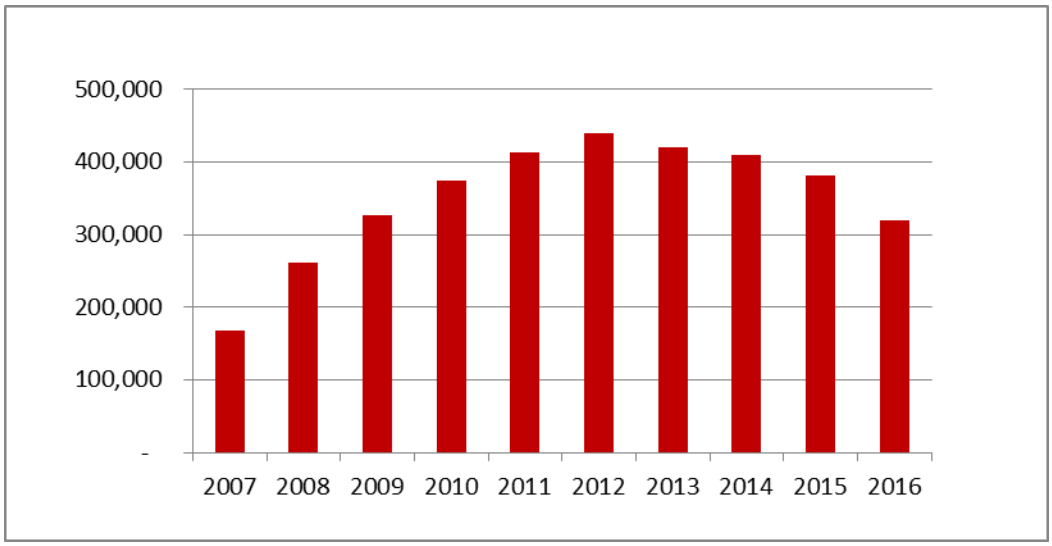
68. As can be seen in Table 3.1 above, Spark's competitors supply retail voice services using a variety of wholesale inputs supplied by Spark, Chorus, and the LFCs, as well as using FWA and cable. For example, approximately [ ] of the retail voice services supplied by Trustpower are based on Spark's Resale Services, and [ ] based on UFB services. Vocus and 2degrees rely less on Spark's resale service (which accounts for [ ] and [ ] of their retail voice services respectively). Vocus supplies most of its voice services using Chorus wholesale inputs (with Chorus' UCLL, UBA, UFB and Baseband/Baseband IP services accounting for [ ] of Vocus retail voice services). 2degrees uses Chorus' UBA and UFB services to supply most of its retail voice services.

69. The fall in Spark's retail share of fixed connections, from 80% in 2008 to [ ] in 2016, initially coincided with an increase in the number of resold local access and calling services supplied by Spark to its retail competitors. Figure 3.1 below shows that the number of resold services increased from 168,000 lines in 2007 to reach 440,000 lines in 2012. Since then, the number of resold services has fallen, to 382,000 lines by June 2015.[24] According to Spark, the number of resold lines it supplied to RSPs was approximately 319,000 lines as of June 2016.[25]

[24] Commerce Commission, "2015 Annual Telecommunications Monitoring Report", page 6.

[25] Spark response to Commerce Commission information request.

Figure 3.1 Number of resold local access and calling services supplied by Spark



Source: Commerce Commission data

70. In our 2015 Annual Telecommunications Monitoring Report, we observed that the decline in the number of Spark's resold services had started to accelerate in 2015, as competitors started to use naked broadband services that do not rely on a traditional analogue voice service. There has been a continuation of this trend throughout 2016, in particular with the increasing uptake of UFB services.

71. The availability of resale has been an important factor in allowing competitors to enter and compete in the supply of retail fixed connections. However, the importance of resale has been diminishing. For example,

    71.1 in 2014, Resale Services represented just over half (51%) of the retail lines served by Spark's competitors, with UCLL and UBA accounting for just under one-third (31%). Just under 20% of competitors' retail lines were supplied using fibre, cable or Chorus' wholesale voice services (Baseband, Baseband IP).

    71.2 by 2016, Resale Services represented 36% of the retail lines served by Spark's competitors. As discussed in the following section, Spark's competitors are increasingly making use of wholesale alternatives.

The increasing uptake of wholesale alternatives to resale

72. As discussed in the preceding section, Spark's competitors at the retail level continue to rely on Resale Services supplied by Spark, as well as a number of wholesale alternatives, which are independent of Spark. These wholesale alternatives are supplied either by Chorus, the LFCs, FWA operators in RBI areas, or are self-supplied where the competitor has deployed its own network (such as cable or FWA).

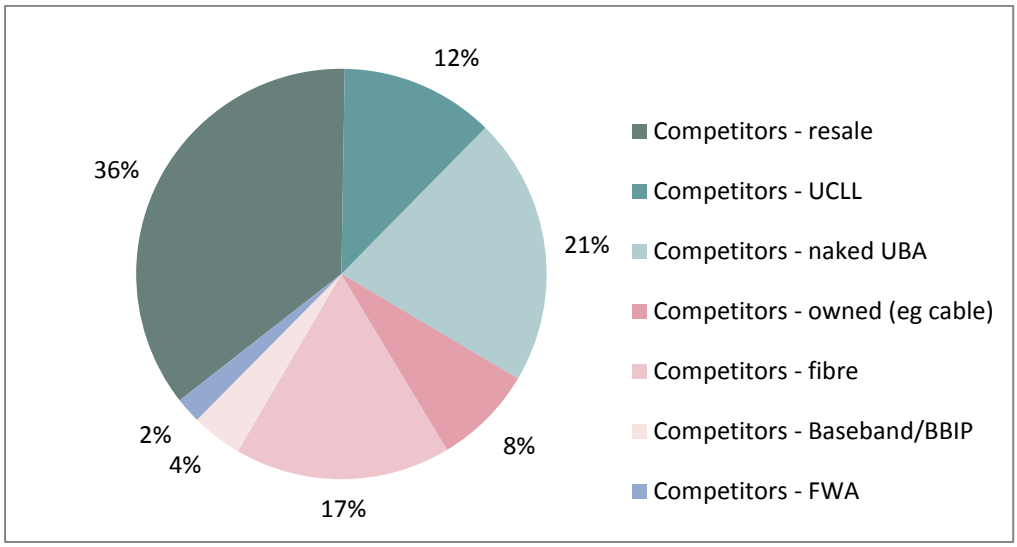
73. There has been strong growth in the uptake of a number of wholesale alternatives.[26] For example,

73.1 the number of UFB connections stood at 240,625 connections as of 30 June 2016, up from 106,025 in June 2015.

73.2 the number of naked UBA services supplied by Chorus was 197,000 services as of 30 June 2016, up from 159,000 services in June 2015.

74. By June 2016, the proportion of retail lines supplied using resale had dropped, as Spark's competitors increasingly made use of alternatives. Figure 3.2 provides a breakdown of the number of non-Spark retail fixed connections in 2016.

Figure 3.2 Breakdown of competitor fixed connections (2016)



Source: Commerce Commission data

75. The proportion of non-Spark retail connections supplied using resale has dropped from 51% in 2014, to 36% in 2016. The number of fibre-based connections supplied by non-Spark competitors increased significantly over this period, accounting for 17% of competitors' retail lines in 2016 (up from 5% in 2014). There has also been a strong increase in the uptake by competitors of Chorus' naked UBA service. RSPs who use naked UBA can provide voice services either as managed VoIP services (where the voice service is conveyed over the broadband connection) or as a mobile voice offering.[27]

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[26] The wholesale alternatives are discussed in more detail in Attachment B.

[27] Vodafone and 2degrees are RSPs who have deployed mobile networks.

76. Some of Spark's competitors have also started to use Chorus' wholesale voice services. Chorus' Baseband copper service provides access to the low frequency band of the copper local loop connected to an end user's premises, and competitors can combine this wholesale service with their own backhaul to provide voice services. Alternatively, a competitor can use Chorus' Baseband IP and Baseband IP Extended services, where Chorus conveys the voice traffic to the competitor's point of interconnection. In 2016, competitors were using Chorus' Baseband and Baseband IP services to supply approximately 4% of their retail voice services.

77. As shown in Figure 3.2, competitors have also supplied retail voice services from a fixed location using Chorus' UCLL service, or alternatively using their own network infrastructure such as cable or FWA.

78. Our preliminary view is that Spark is facing competitive constraints in the wholesale supply of voice services from a fixed location. In particular, the rapid uptake of UFB-based services supplied by Chorus and the LFCs, the increasing demand for naked UBA services (where a broadband-only service is supplied), and the availability of Chorus' wholesale voice-only services (Baseband, Baseband IP, and Baseband IP Extended) are providing competitive alternatives to Spark's resale voice services. Furthermore, the availability and increasing uptake of FWA services is providing competitive options, particularly in more remote areas covered by the RBI.

Voice-only end users and end users in more rural areas

79. In examining the competitive constraints that Spark would face in the absence of a regulated resale service, we have considered whether there may be competition concerns that arise in supplying certain customers. Specifically, we have looked at the options for RSPs supplying voice-only end users, as well as supplying end users who are located beyond the geographic reach of some of the wholesale alternatives.

80. End users have an increasing propensity to purchase bundles of retail services, including voice and broadband services. According to information provided by operators as part of this investigation, the proportion of end users purchasing voice services on a standalone basis has been decreasing, from 25% in 2014 to 19% in 2016. While some of these end users may purchase a broadband connection separately,[28] some end users will only be purchasing a voice service.

[28] For example, in its report for the EC, Ecorys found that in the EU, around 50% of EU households with a standalone PSTN service also have a standalone internet subscription. Ecorys "Future electronic communications markets subject to ex-ante regulation", 18 September 2013, page 84.

81. The options for supplying retail voice services to such voice-only end users are likely to be more limited. For example, managed VoIP services (such as those that can be offered over UFB and UBA) require a broadband connection to the end user.

82. However, Chorus' Baseband copper, Baseband IP and Baseband IP Extended services are wholesale voice-only services that allow RSPs to offer analogue voice services to end users. These wholesale services provide a level of functionality that is very similar to Spark's Resale Services, including allowing the RSPs to self supply the value added Resale Services.

83. Chorus' wholesale voice services are currently available for nearly all copper lines, with potential coverage extending to at least 97% of lines as Chorus expands the Baseband service to its ethernet-based digital subscriber line access multiplexers (DSLAM) network. Chorus' wholesale voice services also support downstream services, such as monitored alarms and payment systems such as electronic funds transfer at point of sale (EFTPOS), and will continue to support voice services in the event of a power outage at the customer premises.

84. According to Chorus, the Baseband IP service has a good strategic fit for both Chorus and RSPs.

    84.1 For RSPs, Baseband IP assists in the transition to UFB, as well as allowing them to develop more innovative services.

    84.2 For Chorus, Baseband IP generates revenue opportunities as well as cost savings.

85. As indicated in Table 3.1, Vocus is starting to use Chorus' wholesale voice-only services to deliver voice services to end users. In 2016, Vocus purchased [ ]. The subsidiaries owned by Vocus have been regarded as market leaders, both in terms of pricing and service offerings. For example, we have previously referred to Slingshot and Orcon as being aggressive, price leading competitors.[29] Orcon has been a particularly innovative competitor who was the first RSP to unbundle an exchange, and the first to introduce a naked broadband and VoIP service.

86. In terms of the geographic coverage of the wholesale alternatives, the UFB deployment currently covers just over 1 million households and businesses, and is planned to reach 75% of New Zealanders by the end of 2019. As of June 2016, 68% of

[29] Commerce Commission "Determination: Vodafone New Zealand Limited and TelstraClear Limited [2012] NZCC 33", 29 October 2012, paragraphs 207, 219.

the deployment had been completed, with 92 retail providers offering UFB services, including VoIP.

87. Several of the other wholesale options shown in Figure 3.2 are available on a more localised basis. The footprints of UCLL-based competitors and of Vodafone's cable network are primarily in urban centres.

88. For areas that lie beyond the UFB and urban areas, the main alternatives to Spark's Resale Services are Chorus' UBA and wholesale voice services, as well as FWA-based voice and broadband services.

89. Chorus has deployed ethernet-based DSLAMs to approximately 97% of copper lines, and Chorus' Baseband IP and Baseband IP Extended services can potentially be offered in respect of these lines with minimal additional investment. The remaining copper lines are connected to Chorus' older ATM network. Most of the copper lines on Chorus' ATM network (95% of the remaining 3%) are located in Zone 4, which is the area being targeted by the Government's RBI. It is likely that a proportion of these lines will be within reach of the FWA network being deployed as part of the RBI (the RBI1 programme is aiming to cover 80% of households and businesses within Zone 4, and already covers [ ])[30]. The number of FWA connections is increasing rapidly, albeit from a low base.

90. Spark has provided some analysis in which it models the current coverage of its long-term evolution network (LTE network), as well as its expected coverage once the LTE deployment is completed (which according to Spark is expected to be achieved during the [ ]). This is an indication of the potential overlap of FWA services and the more remote lines on the edge of Chorus' copper network. Although Spark's LTE deployment is not a competitive constraint on Spark's supply of Resale Services, Spark's analysis provides an indication of the extent to which FWA services emerging under the RBI can provide a competitive constraint on copper connections in Zone 4. According to Spark's analysis, it expects to reach approximately [ ]% of Chorus' remote copper connections with FWA services.

91. Although there are a number of end users for whom Spark is the only fixed-line option, the presence of FWA services will provide some competitive constraint on Spark's ability to exercise market power in respect of these end users.

92. We also note that in areas beyond the reach of other fixed-line wholesale alternatives, the number of end users served by RSPs using Resale Services represents less than 1% of the customer base of RSPs. Based on the information

[30] Vodafone information on RBI coverage as June 2016.

obtained during this investigation, we have estimated the proportion of RSPs end users served by resale in those areas beyond the reach of other fixed-line wholesale alternatives. These estimates are summarised in Table 3.2 below.

Table 3.2 Resale services in areas beyond the reach of wholesale alternatives

	Vodafone	2degrees	Vocus	Trustpower
Total number of end users	[ ]	[ ]	[ ]	[ ]
End users supplied using resale in areas where resale is the only option	[ ]	[ ]	[ ]	[ ]
%	[ ]	[ ]	[ ]	[ ]

93. Therefore, in most areas end users who are currently supplied with Spark's analogue voice services (either directly by Spark at the retail level, or by RSPs utilising Spark's Resale Services) will be able to be supplied using wholesale alternatives. These wholesale alternatives are available from:

93.1 Chorus through its naked UBA, UCLL and UFB-based services, as well as its wholesale voice-only services;

93.2 the LFCs through UFB-based services;

93.3 Vodafone in the case of wholesale FWA services in RBI areas; or

93.4 RSPs deploying their own network infrastructure (such as cable or FWA).

Other issues for RSPs switching to wholesale alternatives

94. In order to switch away from Spark's Resale Services to wholesale alternatives, an RSP may need to incur some additional costs. There may also be some constraints on the provisioning of new services. These are discussed below.

95. We acknowledge that there are likely to be some additional costs that would be incurred by RSPs in moving away from resale service to the wholesale alternatives discussed above. Resale is an end-to-end service, where the RSP incurs costs associated with marketing and customer support, and Spark provides the underlying access and calling service. The wholesale alternatives involve the RSP incurring various levels of additional costs. For example, in moving to Chorus' Baseband IP service, an RSP may need to upgrade its core network and interfaces in order to be compatible with the Chorus service.

96. However, the wholesale alternatives will typically involve lower ongoing wholesale charges paid by the RSP. For example, the retail minus pricing which would apply to Resale Services would need to be compared to the wholesale prices of Chorus' UCLL,

UBA, or Baseband and Baseband IP services, or of the LFC's UFB-based services. As discussed in Attachment A, the prices of these wholesale alternatives are constrained by either cost-based regulation or contractual agreements (in the case of the UFB services).

97. Chorus has recognised that in order to be attractive to RSPs, the pricing of its Baseband IP service must recognise the costs that RSPs would incur if they were to use Baseband IP instead of purchasing Spark's resold services.[31]

98. We also note that the wholesale alternatives to Spark's Resale Services are likely to provide additional opportunities for RSPs to offer increased value and innovation to end users. For example, a number of RSPs have informed us that alternatives such as Baseband, UCLL, and UFB services allow them to offer an enriched and cost-effective set of value added services (such as voicemail, caller ID, and call waiting services).

99. Spark's wholesale competitors may face some short-term capacity constraints in terms of provisioning new services if there was a mass migration of demand away from Spark's Resale Services. For example, a number of RSPs have referred to Chorus' limited capacity to manage mass migration to its wholesale voice services.[32] In our decision on whether to start this investigation, we noted that Chorus is taking a number of steps to increase its Baseband provisioning capacity during 2016/2017, which will alleviate any short-term supply-side constraints on the migration of demand onto the Baseband services.[33]

100. For the reasons outlined above, our preliminary view is that Spark is facing effective competitive constraints in the wholesale supply of voice services from a fixed location.

Pricing of Resale Services

101. A number of RSPs have argued that Spark's Resale Services are not constrained by wholesale alternatives, and that this is evidenced by Spark increasing the price of its Resale Services.

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31 "Updated pricing committee discussion paper on expanding IP baseband coverage" August 2013

32 Trustpower "Submission on Draft decision on the review of schedule 1 services", 23 May 2016, paragraph 2.1.2c; Vocus "Submission on Draft decision on the review of schedule 1 services", 23 May 2016, paragraph 5.

33 Commerce Commission "Review of Designated and Specified Services under Schedule 1 of the Telecommunications Act 2001: Reasons for final decision on whether to commence an investigation under clause 1(3) of Schedule 3 of the Telecommunications Act 2001", 5 July 2016, paragraph 73.

101.1 Trustpower submitted that
[

]34

101.2 Vocus submitted that "Whilst we acknowledge that Baseband IP has the capability to be a substitute for the majority of end users the experience to date suggests that it is currently not a significant competitive constraint on Sparks PSTN service."[35] According to Vocus, the discount offered by Spark for Resale Services has
[

].[36]

101.3 2degrees submitted, "Spark resale prices have continued to increase despite Baseband IP rollouts from Chorus. We do consider this indicates that Baseband IP is not a competitive substitute for all customers, even within Baseband IP areas." [37]

102. In contrast, Spark has argued that the availability of alternatives to its Resale Services "has resulted in declining Spark PSTN resale volumes and prices. Resold local service accesses have
[

]38

103. Spark further submitted that "the alternatives available to RSPs and end users provide an effective substitute for our resale service, and constrain our ability to increase resale prices. While there is no resale standard terms determination in place for Resale Services, we offer a commercial resale service to wholesale customers competitively priced against alternative solutions.
[ ]"[39]

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34 Trustpower response to Commerce Commission information request, 12 August 2016

35 Vocus submission, 23 May 2016, paragraph 13.

36 Vocus response to Commerce Commission information request, 11 August 2016.

37 2degrees response to Commerce Commission information request, 12 August 2016

38 Spark "Review of Designated and Specified Services under Schedule 1 of the Telecommunications Act 2001: draft decision", 23 May 2016, paragraph 15.

39 ibid, paragraph 17.

104. According to Spark, the claims made by RSPs are "contrary to the commercial pressures we face from those same service providers, where the threat of migrating customers to wholesale alternatives is frequently raised and has resulted in [ ]."[40]

105. The prices referred to by Trustpower are for UBA and PSTN services. In our view, a more meaningful measure of Spark's potential market power in relation to the supply of Resale Services would be to net off the UBA price that Spark pays to Chorus. Based on the prices referred to by Trustpower and the UBA prices that prevailed at the time, the margins earned by Spark are shown in Table 3.3 below.

Table 3.3 PSTN margins

	2014	2014 (December)	2015
UBA/PSTN	[ ]	[ ]	[ ]
UBA	[ ]	[ ]	[ ])
Margin	[ ]	[ ]	[ ]

106. In 2014, the aggregate UBA price was $44.98 per month, dropping to $34.44 per month in December 2014 when the cost-based benchmarking under the Initial Pricing Principle for the UBA service took effect. The aggregate UBA price increased to $41.19 per month in December 2015, because of the pricing review determination, which applied the TSLRIC-based final pricing principle. As indicated in Table 3.3 above, the PSTN margin earned by Spark declined by -17% between 2014 and 2015.

107. Spark has previously advised that the margin between its resale price and the UCLF price it pays to Chorus (as an input into the Resale Services) has fallen by approximately [ ]% since 2012.[41]

108. Vocus refers to a reduction in volume-based rebates during 2016 and 2017. However, we note that Vocus is migrating customers onto alternatives such as UFB and Chorus' Baseband services, and progressively reducing its reliance on Resale Services. This appears to explain the reduction in volume-based rebates received by Vocus.

109. Chorus has provided us with a number of internal documents outlining the business case for expanding the coverage of the Baseband IP service. According to the documents, the Baseband IP service was available to around 10% of lines in 2013, and a number of RSPs had requested that the coverage of the service be expanded.

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[40] Spark letter to Telecommunications Commissioner "Submissions on Draft decision Review of Schedule 1 services", 20 June 2016.

[41] ibid.

In its consideration of the business case for expanding coverage, Chorus noted that this would allow Chorus to compete
"[ ]".

110. Chorus also noted the following:

110.1 that the Baseband IP service "helps position RSPs to become full service UFB providers, by aligning RSP network design structures with UFB".

110.2 "To be successful IP Baseband pricing must give RSPs a better return than buying Telecom wholesale POTS." "IP Baseband must recognise the costs RSPs incur when used to create POTS alternatives."

110.3 "[ ]."

110.4 "[ ]."

111. The excerpts above indicate that Chorus' wholesale voice services have been developed to compete with Spark's resold voice services.

112. We are also unaware of any evidence that Spark has differentiated its resale prices to target potentially vulnerable or captive customers.

113. According to both Spark and Chorus, Spark will continue to have incentives to offer competitive Resale Services in order to retain substantial wholesale revenues.

114. Our preliminary view is that the evidence discussed above is consistent with the view that Spark faces effective competition in the supply of Resale Services.

Conditions for entry and expansion

115. As we have previously noted, the availability of resold local access and calling services has been an important factor in lowering barriers to entry and enabling competitors to offer retail voice services to end users.

116. The emergence of Chorus' wholesale voice services has also lowered the barriers to entry at the retail level. These wholesale services allow RSPs to offer voice services without having to invest in broadband access infrastructure such as DSLAMs and backhaul. According to Chorus, "Baseband IP offers you the opportunity to provide your own differentiated voiced service to your customers together with broadband,

BUBA, enhanced unbundled bitstream access (EUBA) and VDSL. This means you can use the same equipment and provide the same voice proposition to both your copper and fibre customers helping smooth their transition to fibre."[42]

117. This suggests that where an RSP has invested in fibre-based services, the incremental cost for that RSP to use Baseband IP to offer voice services to non-fibre customers will be relatively low. Chorus also offers its Baseband IP Extended service which Chorus hands over at the first data switch (FDS) for the EUBA service. This allows RSPs to access the service without having to extend their own networks.

118. As discussed further below, we also consider that Spark will have an incentive to continue offering Resale Services on a commercial basis if the regulated Resale Services were to be removed from Schedule 1 of the Act.

119. Therefore, we consider that new entrants will be able to take advantage of Chorus' wholesale voice services, as well as commercial Resale Services.

Other constraints in the absence of resold voice regulation

120. In the discussion above, we set out our views on the competitive constraints that Spark faces from wholesale alternatives to its resale voice services.

121. There are a number of additional constraints that are likely to limit Spark's ability to exercise market power in the absence of a regulated resale service. For example, the TSO Deed for Local Residential Telephone Service (LRTS) sets out a retail price cap for the local residential telephone service (which encompasses a residential access line and free local calling). According to the TSO Deed for LRTS, the standard residential rental for the local residential telephone service must not increase in real terms from the level as of 1 November 1989. To the extent that Spark (and its predecessor, Telecom) has set the retail price for its residential telephone service at or close to the cap, this will limit Spark's ability to raise prices in the absence of a regulated resale service.

122. As can be seen from Attachment A, the regulation of most of the wholesale alternatives to Spark’s Resale Services are price-regulated (Baseband, UBA, UCLL, UCLF).

123. We consider that the regulation of the price of the wholesale alternatives is sufficient to provide additional constraints on Spark’s resold service in the absence of regulation of resold services. If Spark were to increase the prices for Resale Services in the absence of regulation of resale, RSPs would be able to switch to the alternative

[42] Chorus "Full launch of Baseband IP Extended: Informer 258", 8 May 2015.

wholesale services. And a switching RSP would have greater certainty that the prices of the alternatives would not be increased above the regulated price cap.

124. If RSPs were to switch to an alternative wholesale service, all of the alternatives are also subject to non-discrimination obligations on the supplier of the wholesale alternatives. This would help ensure RSPs switching from resale would be able to compete against incumbents in the market.

Conclusion

125. For the reasons given above, our preliminary view is that Spark faces increasingly effective competitive constraints in the supply of wholesale voice services from a fixed location.

Chapter 4 Costs and benefits of deregulating the Resale Services

Purpose of this chapter

126. In this chapter we analyse the costs and benefits associated with removing the backstop regulation for the Resale Services.

127. Our preliminary view is that the net benefits from omitting the Resale Services from Schedule 1 are likely to be small, but will still best give effect to section 18.

What are the likely benefits of deregulation?

128. From our analysis the main benefits that would arise from removing the Resale Services from Schedule 1 are:

    128.1 avoiding any direct regulatory costs of monitoring or five annual review; and

    128.2 avoiding any competitive distortions due to the price or non-price terms of resale as applied.

Avoiding direct regulatory costs

129. If we were to deregulate, the avoidable regulatory costs would be relatively low. The only costs will be those incurred by the Commission and the parties in the five-yearly review process (to consider whether there are grounds to investigate deregulating a service under Schedule 3 of the Act).

130. We expect Spark to continue to supply its Resale Services, so in that regard costs will be the same. This is consistent with information provided by Spark in response to our questionnaire:

    [

    ]

Avoiding any competitive distortions

131. Backstop regulation of the Resale Services provides the potential for regulated retail minus pricing to be put in place. This gives RSPs the confidence that they will always be able to compete with Spark at the retail level, but it may also limit Spark's incentives to drop prices. The price for a voice-only service plan in New Zealand ranks

among the highest in the OECD, showing a sharp contrast to prices for mobile voice services.

132. Table 4.1 below,[43] shows that New Zealand is the most expensive country in the OECD for voice-only calling if we compare a 60 calls basket. Similarly its position in the OECD ranking for the 20 calls and 140 calls baskets is also significantly above average (66% and 37% respectively). By contrast, New Zealand mobile phone services occupy the sixth and seventh places, with prices considerably below average.

Table 4.1 Results of mobile and fixed standalone phone services benchmarking

	May 2016 price (NZD PPP excl VAT)			
	NZ rank in OECD	NZ	OECD Average	Δ % from average
Mobile phone voice baskets				
30 calls basket prepay with no data	6/34	$12.02	$20.26	-41%0
100 calls basket prepay with no data	7/34	$17.91	$37.20	-52%
Fixed-line voice baskets				
20 calls	34/35	$52.25	$31.57	66%
60 calls	35/35	$65.37	$44.55	47%
140 calls	**29/35**	**$87.60**	**$64.16**	**37%**

Source: Teligen

133. However, when the voice service is bundled with a broadband plan and RSPs are using other wholesale inputs, we are starting to see some differentiation in terms of price and service features.

133.1 The price difference between a broadband plan and a broadband plus voice plan, ranges from $20 if associated with an 80GB data plan (Spark or Vodafone), to $5 (Slingshot or Trustpower).

133.2 There is also some differentiation in VoIP plans. They include features such as Caller Display and last number redial, as opposed to a typical landline service that only includes free local calling. Spark VoIP plans also include automatic call back, directory listing, hide my number and call diversion.

[43] This table is based on a Teligen database, which compares baskets of services. In this case we are comparing baskets of voice services. Each basket includes a mix of calls comprising fixed to fixed (local and national), fixed to mobiles, and fixed to international done on peak and off-peak time.

What are the likely costs of deregulation?

134. From our analysis the costs that could arise from removing the Resale Services from Schedule 1 are:

134.1 any costs to RSPs of bringing forward the development of the business systems needed to use other wholesale inputs;

134.2 any costs to the small number of customers whose choice of telecommunications suppliers may be reduced.

Costs to the RSPs of migrating to alternatives

135. As previously discussed, our investigation suggests that RSPs now have access to alternative wholesale services in almost all locations. Accordingly access to regulated Resale Services is no longer required to promote wholesale and retail competition

136. The main cost that may arise from removing Resale Services from Schedule 1 are the costs to RSPs of bringing forward the development of the business systems needed to use other wholesale inputs in the unlikely event that Spark restricts or raises the price of resale. However, RSPs are already migrating from resale to other wholesale inputs in any event because of their greater potential in terms of functionality, so this effect largely relates to the bringing forward of costs that are likely to be incurred anyway.

137. On the investment requirements, 2degrees response from the questionnaires noted:

[

]

138. And Trustpower's response to the questionnaires noted :

[

]

139. We understand that the transition from Resale Services to alternatives such as Baseband requires some investment, but such investment is also required to offer end users better communications solutions.

Risk that some customers will be left in a vulnerable position

140. We have considered whether there may be competition concerns that arise in supplying certain customers. Specifically, we have looked at the options for RSPs supplying voice-only end users, as well as supplying end users who are located beyond the geographic reach of some of the wholesale alternatives

Voice-only end users

141. We understand that some end users prefer a traditional analogue voice service over copper lines. The reason for this preference is either:

    141.1 because they do not want to pay the incremental price of a bundle that also contains broadband, or

    141.2 because they value the fact that the analogue phone service over a copper line is independent from the power supply and will continue to work even in case of a power outage.

142. From our consultation process we have obtained feedback pointing to the unwillingness shown by a small number of end users in migrating from an analogue home phone service to a home phone service based on VoIP. Spark has indicated that the number of residential UFB customers that want to keep their copper line for analogue voice service is lower than [ ]. CallPlus, with its business customer focus, has indicated a higher percentage:

    [

    ]

143. Decisions from overseas regulators also show that consideration needs to be given before deregulating access to analogue voice services (narrowband services). For example, the EC advised that "on a forward-looking basis, NRAs should analyse the provision of services, such as fixed narrowband access and the need for wholesale access regulation against the transition to all-IP networks." [44] The EC made this observation while recommending the deregulation of the wholesale market for

[44] EC, "Explanatory Note Accompanying the document Commission Recommendation on relevant product and service markets within the electronic communications sector susceptible to ex ante regulation in accordance with Directive 2002/12/EC of the European Parliament and of the Council on a common regulatory framework for electronic communications networks and services", 9 October 2014, page 21.

access to the public telephone network at a fixed location for residential and non-residential customers.

144. In New Zealand, we are in a safer position. This is because RSPs not only have access to wholesale services that allow them to build their own VoIP services, they also have the option of purchasing Baseband services from Chorus (ie, the input Spark uses to build its resale voice service) to build their own analogue service.

145. Structural separation provides for non-discrimination and equivalent access to wholesale inputs required to provide voice services, promoting competition between RSPs as they are all subject to the same terms and conditions as each other.

146. In addition, in New Zealand, the TSO deed caps the retail price Spark is able to charge to residential voice end users.[45]

End users in more remote areas

147. There are a small number of end users that risk having their choice of telecommunications providers reduced, which could result in additional detriment. However, again, even in the absence of competition for these end users, which we estimate to be less than 1% of lines, the TSO deed will cap retail prices.

[45] Spark's residential price-capped service is offered in accordance with the "TSO Deed for Local Residential Telephone Service", November 2011. This Deed requires Telecom to offer a 'local residential voice telephone service' which provides a line rental and free local calling service. The retail price for this service is capped in real terms (at its November 1989 level).

Chapter 5 Should Spark's Resale Services be omitted from Schedule 1?

Purpose of this chapter

148. This chapter explains our conclusion that omitting the Resale Services from Schedule 1 to the Act best gives effect to section 18.

Deregulate local access and calling service offered by means of fixed telecommunications service

149. Our preliminary recommendation is that omitting the local access and calling service from Schedule 1 in the Act, best gives effect to section 18. This view is based on the following evidence.

    149.1 Retail competition is now established, increasingly effective and no longer dependent on access to the local access and calling service. Chorus, the LFCs and fixed wireless operators all have the infrastructure to offer alternative wholesale voice services to RSPs.

    149.2 The number of end users for whom the local access and calling service are the only option is very small. For these end users the price will continue to be capped by Spark's Telecommunications Service Obligation.

150. Overall the net benefits of deregulating the local access and calling service, even if small, will best give effect to section 18.

Deregulate retail services offered by means of a fixed telecommunications network

151. Our draft recommendation is to deregulate "retail services offered by means of a fixed telecommunications network". This service includes Spark’s ISDN and Centrex-based services and value added services (such as messaging services supplied in conjunction with the access line).

152. Our preliminary view is that there are grounds to deregulate value added services (such as messaging services supplied in conjunction with the access line). Value added services are supplied in conjunction with the access line, and our preliminary view for the local access and calling service also applies to the value added services. We note the wholesale alternative services can also be used to provide value added services at retail level.

153. Our reasons for deregulation in terms of ISDN and Centrex services include the following points.

153.1 The emergence of hosted IP-based services, which allow RSPs to offer similar functionality and features over broadband connections.

153.2 Spark grandfathering some ISDN services to reflect changes in this market due the emergence of new access services, such as IP trunking and cloud-based services. During this investigation, Spark submitted that [ ]is due to be [ ].[46]

153.3 A substantial decline in the demand for these services. For example, [ ].[47] Migrating customers to IP-based services has the benefit for end users in terms of innovation and at a lower price, assuming the cost savings is passed on to the end users.

Deregulate retail services offered by means of a fixed telecommunications network as part of a bundle

154. Our draft recommendation is to deregulate retail services offered by means of a fixed telecommunications network as part of a bundle. The need for resale access to retail services offered as part of a bundle will depend on whether the bundle's component services are available on competitive terms. This includes the local access and calling service, as voice services are often supplied in a bundle with other services such as broadband.

155. We understand that the regulated parts of bundles service enables an access seeker to 'un-pick' a bundle offered by Spark, in order to gain access to one (or more) of the individual components that comprise the bundle. Therefore, an access seeker is able to use the parts of bundles service to gain resale access to a component of a bundle that it is not able to supply by other means (for example, using its own infrastructure or by purchasing an alternative wholesale service).

156. To date, we have not released a determination for this resale service. We recognise that bundling of retail services continues to be an important feature of the telecommunications industry, as broadband services are often supplied in a bundle with voice. However, we note that Spark's competitors have been able to offer competitive retail bundles without seeking access to the regulated "parts of bundle" service.

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[46] Spark's questionnaire, "Commerce Commission- Schedule 3 investigation July 2016"- Question 5

[47] Based on the information received in questionnaires.

156.1 The wholesale inputs required to provide competitive bundles of voice and broadband services are available, suggesting there is no longer need for regulated resale of parts of bundles.

156.2 Our investigation showed that the service"retail services offered by means of a fixed telecommunications network as part of a bundle" has never been used.[48] This shows that Spark's competitors have been able to offer competitive bundles of retail services without the need to rely on accessing the regulated 'parts of bundles' service.

156.3 Spark also indicated that no RSPs approached Spark to purchase this regulated services.

157. Our draft recommendation is to remove "parts of bundle' from Schedule 1 because, there are wholesale alternatives available that can be used as inputs to offer competitive bundles. It is also because there has been no take-up of this regulated service over a long period. In this context, deregulation is likely to have a limited impact to give or likely best give effect to section 18.

We recommend a transition period

158. As discussed above in Chapter 3, we believe that RSPs have alternative wholesale inputs that they can use to provide retail voice services to their customers. However, to provide RSPs with time to consider other wholesale options, we recommend a transition period for omitting the Resale Services from Schedule 1 of 12 months from the date on which the Order in Council is made.

159. The transition period is to allow RSPs time for:

159.1 bringing forward the investment in the business systems needed to use other wholesale inputs;

159.2 adapting to the use of new wholesale inputs;

159.3 migrating customers; and

159.4 renegotiating new commercial contracts with Spark for the provision of Resale Services.

160. Our consultation process so far has indicated that RSPs would like some time to adjust to a scenario of deregulation of Resale Services. Baseband services require

48 Based on the information received in questionnaires.

some additional investment as seen previously, and the migration process itself may take some time.

161. Submissions received to our review of Spark's Resale Services, from Vocus and Vodafone, recommended deferring deregulation of these services for two to three years to allow more time to prepare for migration to new technologies.

162. Trustpower also commented that neither RSPs nor Chorus are prepared for a mass migration to Baseband IP.

163. Chorus has informed us of the steps it is taking to alleviate any short-term constraints in the provisioning process for managing new Baseband IP service orders.

164. Chorus has a dedicated team for managing Baseband IP orders (both Baseband IP & Baseband IP Extended). At present, the capacity is around [ ] orders /month, with plans in place to process up to [ ] orders /month if demand forecasts require it. From [ ] the provisioning process will be automated, so the order capacity will be unconstrained (the team will manage the exceptions). In terms of the internal Chorus process, we have established a working group to manage any new on-boarding of RSPs for BBIP. The purpose of this group is to ensure we have end-to-end alignment and are operationally ready to deliver BBIP migrations for customers. This covers the Provisioning, Field, Assure, Commercial, and Service Delivery areas.

165. For the above reasons we recommend a transition period.

Attachment A Regulation of wholesale alternatives

Purpose of this attachment

A1 This attachment provides a description of the regulation of each of the alternative wholesale services.

Chorus' voice-only services at wholesale level

A2 Baseband copper - enables the delivery of PSTN analogue telephony services over copper from the end user to a service provider's handover point in the local exchange but only where a copper path exists between the end user's external termination point (ETP) and the RSP handover point in the local exchange. The copper path can be directly from the local Exchange to the ETP or transverse via a distribution cabinet. Baseband copper can be provided in conjunction with UBA or Chorus VDSL over the same copper pair to the end user.

A3 Baseband PCM and Baseband remote - Baseband PCM is available at distribution (or active) cabinets with pulse code modulation (PCM) systems from the local exchange. Baseband remote is available where a pair gain, customer multi access radio (CMAR) or country set systems or alternative technology are used to provide connection to the end user’s ETP when there is no end-to-end copper path.

A4 Baseband IP - Baseband IP is only available to a RSP where it will be the only service taken over a particular copper line, or where the only other service being taken by a RSP in conjunction with Baseband IP over the relevant line is a Chorus' broadband service (not available where Baseband copper is also available). It enables the delivery of PSTN analogue telephony services over copper to the end user and SIP Bitstream to the service provider's handover connection. Baseband IP is intended to replace Baseband PCM over time.

A5 Baseband IP Extended - an option of Baseband IP that expands the current coverage area of Baseband IP to areas that are also served by Baseband copper (not available where Baseband IP is also available). An additional monthly rental charge applies, in relation to the UCLF price, as set out in Chorus' Chorus Service Agreement (CSA) - Baseband price list (at the moment that additional monthly rental charge is $5.50).[49]

[49] Chorus, Baseband CSA -= Schedule 3 Price list (November 2015), page 20. We note that Schedule 1A of the Chorus TSO deed contains the following definition of baseband: “The service is delivered to the service provider at agreed demarcation points using a range of technical interfaces. Service providers can either terminate the service at that location, typically using a Voice Switch, or us a compliant backhaul service to terminate it at a remote location.”

Chorus TSO deed

A6 The TSO Deed for TSO Network Service (Chorus TSO deed) applies to "TSO network service", which is the Baseband service that is defined in Part 1A of the Schedule to the Chorus TSO deed. We consider that the definition of Baseband in the Chorus TSO deed applies to all of the Baseband variants described above.

A7 The key features of Baseband as defined in Chorus TSO deed are as follows:

A7.1.1 Provides the ability for service providers to offer analogue telephony services;

A7.1.2 Is a service that is not reliant on a particular access technology;

A7.1.3 Is terminated by service providers at agreed demarcation points, typically using a voice switch, or is terminated at a remote location using a compliant backhaul service; and

A7.1.4 Provides an analogue voice path from the customer premises to a service provider.

A8 The Chorus TSO deed limits the price of Baseband to the price of Chorus' UCLF. Clause 5.1 of the Chorus TSO deed states that "Chorus will charge Telecom no more than an amount equivalent to the regulated price of Chorus' UCLF service (as amended from time to time) for TSO network service…"[50] However, "Chorus may selectively offer lower prices (including on a geographical or customer segment basis) if it wishes." The regulated price is also subject to a proviso that the overall profitability of Chorus' fixed business is not impaired.

A9 The price of UCLF is regulated by a standard terms determination.

A10 The Chorus TSO deed also contains an obligation to make Baseband available. Clause 5.2 requires Chorus to "make TSO network service as widely available to Telecom as Telecom is required to make LRTS available under the Telecom TSO deed."

A11 The TSO Deed for LRTS (Telecom TSO deed) requires Telecom to "continue to make local residential telephone service as widely available as it was at 20 December 2001."

A12 Chorus is also required by the Chorus TSO deed to make Baseband available to resellers other than Telecom, and the price of Baseband for other resellers must be equivalent to the regulated price of UCLF (but may not be less). Part 1B of the Schedule to the Chorus TSO Deed is set out in full in Attachment A.

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[50] Clause 5.1 is set out in full in Attachment A.

A13 The Chorus TSO deed also contains requirements for service quality.[51]

Chorus copper deed

A14 Some of the obligations in the Chorus Limited Deed of Open Access – Undertakings for Copper Services (Chorus copper deed) apply to "Baseband". In the Chorus copper deed, "Baseband" means "a wholesale service supplied by Chorus that provides an analogue voice path from an end user premise to a handover point using any of a range of technologies." We consider that this definition is materially identical to the definition in the Chorus TSO deed, and was intended to apply to the same service.

A15 The Chorus copper deed contains an obligation of non-discrimination which applies to Baseband. Clause 5.1 applies the obligation of non-discrimination to a "Relevant Service". A "Relevant Service" does not include Baseband.

A16 However, clause 3.6 states that "in all cases these Undertakings shall apply to the following services (even though they may fall outside the definition of Relevant Service)" and "Baseband" is listed. Furthermore, clause 5.3 sets out instances which are not discriminatory as defined in clause 5.2. One of these instances is "differences between instances of Baseband that result from the fact those instances are delivered using different technologies." This implies that the non-discrimination obligation does apply to Baseband, although it is not listed as a "Relevant Service".

A17 The obligation of non-discrimination requires Chorus to not discriminate between access seekers (as defined), in favour of any Chorus related party, or in favour of itself where it supplies a Relevant Service to itself.[52] To "discriminate" means "to treat differently, except to the extent a particular difference in treatment is objectively justifiable and does not harm, and is unlikely to harm, competition in any telecommunications market."

A18 The Chorus copper deed also contains equivalence obligations in clause 6. We do not consider that the equivalence obligations apply to Baseband. The equivalence obligations only apply to "EOI Input Services", which as defined in clause 1.1, does not include Baseband. There is no equivalent provision to clause 3.6 (set out above) for the definition of "EOI Input Services".

UBA

A19 The UBA service is a wholesale service, which provides access to Chorus' active electronic equipment in addition to the copper lines that connect to end user premises. The UBA service enables access seekers to provide voice and broadband services to end users without having to invest in their own exchange-based equipment. This service has two main components.

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[51] See clauses 13 and 14 and Part 2 of the Schedule.

[52] Clause 5.1.

A19.1 The UCLL component represents the network infrastructure used to connect consumers' homes and workplaces to Chorus' local telephone exchange buildings.

A19.2 The UBA additional costs component (also known as the "UBA increment") represents the electronic equipment, software, and other additional infrastructure required to provide the regulated UBA service over Chorus' UCLL network.

Standard terms determination

A20 Chorus' UBA service is included in Schedule 1 and is subject to a standard terms determination, which sets out the terms on which the service must be supplied, including the price.[53] The price of the UBA service was reviewed in 2015.[54]

Chorus copper deed

A21 The UBA service is also subject to the non-discrimination obligation in the Chorus copper deed. The obligations of non-discrimination are set out in A17 above.

UCLL

A22 The UCLL service provides access to the local loop between end user premises and Chorus' local exchanges. Access seekers can use the UCLL service, along with their own equipment located in the local exchange, to provide voice and broadband services to end users.

A23 UCLL was designed to provide access seekers with the opportunity to move up the ladder of investment. With UCLL, access seekers gain access to Chorus' passive local loop and install their own equipment at the exchange. This enables the access seeker to differentiate the characteristics of their retail service, thereby competing more effectively.

A24 We made two separate standard terms determinations (STDs) for the UCLL service:

A24.1 the UCLL STD for non-cabinetised lines; and

A24.2 the sub-loop UCLL (SLU) STD for cabinetised lines.

Standard terms determination

A25 Chorus' UCLL service is included in Schedule 1 and is subject to a standard terms determination, which sets out the terms on which the service must be supplied, including the price.[55] The price of the UCLL service was reviewed in 2015.[56]

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[53] Standard Terms Determination for Chorus' Unbundled Bitstream Access Service, dated 13 December 2007 incorporating amendments to 30 November 2011.

[54] Final pricing review determination for Chorus' unbundled bitstream access service [2015] NZCC 38.

Chorus copper deed

A26 The UCLL service is also subject to the non-discrimination obligation in the Chorus copper deed. The obligations of non-discrimination are set out in A17 above.

UCLF

A27 The UCLF service enables access to the low frequency in Chorus' copper local loop network. This service connects the end user's premises to the handover point in Chorus' Exchange. The UCLF service is available from an exchange whether the exchange is directly connected to a distribution cabinet, although it is also available from a distribution cabinet if required.[57]

A28 Chorus sells a commercial voice service as an alternative to UCLF but linked to the UCLF STD. The relationship between the UCLF service and the Baseband service is described in CSA.

> Baseband is a commercial alternative to the UCLF service provided under the UCLF STD. Baseband IP Tail Extension and Baseband IP Extended are commercial options that may be used with Baseband. [58]
>
> The Service Provider and Chorus agree that if the Commerce Commission makes a determination that amends the UCLF STD then Chorus will, in the same way and to the same extent and effect, amend this Service Appendix, including the Special Terms, Service Description, Price List and Operations Manual where applicable to Baseband, and, at Chorus' discretion, in relation to Baseband IP Tail Extension or Baseband IP Extended, any further changes to these options reasonably required as a consequence of such changes to the UCLF STD.[59]

A29 The UCLF STD also sets the price limit for the TSO network service as per the TSO Deed for TSO Network Service.[60]

Standard terms determination

A30 Chorus' UCLF service is included in Schedule 1 and is subject to a standard terms determination, which sets out the terms on which the service must be supplied, including the price.[61] The price of the UCLF service was reviewed in 2015.[62]

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[55] Standard Terms Determination for Chorus' Unbundled Copper Local Loop Network Service, dated 7 November 2007 incorporating amendments to 30 November 2011.

[56] Final pricing review determination for Chorus' unbundled copper local loop service [2015] NZCC 37.

[57] Final UCLF STD Service Description, (24 November 2011)

[58] Chorus, CSA Service Appendix - Schedule 1Special Terms for Baseband (non FTTH) Service (November2015) , page 2.

[59] Ibid, page 7.

[60] *"Telecommunications Service Obligations (TSO) Deed for TSO Network Service"* (November 2011).

Chorus copper deed

A31 The UCLF service is also subject to the non-discrimination obligation in the Chorus copper deed. The obligations of non-discrimination are set out in A17 above.

UFB

Chorus and other LFC fibre deeds

A32 UFB is subject to the non-discrimination and equivalence obligations in the Chorus Limited Deed of Open Access – Undertakings for Fibre Services and the equivalent deeds for the other LFCs. The obligation of non-discrimination is materially identical to that in the Chorus copper deed which is set out in A17 above. Broadly speaking, the equivalence obligations require Chorus and the other LFCs to provide the same service to access seekers in the same way as it does to itself.

Information disclosure determinations

A33 UFB is also subject to information disclosure by the Chorus and LFC information disclosure determinations.[63]

Prices in UFB contracts

A34 Although not a form of regulation under the Act per se, the prices of UFB are constrained by the terms of the agreements between Crown Fibre Holdings Limited and the LFCs.

RBI

Prices in RBI contracts

A35 Although not a form of regulation under the Act per se, the prices of FWA under the RBI scheme are constrained by the terms of the agreements between the Crown and the RBI providers.

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[61] Standard terms determination for the designated service of Chorus's unbundled copper low frequency service, Decision 738, dated 24 November 2011.

[62] Final pricing review determination for Chorus' unbundled copper local loop service [2015] NZCC 37.

[63] Chorus Information Disclosure Determination 2012, Decision NZCC 16; LFC Information Disclosure Determination 2012, Decision NZCC 15.

Attachment B Identifying the competitive constraints

Purpose of this attachment

B1 This attachment identifies the competitive constraints on Spark's Resale Services.

Our approach to identifying competitive constraints

B2 By focusing on current market conditions and developments, we identify and assess the relevant competitive constraints that Spark faces and would continue to face in the absence of resale regulation. Although the availability of Resale Services is expected to impact competition in retail level, our focus is on the wholesale level to assess whether regulation of Spark's Resale Services is still required in order to give effect to section 18. In spite of the wholesale focus, we have still had regard to the retail level where relevant.

B3 We consider the scope of the constraints on a national basis across New Zealand. Where relevant we have taken geographic differences into account, such as the geographic availability of alternative wholesale services.

B4 We start with assessing indirect price constraints that may exist on Spark's resold services. Indirect constraints operate through the retail level and depend on the extent to which end users are prepared to switch between retail services. For example, an increase in the price of Spark's resale voice service may be passed through to the retail price of the service supplied to end users using the resale input. If the retail price were to induce end users to switch to other retail services that do not rely on resale, such switching of demand away from resale may constrain Spark. Therefore, even if there are no close substitutes for resale at the wholesale level, Spark can still be constrained from imposing a price increase for resale voice services as long as there is competition between firms using resold voice services and alternative wholesale inputs at the retail level.

B5 This is followed by identifying direct price constraints on Spark's resold services. For example, where access seekers are using the regulated service, we have considered whether there are wholesale alternatives that they can switch to if the price of the regulated service increased. We took into account evidence of the extent that access seekers have actually been switching or threatened to switch between wholesale services.

Indirect price constraint

B6 From an end user's perspective, the following alternatives are available for voice:

B6.1 standalone analogue voice services provided over a copper network;

B6.2 analogue voice services provided as part of a bundle over a copper network; and

B6.3 voice services provided over non-copper networks such as mobile, fibre and fixed wireless.

B7 Recent information suggests that many customers prefer to purchase telephony services as a bundle. The proportion of customers preferring to buy voice services within a bundle is higher than [ ]% for all providers and end users' tendency to buy bundles has increased. [64] While we do not have reliable estimates available, some of the customers buying a voice-only service also have a broadband connection, and have the ability to switch to a bundle.

B8 To assess indirect constraints, we focus on the voice alternatives available from an end users perspective. We have considered each of the following:

B8.1 whether this indirect constraint is likely to operate through the substitutability between analogue voice and voice over IP services; and

B8.2 whether demand for analogue voice services is affected by mobile voice services.

Are analogue voice and unmanaged VoIP close substitutes?

B9 In the recent review, we differentiated between managed VoIP-based services[65] and unmanaged VoIP-based services[66]. We indicated that unmanaged VoIP services were unlikely to be a close substitute for traditional fixed-line voice services.[67]

B10 Our draft view remains that unmanaged VoIP-based services and analogue voice services are not close substitutes. Unmanaged VoIP does not appear to be a

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64 For example, [ ] customers buying bundles have increased from [ ]% (2014) to [ ]% (2016). The proportion of customers currently buying a standalone voice product was 19% (2016). This was calculated based on the responses to the questionnaires and information used in our annual monitoring report.

65 Managed VoIP services are publicly available telephone services using internet protocol (provided through fixed wireless, DSL, cable, and other fixed internet platforms) whereby the RSP controls the quality of service provided. For example Spark's plan "Ultra Fibre® 100 with home phone" comes with a landline and a phone number as well as broadband. The landline connects the end-user to the public phone network so the end-user can make local, national, international and mobile calls from the home phone even though it is a VoIP service that runs on the fibre network. Other examples include voice services provided by 2talk and Orcon.

66 Unmanaged VoIP services are software-based VoIP applications, offered exclusively as content-based services on a best-effort basis by providers that are not electronic communications providers (example: VoIP using Skype, what's app or google +,).

67 Commerce Commission "Review of Designated and Specified Services under Schedule 1 of the Telecommunications Act 2001 [2016] NZCC 13", 5 July 2016, paragraphs A8, A9.

substitute for resale voice services due to differences in features and consumption patterns. This view is also consistent with international practice. [68]

Are analogue voice and managed VoIP close substitutes?

B11 However, as we stated in the recent review, managed VoIP-based services and analogue voice services are likely to be close substitutes.

B12 Internationally, there are different views on whether managed VoIP is recognised as a substitute for traditional analogue voice. For example, a recent paper found that cross-price elasticities between analogue voice and managed VoIP support the view that these services are more likely to be substitutes.[69] Most regulators in other jurisdictions include managed VoIP in the same market as analogue voice as substitution becomes substantial. For example, the EC noted:[70]

> "…the EC has also acknowledged the increasing importance of VoIP telephony, noting that for residential customers in particular, there are unlikely to be any significant costs associated with migrating to managed VoIP services. The EC notes that "in view of lower overall costs and additional functionalities of managed VoIP telephony, the migration towards managed VoIP is well underway and expected to accelerate."

B13 The ACCC, on the other hand, has found that VoIP is not yet an effective substitute due to technical limitations, availability, switching costs for end users and the quality differences perceived by end users.[71]

B14 Our evidence supports the view that managed VoIP and traditional analogue voice are likely to be close substitutes in New Zealand.

B15 Managed VoIP-based services provide end users with a similar service to a traditional analogue service in that it shares the ability to make and receive calls at a fixed location, with the same quality, and at the same or lower price.[72] Table B2 below

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[68] See, for example, EC, "Explanatory Note Accompanying the document Commission Recommendation on relevant product and service markets within the electronic communications sector susceptible to ex ante regulation in accordance with Directive 2002/12/EC of the European Parliament and of the Council on a common regulatory framework for electronic communications networks and services", 9 October 2014, page 25.

[69] Kwak J.H and Lee B. G, 2011 "Estimating Demand Curve in the Korean VOIP Telecommunications market" Technical Forecasting and Social Change 78: 713-728. Kwak and Lee found a cross-elasticity of 10.07

[70] EC, "Explanatory Note Accompanying the document Commission Recommendation on relevant product and service markets within the electronic communications sector susceptible to ex ante regulation in accordance with Directive 2002/12/EC of the European Parliament and of the Council on a common regulatory framework for electronic communications networks and services", 9 October 2014, page 22.

[71] ACCC, October 2015. "Public inquiry into final access determinations for fixed line services", page 214.

[72] As illustrated in the table above, managed VoIP is available at either the same or lower price as analogue voice if it is purchased in a bundle, and lower compared to a standalone analogue voice services

compares the current prices for voice services available to end users, either as a standalone service or in a bundle.

Table B1 Retail prices for voice services available to end users

National providers	Prices for Voice over IP running over fibre/Xdsl	Prices for voice running over traditional landline	Prices for Voice over IP running over FWA	Price for analogue voice-only (retail price less the UCLL price)
Spark	$20 if 80GB $10 if unlimited	$20 if 80GB $10 if unlimited	$10 if 80GB	$53.50 ($23.75)
Vodafone	$20.00	$20 if 80GB $10 if unlimited	$6 if 80GB	$54.00 ($24.25)
2degrees	$15.00	$15.00		
Slingshot	$5.00	$5.00		
Flip	$5.00			
Trustpower	$5.00	$5.00		$59.00 ($29.25)
Farmside (Team Talk)			$6 if 80GB	
Inspire Net			$15 if 100GB	

Source: Commission's own analysis based on provider's websites

B16 The Table B1 shows that prices for VoIP services (ranging from $5 to $20) are lower than the standalone price of an analogue voice service ($23.75 to $29.25). Spark's resold voice services, which enable access seekers to resell end-to-end services to retail customers, are associated with the analogue voice service, whether it is a standalone service or part of a bundle.

B17 In addition, managed VoIP services, such as those supplied over the UFB networks, naked DSL or even UCLL, typically allow end users to retain their existing handsets, which can be plugged into terminal equipment at the end user's premises.[73]

B18 The growth of VoIP has been a contributing factor to the decline in Spark's retail share of fixed-line connections since 2008 (with Spark's share having fallen from 80% in 2008 to [ ]% in 2015).[74]

[73] While we acknowledge that the availability of VoIP services is increasing rapidly, particularly due to the roll-out of UFB, it is still significantly lower than that of PSTN-based voice. This is why there is still relatively low uptake of VoIP services (the percentage of geographic numbers used to provide VoIP in June 2015 was approximately 11%).

B19 The industry also recognises managed VoIP as a substitute for analogue voice. For example, Spark submitted that managed VoIP is a close substitute and VoIP is increasingly the service of choice where customers replace old infrastructure with new infrastructure. 2Degrees submitted that VoIP is a substitute but not a full substitute.[75]

B20 We recognise that some end users may not perceive VoIP as a full substitute as end user investment may be a barrier to switching. For example:

B20.1 some end users have medical and house alarms that do not operate on VoIP;

B20.2 some businesses have EFTPOS devices that do not operate on VoIP; and

B20.3 the costs of replacing the equipment are perceived as being too high.[76]

B21 However, our investigation has found that there is an incentive for end users to switch from analogue telephony to IP-based services, because IP connections are cheaper and only require one connection for all network requirements. In addition, the asset lifetime of a device is typically three to four years so as devices reach their end of life they are replaced by new ones, capable of operating with IP. Devices that are operating with IP and mobile have batteries that can be used as a backup in the event of a power outage. [77]

B22 We have also sought information on the uptake and substitutability of VoIP with a focus on customer premises equipment. Although reliable data is not available for medical alarms and house alarms, evidence suggests that end users have been replacing their traditional EFTPOS devices based on analogue voice services with an IP-based service. For example, less than [ ]% of EFTPOS devices are still based on an analogue telephony service, with these devices being expected to be retired by [ ].[78]

B23 This suggests that most end users are likely to switch from analogue services to VoIP service, and will have an increasing incentive to switch to IP-based services.

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[74] Commerce Commission, Annual Telecommunications Monitoring Report 2015, Figure 11.

[75] See, for example, Spark's submission to the questionnaire, "Commerce Commission Schedule 3 July 2016", response to Question 1; 2 Degree submission, Commerce Commission Schedule 3 July 2016", response to Question 1 and Question 7.

[76] In our recent reasonable grounds review, it was submitted that 20% of customers facing difficulties due to the need to replace customer premise equipment Vocus "Submission on Draft decision on the review of schedule 1 services" (23 May 2016), paragraph 10.

[77] See, for example, our interview with [ ]

[78] Ibid

B24 In light of the above, our view is that managed VoIP services are likely to be close substitutes for traditional fixed-line voice services. The substitution away from the traditional analogue telephony service constrains it because the substitution increases the number of possible wholesale inputs that RSPs can choose to provide voice at a fixed location.

How is demand for analogue voice affected by mobile voice service?

B25 Mobile voice is likely to only have a limited competitive constraint on fixed voice at this stage, though we still think that mobile may be placing some competitive constraint on the demand for voice services at a fixed location.

B26 Our view is that end users currently tend to use fixed and mobile service in a complementary manner. This view is based on an assessment of demand-side factors.

B26.1 Although mobile voice services are widely available, there is not yet evidence to support a view that end users have been replacing their fixed-line voice service with a mobile service. Having both fixed and mobile telephones still seems to be the most common scenario in New Zealand.

B26.2 There is a lack of evidence that mobile services are constraining analogue telephony services at this time. In the reasonable ground review we observed that Spark's retail prices for fixed local access and calling services have increased during a period in which mobile prices have fallen. This suggests that fixed telephony, at retail level, have been largely unconstrained by mobile pricing.

B27 However, although there is no evidence of fixed-mobile substitution occurring at the subscription level, there is evidence that end users have been replacing fixed calls with mobile calls. We have observed a decline in the volume of fixed calling minutes and an increase in the volume of mobile calling minutes in our Annual Telecommunications Monitoring Report:[79]

> …that the growth in mobile calling minutes accelerated in 2015, with mobile calling poised to overtake fixed calling in 2016. While fixed calling has continued to decline, the higher growth of mobile calling caused a rise in total calling on phones and mobiles, for the first time since 2009.

B28 We also note that recent papers suggest that mobile voice services are becoming a close substitute for voice at a fixed location. For example, one paper that fixed lines

[79] Commerce Commission, 2015, "Annual Telecommunications Monitoring Report", page 14

and mobile voice are substitutes when it competes to voice services, while they complement one another for data services.[80]

B29 We therefore consider that mobile services are becoming a close substitute for voice as a fixed location at the retail level, but not a close substitute yet.

Direct price constraint

B30 To assess direct constraints, we focus on wholesale alternatives capable of providing an analogue service to end users, such as Baseband copper, Baseband IP, UCLL and cable, and wholesale inputs capable of providing VoIP services, such as FWA, UFB, cable, UCLL and UBA. We generally consider that the wholesale alternatives are good substitutes, though in some cases there may be some limitations.

B31 An RSP can switch to other alternatives on the copper network or non-copper networks to provide its own voice services. On the copper network, an RSP can switch to buying wholesale UBA to provide VoIP services, or a Baseband service from Chorus and provide its own analogue voice services. An existing unbundler can also switch to UCLL.

B32 RSPs can purchase a wholesale UBA service from Chorus. To provide voice in this situation the RSP can buy a Baseband service from Chorus and provide its own voice service or deliver voice as data using VoIP via the UBA service. Delivering voice using VoIP means the RSP can avoid the costs associated with supplying a conventional dedicated analogue voice service. The extensive coverage of Chorus' network, which is based on modern ethernet-based DSLAMs, enables RSPs to offer VoIP services over a broadband connection.

B33 The alternative to UBA is to buy Baseband or Baseband IP from Chorus to provide its own voice service. This allows RSPs to continue to deliver analogue voice services to end users, so end users do not experience any difference from current voice services based on Spark's Resale Services. Retail services supplied using Baseband inputs do not rely on power from the end user premises and, according to Chorus tests, are still compatible with most CPE, such as alarms and EFTPOS devices.

B34 UCLL requires retailers to install their own infrastructure in exchanges to provide voice and broadband services, which gives the retailers more control over the quality of service. UCLL can be used in respect of non-cabinetised lines.

B35 On non-copper networks, RSPs can also switch to cable, fibre or FWA to provide voice at a fixed location.

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[80] Liang, J, June 2016, "How fixed mobile usage interact? Does FTTH deployment influence interaction? available at http://ssrn.com/abstract=2635055; Lange MRT & Saric A, May 2016, "Substitution between fixed and mobile voice over IP telephony: Evidence from EU". Discussion paper: Dusseldorf Institute from Competition Economics.

B35.1 Cable is available only in Wellington and Christchurch. Where cable is available it provides a constraint on Spark Cable is effectively self supply and provides a threat that Vodafone could switch away from Spark's resold services.

B35.2 Competitors are able to use wholesale UFB services to offer retail voice and broadband services to end users. Chorus and the LFCs offer wholesale bitstream access services, which allow for the provision of fibre-based voice services to end users. The UFB bitstream access services may include an analogue telephone adaptor (ATA) voice port on the optical network terminal into which PSTN-compatible handsets can be connected. Fibre is not yet available everywhere but coverage is increasing rapidly as the UFB roll-out proceeds. RSPs can provide their own voice service by using UFB-based services, such as UFB bitstream services. This is akin to using UBA on the copper network.

B35.3 FWA can be used to deliver voice as data using VoIP via the FWA, in particular where RBI FWA wholesale access is available.

B36 We now consider what the likely substitutability is for each of the wholesale alternatives in more detail.

Chorus' wholesale voice-only service

B37 Chorus also offers a number of wholesale voice-only services which can be used to deliver voice services to end users. These wholesale services are Chorus' Baseband, Baseband IP and Baseband IP Extended services, which provide access to the low frequency band of the copper connection to end users via Chorus' equipment located in exchanges or cabinets.[81] Baseband IP and Baseband IP Extended convert an analogue PSTN-compatible two-wire voice frequency into a bitstream service that can be delivered to an RSP at the FDS.[82]

B38 Baseband copper is likely to be a close substitute for Spark's resold service it is the same input used to provide the resold services and has the availability of a wholesale voice-only product.

B39 We recognise that the current uptake of Baseband IP is low, but we view it to be a potential substitute for Spark's resold voice services.

B39.1 Although Baseband IP service is still an emerging service,, it was developed to provide RSPs with an equivalent input to what Spark had (following separation). This would enable RSPs to develop their own voice services independently from Spark, through the availability of a wholesale voice-only

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[81] The regulation of these alternatives is set out in Attachment A above.

[82] See Chorus Service Description for Baseband services.

product.[83] At the retail level, this service is the same as the traditional resale voice service provided by Spark.[84]

B39.2 Several RSPs have commented on the costs they would have to incur to switch from Spark's resold voice services to Chorus' Baseband IP service.[85] We have examined these costs, and placed them in the context of the cost savings that could be achieved by the RSPs in terms of the lower wholesale charges paid when switching from resale to Baseband IP.[86]

B39.3 2degrees indicated that
[
].

B39.4 Spark indicated that
[
].[87]

B40 A number of RSPs have submitted that Chorus' wholesale voice-only services have a number of limitations compared to Spark's Resale Services. These limitations relate to coverage and compatibility issues with CPE.

B41 Our view is that coverage is not a limitation:

B41.1 In its 2015 Annual Report, Chorus commented on the availability of Baseband IP, stating that "Baseband IP connections, used by RSPs to deliver a VoIP service over copper, continued to grow but are not yet material.

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[83] Baseband IP build BC reauth V1 bulk provided by Chorus, page 5
"[
]"

[84] Ibid, page 9

[85] [ ]

[86] This is based on comparing the regulated resale price (retail less 2%) with the baseband IP price. Based on our calculations, there would be a saving in wholesale rentals when using baseband IP
[
]

[87] The Migration Variation Agreement" and "Baseband Agreement", which states "the incentive is intended to encourage the implementation by Service Provider capability to consume Chorus Baseband IP service and the agreement of a Migration Plan for migration of rural PSTN sites to Baseband IP"; Spark's presentation to the Commission on 24 August 2016.

Baseband IP is currently available across about 10% of Chorus' connections."[88] In May 2015, Chorus announced that it was intending to extend the coverage of the Baseband IP service to approximately 68% of copper connections within the following 12 months, subject to demand.[89]

B41.2 According to information provided by Chorus as part of this investigation, the Baseband IP and Baseband IP Extended services are currently available in respect of 60% of copper connections. This level of coverage could be extended further, as these services can be offered where Chorus has installed new generation ethernet-based DSLAM equipment in the cabinet or exchange to which the end user is connected.[90] Chorus' information shows that approximately 97% of copper lines are connected to ethernet-based DSLAMs, where Baseband IP or IP extended is possible.[91]

B41.3 As we noted in our decision to start this investigation, the extent of Chorus' deployment of its ethernet-based network, over which Chorus can deliver its Baseband IP Extended service, indicates that coverage does not appear to be a significant limitation of the Chorus wholesale service.[92]

B41.4 We have further examined the number of end users who are currently beyond the reach of Chorus' ethernet-based DSLAM network. As indicated above, approximately 3% of copper lines lie beyond the current reach of Chorus' ethernet-based DSLAM network, although this number has been diminishing as Chorus expands the reach of its ethernet network.

B41.5 Chorus has informed us that it plans to migrate a further 4,500 broadband customers off its old ATM network and on to its ethernet network by the end of 2016.[93] This will extend the coverage of the Baseband IP service.

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88 Chorus Annual Report 2015, page 17.

89 Chorus, "Full launch of Baseband IP Extended", Informer 258, 8 May 2015.

90 Such DSLAMs are referred to as ISAMs (Integrated Services Access Manager), which support VDSL broadband services as well as Baseband IP.

91 Spark has also referred to this level of coverage for the Baseband IP service. "Chorus is able to support baseband IP from any of its widely deployed ethernet DSLAMs (ISAMs). Chorus' Broadband Coverage report indicates that over 5700 ISAM sites are capable of supporting baseband IP services, and this represents around 97% of all baseband lines." Spark letter to Telecommunications Commissioner "Submissions on Draft decision Review of Schedule 1 services", 20 June 2016, available at www.comcom.govt.nz/regulated-industries/telecommunications/regulated-services/service-deregulation-reviews/review-of-schedule-1-selected-services/

92 Commerce Commission "Review of Designated and Specified Services under Schedule 1 of the Telecommunications Act 2001: Reasons for final decision on whether to commence an investigation under clause 1(3) of Schedule 3 of the Telecommunications Act 2001", 5 July 2016, paragraph 70.

93 Chorus "Cross-submission for Chorus in response to Section 30R review of the UBA Standard Terms Determination Process and Issues Paper (7 April 2016)", 1 July 2016, paragraph 27.

Spark has similarly noted that "we expect [Baseband IP coverage to increase as legacy DSLAMs are retired".[94]

B42 Our view is that compatibility with CPEs is not a limitation:

B42.1 A number of RSPs have submitted that Chorus' Baseband IP service may not be compatible with services such as medical and security alarms, and EFTPOS. In such cases, the end user would have to replace their devices in order for the RSP to switch to the Baseband IP service. According to RSPs, up to [ ] of their customer base could be affected.[95]

B42.2 According to Chorus' Service Provider Guide on its customer portal, Chorus' Baseband IP service supports the end-to-end delivery of analogue voice and analogue dial-up services, including dial-up EFTPOS, monitored alarm systems (including medical, telemetry, and security alarms), and set-top boxes (such as Sky Digital and My Sky services). Spark has also informed us that it has not encountered any difficulties in migrating end users in the trials that it has conducted on Chorus' Baseband IP service.

B42.3 In our decision to start this investigation, we also noted that similar issues have arisen and are being resolved in the context of migration to UFB-based services. Spark has informed us that of its residential customers who have migrated to UFB-based services, approximately [ ]% of residential customers have retained a copper connection as well as a fibre connection. This provides an indication of the part of customers who may be reliant on an analogue voice service, this may be due to CPE or concerns over the resilience of the voice service in the event of a power outage at the customer premises. However, even in respect of these [ ]%of customers, Chorus' wholesale voice services may be used as an alternative to Spark's resale service.

B43 The following evidence points to competition from Baseband IP on Spark's Resale Services.

B43.1 The price of Baseband IP is linked to the regulated price of UCLF. The regulated price of UCLF is linked to the regulated price of UCLL.[96] In introducing Baseband IP to the market, Chorus considered

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94 Spark letter to Telecommunications Commissioner "Submissions on Draft decision Review of Schedule 1 services", 20 June 2016.

95 Vocus "Review of Designated & Specified Services under Schedule 1 of the Telecommunications Act: Submission to Commerce Commission", 23 May 2016, paragraph 10.

96 We note that for the baseband IP extended service, the price includes an additional monthly charge ($5.50) to cover the additional costs of supplying the service, such as the costs of transmission from the local exchange to the FDS.

"[
]"

B43.2 In introducing Baseband IP to the market, Chorus considered "[
]."

B43.3 Spark appears to be pro-actively positioning themselves to compete with Baseband IP. According to [
]."

UCLL

B44 Chorus' UCLL service is also used to supply voice services to end users, particularly in bundles with broadband services. However, the number of UCLL services has been declining in recent years.[97] UCLL demand peaked in 2013, when Chorus supplied 129,000 UCLL services. By June 2016, the number of UCLL lines supplied by Chorus had dropped to 108,000 lines.

B45 We consider that UCLL is unlikely to be a close substitute for Spark's resold service, because it requires substantial investment to be undertaken by the RSP who is not an existing UCLL-based operator. RSPs currently purchasing Spark's resold services would be unlikely to unbundle an exchange and divert its demand from Resale Services to UCLL, because it would involve substantial investment for the RSP.

B46 We note that the number of UCLL lines is decreasing, and with the transition to UFB, there is a risk that equipment can become stranded. This would reduce the incentive to undertake further unbundling and to switch to UCLL at this time.

B47 However, in our view it is still relevant to consider the constraints provided by existing UCLL operators.

B47.1 There may be scope for an existing UCLL-based operator to provide its own voice service (or resale voice). This is because if the RSP has already unbundled an exchange, the incremental investment required in order to deliver voice services from that exchange is likely to be minor, given that a UCLL-based operator is effectively already self-supplying a wholesale input.

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[97] We made a similar observation in our 2015 Annual Telecommunications Monitoring Report: "[t]he number of unbundled lines where Spark's competitors provide their own broadband and voice service has peaked with there now being little incentive to unbundle further exchanges." (page 21).

B47.2 The constraints provided by existing UCLL providers are relevant as they have the ability to self supply or offer resale, and act as a constraint on Spark's resold voice services.

UBA

B48 We consider that voice services provided via UBA is likely to be a close substitute for Spark's resold voice services. To provide voice with UBA as an input requires less investment than UCLL.

B49 Chorus' UBA service enables RSPs to provide voice and broadband services to end users. As we have observed in our 2015 Annual Telecommunications Monitoring Report, competitors have been increasingly using naked UBA services, which have contributed to the decline in the number of resold voice services. Where a naked UBA service is used, the RSP can deliver voice services either as a VoIP service over the UBA connection or as a mobile service. As shown in Table 3.1 above, substantial users of Chorus' naked UBA service are Vodafone and 2degrees, both of whom operate mobile networks. Vocus also uses Chorus' naked UBA service, as its Orcon subsidiary has been a market leader in introducing VoIP services.[98]

B50 The number of naked UBA services used by Spark's competitors has been increasing strongly. According to Chorus' 2016 Annual Report, it supplied a total of 197,000 naked UBA services as of 30 June 2016, up from 159,000 services in June 2015. The information provided to us as part of this investigation shows that most naked UBA services are supplied by Chorus to Spark's competitors.

UFB, cable and FWA

B51 In terms of non-copper networks, we note that UFB, cable and FWA may have limits to substitutability due to a more limited geographic footprint and lack of the availability of a wholesale voice-only product.

B52 Most of the RSPs offer UFB-based services, with the ability to provide its own voice service. We note that there an increasing availability of UFB, [99] and that an RSP switching to UFB may not be driven by small price changes, but rather migration.

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[98] In our clearance determination on Vodafone's application to acquire TelstraClear, we noted that Orcon introduced its Genius service in 2011, as a VoIP service using naked broadband. We also noted that the Genius plan stimulated an immediate response from other competitors. See Commerce Commission "Determination: Vodafone New Zealand Limited and TelstraClear Limited [2012] NZCC 33", 29 October 2012, paragraph 207-209.

[99] As of 30 June 2016, there were 240,625 connections to UFB (44k connections added in the June 2016 quarter), and a total of 1.006 million end users were able to connect to UFB. The UFB target coverage (2019) is 1.459 million end users

Product migration is a relevant form of competitive pressure between products. For example, Spark also views wholesale alternatives, including UFB as:[100]

> "…an effective substitute for our resale service, and constrain our ability to increase resale prices. While there is no resale standard terms determination in place for Resale Services, we offer a commercial resale service to wholesale customers competitively priced against alternative solutions."

B53 Although FWA is an emerging service, we consider that it poses a constraint on the pricing behaviour of Spark, only if FWA is provided by a non-Spark provider. We recognise that the constraint from wholesale FWA exists mainly for remote end users at the edge of the copper network.

B54 There has also been growth in the number of FWA services used to deliver voice and broadband services, although such growth is in a relatively early stage. Based on information provided to us as part of this investigation, the number of RBI FWA services increased from [ ] services in 2014 to [ ] services in 2016, with these services being supplied in rural areas covered by the Government's RBI programme.

B55 Under RBI, 90% of households and businesses outside of UFB areas will have access to broadband speeds of at least 5Mbps by June 2017, through a mix of cabinet upgrades and FWA. FWA is available to nearly 80% of addresses in the RBI area. As of June 2016, a total of 154 new towers have been built under the RBI, and a further 355 cell towers had been upgraded (with a total of 387 cell towers to be upgraded by June 2017).[101]

B56 There are currently 21 operators supplying FWA services under the RBI.[102] These suppliers offer voice and broadband services, through either reselling capacity from another RBI operator or through co-locating their equipment on the RBI towers. As of June 2016, 84% of the new cell towers built under the RBI had more than one operator.[103]

B57 Cable is available only in Wellington and Christchurch, and in those areas it is providing a constraint on Spark's resold services. Cable is effectively self supply and provides a threat that Vodafone could switch away from Spark's resold services.

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100 Spark submission "Review of Designated and Specified Services under Schedule 1 of the Telecommunications Act 2001: draft decision", 23 May 2016, paragraph 17.

101 MBIE "Rural Broadband Initiative - Phase one", available at www.mbie.govt.nz/info-services/sectors-industries/technology-communications/fast-broadband/deployment-progress

102 see www.mbie.govt.nz/info-services/sectors-industries/technology-communications/fast-broadband/the-rural-broadband-initiative-and-getting-connected/rural-broadband-initiative-service-providers#regional

103 ibid.

B58 Table B2 below summarises the availability[104], uptake, and pricing of the wholesale alternatives.

Table B2 Input prices, lines and connections for voice services from a fixed location [$, 2016

Retail service	Wholesale service	Available lines in thousands	Effective connections	Wholesale cost	Additional investment required
Voice-only	Resale Services	1,600	319	$45.59	No
Voice-only	Baseband copper	1,323	1,221	$29.75+ backhaul	Yes
Voice-only	Baseband IP (where bb copper NOT available)	155		$29.75	Yes
Voice-only	Baseband IP Extended (where bb copper ALSO available)	930	9	$29.75+ $5.5=$35.25	Yes
Broadband + Voice	UBA/VDSL (+resale/bb)	1,059	<862	$41.19+$22.68=$63.88	Yes
Broadband + Voice	UBA+Baseband extended			$41.19+$5.5=$46.69	Yes
Broadband + Voice*	Naked UBA/VDSL		197	$41.19	Yes
Broadband + Voice	Sub-loop UCLL	1268	110	$15.52+ SLU backhaul+ backhaul	Yes
Broadband + Voice	UCLL			$29.75+ backhaul	Yes
Broadband + Voice	FTTH	1,077	240	From $39.50	Yes
Broadband + Voice	RBI FWA broadband + VoIP	[ ]	[ ]	[ ]	No

B59 The input prices for the wholesale alternatives presented in the Table B2 above are either directly regulated or constrained by contract. Attachment A explains the existing regulation in more detail. The RBI FWA services are not currently regulated under Schedule 1 of the Act. Maximum prices are defined under Appendix 2 of the Rural Broadband Initiative Deed.

[104] Estimated based on available network information as at June 2016