Fixed PSTN interconnection in New Zealand

Final report for Commerce Commission, 12 June 2025

Network Strategies Report Number 45012

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0 Executive summary

The Commerce Commission is considering whether there are reasonable grounds to commence an investigation into the omission of the designated Fixed PSTN Interconnection Service from Schedule 1 of the Telecommunications Act 2001. To assist the Commission, this report examines the current state of the fixed PSTN interconnection market in New Zealand.

The Commission's interpretation of the definition of PSTN in the Act includes voice networks operated over Internet Protocol (IP), and is not limited to traditional circuit-switched Plain Old Telephone Service (POTS) networks. This means that the service in question is not limited to only the legacy copper-based PSTN.

We engaged with key stakeholders to gain an understanding of current industry views, including whether there is dissatisfaction with the PSTN origination and termination service. No evidence of current industry dissatisfaction was found with the service. Representatives of large and smaller industry players were consulted and none reported any competition or discriminatory issues with service supply. As such, currently the market for fixed PSTN interconnection services appears to be functioning efficiently with many interconnection agreements and resellers offering alternative options for supply of fixed (either POTS or IP) interconnection.

Industry opinion is likely to be divided over whether fixed PSTN origination and termination services should be retained in Schedule 1 of the Telecommunications Act 2001. The omission of service from Schedule 1 may potentially involve some risk, however our view is that is unlikely that the consequences for competition will be significant. Although the bottleneck nature of the fixed PSTN interconnection service remains the same as it was when the Act was passed, the communications market has transformed over the last 24 years. The fixed PSTN now serves a relatively small segment of the population, as the majority of end-users are turning away from fixed services to other means of communication (such as mobile and Over-The-Top (OTT) services). Spark's PSTN has reached end-of-life and a decommissioning programme continues, while Spark's Voice over IP (VoIP) services are in decline as well. Consequently, on balance, the risk to competition of increased wholesale PSTN interconnection charges (or other anti-competitive behaviour such as price discrimination) is likely to be low. Nevertheless, in the short term some segments of the communications market are still using the service and therefore the risk related to increased prices is not zero.

In Australia, the declarations of fixed origination and termination have recently been extended for another five years. A key factor was the continued importance of PSTN for customers in rural and remote areas, for whom there are effectively no substitutes. Similarly, in New Zealand Spark has previously acknowledged that in a very small number of cases customers have no Spark alternative to the legacy PSTN network, requiring case-by-case consideration to ensure ongoing connectivity.

Our European review found that in many countries fixed termination has been deregulated, with the existence of an EU-wide termination rate and the threat of re-regulation being key factors for this decision – a situation very different to that of New Zealand. However in three European jurisdictions – Italy, Latvia and the Netherlands – fixed termination has not been deregulated, despite the introduction of the EU-wide termination rate. In each of these three countries the structural characteristics of the local markets were such that the national regulatory authorities believed that non-price anti-competitive practices could still occur. In the United Kingdom, fixed termination is also still regulated, due to the lack of substitutes as well as opportunities for anti-competitive behaviour by providers with respect to price and access.

1 Introduction

The Commerce Commission ('Commission') is considering whether there are reasonable grounds to commence an investigation into the omission of the designated Fixed PSTN Interconnection Service from Schedule 1 of the Telecommunications Act 2001. This single service covers any origination and termination of voice and data calls on a fixed PSTN.

We understand that the Commission's interpretation of the definition of PSTN in the Act includes voice networks operated over IP, and is not limited to traditional circuit-switched POTS networks. This means that the service in question is not limited to only the legacy copper-based PSTN.

Network Strategies Limited has been asked to assist the Commission by examining the current state of the fixed PSTN interconnection market in New Zealand. The Commission seeks an understanding of:

- whether there is industry dissatisfaction regarding the fixed PSTN origination service, including the source of any such dissatisfaction and supporting reasons and / or data
- whether there are competition/discriminatory issues with the supply of the fixed PSTN origination service, with details (such as bulk discounts or service unavailability) and supporting evidence
- whether there is industry dissatisfaction regarding the fixed PSTN termination service, including the source and / or cause and supporting evidence
- whether there are competition or discriminatory issues with the supply of the fixed PSTN termination service with any details (such as bulk discounts or service unavailability) and supporting evidence and / or data
- the likely consequences for competition in the New Zealand market if the fixed PSTN origination and termination services were omitted from Schedule 1, and the risks (if any), including the underlying reasoning
- the current state of regulation of fixed PSTN origination and termination services in other comparable countries.

Following the current introduction, this report is structured as follows:

- an overview of the New Zealand market for the fixed PSTN interconnection service (Section 2)
- current industry views on the service (Section 3)
- a risk analysis (Section 4)
- experience in other comparable countries (Section 5)
- concluding remarks (Section 6).

The Annex contains a list of stakeholders consulted during the study.

Although this report has been commissioned by the Commerce Commission, the views expressed here are entirely those of Network Strategies.

2 Market overview

2.1 Background

Schedule 1 of the Telecommunications Act 2001 (the Act) included two interconnection services:

- interconnection with Telecom's fixed PSTN
- interconnection with fixed PSTN other than Telecom's.

The services were defined as origination and termination (and their associated functions) of voice and data calls (including dial-up Internet calls) on Telecom's / other than Telecom's fixed PSTN.

These services were classified as 'designated' under the Act, and subject to Commission determinations on access terms and conditions. Pricing principles were specified in the Act as follows:

- initial pricing principle: benchmarking against PSTN interconnection prices in comparable countries which apply forward-looking cost-based prices, or a bill-and-keep approach
- final pricing principle: Total Service Long Run Incremental Cost (TSLRIC), or a bill and keep approach.

In 2011 the two PSTN interconnection services were removed from Schedule 1 and replaced by a single fixed PSTN interconnection service for interconnection with any PSTN. This service encompasses any origination and termination of voice and data calls on a fixed PSTN.

The Commission describes call origination as a wholesale service where the calling party is not charged for the starting the call by the originating operator[1]. It is commonly used for:

- calls to special numbers such as 0800 numbers
  - the receiving party pays (RPP) for the origination and termination of the call
- toll bypass
  - the call is originated in one operator's fixed network using the access code of another operator whose customer is the calling party
  - the customer's service provider pays the wholesale origination tariff.

The Commission describes call termination as a wholesale service which terminates a call from another network. The terminating operator receives the call at the handover point closest to the receiving party and delivers it to the required geographic number[2]. This is settled via the calling party pays (CPP) model – the terminating operator charges the originating operator a wholesale termination tariff.

Following the passing of the Act the Commission made a bilateral determination in 2002[3] which expired in 2003. Since then there have been no further determinations and fixed interconnection prices and conditions are agreed between parties on a commercial basis. However the service remains in Section 1, and the Commission has stated[4] that:

> The goal of regulated interconnection is to prevent discrimination between RSPs [Retail Service Providers], thereby facilitating competition and reducing entry barriers, as well as ensuring that retail prices are not raised by excessive wholesale interconnection tariffs.

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1 Commerce Commission (2016), *Review of Designated and Specified Services under Schedule 1 of the Telecommunications Act 2001,* 5 July 2016, page 59.

2 *Ibid*, page 60.

3 Commerce Commission (2002), *Determination on the TelstraClear Application for Determination for Designated Access Services, Decision 477*, 5 November 2002.

4 Commerce Commission (2016), *Review of Designated and Specified Services under Schedule 1 of the Telecommunications Act 2001,* 5 July 2016, page 60.

Commission Determination 2002

Prior to the 2002 Determination Telecom and TelstraClear made a commercial agreement on a bill-and-keep arrangement for intra-Local Interconnect Calling Area (LICA) interconnection. This pricing agreement was included in the Determination as enforceable terms. The Commission decided on a number of other matters, including the interconnection price payable for toll bypass calls, toll-free and payphone calls, and the origination of calls to premium rate services. Using benchmarking (the initial pricing principle) the Commission set the price for the origination and termination all of these services at 1.13 cents per minute (excluding GST)[5].

Commission reviews

Every five years the Commission is required to conduct an assessment of whether there are reasonable grounds to commence an investigation into potentially deregulating each service in Schedule 1. Since 2011 the Commission has conducted two reviews and both found that there were no reasonable grounds to remove the service from Schedule 1.

The reasons given by the Commission for this decision in 2016 were[6]:

- lack of direct substitutes for interconnection with a fixed network, with each PSTN operator able to behave independently of its competitors and customers in relation to termination charges
- lack of indirect constraints from the retail level, such as end-users switching to other ways of contacting the called party (mobile, VoIP) since the fixed termination rate is only a small fraction of the retail price for a call to a fixed number
- consumers' traditional preference for calling fixed lines over mobile to avoid cost
- absence of regulation could create incentives for price discrimination between RSPs by limiting access to interconnection and/or raising termination tariffs. This scenario of

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5 Commerce Commission (2002), *Determination on the TelstraClear Application for Determination for Designated Access Services, Decision 477*, 5 November 2002, page 41.

6 Commerce Commission (2016), *Review of Designated and Specified Services under Schedule 1 of the Telecommunications Act 2001,* 5 July 2016, pages 32 – 33.

increased retail prices / reduced competition in the retail market for calls to a national number would harm the long-term interest of end-users

- retaining the service in Schedule 1 provides Commission with backstop powers to determine and enforce access conditions if commercial negotiations fail.

In the 2021 review the Commission noted that it had observed market developments relevant to PSTN fixed interconnection[7]:

- trends of retail customers migrating to IP-based voice services
- Spark's intention to decommission the legacy PSTN.

Nevertheless the Commission decided that continued regulation was necessary to promote competition, as it remained important as an input to the supply of off-net calls[8]. It considered that retaining the service in Schedule 1 would likely continue to provide an important backstop and reference point for commercial negotiations. It also noted that this decision was unlikely to impose any costs on the sector.

The Commission's 2021 Final Decision regarding the continued regulation of PSTN interconnection services noted the importance of the 2002 Determination as an 'anchor' for current interconnection terms and conditions[9]:

> Our understanding from previous reviews is that since this service was redefined in 2011, interconnection arrangements have been agreed on a commercial basis. We understand that the commercial interconnection arrangements are broadly anchored by the Commission's original bilateral interconnection determination that expired in 2003.

7 Commerce Commission (2021), *Review of Services in Schedule 1 of the Telecommunications Act 2001*, 12 May 2021.

8 Calls from one service provider's network to another's network.

9 *Ibid*, paragraph 52.

2.2 Market dynamics

The downward trend in the volume of fixed network traffic has continued as subscribers increasingly rely on other forms of communication – particularly mobile and Over-The-Top (OTT) services. Total outgoing fixed call minutes has more than halved between 2016/17 and 2022/23 (Exhibit 1).

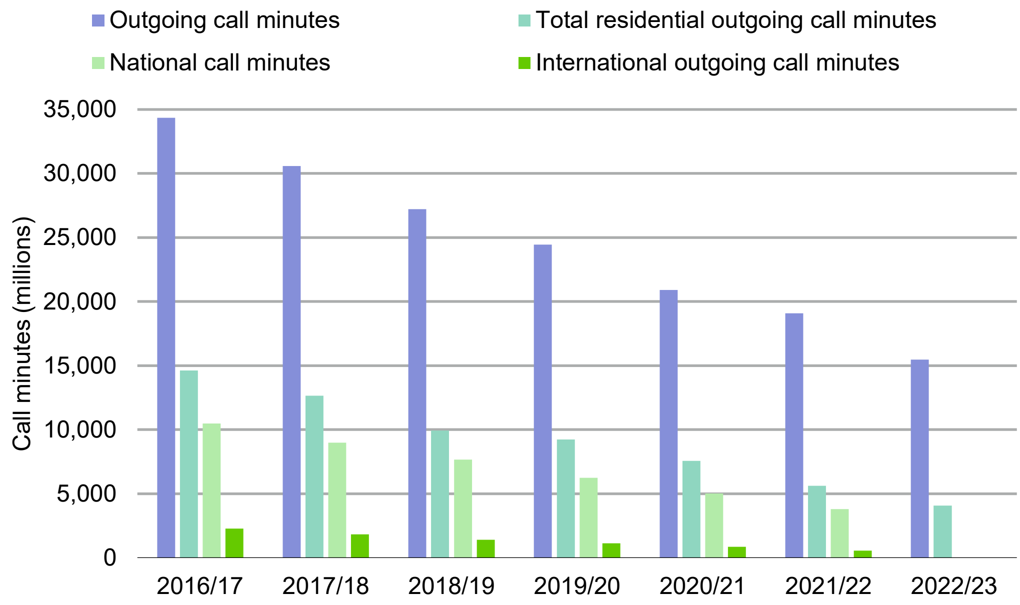

Exhibit 1: *Fixed network traffic, 2016 to 2023 [Source: Commerce Commission]*

Meanwhile over the same period total mobile traffic has continued to increase (Exhibit 2). By 2022/23 the volume of mobile voice traffic (prepaid and postpaid voice minutes) was around five times higher than outgoing fixed call traffic. We note that over this period mobile to fixed traffic has exhibited a downward trend as more people rely on mobile devices and fixed subscriptions decrease.

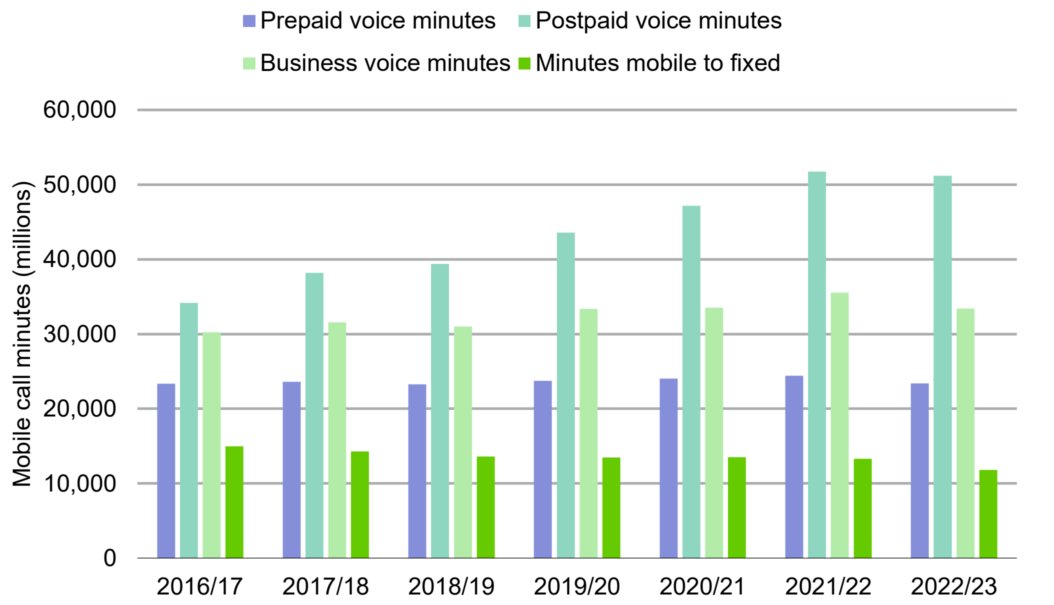

Exhibit 2: *Mobile traffic, 2016 to 2023 [Source: Commerce Commission]*

Market trends clearly show waning subscriptions to and usage of traditional copper-based (POTS) PSTN services for voice calls. Since the Commission's 2021 review uptake of fibre broadband services has increased further, from 1.04 million in 2020/21 to 1.30 million in 2022/2023 (Exhibit 3). The uptake of wireless broadband services has also increased, from 277,000 services in 2020/21 to 378,000 services in 2022/2023. Meanwhile copper broadband subscriptions have almost halved over the same period – from 309,000 to 167,000. As at 31 March 2025 Chorus reported that 107,000 copper lines remained nationwide[10].

10 Chorus (2025), *Q3 FY25 Connections update*, 15 April 2025.

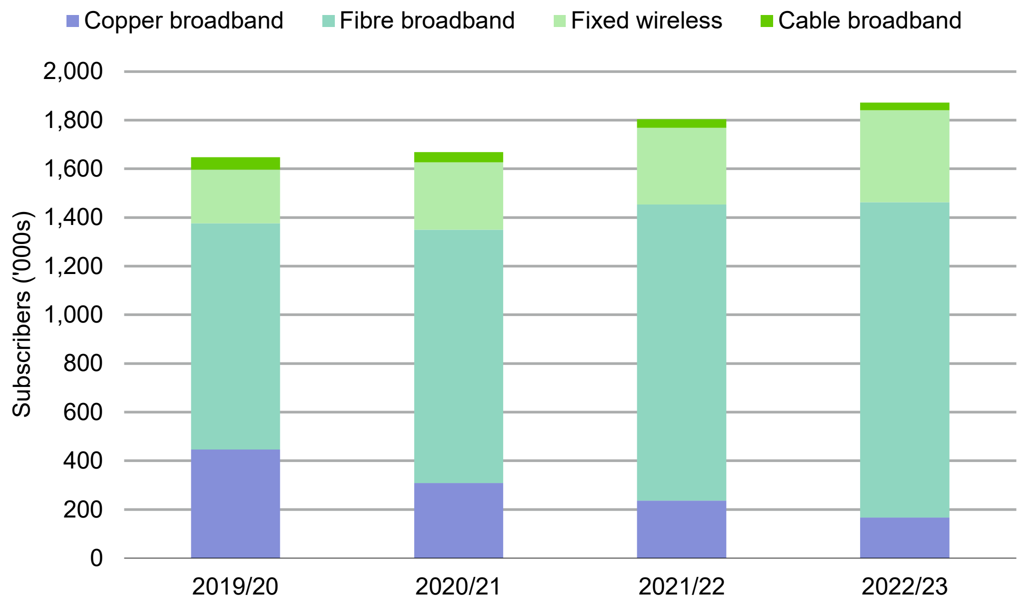

Exhibit 3: *Broadband subscribers by technology, 2019 to 2023 [Source: Commerce Commission]*

In 2017 Spark announced that it intended to gradually retire the legacy PSTN network, replacing it with an IP voice network[11]. Spark noted that by early 2016 voice minutes on mobile, fibre, and wireless broadband had overtaken PSTN traffic, and that copper PSTN calls represented less than half of the total voice traffic on the Spark network[12].

Spark recently stated that the number of customers connected to its fixed PSTN decreased from 1 million in 2017 to 77,000 at the end of the 2024 financial year[13]. Spark also noted that on average around 3,200 customer lines migrate off the PSTN every month, and that it had decommissioned almost 65% of legacy PSTN switches.

More detailed information illustrates the significant and ongoing decline in Spark's voice connections in recent years. By the end of the first half of the 2025 financial year less than

11 Spark (2017), *Introducing the Converged Communications Network*, 19 April 2017.

12 *Ibid*, page 5.

13 Spark (2024), *Spark Annual Report FY24*, 23 August 2024, page 45.

50,000 Plain Old Telephone Service (POTS) and ISDN connections remained (Exhibit 4). Note that Spark reported a similar number of VoIP connections remaining in 2025.

Spark confirmed that as at 31 May 2025 only 39,935 legacy PSTN connections remained active.

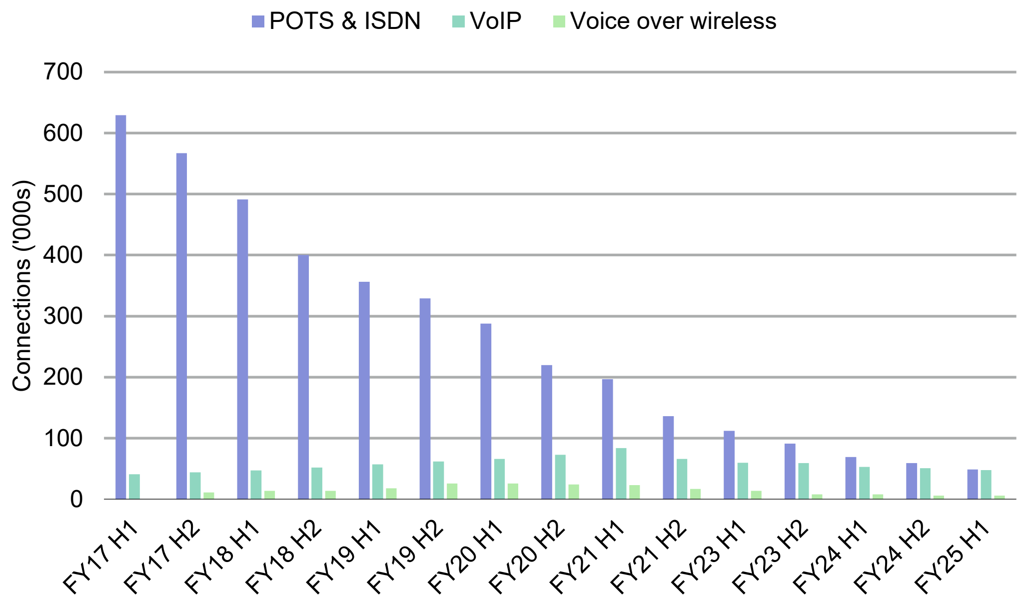

Exhibit 4: *Number of Spark voice connections, 2017 to 2025 [Source: Spark]*

Nevertheless Spark has previously acknowledged challenges finding alternatives for the legacy fixed PSTN service for some customers.

> Spark is taking an area-by-area approach to our PSTN shut down programme, focusing on areas where the vast majority of customers have access to alternative technologies, such as fibre and wireless. In cases where customers have no alternative, we are working with them on a case-by-case basis to ensure they stay connected.[14]

In practice, while Spark has migrated many customers to wireless solutions, a small number of customers without this option remain on copper connections. Spark advises that it has

14 Spark (2023), *Annual Report 2023*, 18 August 2023, page 41.

deployed a limited number of Multi Service Access Nodes (MSANs) for this small residual, retiring its PSTN switches. In a related development Government has recently amended the Telecommunications Service Obligation (TSO), enabling Chorus to withdraw legacy Customer Multi Access Radio (CMAR) lines[15]. For this task Chorus assisted customers to migrate to alternatives, including a satellite option.

3 Industry perspective

We engaged with key stakeholders to gain an understanding of current industry views, including whether there is dissatisfaction with the PSTN origination and termination service. A list of the parties that responded to our invitation to discuss viewpoints is provided in Annex A. Below we summarise responses, and (where applicable) compare current views with previous submissions on the issue.

3.1 Spark

Although Spark did not oppose retention of the fixed PSTN interconnection service in Schedule 1 in 2016, it did raise concerns as to whether the regulated service was necessary. In particular, Spark noted[16]:

- incentives on parties to withhold interconnection services or materially increase the price of interconnection are low
- the interconnect market is highly fragmented with a number of voice service providers in the market so that in practice it is not possible to refuse to interconnect or inefficiently differentiate as otherwise calls simply come through another interconnected provider
- given the market structure it is unlikely than any one player wields market power.

15 Ministry of Business, Innovation and Employment (2024), *Deed of variation*, 18 December 2024. Available at: https://www.mbie.govt.nz/dmsdocument/30519-deed-of-variation-chorus-limited-and-chorus-new-zealand

16 Spark New Zealand (2016), *Review of Designated and Specified Services under Schedule 1 of the Telecommunications Act 2001: draft decision*, 23 May 2016.

In 2021 Spark again expressed doubts that regulation was still required on the basis that in practice, operators have incentives that are likely to make a regulatory backstop redundant[17]. Spark cited the ability of operators to interconnect indirectly through other carriers as removing the possibility of price discrimination. Spark indicated that the regulatory backstop purpose is insufficient as a basis for retaining unused regulated services in Schedule 1, and that the costs of this approach may outweigh the benefits.

In 2025 Spark has commercial contracts with six other carriers for fixed PSTN interconnection. This would appear to indicate a declining customer base for the fixed interconnection service as we note that in its 2016 submission to the Commerce Commission Spark stated that it exchanged traffic with 'around a dozen non-international interconnect parties, while there are 80 or more retail service providers in the market today'[18]. It does not have any WISPs as fixed PSTN interconnection customers. Sparks admits that the fixed PSTN interconnection service continues to become less relevant in its own service portfolio, and has observed a declining trend in fixed PSTN termination traffic volumes consistent with the overall decrease in fixed line traffic over time

Spark reported no commercial issues with interconnection as it is motivated to terminate its own traffic on respective networks. It is not aware of any significant differentiation of interconnect charges across carriers, and believes that reciprocal rates apply. While Spark could in theory attempt to increase interconnect prices, with reciprocal rates and the ease of transit through other carriers, there is little incentive to do so. Note that Spark is unaware if traffic is transited through another network provider.

As regards the origination service, a limited number of operators offer a toll-free service and this forms part of the interconnection contract with those operators. Thus 0800 remains a live service. However, note that Spark is now grandfathering the legacy POTS lines and recently grandfathered the 900 service.

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17 Spark New Zealand (2021), *Review of Services in Schedule 1 of the Telecommunications Act 2001*, 24 March 2021.

18 Spark New Zealand (2016), *Review of Designated and Specified Services under Schedule 1 of the Telecommunications Act 2001: draft decision*, 23 May 2016, page 7.

3.2 One NZ

In 2016 One NZ (then known as Vodafone New Zealand) agreed with the Commission's draft position on fixed PSTN interconnection[19] – namely that it is inherently a bottleneck service and that retaining it in Schedule 1 provides an important backstop to commercial negotiation. It also noted that fixed interconnection commercial agreements broadly reflect the original bilateral Determinations from 2002. One NZ did not make any submission in relation to the 2021 review.

In 2025 One NZ does not regard interconnection with a fixed PSTN as an important issue. As One NZ does not place any reliance on provisions for regulation of this service, its view is that continued regulation is not necessary. One NZ does not believe that the service has any actual utility in the current market. The main driver for this is the shift to VoIP which renders origination and termination charges irrelevant for the vast bulk of calling traffic. According to One NZ in the current market context no party has an incentive to increase charges: traffic patterns are far more symmetric across major networks than previously and as such this is unlikely to be a viable commercial strategy. Moreover, given the small and reducing revenues involved there would not be an incentive to adopt such a strategy.

Thus One NZ's position is that there are reasonable grounds for investigating whether interconnection with a fixed PSTN should be omitted from Schedule 1 of the Act.

3.3 2degrees

In 2016 2degrees supported retention of the fixed PSTN interconnection service in Schedule 1[20]. The main reasons were:

- lack of substitutes as a result of:
  - limited coverage

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19 Vodafone New Zealand (2016), *Review of designated and specified services under Schedule 1 of the Telecommunications Act 2001, submission on draft decision*, 23 May 2016.

20 2degrees (2016), *Review of Designated & Specified Services under Schedule 1 of the Telecommunications Act 2001: 2degrees' Response to the Commerce Commission*, May 2016.

  - cost, as in some cases substitute products require investment in new customer equipment so a significant proportion of 2degrees' fixed line customers are likely to continue to rely on existing products in the short term.
- regulation is needed as an incentive to reach commercial solutions while removal may lead to price rises as well as challenges migrating to Chorus.

2degrees' conclusion at that time was that market power exists and as such regulation should not be removed. It did acknowledge that longer term trends may be important with the development of technology and emergence of substitutes.

In the 2021 submission 2degrees agreed with the Commission that fixed PSTN interconnection remains an important service in parts of the country and should remain in Schedule 1[21].

In 2025 2degrees noted that the importance of the fixed PSTN has decreased with the development of alternative technologies. 2degrees has commercial interconnection agreements and does not have outstanding issues with wholesale fixed PSTN services.

3.4 Nova

In 2021 Nova submitted on the Commission's Schedule 1 review[22], agreeing with the Commission's draft position on the PSTN fixed interconnection service. Particular points of agreement included lack of available substitutes, the need for backstop regulation and the use of the original Commission determination as a reference point for commercial negotiations.

In 2025 Nova acknowledges that the PSTN environment has changed significantly since the introduction of fibre. The market is now seen as increasingly competitive with more players as a result of migration from POTS to IP for landlines. As such Nova anticipates that continued PSTN regulation may be out of step with the new IP architecture and therefore

21 2degrees (2021), *Commerce Commission review of services in Schedule 1 of the Telecommunications Act 2001*, 24 March 2021.

22 Nova Energy (2021), *Nova Energy Submission to the Commerce Commission review of services in Schedule 1 of the Telecommunications Act 2001*, 24 March 2021.

obsolete. Nevertheless Nova expressed concern about the potential access and pricing impact of deregulation on certain market segments – namely, those customer groups which continue to rely on traditional landline voice calling. In particular:

- the risk of an increased wholesale rate for call termination
- the absence of substitutes for off-net call termination which may constrain smaller networks supplying voice services from competing with larger networks.

Note that Nova offers VoIP and mobile retail services, and has retail customers making calls to fixed PSTN connections. As such, the PSTN termination service is directly relevant for Nova's business.

As Nova also continues to use 0800 numbers which receive calls originating from fixed PSTN numbers, the PSTN origination service is also of concern. While Nova is aware of claims that PSTN call origination prices are "broadly anchored" to the 2002 Determination, it has no visibility of either the Determination or service providers' underlying TSLRIC for this service. Furthermore, Nova noted that currently prices for landline calls to 0800 numbers are lower than mobile calls to 0800 numbers. Thus Nova fears that deregulation of PSTN interconnection could lead to increased prices for receiving 0800 calls from fixed PSTN numbers.

Nova queried whether calls to 0800 that originate from a mobile or a VoIP number (as opposed to originating from a traditional copper-based landline) are captured by the existing regulation. It noted that there are differences in charging rates for mobile to 0800 and landline to 0800 calls.

Given the above considerations it is likely that Nova would oppose deregulating the PSTN interconnection service.

3.5 Smaller ISPs

In general members of the Wireless Internet Service Providers Association (WISPA) utilise VoIP services, with voice wholesalers handling interconnection. As such WISPs have no direct involvement in PSTN interconnection services, and so have not experienced any competition or discriminatory behaviour.

The view of the Internet Service Providers' Association of New Zealand (ISPANZ) is that the fixed PSTN interconnection service should remain in Section 1 of the Act and that there are no reasonable grounds for an investigation.

The main reasons are:

- there may be unintended consequences if the service becomes unregulated
- there is no cost in maintaining the regulatory *status quo*
- as fewer people are connected to the PSTN the cost of providing PSTN interconnection will increase and at that stage regulatory intervention may be required
- there is a long tail of end-users relying on landlines.

At the same time, no ISPANZ members have complained about discriminatory practices or any commercial difficulties in relation to a PSTN fixed interconnection service. Hence there is no evidence of dissatisfaction or discriminatory / competitive problems from this market segment.

3.6 Symbio

Telecom New Zealand International (TNZI) was acquired by Symbio in 2015. Symbio is a Tier 1 carrier servicing the domestic wholesale market in New Zealand, Australia, Singapore and Malaysia. With an IP-based network, the company offers high-quality voice services, but it has no retail customers or mobile network. It has interconnection arrangements with all New Zealand fixed and mobile operators in order to support inbound and outbound calling to fixed (geographic), VoIP, mobile, toll free and international numbers.

Symbio is a price taker for PSTN interconnection services in New Zealand, and notes that, as it does not have a mobile network, its interconnection traffic is not balanced under a bill and keep regime. For Symbio PSTN interconnection is still relevant and usage of the service is relatively stable at present as it experiences ongoing fixed line calling demand from the business customer segment (such as Government and enterprise). It anticipates that there will be a very long tail in the decline of fixed PSTN volumes.

Symbio also provides 0800 numbers in New Zealand, and therefore has interconnection agreements to support this.

In Symbio's view network operators continue to have monopoly power over originating and terminating voice calls from and to their own subscribers, with no real substitutes for fixed voice interconnection services.

Given Symbio's concerns, it appears unlikely that Symbio would favour deregulation, although it did not report any current competition problems.

3.7 TUANZ

The Technology Users Association of New Zealand (TUANZ) expressed the same view as some of the smaller ISPs – namely that there should be no change because the current regulatory settings work well.

3.8 TCF

The Telecommunications Carriers' Forum (TCF) was unaware of any commercial, competition or other regulatory issues involving the PSTN fixed interconnection service. However, it was noted that the service is largely irrelevant in the current market and technological context.

3.9 Summary

While industry opinion is divided over whether the service should be retained in Schedule 1 of the Act, no current dissatisfaction was evident in respect to either the fixed PSTN origination or termination service. None of the industry players consulted during this research reported any competition or discriminatory issues with the supply of either service.

As such, currently the market appears to be functioning efficiently with many interconnection agreements and resellers offering alternative supply options.

Those in favour of retaining the *status quo* indicated that the fact that the service is in Schedule 1 may explain the lack of current dissatisfaction or competition issues. Those supporting removal of the service from regulation emphasised its irrelevance in today's market and a lack of incentives or scope for any one operator to behave anti-competitively, even in the absence of a Schedule 1 regulatory backstop.

4 Risk analysis

The omission of the fixed PSTN origination and termination services from Schedule 1 may potentially involve some risk, although it is unlikely that the consequences for competition will be significant. There appear to be three main risks:

- an adverse change in terms and conditions of the service
- no readily available regulatory backstop
- the disappearance of the reference point provided by the 2002 Determination.

Potential risk 1: Wholesale providers change fixed PSTN interconnection terms and conditions to the detriment of end-users

The nature of fixed PSTN interconnection service has not changed over time – that is, it remains a bottleneck service, and therefore, in theory, any operator terminating traffic on a fixed PSTN has market power. As such it is conceivable that deregulation of the service may lead to increases in wholesale prices, particularly as the service volumes have been declining sharply in recent years.

The possible implications of increased wholesale prices include:

- deterring new market entry
- increased retail prices

- smaller service providers exit the market if larger operators are able to offer end-users lower prices or end-users are discouraged from switching to smaller providers
- reduction in competition.

However, while the nature of the fixed PSTN interconnection service remains the same as it was when the Act was passed in 2001, the communications market has transformed over the last 24 years. The fixed PSTN now serves a relatively small segment of the population, while the majority of end-users rely on other services. Spark's legacy POTS PSTN has reached end-of-life and the decommissioning exercise continues. Spark has also noted declining VoIP numbers on its network. Consequently, on balance, the risk to competition of increased wholesale PSTN interconnection charges (or other anti-competitive behaviour such as refusal to supply and / or price discrimination) is likely to be low. Nevertheless, in the short-term some market segments are still using the service and therefore the risk related to increased prices is not zero.

The Commission has previously expressed concerns that no indirect constraint exists at the retail level when the termination charge is a relatively minor component of the total retail charge. However, as fixed traffic volumes continue to decline, in theory an operator with Significant Market Power (SMP) could justify a large change in the termination rate to cover costs and obtain a reasonable rate of return, which may be then passed through to the retail market. It should be noted that often fixed line business customers are charged for calls on a per minute basis[23] in contrast to the bundled pricing deals which are commonplace for residential customers. Thus business segments of the retail market may be more vulnerable to increased fixed termination charges than residential.

The quantum of the price change may drive the end-user to seek substitutes. In this scenario, the SMP operator is likely to be constrained by the threat of end-users switching to other technologies, and would find it difficult to identify sub-groups of end-users which would not have access to alternatives, particularly with the ubiquity of other options such as Over-The-Top (OTT) and low earth orbit (LEO) satellite solutions.

23 See, for example, https://business.nownz.co.nz/help-and-guides/telephony/national-calling-rates.

In summary we have not identified any compelling incentives for the exercise of market power in today's PSTN interconnection market to the detriment of the end-user and we consider that there are potential constraints on anti-competitive behaviour.

Potential risk 2: lack of a regulatory backstop

Retaining the PSTN interconnection service in Schedule 1 provides a regulatory backstop, should commercial negotiations fail. In the absence of potential regulatory intervention, it is possible that anti-competitive behaviour could lead to increased transactions costs for negotiating parties and / or service disruption for end-users.

Again, on balance the probability of this type of behaviour emerging is likely to be low, given the relatively minor importance now of this service to both access providers and access seekers.

Another factor which mitigates the risk of anti-competitive practices emerging is potential recourse to the general competition provisions of the Commerce Act 1986.

Potential risk 3: Disappearance of regulatory reference point

In past submissions, some stakeholders indicated that the original bilateral Commission Determination from 2002 provides a regulatory reference point, although it is long expired. If this is the case then removal of the service from Schedule 1 could possibly lead to a lack of certainty regarding terms and conditions. However, in the course of this study the extent to which stakeholders rely on this Determination was unclear – indeed, some noted that it was largely irrelevant today.

It should be noted that not all stakeholders appeared to be certain of the exact terms and conditions encompassed in the 2002 Determination. Furthermore, it appears that charges for the fixed origination service (0800 calls) may not be uniform across access seekers. With the information available to us it is not possible to draw any conclusion on whether price discrimination is occurring, however it is certainly feasible that price discrepancies may be the result of commercially negotiated volume discounts. We conclude that the 2002 Determination is now less relevant as a commercial reference point than in previous years.

5 Experience in comparable countries

5.1 Australia

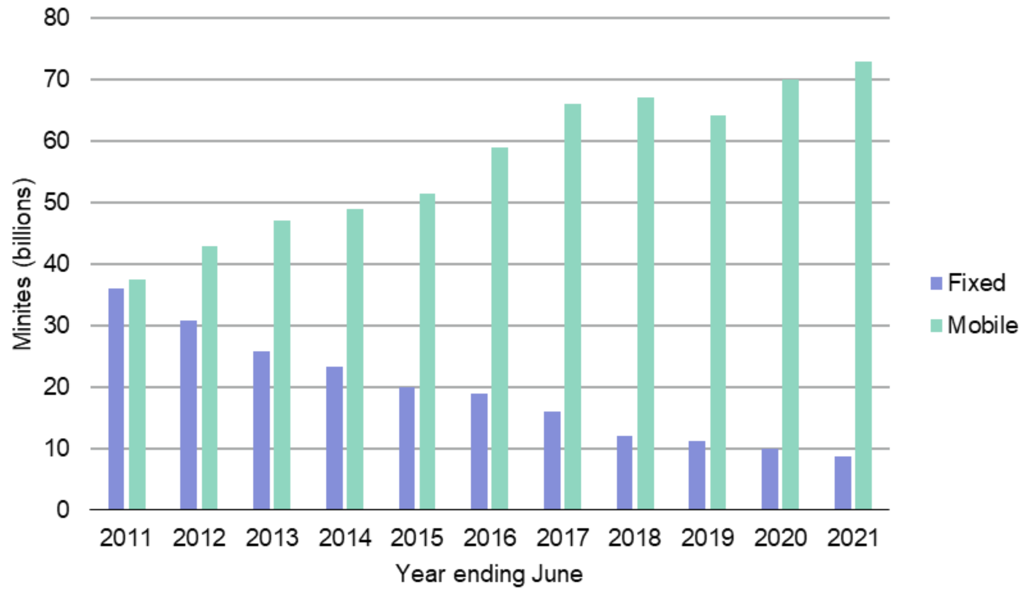
Declaration of fixed origination and termination

After a consultation process on the declaration of the domestic transmission capacity service and fixed line services, the ACCC decided to extend the declaration period of fixed origination and termination for a further five years.[24] The previous access determinations were due to expire on 30 June 2024, however in April 2025 the ACCC extended the expiry date of these determinations until new access determinations come into force.[25]

As in other markets, the volume of fixed call minutes in Australia has declined, with most voice traffic being carried by mobile networks (Exhibit 5).

24 Australian Competition and Consumer Commission (2024), *Public inquiry into the declaration of the domestic transmission capacity service and fixed line services*, final report, March 2024.

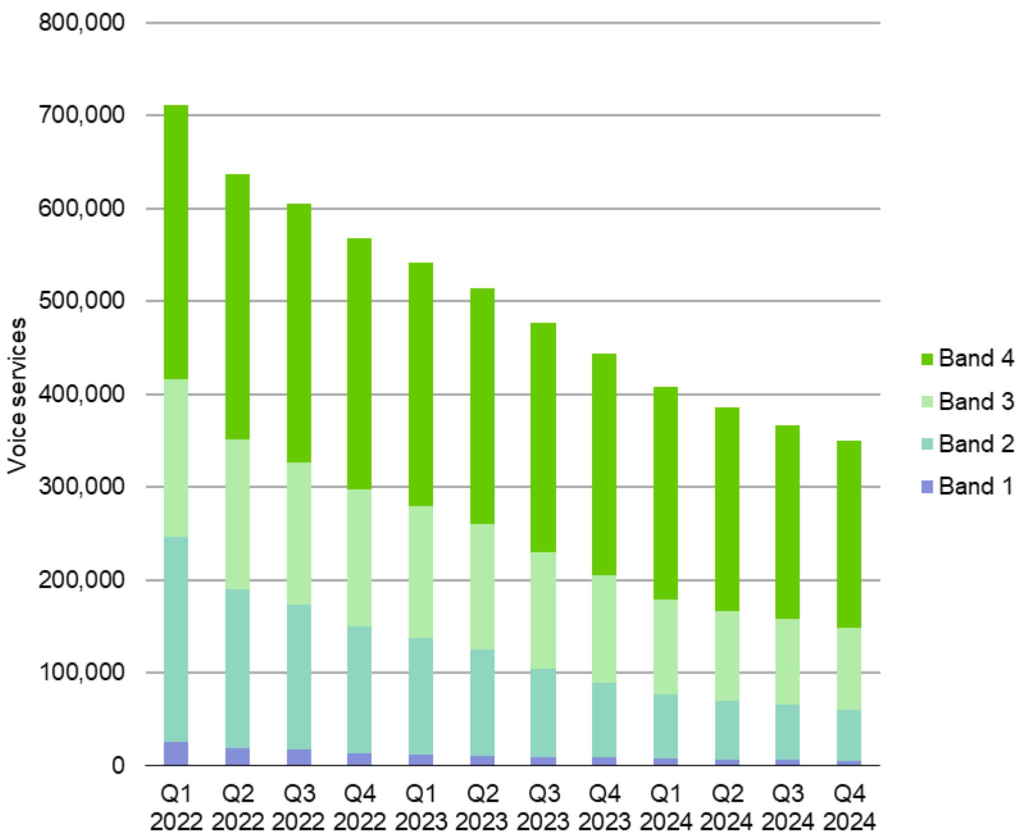
25 Australian Competition and Consumer Commission (2025), *Public inquiry on the access determinations for the voice interconnection services: position and consultation paper*, April 2025, page 3.



Note: The ACCC ceased collecting data on fixed call minutes in 2021.

Exhibit 5: *Fixed and mobile call minutes, 2011 to 2021, Australia [Source: ACCC]*

While the number of voice services in urban areas (Bands 1 and 2) has decreased by more than 80% over the period from 2022 to 2024 (Exhibit 6), a more modest decline of 34% has been experienced in rural and remote areas (Band 4).



Band 1 – CBD areas of Sydney, Melbourne, Brisbane, Adelaide and Perth.

Band 2 – urban areas of capital cities, metropolitan regions and large provincial centres.

Band 3 – semi-urban areas including outer metropolitan and smaller provincial towns.

Band 4 – rural and remote areas.

Exhibit 6: *Telstra voice services, 2022 to 2024 [Source: ACCC]*

In its 2023 submission Telstra noted that the likely reason for this more gradual decline in rural and remote areas is due to NBN satellite or fixed wireless being the only alternatives for almost all voice customers – in other words, there is no fixed line alternative.

> The extent to which Telstra's legacy network will continue to be used to provide voice services outside the NBN fixed line footprint is also unclear but it is important to recognise that it is approaching end of life and alternative connectivity options which offer better end user experiences are becoming increasingly available. While we support the migration of customers to these alternative options, we recognise there is a case – in the context of

> ensuring continuity and stability of services in regional Australia – to maintain the declaration of the fixed line services at the present time.[26]

The ACCC noted that all submissions to the consultation supported continuation of the declarations of fixed origination and termination.

In the ACCC's view, three markets were relevant for the provision of fixed voice interconnection:

- wholesale fixed voice interconnection markets
- retail market for fixed voice services
- retail mobile services market.

The ACCC concluded that there were no effective substitutes to fixed voice termination, although Telstra noted that calls to special (non-geographic) numbers use an alternative service – Inbound Originating Access – rather than fixed origination.

In regard to the retail markets for fixed and mobile, the ACCC observed that the use of fixed voice was declining, with consumers in urban areas viewing mobile services as a substitute. However fixed voice services remained important for consumers in regional and remote areas where mobile coverage is more limited, as well as for some customer segments, such as older consumers and businesses for which a geographic number is important. In considering the impact on competition in the retail markets and the long-term benefit for end-users:

> …network effects mean that a network owner with a large number of fixed voice services has the ability and incentive to exercise market power by raising the price of termination on its network to any network owner that has a smaller number of customers. The exercise of such power would likely cause competitive harm and result in higher costs being passed on

26 Telstra Group Limited (2023), *Submission to the Public Inquiry into the declaration of the domestic transmission capacity services, fixed line services and domestic mobile terminating access service Discussion Paper*, public version, July 2023.

> to end-users. Additional competitive harm could also arise from end-users switching to the larger provider to avoid the costs.[27]

The ACCC concluded that:

> … extending the declaration of fixed originating access service and fixed terminating access service is not likely to promote competition in wholesale fixed voice interconnection markets.
>
> However, by ensuring access to fixed interconnection services will remain available to access seekers on efficient terms, declaring the fixed voice interconnection services (as varied) is likely to promote competition in the retail market for fixed voice services and retail market for mobile services.[28]

Service definition

Some stakeholders suggested that the service definitions of fixed origination and termination be updated to reference a new SIP interconnection guideline issued by the Communications Alliance, the Australian communications industry association.[29] Telstra did not support this variation, stating that the existing definitions remained fit-for-purpose, and noting that requiring SIP interconnection would increase costs for some services on the PSTN. Telstra suggested that if service definitions were to be varied they should be technology-neutral.

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27 Australian Competition and Consumer Commission (2024), *Public inquiry into the declaration of the domestic transmission capacity service and fixed line services*, final report, March 2024, page 42.

28 Australian Competition and Consumer Commission (2024), *Public inquiry into the declaration of the domestic transmission capacity service and fixed line services*, final report, March 2024, page 42.

29 Communications Alliance (2023), *Session Initiation Protocol (SIP) Interconnection*, industry guideline G672:2023, December 2023.

In its final decision the ACCC amended the service description "to be expressly technology neutral in relation to interconnection protocols, except for pre-selection and override services".[30]

Price regulation

The Australian Competition and Consumer Commission (ACCC) is currently conducting a public inquiry into the three voice interconnection services: namely, fixed origination, fixed termination and mobile termination.

A final report on voice interconnection services is expected to be issued in late 2025.

In a 2024 discussion paper[31], the ACCC outlined several potential approaches for price regulation of voice interconnection services:

- cost-based pricing methodologies including:
  - cost modelling
  - international benchmarking
- rollover or adjustment of current prices
- bill and keep or zero nominal price.

Bill and keep or zero nominal price was strongly opposed by industry stakeholders – reasons given included:

- it would undermine the financial incentives for carriers to invest in scam detection technologies and scam activity may increase with a zero price
- it would result in inefficient outcomes due to traffic imbalances between network operators

30 Australian Competition and Consumer Commission (2024), *Public inquiry into the declaration of the domestic transmission capacity service and fixed line services*, final report, March 2024, page 48.

31 Australian Competition and Consumer Commission (2024), *Public inquiry on the access determinations for the voice interconnection services*: Discussion paper, July 2024.

- network operators face costs in providing these services and those costs need to be recovered
- such an arrangement will distort competition and discourage efficient investment.[32]

There was mixed stakeholder support for rollover or adjustment of current prices, but differing views on whether prices should remain stable, increase or decrease. The ACCC's view was that rollover of current prices was inappropriate due to major changes in the market environment over the period since the current prices were determined. Current prices for fixed origination and termination were set in 2015, based on the costs of Telstra's copper network, and thus it is expected that newly estimated cost-based prices will be significantly different. In relation to adjusting current prices, the ACCC felt that a cost-based pricing exercise would be warranted in order to provide robust evidence to support any adjustment, particularly given the divergent views of stakeholders.

Cost-based approaches had some support from industry stakeholders, however concerns were expressed regarding the costs and complexity of the exercise, together with the potentially limited effect on downstream markets.

After considering stakeholder views, the ACCC stated that it will develop a cost model to be based on a TSLRIC+ methodology. In its view, cost-based pricing is the most appropriate approach. The ACCC notes that international benchmarking may no longer be feasible, given the harmonisation of European Union-wide maximum fixed and mobile termination rates, which reduces the potential sample of jurisdictions for benchmarking purposes.

The ACCC's cost model will encompass both all three voice interconnection services. It will be based on a hypothetically efficient operator with a 4G/5G network. The core network assets from this model will be used to estimate the cost of fixed origination and termination.

32 Australian Competition and Consumer Commission (2025), *Public inquiry on the access determinations for the voice interconnection services: position and consultation paper*, April 2025, page 17.

Non-price obligations

The current access determinations include a number of non-price terms and conditions relating to:

- billing and notifications
- creditworthiness and security
- general dispute resolution procedures
- confidentiality
- suspension and termination
- liability and indemnity
- communications with end-users
- network modernisation and upgrade
- changes to operating manual
- recourse to regulated terms.

Stakeholder responses to a 2024 discussion paper supported retaining these terms in the final access determination. The preliminary view of the ACCC is that the current non-price terms and conditions will be maintained.[33]

However stakeholders did not support inclusion of non-price terms relating to scams. The ACCC's preliminary view is that these should be addressed through existing or newly developed scam-related regulations rather than an access determination.[34]

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33 *Ibid*, section 6.1.

34 *Ibid*, section 6.3.

5.2 Europe

In 2020 the European Commission (EC) withdrew fixed origination and termination from the list of markets recommended for *ex ante* regulation.[35] Since that time, many of the European national regulatory authorities (NRAs) have deregulated these markets.

Fixed termination

In the view of the EC, the 2020 adoption of a single European Union (EU) wide maximum termination rate[36] removed the risk of excessive prices – considered to be the most serious competition issue in the termination market. Furthermore, the EC believes that the risk of non-price related anti-competitive practices – such as systematically refusing access or interconnection, or imposing discriminatory and non-transparent conditions – is low, given the threat of re-regulation and *ex post* competition law.[37]

With the introduction of the maximum termination rate NRAs no longer have the power to set termination rates independently, however NRAs may still impose other regulatory obligations if considered necessary.

> The Commission further clarified that wholesale call termination markets can still be regulated, if justified. For such regulation to be warranted, NRAs must provide evidence of threat to competition in the absence of regulation. Such evidence … could comprise e.g. complaints from operators, dispute resolutions or other enforcement actions related to interconnection, or attempts by operators to circumvent existing regulation. In such cases,

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35 European Commission (2020), *Commission Recommendation of 18.12.2020 on relevant product and service markets within the electronic communications sector susceptible to ex ante regulation in accordance with Directive (EU) 2018/1972 of the European Parliament and of the Council of 11 December 2018 establishing the European Electronic Communications Code*, 18 December 2020.

36 European Commission (2020), *Commission Delegated Regulation (EU) 2021/654 of 18 December 2020 supplementing Directive (EU) 2018/1972 of the European Parliament and of the Council by setting a single maximum Union-wide mobile voice termination rate and a single maximum Union-wide fixed voice termination rate*, Official Journal of the European Union, 22 April 2021.

37 European Commission (2020), *Commission Recommendation on relevant product and service markets within the electronic communications sector susceptible to ex ante regulation in accordance with Directive (EU) 2018/1972 of the European Parliament and of the Council of 11 December 2018 establishing the European Electronic Communications Code*, Commission Staff Working Document Explanatory Note, 18 December 2020, page 8.

termination markets could remain regulated – beyond price control – if the three-criteria test is satisfied. The Commission emphasized that this may be particularly relevant for the period immediately following the introduction of the Delegated Regulation.[38]

The three-criteria test[39] requires each of the following to be satisfied:

- high and non-transitory structural, legal or regulatory barriers to entry are present
- there is a market structure which does not tend towards effective competition within the relevant time horizon, having regard to the state of infrastructure-based competition and other sources of competition behind the barriers to entry
- competition law alone is insufficient to adequately address the identified market failures.

Since 2020, market reviews conducted by a number of NRAs found that imposing *ex ante* regulation for fixed termination was unnecessary. Consequently, the markets have been deregulated in Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Germany, Ireland, Romania, Slovakia, Slovenia and Spain.

However the NRAs in three countries – Italy, Latvia and the Netherlands – determined that *ex ante* regulation was still required. In each case, the EC recommended that the NRAs reconsider the need for regulation prior to the end of the market review cycles.

Italy In a 2021 market review[40], the Italian regulator, Autorità per le garanzie nelle comunicazioni (AGCOM), determined that fixed termination satisfied the three-criteria test, and as such *ex ante* regulation would still be required.

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38 European Commission (2024), *Case SE/2024/2555: Wholesale call termination on individual public telephone networks provided at a fixed location in Sweden*, 17 December 2024, page 8.

39 European Commission (2020), *Commission Recommendation on relevant product and service markets within the electronic communications sector susceptible to ex ante regulation in accordance with Directive (EU) 2018/1972 of the European Parliament and of the Council of 11 December 2018 establishing the European Electronic Communications Code*, Commission Staff Working Document Explanatory Note, 18 December 2020, footnote 16.

40 European Commission (2021), *Case IT/2021/2352: market of wholesale voice call origination on the public telephone network provided at a fixed location and market of voice call termination on individual public telephone networks provided at a fixed location in Italy*, 17 December 2021.

While AGCOM acknowledged that the single EU-wide termination rate could solve relevant issues within the termination market, the specific characteristics of the Italian market were such that non-price related anti-competitive behaviour could still occur. At that time, the market comprised the largest operator (TIM) with market share of 45%, plus another three operators (each of a similar size) and a number of much smaller operators. AGCOM noted that there had been cases of delayed IP interconnection, requiring AGCOM intervention and that it was possible for technical discrimination to occur, whereby the terminating operator could refuse to interconnect with some originating operators. Other potential problems were associated with excessive rates on services ancillary to termination.

AGCOM considered that given the large number of operators and the possible high number of issues, competition law alone would not be able to obtain prompt resolution of potential anti-competitive behaviour and address market failure.

Latvia

The Latvian regulator, Sabiedrisko Pakalpojumu Regulēšanas Komisija (SPRK), found that SIA Tet – the largest operator – had a dominant position within the market and could potentially prevent or delay the entry of alternative operators. There was also a large number of small operators. Over the three years from 2019 to 2021 SIA Tet had 50-70% share of termination revenue. SPRK also considered that competition law alone would not provide a sufficient remedy to address instances of market failure.[41]

Thus the market for fixed termination was declared subject to *ex ante* regulation, and 36 operators (including SIA Tet) were designated as having SMP. The following obligations were imposed upon SIA Tet:

- access

41 European Commission (2022), *Case LV/2022/2410: wholesale call termination on individual public telephone networks provided at a fixed location (M1/2014) in Latvia*, 12 December 2022.

- non-discrimination
- transparency, including publishing a reference offer
- accounting separation
- ancillary service of installation, connection and subscription of an interconnection line to be subject to price controls and cost accounting information.

Obligations for access and transparency were applied to the other 35 SMP operators.

Netherlands

The Netherlands NRA – Autoriteit Consument & Markt (ACM) – found that the conditions of the three-criteria test were met and thus *ex ante* regulation of fixed termination was warranted. This was due to structural characteristics of the local market which enabled certain distortionary practices, including:

- refusal of direct access, where providers restrict access to their networks and require internal transit or partner network access, enabling higher tariffs not capped by the regulated rates
- non-price tactics such as withholding information, delaying access, imposing unfair conditions, quality discrimination, strategic product design, and tying[42], which undermined access obligations
- price-related issues, where providers with exclusive facilities can charge above-cost fees for necessary services, as alternatives are also under their control.[43]

ACM designated all providers of fixed and mobile termination as having SMP and has imposed access and transparency obligations. In

42 Tying requires the access seeker to purchase other services in addition to interconnection.

43 European Commission (2024), *Case NL/2024/2546: Wholesale call termination on individual public telephone networks provided at a fixed location in the Netherlands*, 12 December 2024.

addition, ACM has imposed a tariff obligation on the incumbent operator KPN for the associated facility co-location.

In 2024 the Swedish regulator – Post- och telestyrelsen (PTS) – notified the EC of draft measures in which it proposed to designate fixed operators as having SMP and imposing certain regulatory obligations. However the EC found that PTS did not present 'compelling evidence of potential non-competitive behaviour in wholesale call termination markets' and had doubts that the draft measures were compatible with European Union law.[44] PTS subsequently withdrew its draft measures and is currently reviewing its analysis.[45]

Fixed origination

Similar to fixed termination, many European NRAs have deregulated their markets for fixed origination, however in some instances this occurred prior to the EC's 2020 Recommendation.

In 2015 the Irish regulator, ComReg, defined a wholesale market for fixed access and call origination (FACO) which comprises a fixed access or wholesale line rental component bundled with a fixed call origination component – ComReg noted that in almost all cases the two are sold together as a single product[46]. The incumbent operator, eircom, was designated as SMP and regulatory obligations were imposed, regarding access, non-discrimination, transparency, price control and accounting separation.

The FACO market was split into:

- High-Level FACO (HL-FACO) – fixed narrowband access provided by ISDN fractional primary rate access (FRA) and primary rate access (PRA), with voice call origination

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44 European Commission (2024), *Case SE/2024/2555: Wholesale call termination on individual public telephone networks provided at a fixed location in Sweden*, 17 December 2024.

45 PTS (2025), *Withdrawal of notified draft measures*, 4 February 2025.

46 ComReg (2022), *Retail Access to the Public Telephone Network at a Fixed Location for Residential and Non-Residential Customers: Wholesale Fixed Access and Call Origination*, response to consultation and final decision, Decision D05/22, 19 June 2022, paragraph 1.14.

- Low-Level FACO (LL-FACO) – fixed narrowband access provided by PSTN and ISDN basic rate access (BRA), with voice call origination.

ComReg's latest market review in 2022 found that there was no need to regulate the FACO market as the downstream retail fixed telephony markets were effectively competitive. The FACO market was subsequently deregulated.[47]

Note that continued regulation of the fixed termination market in Italy and Latvia has not affected deregulation of the fixed origination market.

The Italian regulator AGCOM found that the market for fixed origination was competitive and deregulated the market in 2021.[48]

In its 2016 market review, the Latvian regulator SPRK defined the market for call origination as including both fixed and mobile origination, based on functional, demand and supply-side substitutability. SPRK found that this market did not meet the three-criteria test – barriers to entry had been overcome, the market was effectively competitive and competition law would be sufficient to limit potential future distortions – and so the market was deregulated.[49]

In Sweden, PTS defined the relevant market as including both fixed telephony access and call origination. This market was deregulated in 2016, with PTS allowing for a twelve-month transition period for existing contracts.[50]

47 *Ibid*, paragraph 1.50.

48 European Commission (2021), *Case IT/2021/2352: market of wholesale voice call origination on the public telephone network provided at a fixed location and market of voice call termination on individual public telephone networks provided at a fixed location in Italy*, 17 December 2021.

49 European Commission (2016), *Commission Decision concerning Case LV/2016/1872: Wholesale call origination on the public telephone network provided at a fixed location in Latvia*, 29 June 2016.

50 European Commission (2016), *Commission Decision concerning case SE/2016/1925: Access to the public fixed telephone network in Sweden; Commission Decision concerning case SE/2016/1926: Call origination on the public telephone network provided at a fixed location in Sweden*, 22 November 2016.

5.3 United Kingdom

In its most recent review of wholesale voice markets in 2021[51], Ofcom deregulated the market for fixed call origination but continued to impose maximum prices for fixed and mobile termination. The trends observed by Ofcom in this market review have continued, with further declines in PSTN usage.

In 2024 there were just over 18 billion fixed call minutes, representing 22% of call volumes in 2014 (Exhibit 7). Mobile call minutes were 8.8 times that of fixed call minutes and PSTN connections comprised 27% of residential landline connections.[52] 52% of respondents to Ofcom's Technology Tracker 2024 survey stated that they did not have a landline phone[53]. BT's PSTN network and Openreach's wholesale products that deliver PSTN are to be switched off by January 2027[54] and Ofcom anticipates that other providers are planning switch-offs over a similar timescale.[55]

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51 Ofcom (2021), *Wholesale Voice Markets Review 2021-26*, statement, 30 March 2021.

52 Ofcom (2024), *Connected Nations: UK report 2024*, 5 December 2024, page 6.

53 Ofcom (2024), *Technology Tracker 2024 data tables*, July 2024. Available at https://www.ofcom.org.uk/siteassets/resources/documents/research-and-data/data/statistics/2024/technology-tracker/technology-tracker-2024-data-tables.pdf?v=374153.

54 BT Group (2024), *BT Group refines its digital switchover programme for the UK's full fibre future*, media release, 20 May 2024. Available at https://newsroom.bt.com/bt-group-refines-its-digital-switchover-programme-for-the-uks-full-fibre-future/.

55 Ofcom (2024), *Connected Nations: UK report 2024*, 5 December 2024, page 25.

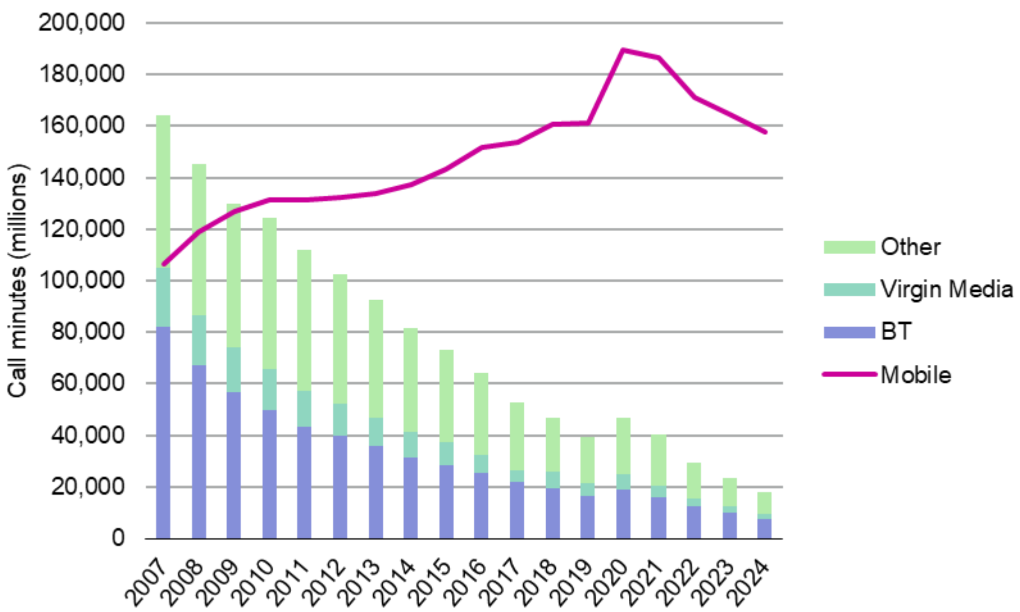

Exhibit 7: *Fixed network and mobile originated minutes, 2007 to 2024, United Kingdom [Source: Ofcom]*

Fixed termination

Similar to regulators within the European Union, Ofcom applies the three-criteria test to determine if a market is to be subject to *ex ante* regulation. Ofcom found that fixed termination satisfied the three-criteria test, as the access provider has a monopoly on the provision of call termination; there is no possibility of substitutes; and the provider has the ability and incentive to charge excessive prices or provide access on unfair or unreasonable terms. Ofcom did not consider that competition law alone would be able to address these concerns in a timely and effective manner.[56] The fixed termination market was subsequently declared to be subject to *ex ante* regulation and providers were designated as having SMP.

Note that Ofcom's definition of the termination market does not include calls terminating on non-geographic numbers. Ofcom noted that the competitive conditions for non-geographic

56 Ofcom (2021), *Wholesale Voice Markets Review 2021-26*, statement, 30 March 2021, paragraphs 5.26 to 5.30.

numbers (in the 08x, 09x and 118 number ranges) differ from termination on geographic numbers.

Ofcom implemented the following remedies for fixed termination:

- a network access obligation on all fixed termination providers
- a charge control on all fixed termination providers (without a price notification obligation) for UK calls that terminate in the UK on UK geographic numbers
- for BT, a requirement not to unduly discriminate, a requirement to publish a Reference Offer and financial reporting obligations
- for calls to UK geographic numbers originating outside the UK, a requirement that the termination rate is no more than the reciprocal geographic termination rate charged by the relevant international telecoms provider for a call originating from the UK provider, or the UK domestic call termination rate, whichever is higher.[57]

In relation to the charge control, Ofcom stated:

> Given the persistent nature of SMP in WCT [wholesale call termination] markets, and the distortions which would be caused by high FTRs [fixed termination rates], a charge control on termination rates is necessary to promote competition in the retail markets. A charge control allows us to intervene in a consistent and timely manner to prevent high prices and provides legal and regulatory certainty for providers that need WCT.
>
> Our view is that a cost-orientated charge control remains the most effective way to minimise the risk of distortions that could be caused by excessive FTRs, and that the LRIC standard remains the appropriate cost standard.[58]

57 *Ibid*, paragraph 6.2.

58 *Ibid*, paragraphs 6.19 to 6.20.

Furthermore, Ofcom believes that the potential for competitive distortionary advantages would be best addressed if all providers with SMP are subject to the same charge control, that is, symmetric termination rates.[59]

Ofcom set the charge control based on the 2020/21 result from its 2017 cost model, with the rate adjusted for inflation. It stated that a new cost modelling exercise was not warranted, given:

- the fixed termination price cap for the period April 2020 to March 2021 was very low, at just 0.0292 pence per minute
- any changes to this rate – even if quite large in percentage terms – would still be very small in absolute terms
- fixed termination comprises a very small proportion of overall industry revenues – it represented less than 0.2% of BT's fixed voice revenues in BT's 2019 Regulatory Financial Statement.
- small changes to the rate are unlikely to have a significant impact, providing the rate remains low.[60]

Fixed origination

Ofcom's definition of the fixed origination market includes voice calls originated over wholesale fixed analogue exchange lines (WFAEL) – which includes lines using WLR, MPF, cable and FTTP with an analogue telephone adaptor (ATA) – together with calls originated over ISDN lines and IP-based voice services provided over broadband access lines.

There are several providers of fixed origination in the UK:

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59 *Ibid*, paragraph 6.21.

60 *Ibid*, paragraphs 6.22 to 6.25.

- BT supplies fixed origination over its Time Division Multiplex (TDM) network to providers that use Openreach's WLR and ISDN products – including BT's retail services, plus those of some other telecoms providers
- Sky and TalkTalk (which both use local loop unbundled services) and Virgin Media (which uses a cable network) generally provide their own fixed origination services.

Ofcom noted that access seekers that previously used PSTN or ISDN in conjunction with fixed origination would be switching to broadband access and IP-based voice services – in which case they would no longer need to purchase fixed origination from the incumbent operator (BT), but will be able to supply their own fixed origination service or purchase this from third parties. Over the regulatory period 2021-26, Ofcom anticipated managed IP voice services would be available from a range of providers.

Ofcom found that fixed origination did not satisfy the three-criteria test, and so the market for fixed origination was deregulated. In particular, Ofcom noted:

- reliance on call origination from BT would be reduced during the regulatory period, with increasing scope for rivals to provide a competitive alternative
- voice services will tend towards effective competition due to structural changes in the market over the regulatory period, with the WLR and ISDN services being discontinued and replacement services being supplied by other providers.[61]

Ofcom decided not to implement any transition arrangements over the period until BT switched off its TDM network, due to the voluntary commitments made by BT.[62] These commitments included:

- fixed origination over WLR and ISDN would continue to be offered to new telecoms providers until September 2023 and to existing telecoms providers until December 2025
- access to fixed origination would be provided on 'fair and reasonable' terms
- a published reference offer would be maintained

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61 Ofcom (2021), *Wholesale Voice Markets Review 2021-26*, statement, 30 March 2021, paragraphs 4.36 to 4.42.

62 *Ibid*, paragraph 4.46.

- fixed origination would be charged on a fair and reasonable basis – that is, terms that do not distort downstream competition by squeezing margins
- the interests of vulnerable end-users would be considered when setting fixed origination prices.

6 Concluding remarks

We could find no evidence of current industry dissatisfaction with the fixed PSTN interconnection service. Representatives of large and smaller industry players were consulted and none reported any competition or discriminatory issues with the supply of this service. However, it was clear that industry opinion is likely to be divided over whether the service should be retained in Schedule 1 of the Act. Some stakeholders expressed concern about ensuring maintenance of current fixed PSTN interconnection terms and conditions for the remaining PSTN customers while acknowledging that this is now a fairly small market segment. In general these stakeholders are in favour of retaining the *status quo* to ensure that the possibility of regulatory intervention continues to exercise a restraining influence on potential anti-competitive behaviour. Others support deregulation of the service, noting its irrelevance in the current market and a lack of incentives or scope for any one operator to behave anti-competitively even without a Schedule 1 regulatory backstop.

In Australia, the declarations of fixed origination and termination have recently been extended for another five years. A key factor was the continued importance of PSTN for customers in rural and remote areas, for whom there are effectively no substitutes. Similarly, in New Zealand Spark acknowledged in 2023 that in a relatively small number of cases customers have no alternative to the legacy PSTN network, requiring case-by-case consideration to ensure ongoing connectivity. However, it should be noted that in 2025 such problematic cases may be solved by other (non-Spark) options, such as access to LEO satellite solutions.

Our European review found that in many countries fixed termination has been deregulated, with the existence of an EU-wide termination rate and the threat of re-regulation being key factors for this decision – a situation that is not relevant for New Zealand. There are however three European jurisdictions – Italy, Latvia and the Netherlands – where termination has not been deregulated, despite the introduction of the EU-wide termination rate . In each of these three countries the structural characteristics of the local markets were such that the NRAs believed that non-price anti-competitive practices could still occur. In the United Kingdom, fixed termination is also still regulated, due to the lack of substitutes as well as opportunities for anti-competitive behaviour by providers with respect to price and access.

Many European countries have also deregulated fixed origination, due to the availability of competitive alternatives. As in New Zealand, the copper-based PSTN network in the United Kingdom is to be switched off. This is scheduled for 2027, just beyond the current regulatory period which ends in 2026. Rather than implementing transitional arrangements until switch-off, Ofcom deregulated the fixed origination market, in consideration of a range of commitments undertaken by BT.

Annex A: Stakeholder consultation

The following organisations were consulted during the study:

- 2degrees
- CountryNet
- Inspire Net Limited
- ISPANZ
- Nova Energy
- One New Zealand
- Spark New Zealand
- Symbio
- TCF
- TUANZ
- WISPA