



# Public inquiry on the access determinations for the voice interconnection services

**Position and consultation paper**

April 2025

## **Acknowledgement of country**

The ACCC acknowledges the traditional owners and custodians of Country throughout Australia and recognises their continuing connection to the land, sea and community. We pay our respects to them and their cultures; and to their Elders past, present and future.

Australian Competition and Consumer Commission

Land of the Ngunnawal people

23 Marcus Clarke Street, Canberra, Australian Capital Territory, 2601

© Commonwealth of Australia 2025

This work is copyright. In addition to any use permitted under the *Copyright Act 1968*, all material contained within this work is provided under a Creative Commons Attribution 4.0 Australia licence, with the exception of:

- the Commonwealth Coat of Arms
- the ACCC and AER logos
- any illustration, diagram, photograph or graphic over which the Australian Competition and Consumer Commission does not hold copyright, but which may be part of or contained within this publication.

The details of the relevant licence conditions are available on the Creative Commons website, as is the full legal code for the CC BY 4.0 AU licence.

Requests and inquiries concerning reproduction and rights should be addressed to the General Manager, Strategic Communications, ACCC, GPO Box 3131, Canberra ACT 2601.

### **Important notice**

The information in this publication is for general guidance only. It does not constitute legal or other professional advice, and should not be relied on as a statement of the law in any jurisdiction. Because it is intended only as a general guide, it may contain generalisations. You should obtain professional advice if you have any specific concern.

The ACCC has made every reasonable effort to provide current and accurate information, but it does not make any guarantees regarding the accuracy, currency or completeness of that information.

Parties who wish to re-publish or otherwise use the information in this publication must check this information for currency and accuracy prior to publication. This should be done prior to each publication edition, as ACCC guidance and relevant transitional legislation frequently change. Any queries parties have should be addressed to the General Manager, Strategic Communications, ACCC, GPO Box 3131, Canberra ACT 2601.

ACCC 04/25

[www.accc.gov.au](http://www.accc.gov.au)

# Contents

Executive Summary .....	3
1. Introduction.....	5
1.1. Consultation process .....	5
1.2. Structure of the paper .....	6
2. Background.....	7
2.1. What are the services? .....	7
3. Legislative framework.....	12
3.1. Factors the ACCC must and may consider .....	13
4. Pricing approach .....	15
4.1. Pricing options set out in the discussion paper .....	15
4.2. Stakeholders divided on preferred pricing option .....	16
4.3. ACCC's position .....	18
5. Proposed model specification .....	23
5.1. Analysys Mason draft model specification .....	23
5.2. Use of information from operators .....	36
6. Non-price terms and conditions.....	38
6.1. Current non-price terms .....	38
6.2. Scam blocking obligations .....	39
6.3. ACCC's preliminary position .....	40
7. Duration.....	42
7.1. ACCC's preliminary position .....	42

# Executive Summary

In 2024, the ACCC decided to extend the declarations of the mobile terminating access service, fixed terminating access service and the fixed originating access service as we were satisfied that doing so would promote the long-term interests of end-users. We are now holding a public inquiry into making access determinations for these services, collectively known as the voice interconnection services.

Access determinations can include both price and non-price terms which can be relied upon in the absence of commercially agreed terms.

The ACCC issued a discussion paper in July 2024 consulting with stakeholders on the overall pricing approach to the voice interconnection services and whether the current non-price terms and conditions are adequate. After considering submissions, we have:

- reached the position that a cost model capable of estimating the costs of the voice interconnection services based on total service long-run incremental costs plus a contribution towards common network and organisational level costs (TSLRIC+) is the most appropriate pricing approach,
- decided to develop a cost model to estimate the costs of the voice interconnection services and are now seeking stakeholder feedback on the model's specification, and
- formed the preliminary view that the existing non-price terms and conditions should be maintained, and that additional term(s) addressing scam issues should not be included.

This position and consultation paper sets out the ACCC's reasons for adopting a cost modelling pricing approach and seeks stakeholder views on matters relevant to the implementation of the cost model. It also sets out the ACCC's preliminary views on non-price terms and conditions of access.

## **Pricing approach**

We identified several potential pricing approaches for stakeholder comment, including cost-based approaches such as cost modelling and international benchmarking, simple adjustments to current prices, rolling over existing prices, and bill and keep.

Unlike the other non-NBN declared services, namely the fixed resale services and the domestic transmission capacity service, we understand that the price terms included in past voice interconnection services access determinations have been heavily relied upon by the industry. This is because in the absence of a regulated price, large incumbent providers such as national mobile network operators and smaller fixed and challenger providers are unlikely to agree on commercial prices for access.

This was reflected in submissions to our discussion paper. While the mobile network operators largely support the rolling over of existing prices, this does not reflect the views of other stakeholders who held divergent views on the appropriate prices for the services.

The ACCC therefore considers that developing a cost model will enable us to transparently assess the efficient cost of providing the voice interconnection services in Australia.

In particular, the fixed terminating and originating services are now provided by multiple fixed voice providers predominantly over the NBN. Decoupling the fixed terminating and originating services from other fixed line services means that that we can now consider the

voice interconnection services holistically and ensure regulatory consistency for similar services that are inputs to services provided in the same downstream markets. Other pricing approaches either risk entrenching existing prices which no longer reflect efficient costs or can be complex or difficult to implement for multiple services in a consistent way.

### **Cost model specification**

Given the ACCC's view on pricing approach, we have decided to develop a cost model to estimate the costs of providing voice interconnection services to inform our consideration of price terms for the access determinations.

The ACCC has engaged Analysys Mason to assist with developing this model. This paper seeks stakeholder feedback on the proposed model specification, discussed in Chapter 5.

Separately the ACCC has sought information from relevant mobile and fixed operators to inform the development of this model where no existing information is available for this purpose.

### **Non-price terms and conditions**

The ACCC's preliminary view is that existing non-price terms and conditions should be maintained to provide a useful set of fall-back terms for parties if they cannot reach agreement on non-price terms of access. Submissions generally supported this approach.

In particular, the ACCC's preliminary view is not to include additional term(s) to address perceived tension between an access provider's obligation to provide access to voice interconnection services and other scam-related obligations to block traffic. Stakeholders generally do not support including such terms in access determinations and consider they should be dealt with in scam regulation.

The ACCC will monitor the development of relevant processes, including the Australian Communications and Media Authority's further numbering work and the implementation of the Scams Prevention Framework, during the inquiry.

### **Next steps**

After considering stakeholder submissions, the ACCC will determine a final model specification to be implemented by Analysys Mason in developing the proposed cost model. The outputs from this cost model will inform the ACCC's consideration of its draft position on the proposed price terms for the voice interconnection services access determinations, to be set out in a draft report for consultation in the third quarter of 2025.

After considering stakeholder submissions to the draft report, the ACCC will determine any changes to be made to the draft cost model and expects to issue a final report on the voice interconnection services access determinations in late 2025.

# 1. Introduction

On 21 June 2024, the Australian Competition and Consumer Commission (ACCC) commenced a combined public inquiry under Part 25 of the *Telecommunications Act 1997* into making access determinations under section 152BC of the *Competition and Consumer Act 2010* (CCA) for 3 voice interconnection services:

- The mobile terminating access service
- The fixed terminating access service
- The fixed originating access service, (collectively the voice interconnection services)

The current access determinations for the voice interconnection services were due to expire on 30 June 2024. On 24 June 2024, the ACCC decided to extend the expiry date of the current access determinations for these services until the day immediately before the new access determinations come in force.<sup>1</sup>

The voice interconnection services enable different networks, fixed and mobile, to interconnect for the purpose of exchanging voice traffic.

An access determination can provide a base set of terms and conditions that access seekers can rely on if they are unable to come to a commercial agreement with an access provider on the terms and conditions of access to a declared service. If parties come to an agreement on terms and conditions of access, their access agreement will prevail over the access determination to the extent of any inconsistency.<sup>2</sup>

The inquiry considers if access determinations should be made, including if so, what price terms and non-price terms and conditions should be included to access each service.

To inform its consideration of price-terms, the ACCC has decided that cost-based pricing via a cost model is the most appropriate pricing approach, taking into account the matters under section 152BCA of the CCA. The ACCC has engaged Analysys Mason to develop this cost model.

This position and consultation paper sets out the ACCC's reasons for adopting a cost modelling pricing approach and seeks stakeholder views on matters relevant to the implementation of the cost model. This position and consultation paper also sets out the ACCC's preliminary views on non-price terms and conditions of access in response to the stakeholders' submissions.

## 1.1. Consultation process

On 16 July 2024, the ACCC released a discussion paper inviting stakeholders' views on a range of issues relating to the determination of price and non-price terms and conditions of access to the voice interconnection services (Discussion Paper).

The ACCC received 8 submissions in response to the Discussion Paper.<sup>3</sup>

---

<sup>1</sup> Subsection 152BCF(10) of the CCA. See [Notice of extension of an access determination under subsection 152BCF\(10\)](#).

<sup>2</sup> Section 152BCC of the CCA.

<sup>3</sup> All submissions are available on the ACCC website [here](#).

On 3 March 2025, the ACCC published an update on its website outlining that it will develop a cost model to inform its consideration of proposed price terms for the final access determinations for the voice interconnection services. The update also advised that the ACCC had engaged an external consultant to develop this cost model.<sup>4</sup>

The ACCC is seeking stakeholder views on the proposed approach to undertaking the cost modelling exercise, including a draft model specification paper prepared by Analysys Mason (Draft Model Specification Paper) which is released alongside this position and consultation paper. Submissions may address any or all aspects of the proposed methodology. Please provide reasons and evidence to support your views.

The ACCC will accept submissions in response to this position and consultation paper and the Draft Model Specification Paper until **5pm AEST Friday 9 May 2025**. Submissions received after this time may not be taken into account. The ACCC prefers to receive submissions in electronic form, either in PDF or Microsoft Word format, which allows the text of the submission to be searched.

The ACCC's approach to handling information during this consultation, disclosure of confidential information, and the process for claiming confidentiality is outlined further in **Appendix A**.

Submissions should be sent to: [telco.regulation@acc.gov.au](mailto:telco.regulation@acc.gov.au).

After considering stakeholder submissions, the ACCC will determine a final model specification to be implemented by Analysys Mason in developing the proposed cost model. The outputs from the draft cost model will inform the ACCC's consideration of its draft position on proposed price terms for the voice interconnection services final access determinations, to be set out in a draft report for consultation in the third quarter of 2025.

After considering stakeholder submissions to the draft report, the ACCC will determine any changes to be made to the draft cost model and expects to issue a final report on the voice interconnection services access determinations in late 2025.

## 1.2. Structure of the paper

This position and consultation paper is structured as follows:

- Chapter 2 provides background information on the declared voice interconnection services and the history of their regulation;
- Chapter 3 sets out the relevant legislative provisions in relation to the making of access determinations;
- Chapter 4 discusses the ACCC's position on pricing approach for this inquiry;
- Chapter 5 sets out the proposed model specification for the cost model;
- Chapter 6 discusses the ACCC's preliminary views in relation to non-price terms and conditions.

---

<sup>4</sup> The update is available on the ACCC website [here](#).

# 2. Background

## 2.1. What are the services?

### **What is the mobile terminating access service?**

The mobile terminating access service is a wholesale service provided by a mobile network operator to other network operators, fixed or mobile, to connect or 'terminate' a call on its mobile network. The mobile terminating access service enables subscribers from a mobile or fixed line network to make calls to subscribers on a different mobile network and is essential to the provision of fixed voice and mobile services in downstream markets.

An access provider supplies the mobile terminating access service by connecting a call from a point of interconnection between its network and an access seeker's network, to a subscriber connected to the access provider's mobile network. The access provider charges the access seeker a fee for terminating the call. Historically, this charge has been a per-minute rate.

### **What is the fixed terminating access service?**

The fixed terminating access service is a wholesale service provided by a network operator to other network operators to terminate a call to a geographic number.<sup>5</sup>

An access provider supplies the fixed terminating access service by connecting a call from a point of interconnection between its network and an access seeker's network to an end-user directly connected to the access provider's network using a geographic number.<sup>6</sup>

Just as with the mobile terminating access service, the fixed terminating access service is an essential input into the provision of fixed voice and mobile services.

### **Fixed originating access service**

The fixed originating access service is a wholesale service provided by a network operator to originate a call from a geographic number.

An access provider supplies the fixed originating access service by carrying a call from an end-user directly connected to its network using a geographic number to a point of interconnection between the access provider's network and an access seeker's network.

---

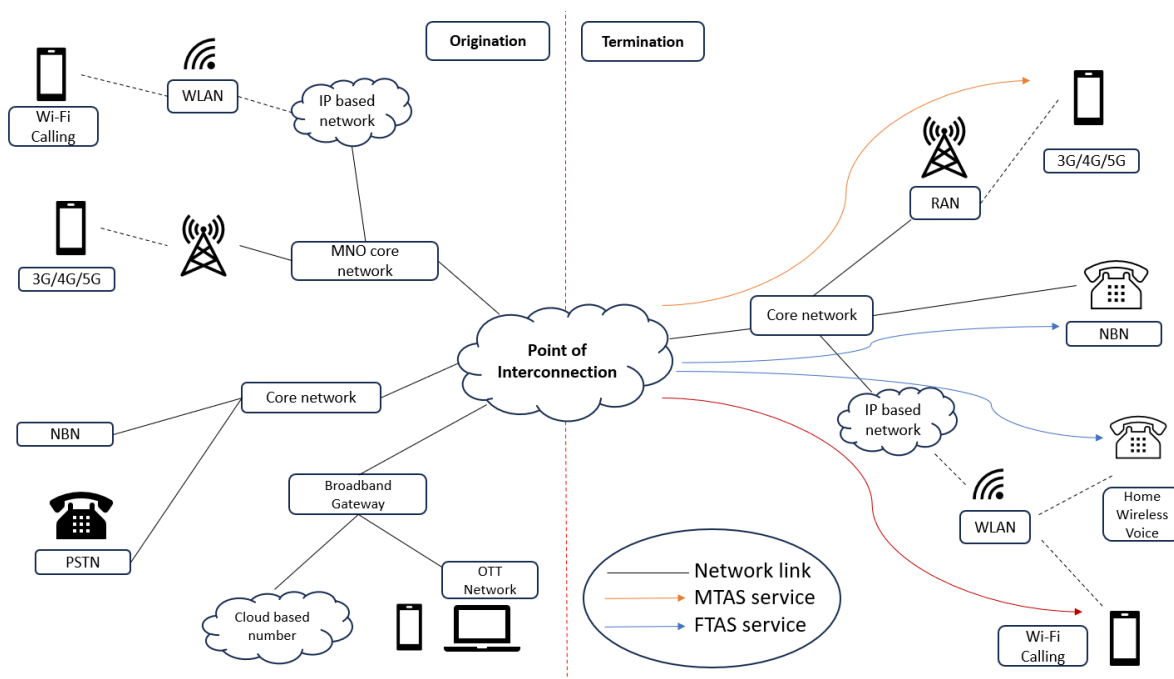
<sup>5</sup> While geographic numbers are typically used in connection with fixed line voice services, or landlines, it can be used in connection with a voice service provided over mobile networks, (e.g. [Telstra's 4G Home Wireless Voice service](#)).

<sup>6</sup> While the mobile terminating access service and the fixed terminating access service are analogous, the service descriptions of the two declared services differ, particularly with respect to the definition of the end-user that is being called. The mobile terminating access service description defines the end-user as being connected to the access provider's digital mobile network, while the fixed terminating access service description defines an end-user as being assigned a geographic number and connected to the access provider's network.

## Illustrative example of how the voice interconnection services are provided

Figure 1 below demonstrates some of the ways in which the voice interconnection services are provided.

**Figure 1 How voice calls may be originated and terminated**



Source: ACCC

## Why has the ACCC regulated these services?

In the case of the mobile terminating access service and the fixed terminating access service, each access provider has a monopoly over access to subscribers connected to its network. In the absence of regulation, a network operator has the ability and the incentive to set unreasonable terms of access to termination services on its network.

This may include setting prices for access higher than are economically efficient, or in extreme cases, denying access to rivals or potential new entrants. Even where all operators are willing to interconnect with one another, the operators may have an incentive to set termination rates above efficient costs in order to earn economic rents which would result in a lower-than-optimal number of calls being made.

At the retail level, the provision of voice services in Australia has historically operated under a 'calling party pays' model, sometimes known as a 'termination model'. That is, the calling party bears the full cost of the call, and the called party does not pay anything to receive calls.<sup>7</sup>

Two important consequences flow from this model. Firstly, calling parties have no control over which network their call may be terminated on. Secondly, called parties are unlikely to

<sup>7</sup> Strictly speaking, under a termination model the called party does not pay any kind of variable usage charge to receive calls, but in most cases will be paying a fixed access charge for the service.

consider the wholesale termination rate charged by their prospective provider when deciding which network to contract with.

As a result, the mobile terminating access service and fixed terminating access service are essential bottleneck services, which if left unregulated may lead to inefficiently high prices in the downstream markets for which termination is an input.

In the case of the fixed originating access service, while the originating network does have exclusive access to its own end-users, its ability to refuse to originate calls to other networks is typically restricted by the ability of its own subscribers to switch networks. However, where a network has a significantly outsized share of subscribers, it may have market power such that it is able to refuse to originate calls to some smaller network operators without risking losing significant market share. The fixed originating access service includes the provision of pre-selection and override functions which have historically been part of the suite of fixed voice services offered over Telstra's legacy copper network.

## **How has the ACCC set regulated prices for these services?**

The ACCC's approach to pricing a declared service is guided by the matters it must take into account in making an access determination under Part XIC of the CCA (discussed in Chapter 3).

In the past, the ACCC has considered a variety of approaches to inform its views on the appropriate price-terms for the voice interconnection services.

The ACCC has generally considered a cost-based approach to be the most appropriate method of setting prices, taking into account the relevant factors listed in section 152BCA of the CCA. This is because when the price of a service reflects the efficient cost of providing that service, it promotes competition and allocative efficiency in the downstream markets in which that service is an essential input. Cost-based pricing also promotes dynamic efficiency as it encourages access providers to invest in the most efficient technology and infrastructure to provide services in downstream markets, as well as respond to consumer demand and preferences.

Cost-based pricing also enables access providers to recover the efficient costs of providing the service, and accounts for the legitimate business interests of operators providing declared services.

Table 1 sets out the regulated prices (or indicative prices, under the pre-2011 regulatory regime) for the mobile terminating access service since 2004.

In the Pricing Principle Determinations in 2007 and 2009, the ACCC set the indicative prices for the mobile terminating access service based on the output from a specific cost model developed for the ACCC by WIK-Consult. The WIK-Consult model estimated the cost of a hypothetical efficient mobile network operator providing the mobile terminating access service on a 2G network based on total service long run incremental cost plus organisational-level cost principles (TSLRIC+).<sup>8</sup>

In 2011, the ACCC set price terms for the mobile terminating access service in final access determination. The ACCC assessed the efficient cost of providing the mobile terminating access service based on the estimates from the earlier WIK-Consult model, industry

---

<sup>8</sup> ACCC, *MTAS Pricing Principles Determination and indicative prices for the period 1 January 2009 to 31 December 2011*, March 2009 (ACCC 2009); ACCC, *MTAS Pricing Principles Determination 1 July 2007 to 31 December 2008: Report*, November 2007 (ACCC 2007).

developments and international estimates of the efficient cost of providing the mobile terminating access service.<sup>9</sup>

In 2015, the ACCC used an international benchmarking approach to estimate the costs of providing the mobile terminating access service for the purpose of the final access determination.<sup>10</sup> The ACCC also used an international benchmarking approach at the last mobile terminating access service final access determination inquiry during 2019–20.<sup>11</sup>

**Table 1 Mobile terminating access service nominal price as set by the ACCC, 2004-present**

Relevant time period	Nominal price (cents per minute)
1 July 2004 – 1 December 2004	21
1 January 2005 – 31 December 2005	18
1 January 2006 – 31 December 2006	15
1 January 2007 – 30 June 2007	12
1 July 2007 – 31 December 2011	9
1 January 2012 – 31 December 2012	6
1 January 2013 – 31 December 2013	4.8
1 January 2014 – 30 December 2015	3.6
1 January 2016 – 30 December 2020	1.7
1 January 2021 – present	1.19

Source: ACCC 2007, ACCC 2009, ACCC 2011a, ACCC 2015a, ACCC 2020.

Table 2 sets out the prices set by the ACCC for the fixed terminating access service and the fixed originating access service since 2010. Prior to the introduction of access determinations, the ACCC set indicative fixed terminating access service and fixed originating access service rates based on TSLRIC+ and pricing principles.<sup>12</sup> In 2011, the ACCC used a building block model, the Fixed Line Services Model, to set the prices of the fixed terminating and originating services (at 0.95 cents per minute), along with other fixed line services, provided over Telstra’s copper network.<sup>13</sup>

<sup>9</sup> ACCC, *Inquiry to make a final access determination for the MTAS - Access Determination Explanatory Statement (MTAS FAD – Explanatory Statement)*, 7 December 2011 (ACCC 2011a).

<sup>10</sup> ACCC, *MTAS Final Access Determination – Final Decision (MTAS FAD)*, August 2015 (ACCC 2015a).

<sup>11</sup> ACCC, *Public inquiry on the access determination for the Domestic Mobile Terminating Access Service – Final report*, October 2020 (ACCC 2020).

<sup>12</sup> ACCC, *Public inquiry to make final access determinations for the declared fixed line services - Discussion paper*, April 2011 (ACCC 2011b).

<sup>13</sup> ACCC, *Inquiry to make final access determinations for the declared fixed line services - Final Report*, July 2011 (ACCC 2011c).

In 2015, the ACCC decided to update the building block model and apply a 9.4% decrease for all fixed line services (including fixed terminating and originating access services).<sup>14</sup> In 2019, the ACCC rolled over the prices set in 2015.<sup>15</sup>

**Table 2 Fixed terminating access service/fixed originating access service nominal prices as set by the ACCC, 2010-present**

Relevant time period	Nominal price (cents per minute)
Indicative price – 2010	1
1 July 2011 – 30 June 2016	0.95
1 July 2016 – 30 June 2019	0.86
1 July 2019 – present	0.86

Source: ACCC 2011b, ACCC 2011c, ACCC 2015b, ACCC 2019

Over time, the price path of the mobile terminating access service has followed a regular downward trajectory, and the decline in regulated prices over the years has been significant. By contrast, the prices for the fixed terminating and originating services have remained relatively static over a long period of time, with relatively limited reductions since 2010.

## Non-price terms and conditions for voice interconnection services

Separate to price terms, the ACCC has also historically included a targeted set of non-price terms and conditions in the access determinations for the voice interconnection services. These focus on those aspects of access where commercial agreement may be less likely to result, and where specific competition concerns may arise. The current non-price terms and conditions cover a broad range of issues, including terms regarding billing, operational processes, and dispute resolution processes. These are discussed further in Chapter 6.

In 2015, the ACCC undertook separate public consultation on the non-price terms and conditions applicable to the mobile terminating access service, the domestic transmission and capacity service, and the fixed line services, including the fixed terminating access service and fixed originating access service. These non-price terms and conditions were carried over into the existing access determinations for the mobile terminating access service in 2020, and the fixed terminating and fixed originating access services in 2019.

<sup>14</sup> ACCC, ACCC, Public inquiry into final access determinations for fixed line services - Final Decision, October 2015 (ACCC 2015b)

<sup>15</sup> ACCC, *Inquiry into final access determinations for fixed line services - Final Decision*, November 2019 (ACCC 2019).

### 3. Legislative framework

The telecommunications access regime in Part XIC of the CCA gives the ACCC the power to, among other things, make a final access determination for a declared service.<sup>16</sup>

The ACCC may make a final access determination if it:

- has held a public inquiry under Part 25 of the *Telecommunications Act 1997* about a proposal to make a final access determination,
- prepared a report about the inquiry under section 505 of the *Telecommunications Act 1997*, and
- the report was published during the 180-day period ending when the final access determination was made.<sup>17</sup>

Section 152BC of the CCA specifies what a final access determination may contain. It includes, among other things, various terms and conditions on which a carrier or carriage service provider is to comply with the standard access obligations (SAOs) provided for in the CCA and terms and conditions of access to a declared service. A final access determination may, among other things, make a final access determination that has any of the effects set out in section 152BCB of the CCA.

In making a final access determination, the ACCC must take into account certain matters prescribed in subsection 152BCA(1) of the CCA (summarised below) and may, where relevant, take into account the matters in subsection 152BCA(2) and any other matters it thinks are relevant.<sup>18</sup>

If the ACCC makes a final access determination with terms and conditions on which

- the access provider must comply with SAOs, or comply with any of its requirements in relation to access to the declared service, or
- the access seekers can seek access to the declared service,

the terms and conditions must include terms relating to price or a method of ascertaining price.<sup>19</sup> A final access determination may also restrict the application of the SAOs in certain circumstances or to certain access providers.<sup>20</sup>

A final access determination can provide a base set of terms and conditions that access seekers can rely on if they are unable to come to a commercial agreement with an access provider on the terms and conditions of access to a declared service. If parties come to an agreement on terms and conditions of access, their access agreement will prevail over the final access determination to the extent of any inconsistency.<sup>21</sup>

A final access determination must have an expiry date, which should align with the expiry of the declaration for that service unless there are circumstances that warrant a different expiry date.<sup>22</sup>

---

<sup>16</sup> Subsection 152BC(1) of the CCA.

<sup>17</sup> Section 152BCH of the CCA.

<sup>18</sup> Subsection 152BC(3) of the CCA.

<sup>19</sup> Subsection 152BC(8) of the CCA.

<sup>20</sup> Sections 152BC(3)(h), (i) of the CCA.

<sup>21</sup> Section 152BCC of the CCA.

<sup>22</sup> Subsections 152BCF(5)-(6) of the CCA.

This position and consultation paper seeks stakeholder views on issues relevant to the combined inquiry.<sup>23</sup> The time limit for making a final access determination is within 6 months of commencement. However, the ACCC may extend or further extend the time period for making the final access determination by written notice by no more than six months.<sup>24</sup>

## 3.1. Factors the ACCC must and may consider

The ACCC must consider a range of factors when making a final access determination, including:

- (a) whether the determination will promote the long-term interests of end-users of carriage services or services supplied by means of carriage services,
- (b) the legitimate business interests of a carrier or carriage service provider who supplies, or is capable of supplying, the declared service, and the carrier's or provider's investment in facilities used to supply the declared service,
- (c) the interests of all persons who have rights to use the declared service,
- (d) the direct costs of providing access to the declared service,
- (e) the value to a person of extensions, or enhancement of capability, whose cost is borne by someone else,
- (f) the operational and technical requirements necessary for the safe and reliable operation of a carriage service, a telecommunications network or a facility, and
- (g) the economically efficient operation of a carriage service, a telecommunications network or a facility.<sup>25</sup>

If an access provider of a declared service also supplies one or more other eligible services, the ACCC may take into account the characteristics of, costs and revenues associated with, and demand for, the other eligible service(s).<sup>26</sup>

The ACCC may also take into account any other matters that it thinks are relevant.<sup>27</sup>

In considering whether the determination will promote the long-term interests of end-users, the ACCC must have regard to the extent to which the determination is likely to result in the achievement of the objectives of:

- promoting competition in markets for listed services
- achieving any-to-any connectivity, and
- encouraging the economically efficient use of, and investment in, infrastructure.<sup>28</sup>

Detailed discussion of how the ACCC considers the above factors is at **Appendix B**.

Compliance with any applicable final access determination is both a carrier licence condition and a service provider rule,<sup>29</sup> the breach of which may lead to a pecuniary penalty of up to

---

<sup>23</sup> Section 499 of the *Telecommunications Act 1997*.

<sup>24</sup> Subsection 152BCK(3) of the CCA.

<sup>25</sup> Subsection 152BCA(1) of the CCA.

<sup>26</sup> Subsection 152BCA(2) and section 152AL of the CCA.

<sup>27</sup> Subsection 152BCA(3) of the CCA.

<sup>28</sup> Subsection 152AB(2) of the CCA.

<sup>29</sup> Sections 152BCO and 152BCP of the CCA.

\$10 million for each contravention.<sup>30</sup> Private enforcement of a final access determination is also available in the Federal Court.<sup>31</sup>

---

<sup>30</sup> Section 570 of the *Telecommunications Act 1997*.

<sup>31</sup> Section 152BCQ of the CCA.

# 4. Pricing approach

This chapter sets out the ACCC's position on the approach to determining the prices for the voice interconnection services for the purpose of the final access determinations and our reasons for this position.

## 4.1. Pricing options set out in the discussion paper

In the Discussion Paper, the ACCC set out several potential options for determining the prices for the voice interconnection services. These were:

- Cost-based pricing methodologies including
  - cost modelling, where an Australia-specific model is developed to estimate the cost of providing the services, and
  - international benchmarking, where the existing work of other regulatory agencies is used as a starting point for estimating the costs of providing the services.
- Rollover or simple adjustment of current prices
- Bill and keep or zero nominal price.<sup>32</sup>

As discussed in section 3, Part XIC of the CCA specifies matters the ACCC must take into account when making an access determination.<sup>33</sup> The ACCC may also take into account any other matters that it thinks are relevant.<sup>34</sup>

In the past, the ACCC has also considered matters such as the time and costs involved in implementing a pricing approach, the feasibility of potential approaches, and the risk of regulatory error when determining an approach and setting a price.<sup>35</sup>

As noted in the Discussion Paper, the ACCC considers that the declarations and regulated prices for the voice interconnection services remain important in preventing access providers from exercising market power and raising interconnection prices where they can, for instance, vis-à-vis new entrant or small operators. However, the ACCC expressed an initial view in the Discussion Paper that the extent to which they may more actively promote competitive supply of downstream voice services, such as in lowering the prices of these services or improving features of these services, is likely limited. For this reason, the ACCC considered that providing regulatory pricing certainty in a timely and efficient manner in making the access determination would be a relevant consideration.

---

<sup>32</sup> Also known as 'sender keep all', a bill and keep arrangement sees interconnected operators exchanging traffic on a settlement-free basis. That is, parties do not pay for termination on the network for which they have a bill and keep arrangement, and bear their own costs.

<sup>33</sup> Section 152BCA(1) of the CCA.

<sup>34</sup> Section 152BCA(3) of the CCA.

<sup>35</sup> For example, see ACCC, *MTAS FAD - Final Report*, August 2015, pp 9–10.

## 4.2. Stakeholders divided on preferred pricing option

### Limited support for cost modelling or international benchmarking

Some stakeholders expressed a preference for cost-based principles in setting regulated prices. For instance, Pivotel submitted that a cost-based exercise should be based on the TSLRIC+ pricing principles and consideration should be made for the cost of scam mitigation measures.<sup>36</sup> Optus submitted that ideally there should be cost-based pricing and a consistent methodology between pricing fixed terminating access service and mobile terminating access service.<sup>37</sup>

However, stakeholders expressed concerns with either cost modelling or an international benchmarking approach due to the costs and complexity involved and potentially limited impact on the downstream markets.<sup>38</sup> TPG submitted that it would only support cost modelling if the ACCC is inclined to mandate bill and keep.<sup>39</sup>

### Some stakeholder support for rollover of current prices

TPG Telecom and Telstra supported a rollover of current prices for all the voice interconnection services. TPG Telecom argued the cost of adopting an alternative pricing option will outweigh any benefit.<sup>40</sup> Telstra submitted that a rollover of current prices is the simplest approach, provides price stability, and maintains the differential between mobile and fixed termination as they were initially developed by considering the different costs of providing those services.<sup>41</sup> Optus only supported a rollover of the current price for the mobile terminating access service.<sup>42</sup>

On the other hand, Symbio opposed a rollover of current prices and did not agree it was in the long-term interests of end-users. Symbio submitted that the ACCC must give some consideration to the changes in the cost of supplying fixed and mobile voice interconnection since the last time those costs were thoroughly assessed.<sup>43</sup>

### Some stakeholders support simple adjustments to current prices

While arguing that the price for the mobile terminating access service should be maintained, Optus submitted that the price of the fixed terminating access service should fall. Optus noted that greater efficiencies would be achieved if the prices for fixed and mobile

---

<sup>36</sup> Pivotel, [submission in response to the voice interconnection services access determination inquiry discussion paper](#) (Pivotel submission), September 2024, p 3.

<sup>37</sup> Optus, [submission in response to the voice interconnection services access determination inquiry discussion paper](#) (Optus submission), September 2024, p 7–8.

<sup>38</sup> TPG Telecom, [submission in response to the voice interconnection services access determination inquiry discussion paper](#) (TPG Telecom submission), September 2024, p 3; Telstra, [submission in response to the voice interconnection services access determination inquiry discussion paper](#) (Telstra submission), September 2024, p 2; Symbio, [submission in response to the voice interconnection services access determination inquiry discussion paper](#) (Symbio submission), September 2024, p 10; ACCAN, [submission in response to the voice interconnection services access determination inquiry discussion paper](#) (ACCAN submission), September 2024, p 1.

<sup>39</sup> TPG Telecom, [TPG Telecom submission](#), September 2024, p 4.

<sup>40</sup> TPG Telecom, [TPG Telecom submission](#), September 2024, p 2.

<sup>41</sup> Telstra, [Telstra submission](#), September 2024, p 2.

<sup>42</sup> Optus, [Optus submission](#), September 2024, p 9.

<sup>43</sup> Symbio, [Symbio submission](#), September 2024, p 7.

terminating access services were set relative to each other using the same cost methodology. Optus submitted that the disparity between historical changes in the prices of fixed and mobile terminating services is due to differences in regulatory treatment rather than any efficiency consideration.<sup>44</sup> However, Optus did not elaborate on how an adjustment to the price of the fixed terminating access service should occur to address this disparity.

In contrast, Symbio (with the support of Aussie Broadband) submitted that the price for the fixed voice interconnection services should increase while the price for the mobile terminating access service should decrease due to changes in the costs of supplying the services over time.<sup>45</sup> Specifically, Symbio and Aussie Broadband submitted that:

- there should be an initial increase in the prices for the fixed interconnection services for the year end 30 June 2025. The prices for subsequent years should increase in line with the Consumer Price Index as a proxy for ongoing increases in the costs of supply;<sup>46</sup> and
- the price for the mobile terminating access service should decrease for the year ended 30 June 2025. If the reduction in costs for the MTAS interconnection services is considered material, then the ACCC could consider a glide path over the life of the access determination.<sup>47</sup>

The Australian Communications Consumer Action Network (ACCAN) also supported making simple adjustments to current prices if the ACCC is not inclined to adopt a bill and keep or zero nominal price arrangement.<sup>48</sup>

## **Bill and keep or zero nominal price strongly opposed by industry stakeholders**

Industry stakeholders, including Optus, Pivotal, TPG Telecom and Telstra expressed strong opposition to a bill and keep or zero nominal price approach.<sup>49</sup> Only ACCAN expressed support for this option though it did not elaborate on the reasons.<sup>50</sup>

Key concerns raised in relation to a bill and keep arrangement include that:

- 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;
- network operators face costs in providing these services and they need to recover these; and
- such an arrangement will distort competition and discourage efficient investment.

---

<sup>44</sup> Optus, [Optus submission](#), September 2024, p 2.

<sup>45</sup> Symbio, [Symbio submission](#), September 2024, pp 7-9.

<sup>46</sup> Symbio, [Symbio submission](#), September 2024, p 8; Aussie Broadband, [submission in response to the voice interconnection services access determination inquiry discussion paper](#) (Aussie Broadband submission), September 2024, p 2.

<sup>47</sup> Symbio, [Symbio submission](#), September 2024, p 9; Aussie Broadband, [Aussie Broadband submission](#), September 2024, p 2.

<sup>48</sup> ACCAN, [ACCAN submission](#), September 2024, p 1.

<sup>49</sup> Pivotal, [Pivotal submission](#), September 2024, p 3; TPG Telecom, [TPG Telecom submission](#), September 2024, p 3; Telstra, [Telstra submission](#), September 2024, p 2; Symbio, [Symbio submission](#), September 2024, p 9; Optus, [Optus submission](#), September 2024, p 9.

<sup>50</sup> ACCAN, [ACCAN submission](#), September 2024, p 1.

## 4.3. ACCC's position

After considering submissions from stakeholders, the ACCC has decided to develop a cost model to estimate the costs of providing the voice interconnection services to inform proposed price terms in the final access determinations. Specifically, the ACCC will develop a single cost model that is capable of producing TSLRIC+ cost estimates for all the voice interconnection services. We consider this is achievable by developing a model that reflects the costs incurred by a hypothetically efficient operator deploying a 4G/5G network in Australia, with the costs of providing the fixed interconnection services estimated using core network assets from this model.

The ACCC sets out the reasons for this position below.

### **Cost-based pricing remains the most appropriate approach**

The ACCC considers that cost-based pricing remains the most appropriate approach taking into account the matters under section 152BCA of the CCA. In particular, cost-based pricing promotes sustainable competition and encourages economically efficient investment in and use of infrastructure. Consistent with the ACCC's previous positions in relation to the mobile terminating access service, we consider that cost-based pricing reflecting the TSLRIC+ pricing principles is most appropriate, having regard to the direct costs of providing the services and the legitimate business interests of an access provider. This is because it allows the access provider to recover the incremental costs of providing the service as well as a portion of the common network and overhead costs, which must be incurred in order to provide any of its services.

The ACCC recognises that historically, prices for the mobile terminating access service were determined based on an estimation of forward-looking costs incurred by a hypothetical efficient operator consistent with TSLRIC+ principles. On the other hand, the current prices of the fixed terminating and originating services were determined having regard to Telstra's actual costs in providing all fixed line services on its legacy copper network. The ACCC considers that a consistent pricing approach should now apply to all the voice interconnection services. The fixed interconnection services are technology neutral and are provided by all fixed network operators, not just Telstra. As such, the ACCC considers that a TSLRIC+ approach, which typically reflects the costs of a hypothetically efficient operator, is also appropriate for pricing the fixed interconnection services. Practically, adopting the same pricing approach for the 3 services can also lead to synergy and efficiency in pricing these services together.

The ACCC considers that developing a cost model is the best way to implement the cost-based pricing approach in this case as it would enable the ACCC to adopt a consistent approach to pricing the voice interconnection services. While the ACCC has adopted an international benchmarking approach in pricing the mobile terminating access services in the past, the ACCC consider that there would be challenges and added complexities with this approach in the current circumstances because:

- The ACCC would need to separately benchmark the costs of mobile termination and fixed interconnection services, which means that two benchmark pools would need to be developed (which may not be consistent depending on availability of public cost models for the relevant services), and separate adjustment processes would be required to account for Australia-specific costs where possible;

- International benchmarking drawing upon more recent cost-modelling work of other regulators may not be feasible due to the move to single maximum mobile and fixed termination prices for countries in the European Union since 2021.<sup>51</sup> This effectively led to a complete harmonisation of termination rates across EU based on a single cost model developed by the European Commission.

The ACCC acknowledges the limited stakeholder support for developing a cost model due to concerns that this will be resource intensive and time consuming. The ACCC also notes its initial views expressed in the Discussion Paper that providing regulatory certainty in a timely and efficient manner would be a relevant consideration. However, taking into account all matters under section 152BCA of the CCA, the ACCC does not consider that other alternative pricing approaches would be appropriate in the current circumstances. These are discussed further below.

The ACCC also considers that a cost modelling approach could be done in a way that, as far as practical and reasonable, minimises burden on industry and reduces complexity. There are significant information requirements for a cost modelling exercise which may impose burden on industry stakeholders. As a starting point, the ACCC will seek to use information it already has, such as information reports pursuant to various telecommunications record keeping rules or information provided in other inquiries that may be used for this purpose. The ACCC will then seek further information from industry that is necessary to inform the inputs to the model.

In addition, the ACCC's position is that a single cost model, rather than two separate cost models (i.e. a mobile and a fixed cost model) should be developed to inform the costs of all the voice interconnection services. To calculate the costs of providing mobile terminating access service, the cost model is intended to reflect the costs of deploying a 4G/5G mobile network in Australia.<sup>52</sup> The costs of providing the fixed terminating and originating services will then be separately estimated using the core network assets from the model.

This approach requires making an assumption regarding the relevant network assets that should be included in allocating costs to the voice interconnection services. Some stakeholders expressed views on this issue in their submissions.

Optus submitted the cost of fixed access network does not vary with termination traffic therefore the price of the fixed terminating access service does not include the cost of the fixed access network. On the other hand, Optus submitted that the cost of the mobile access network is driven by the volume of traffic it carries and therefore the cost of the mobile terminating access service includes the cost of the mobile access network.<sup>53</sup>

Symbio submitted that the costs of the mobile access network (i.e. the radio access network) should no longer be recovered in the price of mobile terminating access service as they are traffic insensitive costs. Symbio argued that these costs should be recovered through flat-rate prices rather than usage-based prices.<sup>54</sup>

The ACCC does not agree with Symbio's submission on this issue. Unlike in a fixed line network where there is no incremental cost on the customer access network due to the carriage of terminating traffic, the capacity of the mobile access network would, in principle, have to increase (such as by deploying more spectrum or building more sites) in response to

---

<sup>51</sup> See [Commission Delegated Regulation \(EU\) 2021/654](#).

<sup>52</sup> 4G and 5G represent the 'best in use' technologies for deploying mobile networks in Australia.

<sup>53</sup> Optus, [Optus submission](#), September 2024, p 4.

<sup>54</sup> Symbio, [Symbio submission](#), September 2024, pp 8, 10.

additional traffic that needs to be terminated by the access provider. The fact that over time, voice traffic has become an increasingly small proportion of overall traffic does not categorically change this assumption. Rather, it means that proportionally the cost of mobile access network that is allocated to terminating voice traffic may become smaller. Nonetheless, available information suggests that mobile voice traffic still account for a materially higher portion of overall mobile traffic compared to fixed voice traffic on fixed networks. For example, for the 2024 financial year, estimated total mobile voice traffic is around 0.34% of overall traffic carried over mobile networks, compared to total fixed voice traffic which is around 0.03% of overall fixed traffic.<sup>55</sup>

The ACCC notes that within this broad assumption regarding the network elements that are relevant for estimating the costs of each of the voice interconnection services, we are seeking feedback from relevant operators regarding more specific network asset components they use to provide these services. The ACCC discusses the proposed model specification in more details in Chapter 5 below.

## **A rollover of current prices is inappropriate due to likely changes in costs and potential impact on downstream markets**

The ACCC has considered a rollover of current prices for the next regulatory period. The ACCC considers that this could be a pragmatic option that minimises regulatory burden if a cost-based approach is unlikely to produce cost estimates that are materially different from the current prices of the voice interconnection services. The ACCC does not consider this is probable because:

- The rollout of 5G and decommissioning of 3G networks in Australia as well as overall growth in traffic (mostly data) likely resulted in material changes in the per unit cost of providing mobile terminating access service. While Optus argued that the impact of newer technologies on the efficient costs of providing mobile terminating access service is complex (i.e. not automatically converging to zero), it also acknowledges that ascertaining the impact requires an in-depth analysis.<sup>56</sup>
- As discussed above, the current prices for the fixed terminating access service and fixed originating access service were based on the costs of providing fixed line services over Telstra's copper network. These prices have also been rolled over with minimal adjustments for a number of years. It is likely that cost-based approach based on TSLRIC+ principles will yield significantly different cost estimates compared to current prices.

The ACCC also noted in the Discussion Paper that a key market development is the prevalence of retail plans that include unlimited voice calls. The ACCC expressed the initial view that this development may mean that the effect of changes in the regulated prices on downstream markets may be muted.<sup>57</sup> Some submissions agree with this initial view.<sup>58</sup> However, other submissions suggest that the potential impact can be more nuanced and not simply dependent on the prevailing retail offers. For instance, Symbio argued that the segment of the market serving enterprises provides voice services independently of data

---

<sup>55</sup> ACCC analysis based on information provided pursuant to the Division 12 Record Keeping Rules and the Internet Activity Record Keeping Rules and converting voice minutes to packet data

<sup>56</sup> Optus, [Optus submission](#), September 2024, pp 5–6.

<sup>57</sup> ACCC, [Voice interconnection services access determination inquiry – discussion paper](#), ACCC, Australian Government, July 2024, p 14.

<sup>58</sup> Optus, [Optus submission](#), September 2024, p 5; TPG Telecom, [TPG Telecom submission](#), September 2024, p 3.

services and are typically priced on a per minute basis.<sup>59</sup> Telstra submitted that per minute regulated prices remain relevant because in order to forecast the profitability of retail plans, product designers estimate call volumes and network costs as well as outgoing payment using regulated prices.<sup>60</sup>

Having regard to the available information, the ACCC is not convinced that changes in the prices of the voice interconnection services will not have any impact on the incentives of access providers and access seekers to adjust their retail offers. In particular, the ACCC considers that with respect to retail plans that charge per minute usage rate (which are still generally available in relation to fixed voice services and enterprise segment of the market), any changes in the prices of the voice interconnection services are likely to be passed on to retail prices to some extent.

For these reasons, the ACCC considers that a rollover of the current prices may result in the prices being increasingly disconnected from the underlying cost of providing the services, which would not promote economic efficiency and/or would not be appropriate taking into account the other matters in section 152BCA of the CCA.

## **Simple adjustments to current prices are not justified**

In the Discussion Paper, the ACCC sought views on whether a simple adjustment could be applied to the existing prices for the voice interconnection services, consisting of a proxy measure for the likely change in the cost of providing the services.<sup>61</sup>

The ACCC has considered the reasons provided by Optus and Symbio in support of their respective positions on how current prices should change as well as any proposed methodology provided. The ACCC considers that the cost-related justifications provided by Optus and Symbio are complex and cannot be meaningfully examined other than in a full cost-based pricing exercise. This is evidenced by the fact that the parties diverged on the directions of the adjustments required for the prices of the services.

Overall, the ACCC cannot find a sufficient basis for making simple adjustments to the current prices that can reasonably capture the likely changes in the costs of providing the services since the prices were last determined. As a result, the ACCC considers that a simple adjustment approach in this case would not be appropriate taking into account the matters under section 152BCA of the CCA.

## **Bill and keep requires further consideration**

Also known as 'sender keep all', a bill and keep arrangement sees interconnected operators exchanging traffic on a settlement-free basis. That is, parties do not pay for termination on the network for which they have a bill and keep arrangement and bear their own costs.

Bill and keep arrangements are generally thought to be simple to implement and can reduce transaction costs associated with recording and billing for a large number of interconnected minutes. While for calling party pays systems, cost-based pricing is generally considered to lead to the most efficient outcomes, the efficiency gain over a bill and keep arrangement becomes smaller as cost-based prices approach zero. This means that bill and keep could

---

<sup>59</sup> Symbio, [Symbio submission](#), September 2024, p 2.

<sup>60</sup> Telstra, [Telstra submission](#), September 2024, p 3.

<sup>61</sup> ACCC, [Voice interconnection services access determination inquiry – discussion paper](#), ACCC, Australian Government, July 2024, p 21.

potentially be a practical interconnection arrangement that reduces the regulatory costs of determining regulated prices as well as transaction costs if cost-based prices are sufficiently low.

On the other hand, the ACCC notes the concerns raised by stakeholders that bill and keep can increase the risk of unsolicited communications which undermines the efficient use of the infrastructure used to provide voice services. For instance, bill and keep arrangement may make it more profitable for operators to serve end-users that make more calls than they receive and, most notably, telemarketers and scammers. The ACCC considers that the impact of a regulated bill and keep arrangements on scam traffic is a key issue in assessing whether it is likely to be an appropriate pricing option in the context of the legislative matters (such as encouraging efficient use of infrastructure), even if cost-based prices continue to approach zero. However, this assessment should be made in the broader context of scam regulations that are in place as well as the effectiveness of industry scam disruption activities. The ACCC does not consider that bill and keep is appropriate in the current circumstances, particularly given scam regulations are still being developed and industry are continuing to work on effective means of disrupting scams.

# 5. Proposed model specification

This Chapter sets out Analysys Mason's proposed model specification and the ACCC's preliminary views on the proposed approach. This Chapter should be read with the Draft Model Specification Paper prepared by Analysys Mason.

The ACCC is seeking stakeholder feedback on any aspect of Analysys Mason's proposed model specification and the ACCC's preliminary views as discussed in this Chapter.

## 5.1. Developing a cost model

As discussed in Chapter 4, the ACCC has asked Analysys Mason to:

- develop a single cost-model that is capable of producing cost estimates for all the voice interconnection services based on total service long-run incremental cost plus a contribution towards the recovery of common and organisational-level costs (known as TSLRIC+); and
- reflect the costs incurred by a hypothetical efficient operator in deploying a 4G/5G mobile network in Australia, with fixed terminating access service and fixed originating access service costs estimated using core network assets from the model.

Analysys Mason has prepared a Draft Model Specification Paper which sets out proposed modelling assumptions and specifications, which the ACCC has published with this position and consultation paper.

After considering submissions on the proposed draft model specification as well as information provided by operators in response to our information collection process, the ACCC will determine final model specification which will be used as the basis for constructing the draft cost model by Analysys Mason. The ACCC will consult on a proposed set of draft price-terms for inclusion in the access determinations based on the outputs of the draft cost model as part of its draft report.

## 5.2. Analysys Mason draft model specification

Analysys Mason notes that three broad types of input will feed into the model which relates to:

- demand volumes (e.g. traffic volumes, busy-hour characteristics);
- network design parameters (e.g. technologies and coverage); and
- cost assumptions (e.g. unit capital expenditure (capex), unit operating expenditure (opex), cost trends and asset lifetimes).<sup>62</sup>

Based on these inputs, the ACCC understands that the cost model will then produce a list of assets required to provide the services, as well as overall costs (including capex and opex)

---

<sup>62</sup> Analysys Mason, Draft Model Specification Paper, p 2.

of providing these services. These costs will then be allocated to each service provided by the modelled operator using the assets in order to produce per unit cost estimates for the voice interconnection services.

Analysys Mason also notes there are four key dimensions of the cost modelling process which will require determination of appropriate modelling assumptions. These are:

- the modelled operator (e.g. whether the operator should be actual or hypothetical, the network coverage and market share of the operator);
- the modelled technology (e.g. technologies deployed on the operator's network, spectrum allocations and costs, transmission architecture and network nodes);
- the modelled services (e.g. the types of services, such as voice and data, to be provided by the operator on its network, volume of the traffic, and other services relevant for the purpose of allocating common and overhead costs).
- Other issues related to modelling implementation (e.g. relevant increment for the purpose of calculating the cost outputs, depreciation method, geotyping, modelling timeframe, etc).<sup>63</sup>

These four key dimensions and Analysys Mason's proposed approach to these are discussed in turn below.

## 5.2.1. Modelled operator

### Model structure

Analysys Mason notes there are two structures used in cost modelling of networks, top-down models' and 'bottom-up models', with the latter most commonly used for determining the costs of a hypothetical efficient operator due to its ability to reflect efficient costs in a transparent manner. Analysys Mason proposes to develop a bottom-up model and then undergo a top-down validation process. For the mobile network, this process involves comparing the base station count calculated by the model to actual base station counts owned by operators, when the model is configured based on their respective design inputs. This process is undertaken to ensure that the model is producing reasonable outputs.<sup>64</sup>

Given the ACCC's position is to develop a cost model reflects the costs of a hypothetical efficient operator, the ACCC agrees with the Analysys Mason's proposal to develop a bottom-up model. The ACCC's preliminary view is that the proposed top-down validation process provides a useful sanity check of the outputs of the bottom-up model and is appropriate having regard to the legitimate business interests of the access providers.

### Type of Operator

Analysys Mason notes that there are different types of operators that can be modelled: actual, average or hypothetical. Analysys Mason considers that the modelling of either actual or average operators can lead to the capture of past network inefficiencies and is therefore not appropriate for efficient network costing.

For mobile services, Analysys Mason proposes to model a hypothetical efficient operator with a network deployed in 2025, on the basis that legacy mobile technologies, i.e. 3G, has

---

<sup>63</sup> Analysys Mason, Draft Model Specification Paper, p 3.

<sup>64</sup> Analysys Mason, Draft Model Specification Paper, pp 4–5.

been shut down during 2024, and the regional network sharing arrangement between Optus and TPG commenced in 2025. For fixed voice services, Analysys Mason proposes to model a hypothetical efficient operator that deploys a fixed core network capable of carrying voice traffic that is equivalent to a mobile core network.<sup>65</sup>

The ACCC's preliminary view is that this is a reasonable approach given that our position is to model a hypothetical efficient operator for mobile and fixed voice services respectively and our intention is to examine the forward-looking costs of such operators. The ACCC also considers 2025 represents an appropriate point in time for deploying the modelled operator's networks in light of significant market developments, such as the shutdown of 3G networks in 2024 and the commencement of the regional network sharing arrangement between Optus and TPG in January 2025. These market developments inform the ACCC's consideration of what is the 'best in use' technology and the efficient way to deploy a national mobile network in Australia.

The ACCC's preliminary view is that the hypothetical efficient operator for mobile should deploy 4G and 5G technologies from 2025, and that to achieve national coverage such an operator would be assumed to engage in network sharing in regional areas. These assumptions are reflected in the proposed approach to the market share of the modelled operator and modelled technology discussed below.

For the hypothetically efficient operator for fixed voice services, the ACCC's preliminary view is that the modelling of a fixed core network equivalent to a mobile core network is reasonable, given a modern IMS Core can be used to provide voice and other multi-media services on both mobile and fixed networks.

## Network footprint and rollout

Analysys Mason proposes to assume that the hypothetical efficient operator achieves full coverage and immediate scale in 2025. That is, the hypothetical efficient operator for mobiles will have:

- a 4G network that achieves national-level coverage in 2025 that is sustained in the future; and
- a 5G network that achieves significant coverage in 2025, which then increases to achieve parity with 4G coverage over a longer timeframe.<sup>66</sup>

Analysys Mason proposes to calculate the immediate 4G and 5G coverage based on the coverage maps provided by the national mobile network operators as of 31 January 2024. The hypothetical efficient operator is assumed to have coverage (for 4G and 5G respectively) where at least two of the three operators have coverage using any frequency based on these coverage maps (the Coverage Definition). Geographic and population coverage will then be calculated by geotype.<sup>67</sup>

Analysys Mason also proposes to assume that the modelled fixed core network covers the same proportion of the population as the modelled mobile network.<sup>68</sup>

---

<sup>65</sup> Analysys Mason, Draft Model Specification Paper, pp 6–7.

<sup>66</sup> Analysys Mason, Draft Model Specification Paper, p 9.

<sup>67</sup> Analysys Mason, Draft Model Specification Paper, p 10. 'Geotypes' are a key input in a mobile cost model which determines how a network is deployed in areas with different geo-demographic characteristics. The proposed approach to geotyping is discussed in Section 5.2.4.

<sup>68</sup> Analysys Mason, Draft Model Specification Paper, p 10.

The ACCC's preliminary view is that achieving full coverage and immediate scale in 2025 is a reasonable assumption for the hypothetical efficient operator given the state of network deployment in Australia. The ACCC also notes Analysys Mason's view that this would also allow the asset counts produced by the cost model to be compared to actual networks which will improve the robustness of the calculation.<sup>69</sup> The ACCC considers that while the national mobile network operators' coverage maps as of 31 January 2024 provide a useful starting point for calculating immediate geographic and population coverage, the ACCC will look to use the coverage maps provided by the national mobile network operators as of 31 January 2025 if possible as they contain more updated coverage information.

The ACCC considers that projected future coverage is likely to be more complicated as network rollout can be affected by many factors. The ACCC considers publicly announced coverage targets by the national mobile network operators, where available, likely provide the most transparent and reliable information that can be relied upon to make this assessment. However, the ACCC welcomes input from the national mobile network operators regarding their future roll out plans that can help inform this issue.

The ACCC's preliminary view is also that the assumption that the fixed core network covers the same proportion of the population as the modelled mobile network is a simple and reasonable starting point, but welcomes stakeholders' views on whether this is an appropriate assumption.

## Market share and scale

The ACCC understands that the assumed market share for the hypothetical efficient operator will determine the proportion of overall traffic that the operator will carry on its modelled network, and therefore is a key parameter that determines the per unit cost of the services modelled.

For mobile services, Analysys Mason proposes to assume market share based on the number of mobile networks that have coverage in a given area. In particular, Analysys Mason proposes that the number of networks in a given area will be calculated for each geotype as a population-weighted average and based on the Coverage Definition discussed above. The extent of the regional network sharing arrangement between Optus and TPG will help inform the number of networks assumed to be present in any given area. That is, where Optus provides TPG with access to its network, the shared network is proposed to be counted as one network. Where Optus and TPG operates separate mobile access networks, these networks will count as two. As all national mobile network operators has a standalone core network, it is assumed that there are in total three mobile core networks in Australia.<sup>70</sup>

The ACCC's preliminary view is that this is a reasonable approach in determining the market share and scale of the hypothetical efficient operator for mobile services, which takes into account the different degree of infrastructure competition present in the Australian market. The ACCC also understands that this approach means that different amount of traffic can be assumed to be carried over the hypothetical efficient operator's mobile access network and the core network, as well as across its mobile access network in metro and regional areas.

For fixed voice services, Analysys Mason proposes to assume that there are overall four networks, based on the fact that there are four major fixed voice providers in Australia, i.e. Optus, Telstra, TPG Telecom and Vocus.<sup>71</sup> The ACCC's preliminary view is that given there

---

<sup>69</sup> Analysys Mason, Draft Model Specification Paper, p 9.

<sup>70</sup> Analysys Mason, Draft Model Specification Paper, p 11.

<sup>71</sup> Analysys Mason, Draft Model Specification Paper, p 11.

are multiple operators offering fixed voice services in Australia and they vary significantly in terms of scale and market position, it would not be possible for the hypothetical efficient operator to reflect all of these differences. For the purpose of the ACCC's Division 12 Record Keeping Rules, Optus, Telstra, TPG Telecom and Vocus are the four operators that provide information relating to fixed voice services. For this reason, the ACCC considers that a simple assumption of market share based on four operators in Australia (i.e. 25%) is a reasonable starting point and welcomes stakeholder feedback on whether this assumption is appropriate.

## 5.2.2. Modelled technology

### Radio network

Analysys Mason proposes to take into account the following technologies in modelling the hypothetical efficient operator's mobile radio network:<sup>72</sup>

- 4G and 5G technologies

Analysys Mason noted that 4G technology will likely retain a significant role in the provision of the mobile terminating access services in the near-to-medium term with 5G potentially playing a role in carrying mobile terminating voice traffic.

- Voice over LTE (VoLTE)/Voice over NR (VoNR)

Analysys Mason considers it necessary to include the function of a VoLTE platform, as the primary means of carrying mobile voice services. It also considers it relevant to include the 5G equivalent, i.e. VoNR, so that the impact of this new technology can be assessed.

- Voice over WiFi (VoWiFi)/Direct to device (D2D)

Analysys Mason proposes to implement technologies that can be used to carry mobile voice traffic other than the mobile access network, such as VoWiFi (which is available from all national mobile network operators) and D2D technologies via low-earth orbit satellites in the future. Analysys Mason proposes to assume a proportion of 4G/5G voice traffic to be carried over these technologies and we have requested information from the operators on the relevant traffic volume.

- Further Radio Access Network (RAN) upgrades

Analysys Mason noted several enhancements in the base station technology that could improve the efficiency of RAN equipment. After considering publicly available information on the intention to deploy these enhancements in Australia, Analysys Mason proposes to capture the use of Open RAN in the cost model.

The ACCC's preliminary view is that, the technologies that are proposed to be included in the cost model is likely to reflect the best in use technologies implemented or expected to be implemented at the mobile access network level for the purpose of providing mobile services. As such, our preliminary view is that these are reasonable assumptions regarding the technologies used by a hypothetical efficient operator for mobile services.

---

<sup>72</sup> Analysys Mason, Draft Model Specification Paper, pp 12–15.

## Spectrum allocations

Analysys Mason proposes to consider the following spectrum bands which are currently being used for mobile networks in Australia: 700 MHz, 850 MHz, 850 MHz expansion, 900 MHz, 1800 MHz, 2.1 GHz, 2.3 GHz, 2.5 GHz, 3.4 GHz, 3.6 GHz, 3.7 GHz and 26 GHz bands.<sup>73</sup>

These are spectrum bands allocated via spectrum licences by the Australian Communications and Media Authority (ACMA). Most of this spectrum is exclusively held by the national mobile network operators to provide mobile services.<sup>74</sup> Analysys Mason notes that the ACMA has also allocated additional spectrum via area-wide apparatus licences but considers these to fall outside the scope of the model. The ACCC's preliminary view is that this is a reasonable approach given that the area-wide apparatus licences (AWLs) are usually used in allocations that seek to accommodate a range of users and use cases.<sup>75</sup> The ACCC considers that spectrum allocated via spectrum licences most accurately represent the spectrum bands that are used for mobile networks in Australia.

Analysys Mason proposes to consider regional allocations by operator and band across the relevant mobile spectrum bands identified and assess the extent to which these licensed areas can be captured within the geotype definition.<sup>76</sup> The ACCC considers that given most of the spectrum licensed bands in Australia have regional licences and holdings of the operators can vary between metro and regional areas, this is an important issue to examine. The ACCC understands that licence boundaries of various spectrum licensed bands are not consistent, so there is likely a need for some degree of simplification in implementing regional spectrum allocations in the cost model. The ACCC welcomes stakeholder input on how regional allocations can be reasonably reflected in the model.

As a starting point, Analysys Mason proposes a list of spectrum allocations that could be considered as the holdings of the hypothetical efficient operator for mobile services (see Table 3 below). These include assumed holdings for such an operator as implemented in the international benchmarking exercise that Analysys Mason undertook during the 2020 mobile terminating access service final access determination inquiry. Additional allocations as a result from the ACMA's various spectrum allocation processes after the ACCC's 2020 mobile terminating access service final access determination inquiry were also taken into account.

**Table 3: Proposed spectrum allocations<sup>77</sup>**

<b>Band</b>	<b>Technologies used by actual operators</b>	<b>Proposed MHz across the licensed regions</b>
<b>700 MHz</b>	Primarily 4G (some 5G)	2 x 10
<b>850 MHz</b>	4G and 5G	2 x 5
<b>900 MHz</b>	4G and 5G	2 x 10
<b>1800 MHz</b>	Primarily 4G (some 5G)	2 x 15

<sup>73</sup> Analysys Mason, Draft Model Specification Paper, p 15.

<sup>74</sup> Some of these bands are held and used by other operators. For instance, NBN Co holds some licences in the 2.3 GHz and 3.4 GHz bands for providing fixed wireless services. Rail operators hold some 1800 MHz band licences in metro areas.

<sup>75</sup> See for example, the [ACMA's 3.8 GHz band AWLs allocation](#).

<sup>76</sup> Analysys Mason, Draft Model Specification Paper, p 17.

<sup>77</sup> Reproduced from Figure 3.7 of Analysys Mason's Draft Model Specification Paper.

<b>2.1 GHz</b>	4G and 5G	2 x 10
<b>2.5 GHz</b>	Primarily 4G (some 5G)	2 x 20
<b>3.4 GHz</b>	5G	1 x 30
<b>3.6 GHz</b>	5G	1 x 40
<b>3.7 GHz</b>	5G	1 x 40
<b>26 GHz</b>	5G	1 x 750

The ACCC notes that the proposed allocations do not include the 2.3 GHz band.<sup>78</sup> The ACCC's preliminary view is that this is a reasonable exclusion as the 2.3 GHz band is not widely used for mobile services in Australia (only Optus uses it for mobile services in metropolitan areas). The ACCC also considers that for a hypothetical efficient operator, proposed allocation within the broader 3.4–3.7 GHz band could potentially be a reasonable simplification instead of specifying separate allocations in the 3.4 GHz, 3.6 GHz and 3.7 GHz bands. The ACCC welcomes stakeholder feedback and input regarding the appropriate spectrum allocations. In particular, noting that the ACCC's preliminary view is that the modelled hypothetical efficient operator would engage in regional network sharing, the ACCC is interested in stakeholder's views as to whether spectrum allocations (to the extent that regional allocations can be captured in the model) should also reflect spectrum that can be reasonably available to this hypothetical efficient operator in deploying its network in Australia.

## Spectrum payments

Analysys Mason proposes to use the approach adopted in the 2020 mobile terminating access service final access determination inquiry regarding the costs of spectrum as a starting point. This includes the consideration of historical auction payments and renewal fees which will be modelled as capex, as well as modelling other recurring spectrum fees as opex. Analysys Mason proposes to make some adjustments in the current cost modelling process including that:

- fees for all licences that have expired in or before 2024 will be assumed to have been fully recovered;
- 900MHz spectrum fees (charged when it was issued as apparatus licence) no longer apply following the 2021 auction of the 850MHz expansion and 900MHz bands:<sup>79</sup> these past costs will be assumed to have been fully recovered;
- the assumed demand will be updated from 2020 onwards, but the demand forecast for the years up to 2019 from the 2020 MTAS cost modelling will be retained (as actuals).<sup>80</sup>

The ACCC's preliminary view is that retaining the broad approach in the 2020 pricing exercise and making adjustments to take into account spectrum licence allocations that took place since then as well as the modelling timeframe for this cost model is

<sup>78</sup> Analysys Mason, Draft Model Specification Paper, p 18.

<sup>79</sup> The ACCC understands that the recurring apparatus licence fees for the 900 MHz band may have continued to be paid during the period between the auction and the new spectrum licence commencement date (July 2024). This may inform the timing of when the 900 MHz apparatus licence fees should no longer apply in the cost model.

<sup>80</sup> Analysys Mason, Draft Model Specification Paper, p 18.

reasonable.<sup>81</sup> As noted in Analysys Mason's Draft Model Specification Paper, the ACMA's consideration of the future of spectrum licences due to expire between 2028 and 2032 is a relevant process that should be taken into account in determining forward-looking spectrum costs.<sup>82</sup> As part of this process, the ACMA is expected to determine the prices for these spectrum licences if they are to be renewed. The ACMA has recently released its preliminary views regarding the prices for these spectrum bands, represented in price ranges, as well as other licence settings such as licence durations.<sup>83</sup> The ACCC's preliminary view is that these preliminary prices and proposed licence durations should be used for the purpose of determining the renewal prices and licence terms of the relevant spectrum bands in the draft cost model. The ACCC also proposes to use the ACMA's preferred views on the renewal prices and licence durations of the expiring spectrum bands for the purpose of the final cost model should those be made available in time during the course of the inquiry.

## Backhaul and backbone transmission

Analysys Mason proposes to model two types of backhaul transmission:

- Last mile access backhaul, which connects the radio network sites to a transmission hub; and
- Backbone transmission, which can include transmission between transmission hubs to core network sites (in cases where these are not co-sited), and transmission between core network sites.

Analysys Mason notes that various transmission links can be used for these and in determining the overall transmission architecture, and the model needs to assume a mix of these transmission links which will be relevant in determining transmission costs. Analysys Mason also proposes to consider other factors which will impact the costs of transmission, such as the average length of each type of transmission links and the average costs of each type of transmission links.<sup>84</sup> We have sought information from the operators to inform the consideration of these issues.

The ACCC's preliminary view is that this is a reasonable approach to determining the costs of transmission, which will take into account the unique geographic characteristics of Australia that heavily influences the deployment of transmission infrastructure.

## Core network infrastructure

Analysys Mason proposes to model an IMS core to switch and route the modelled voice traffic between core network locations, but intends to revisit the core network infrastructure based on information received from operators.

Analysys Mason noted that the IMS core is proposed to be used as the modelled fixed core network for the purpose of providing fixed voice services. As this is a platform dedicated to voice services the costs of this will only be recovered via voice traffic. Analysys Mason does not propose to model other parts of the fixed core networks (which are used for both voice and data) as contributions to the costs of fixed interconnection services from these assets will be minimal, as usage of these assets by voice services is negligible compared to overall traffic.

---

<sup>81</sup> These include the 900 MHz/850 MHz expansion band, 26 GHz band and 3.4/3.7 GHz bands auctions.

<sup>82</sup> These include the 700 MHz, 800 MHz, 1800 MHz, 2.1 GHz, 2.3 GHz, 2.5 GHz, 3.4 GHz and 3.6 GHz bands.

<sup>83</sup> ACMA, [Expiring spectrum licences, stage 3: Consultation paper and Preliminary views papers](#), April 2025.

<sup>84</sup> Analysys Mason, Draft Model Specification Paper, pp 18–19.

Analysys Mason also proposes to model a 5G standalone core as all national mobile network operators have deployed or are in the process of deploying a standalone 5G core network.<sup>85</sup>

The ACCC's preliminary view is that the proposed core network infrastructure is reasonable as they likely reflect best in use technologies and infrastructure that a hypothetical efficient operators (for fixed and mobile respectively) will deploy.

The ACCC's preliminary view is that not modelling other fixed core network assets that are used for both voice and data traffic is a reasonable practical approach in this case. As noted previously, the ACCC estimates based on available data that fixed voice traffic only represents around 0.03% of overall fixed traffic in 2024.<sup>86</sup> We have also sought information from fixed network operators relating to their core infrastructure and traffic which will further inform the consideration of this issue.

## Network nodes

Analysys Mason noted there are several options for developing a deployment algorithm for network nodes, and they differ on the extent to which they promote efficient network deployment and how they accurately reflect actual deployment. Analysys Mason proposes to use a modified scorched node approach which takes the existing topology and eliminates inefficiencies that may be currently in place. Analysys Mason explains that in the case of a mobile network, this approach seeks to model a network that reflect actual operator node count (including radio sites, aggregation hubs and core nodes), while ensuring that the network design is modern and reasonable efficient. The fixed core network will be assumed to have the same number of core nodes as the modelled mobile core network.<sup>87</sup>

The ACCC's preliminary view is that a modified scorched node likely strikes a balance between determining the efficient costs of the network and ensuring that modelled network is not too significantly different from those actually deployed in Australia. We consider this is appropriate having regard to the objective of promoting economically efficiency and the legitimate business interests of the access providers.

### 5.2.3. Modelled services

#### Service set

Analysys Mason noted that a full list of services provided by the modelled asset infrastructure at retail and wholesale levels must be included as a proportion of network costs will need to be allocated to these services.<sup>88</sup>

For mobile networks, Analysys Mason proposes to model voice and data services provided over mobile networks separately for 4G and 5G. These include:

- On-net mobile calls
- Outgoing mobile calls
- Domestic incoming mobile voice

---

<sup>85</sup> Analysys Mason, Draft Model Specification Paper, pp 19–20.

<sup>86</sup> ACCC analysis based on information provided pursuant to the Division 12 Record Keeping Rules and the Internet Activity Record Keeping Rules and converting voice minutes to packet data.

<sup>87</sup> Analysys Mason, Draft Model Specification Paper, pp 20–21.

<sup>88</sup> Analysys Mason, Draft Model Specification Paper, p 22.

- Outgoing calls using VoWiFi/D2D
- Incoming calls using VoWiFi/D2D
- On-net SMS/MMS
- Outgoing SMS/MMS
- Packet data.<sup>89</sup>

For fixed core network, Analysys Mason proposes to only model voice services, as the core network asset modelled (i.e. IMS core) is only relevant to the provision of voice services. These voice service include:

- Retail on-net fixed voice
- Outgoing off-net fixed voice
- Incoming fixed voice.<sup>90</sup>

The ACCC's preliminary view is that the service set proposed by Analysys Mason reflects services that are commonly provided on the relevant modelled assets (i.e. mobile networks and fixed core networks) and are therefore appropriate to be included in the model. The ACCC also notes Analysys Mason's view that modelling some non-voice services, such as data services provided over 5G technology, can give rise to forecast uncertainty. For this reason, Analysys Mason proposes to consider a range of forecast scenarios to maximise understanding of the sensitivity of the model results to forecast volumes of these services.<sup>91</sup>

## Traffic volumes

Analysys Mason proposes to take a holistic approach to traffic evolution to ensure consistency in the forecasting of voice traffic between fixed and mobile networks in Australia. This means that the voice traffic developed for the purposes of estimating the costs of the voice interconnection services will need to be aligned.<sup>92</sup>

The ACCC's preliminary view is that this is a reasonable approach to ensure that the estimated costs of the voice interconnection services are based on a consistent set of inputs where relevant.

## Points of Interconnection

Analysys Mason proposes to model a forward-looking number of Points of Interconnection locations.<sup>93</sup> We have sought information from operators on the number of Points of Interconnection locations in the network as well as the interconnection protocols they use which will inform this issue.

## Wholesale versus retail demarcations

Analysys Mason noted that there are two options for considering retail costs in a cost model:

---

<sup>89</sup> Analysys Mason, Draft Model Specification Paper, p 23.

<sup>90</sup> Analysys Mason, Draft Model Specification Paper, p 23.

<sup>91</sup> Analysys Mason, Draft Model Specification Paper, p 22.

<sup>92</sup> Analysys Mason, Draft Model Specification Paper, p 24.

<sup>93</sup> Analysys Mason, Draft Model Specification Paper, p 24.

- Integrated, where retail costs can be considered integral to the network services and included in the services costs through a mark-up, along with business overhead; or
- Separated, where retail costs are considered separate to network costs, and business overheads are then marked up between network and retail services.

Analysys Mason proposes to use the separated case where retail costs are not part of the network costs. Analysys Mason proposes to analyse top-down expenditure data provided by operators to calculate an appropriate mark-up for network and retail activities for the purpose of recovering business overheads.<sup>94</sup>

The ACCC's preliminary view is that retail costs should be separately considered from network costs as proposed by Analysys Mason. This is because the voice interconnection services are wholesale services provided by one network operator to another at the network level. Our preliminary view is that costs in relation to retail activities should be recovered from the provision of retail services.

## 5.2.4. Modelling implementation

### Increment approaches

Analysys Mason noted that several options of increment can be used for the purpose of calculating the cost of voice interconnection services. As discussed in Chapter 4, the ACCC considers that a TSLRIC+ pricing principle is appropriate having regard to the matters under section 152BCA of the CCA. This is reflected in Analysys Mason's proposal to use a long-run average incremental costing (LRAIC) methodology, which is equivalent to the TSLRIC+ concept, in the cost model. This methodology considers all traffic to be the increment and allocate the incremental cost of traffic between the volumes of these services. This means that each service, including voice interconnection services, receives a share of common network costs, mark-ups are then applied to the network costs to capture organisational-level costs.<sup>95</sup>

### Depreciation method

Analysys Mason noted there are several depreciation methods that can be used for recovery of capital investments over time in cost models. These broadly include historical cost accounting, current cost accounting, annuities approach and economic depreciation. Analysys Mason noted that while all of these depreciation methods enable the recovery of original investment in Net Present Value (NPV) terms, the profile of year-by-year depreciation charges can vary considerably. Analysys Mason proposes to use economic depreciation as it is the only method that can take into account all relevant considerations including complex cases where the year-on-year change on output or forecast asset prices is not constant and/or varies between different services. This is implemented by ensuring that the NPV of capital expenditure incurred equals the NPV of economic costs recovered, with the costs including an allowance for return on capital employed specific by the weighted average cost of capital (WACC).<sup>96</sup>

The ACCC's preliminary view is that it would be appropriate to take into account the effects of likely trends in asset prices and outputs in determining how capital expenditure should be

---

<sup>94</sup> Analysys Mason, Draft Model Specification Paper, pp 24–25.

<sup>95</sup> Analysys Mason, Draft Model Specification Paper, pp 27–28.

<sup>96</sup> Analysys Mason, Draft Model Specification Paper, pp 28–30.

recovered over time. Both voice and data traffic are likely to change over time – in particular data traffic is likely to grow significantly and the change in traffic is unlikely to be constant. The ACCC welcomes stakeholder’s feedback on the proposed use of economic depreciation method to account for these effects.

## Geotyping

Analysys Mason noted that geotypes are a key input to the cost model of mobile network and they reflect areas with similar geodemographic characteristics (such as population density). Analysys Mason noted that a single national geodemographic dataset consisting of a ‘tiling’ of Australian land is required to inform the geotypes. Analysys Mason proposes that:

- the Statistical Areas Level 2 (SA2) areas as defined by the Australian Bureau of Statistics (ABS)<sup>97</sup> are used as the ‘tiles’ of the Australian land; and
- these areas are then split into various groups based on the ABS Remoteness Structure (i.e. Major Cities, Inner Regional Australia, Outer Regional Australia, Remote Australia and Very Remote Australia)<sup>98</sup>.

In addition, Analysys Mason proposes to:

- model a separate geotype for islands requiring coverage (other than Tasmania); and
- explore whether geotypes can be further split to reflect regional spectrum allocations so that a spectrum allocation can be assumed to cover a subset of geotypes where applicable.<sup>99</sup>

The ACCC’s preliminary view is that SA2 areas and the ABS Remoteness Structure are appropriate starting points for developing the geotypes in the cost model. In particular, we note that the ABS Remoteness Structure is commonly used as the basis for assessing differences in mobile infrastructure and market shares across the country, including in the ACCC’s annual Mobile Infrastructure Report, and is well understood by industry.

As noted above, the ACCC considers it important to examine whether regional spectrum allocations can be reflected in the model and agree with Analysys Mason’s proposal to further explore this.

## Modelling timeframe

Analysys Mason proposes to model the network from 2020 to 2070, with the model duration starting prior to assumed deployment in 2025 to capture planning periods. Analysys Mason noted that the time series should at least be long as the longest asset lifetime used in the model, which is up to 25 years for mobile radio sites. Analysys Mason considers that a long time series have the following benefits:

- allows consideration of all costs over time and provides clarity on the implications of adopting economic depreciation
- provides clarity on recovery of costs incurred from the services

---

<sup>97</sup> ABS, [Statistical Area Level 2](#), ABS, Australian Government, accessed 25 March 2025. .

<sup>98</sup> ABS, [Remoteness Areas](#), ABS, Australian Government, accessed 25 March 2025.

<sup>99</sup> Analysys Mason, Draft Model Specification Paper, pp 30–32.

- provides a wider range of information on how the costs of the network vary over time and in response to changes in demand or network evolution.<sup>100</sup>

The ACCC's preliminary view is that a long time series, as proposed by Analysys Mason, is likely appropriate as the transparency benefits noted above will likely enable us to better assess the robustness and reasonableness of the cost estimates. In the event that the ACCC decides to continue to declare the voice interconnection services, a long modelling timeframe adopted in the model will likely mean that the model can be more readily updated with information for the purpose of pricing exercises if deemed appropriate during future access determination inquiries.

## Weighted average cost of capital (WACC)

Analysys Mason noted that the cost model will require a pre-tax WACC as an input and that the ACCC will calculate a pre-tax WACC for this purpose.<sup>101</sup>

The ACCC intends to consult on the development of WACC methodologies that will inform its consideration of WACCs in various regulatory processes. The draft WACC methodologies developed will inform the calculation of the proposed WACC under the cost model which will be set out in the draft report for stakeholder feedback.

## Routeing factors

Analysys Mason proposes to use average traffic routeing factors to allocate costs calculated by asset between the modelled service volumes in a neutral way. Analysys Mason proposes to convert all modelled service volumes into voice-equivalent minutes.<sup>102</sup>

The ACCC's preliminary view is that this is appropriate as it is a relatively simple and transparent way to allocate asset costs across all services that are provided using those assets.

## Mark-up mechanism

For other common costs (including network and non-network costs) that are not allocated using routeing factors, Analysys Mason proposes to use an equi-proportionate mark-up approach, where the incremental costs of all increments are increased by the same percentage. Analysys Mason noted that this approach is straight forward and does not require any supporting information. Analysys Mason considers the alternative option of using Ramsey pricing (which allocates common costs based on the elasticities of the services) is not feasible because of the complex and dynamic information requirement despite its welfare maximising property.<sup>103</sup>

The ACCC's preliminary view is that the use of equi-proportionate mark-up approach to allocate common costs that cannot be directly allocated to the modelled services is appropriate as it is simple and easy to implement. The ACCC understands that a Ramsey pricing approach is unlikely to be practical given the significantly complex information required that may not be available.

---

<sup>100</sup> Analysys Mason, Draft Model Specification Paper, pp 32–33.

<sup>101</sup> Analysys Mason, Draft Model Specification Paper, p 33.

<sup>102</sup> Analysys Mason, Draft Model Specification Paper, p 33.

<sup>103</sup> Analysys Mason, Draft Model Specification Paper, pp 34–35.

## Calculation of operating expenditure

Analysys Mason noted that there are several approaches for calculating opex associated with the operation and maintenance of the network business and the cost model could use a combination of these approaches. i.e. different approaches for different network elements.<sup>104</sup> We have sought information from stakeholders regarding their operating expenditure to inform the appropriate approach to calculating opex in the model in relation to various network elements.

### 5.3. Use of information from operators

As noted in Chapter 4, the ACCC will seek to use information that is already available (such as information provided under Record Keeping Rules or other ACCC processes that may be relevant) to inform inputs to the cost model where possible. Nonetheless, additional information from mobile and fixed operators is required to ensure that data inputs to the cost model are updated, robust and reasonable. The ACCC has commenced a process to seek the required information from relevant operators. The information sought include the following:

- Demand data  
This includes recent traffic data, profiles of traffic, and forecast demand. The data provided will assist in the process of detailed forecasts for usage and take-up in the period assumed in the cost model, together with other information that is available to us.
- Network and cost data  
This relates to information on the modern equipment that is either currently deployed or will be deployed for voice services as well as the costs of deployment, and includes technologies and technical components deployed in a mobile radio network, costs of site deployment across various areas of Australia, types of backhaul links deployed, core network deployments, and other technical assets required to support voice services. The data will inform the development of the network design and ensure that cost model reflects Australia-specific costs in the deployment of a network.
- Expenditure data  
This includes recent investment and operating expenditure data by various cost categories. This data will enable us to determine whether the cost model is generating appropriate levels of costs.

As the intention is to model a hypothetical efficient operator, the model will not seek to reflect the costs of any specific operator. However, information from multiple operators regarding their actual networks and costs will be important to developing a reasonable set of inputs for the modelled operator that reflect Australia-specific circumstances. The ACCC will make the draft cost model available including the relevant inputs and how they are derived for the purpose of the draft report, to ensure that stakeholders have the opportunity to test the reasonableness of the inputs developed.

The ACCC's approach to handling information in this inquiry is set out in **Appendix A**. Where the ACCC proposes to share the inputs included within any cost model with industry

---

<sup>104</sup> Analysys Mason, Draft Model Specification Paper, pp 33–34.

stakeholders, the ACCC will engage with information providers as necessary. In this inquiry, we are considering ways to de-identify information in such a way as to ensure that the data from individual operators will not be identifiable in the inputs included in any cost model shared with stakeholders. This could include redacting certain datapoints, by multiplying the input by a random factor.

# 6. Non-price terms and conditions

Access determinations can specify a range of non-price terms and conditions of access and cover a broad range of matters, such as:<sup>105</sup>

- commercial terms, such as billing
- general dispute resolution processes
- operational processes by which the declared service is to be accessed.

This section sets out the ACCC's preliminary views on non-price terms and conditions to be included in the final access determinations for the voice interconnection services.

## 6.1. Current non-price terms

In the Discussion Paper, the ACCC sought views on whether changes should be made to the non-price terms and conditions that are currently in the final access determinations for the voice interconnection services. These non-price terms and conditions relate to the following matters:

- 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.

Stakeholders that commented on these non-price terms and conditions all support maintaining these terms in the final access determinations. Telstra supports the continuation of these terms without amendments.<sup>106</sup> TPG Telecom submitted that voice interconnection services are generally well understood by industry, except in certain exception cases such as flash calling but considers that these are largely the result of confusion regarding other regulations. Overall, TPG Telecom considers that the non-price terms and conditions should be rolled over to expedite the inquiry

---

<sup>105</sup> Section 152BC of the CCA.

<sup>106</sup> Telstra, [Telstra submission](#), September 2024, p 2.

process.<sup>107</sup>

The ACCC's preliminary view is that the current non-price terms and conditions should continue to be included in the final access determinations, as they provide a baseline set of terms that parties can rely on if they cannot agree on the terms of access. This ensures that access to the voice interconnection services is not only provided, but is provided on reasonable terms. The ACCC has taken into account the matters in s 152BCA in reaching this preliminary view.

## 6.2. Scam blocking obligations

During the 2023–24 combined declarations inquiry, the ACCC noted that once the declaration inquiry for the voice interconnection services is finalised, among other matters, we would consider whether the access determinations for these services should include terms that support or facilitate the adoption of measures that address scam traffic by industry.<sup>108</sup>

In the Discussion Paper, the ACCC invited stakeholder views on the possible inclusion of non-price terms relating to scams in the final access determinations. The ACCC also sought feedback on the current practice in blocking scam traffic and associated risk in blocking legitimate traffic.<sup>109</sup> In doing so, the ACCC recognised and acknowledged the evolving nature of scams and the relevance of other current or developing regulations such as the Scam Prevention Framework<sup>110</sup>, the SMS Sender ID Registry<sup>111</sup>, the Reducing Scam Calls and Scam SMS Industry Code<sup>112</sup> and the review of the Telecommunications Numbering Plan 2015 (Numbering Plan).<sup>113</sup>

### Stakeholders generally do not support including a term relating to scams

Submissions show that stakeholders had reservations about including a term(s) in the access determinations to address scam issues. Pivotal, Twilio, Symbio and Optus all submitted that the issues relating to the blocking of scam traffic should be dealt with under the scam regulation framework such as the Reducing Scam Calls and Scam SMS Code. They did not think the access determination is an appropriate tool to deal with these types of issues or that any changes to the access determinations should be deferred until other relevant processes (such as the ACMA's Numbering Plan review) are finalised.<sup>114</sup>

---

<sup>107</sup> TPG Telecom, [TPG Telecom submission](#), September 2024, p 4.

<sup>108</sup> ACCC, [Public inquiry into the declaration of the domestic transmission capacity service and fixed line services, Final report](#), March 2024, p 52.

<sup>109</sup> ACCC, [Voice interconnection services access determination inquiry – discussion paper](#), ACCC, Australian Government, July 2024, pp 28-29.

<sup>110</sup> Federal Register of Legislation, [Scams Prevention Framework Act 2025](#), accessed 14 March 2025.

<sup>111</sup> ACMA, [Combating phone scams](#), ACMA, Australian Government, accessed 11 February 2025.

<sup>112</sup> Communications Alliance, [Industry Code C661:2022 Reducing Scam Calls and Scam SMS](#).

<sup>113</sup> ACMA, [Proposed changes to the Numbering Plan and other instruments](#), ACMA, Australian Government, accessed 19 November 2024.

<sup>114</sup> Pivotal, [Pivotal submission](#), September 2024, p 3; Twilio, [submission in response to the voice interconnection services access determination inquiry discussion paper](#) (Twilio submission), September 2024, p 4; Symbio, [Symbio submission](#), September 2024, p 13; Optus, [Optus submission](#), September 2024, p 10.

TPG Telecom considered that it is unclear how an appropriate term would be drafted and suggested that the ACCC could consider describing circumstances where the access seekers do not have automatic access to termination services.<sup>115</sup>

ACCAN submitted that there is unlikely substantive legal conflict between the access determination and the operation of scam prevention frameworks. However, ACCAN acknowledged potential conflict regarding the blocking of suspected scam traffic and suggests that the ACCC could include a dispute resolution mechanism.<sup>116</sup>

Telstra is the only stakeholder that supported the inclusion of a term(s) to enable carriers to undertake scam blocking activities but did not provide the details of its proposal in its submission.<sup>117</sup>

### 6.3. ACCC's preliminary position

The ACCC's preliminary position is to not include a term(s) relating to scams in the final access determinations for the voice interconnection services at this stage.

The primary purpose of including such a term would be to address perceived tension between or confusion regarding the standard access obligations to provide voice termination services and other existing or future obligations to block scam traffic (such as those in the Reducing Scam Calls and Scam SMS Industry Code),

There are currently opposing views from stakeholders on what steps should be taken to disrupt scam traffic in accordance with relevant scam regulations and whether those steps are reasonable. The ACCC understands from industry that there are challenges in identifying actual scam traffic and that operators currently rely on a range of methods to disrupt *suspected* scam traffic, e.g. through examining call patterns or blocking calls displaying numbers that do not belong to the originating network. However, industry stakeholders do not agree on whether these methods are appropriate and some have raised concerns that they are blunt and result in legitimate calls being blocked, to the detriment of competition.<sup>118</sup> In particular, we are aware of opposing views from industry regarding the use of certain number practices, such as the Multiple Service Practice,<sup>119</sup> and how such practices impact scam blocking. For this reason, any term(s) that seeks to enable the access provider to block traffic in accordance with scam regulations would not necessarily provide certainty or prevent disputes unless the terms can clarify what constitute reasonable steps or methods that an access provider can take in complying with those scam regulations.

The ACCC's preliminary view is that it does not consider these are matters that are appropriate for the final access determinations to address at this stage. The ACCC agrees with views expressed by some stakeholders that they are best addressed in existing or developing scam-related regulations, such as the Reducing Scam Calls and Scam SMS Industry Code and the Scam Prevention Framework. Addressing these through non-price terms in the final access determinations could potentially add complexity to and cut across these regulations. In particular, the ACCC understands that stakeholders have raised similar issues as part of the ACMA's review of the Numbering Plan. The ACMA announced its intention to explore a mechanism under its scam reduction work program in relation to the

---

<sup>115</sup> Optus, [Optus submission](#), September 2024, p 5.

<sup>116</sup> TPG Telecom, [TPG Telecom submission](#), September 2024, pp 1-2.

<sup>117</sup> Telstra, [Telstra submission](#), September 2024, p 2.

<sup>118</sup> See for example Telstra, [Telstra submission](#), September 2024, p 3; Twilio, [Twilio submission](#), September 2024, p 3.

<sup>119</sup> The Multiple Service Practice refers to the use of the same number by multiple providers in providing services.

Multiple Service Practice after remaking the Numbering Plan, with a view to enable this practice but supported by specific regulatory controls relating to scams.<sup>120</sup>

For these reasons, the ACCC's preliminary position is to not include a term(s) relating to scams in the final access determinations. However, the ACCC will monitor developments in the scam regulation landscape, including the ACMA's further work program relating to contentious numbering practices and the implementation of the Scam Prevention Framework, during the course of the inquiry.

---

<sup>120</sup> ACMA, [Proposed changes to the Numbering Plan and other instruments: Consultation paper](#), ACMA, Australian Government, November 2024, p 22.

# 7. Duration

In the Discussion Paper, the ACCC noted that the expiry date for an access determination should normally align with the expiry of the associated declaration unless there are circumstances that warrant a different expiry date. The current declarations for the voice interconnection services expire on 30 June 2029.

## **Stakeholders generally supportive of access determinations expiry date aligning with declarations expiry date**

Optus submitted that the term of the access determinations should align with the corresponding declaration period.<sup>121</sup> Likewise, TPG Telecom submitted that current price terms for the voice interconnection services should continue for a further 5 years.<sup>122</sup>

On the other hand, Symbio submitted that the new access determinations should expire after 3 years with the option to extend for a further 2 years to align with the expiry dates of the relevant declarations. Symbio argued that this approach would balance the need for certainty with flexibility to decide if the market conditions have changed to warrant any changes in 3 years' time.<sup>123</sup>

### 7.1. ACCC's preliminary position

The ACCC's preliminary position is that the most appropriate expiry date for the access determinations is 30 June 2029 to align with the expiry date of the declarations for the voice interconnection services. The ACCC does not provisionally consider there are circumstances which warrant the specification of a different expiry date.

The ACCC acknowledges the benefit of a shorter expiry period put forward by Symbio in responding to changes in market conditions. Should there to be substantial changes in market conditions during the term of access determinations that warrant changes to the access determinations, it would be open to the ACCC to commence an inquiry to consider varying the access determinations.<sup>124</sup>

---

<sup>121</sup> Optus, [Optus submission](#), September 2024, p 10.

<sup>122</sup> TPG Telecom, [TPG Telecom submission](#), September 2024, p 2.

<sup>123</sup> Symbio, [Symbio submission](#) September 2024, p 2.

<sup>124</sup> Section 152BCN(1) of the CCA