



Broadband Speeds Claims Industry Guidance

A report on the revised guidance

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1. Executive summary

COVID-19 has led to consumers relying on broadband services to work and study at home more than ever before. This has made it more important for consumers to receive transparent information about how broadband services perform so they can choose the services that best suit their needs.

While information about broadband download speeds is widely available, information about upload speeds has become less visible in retail marketing. Since 2020, upload speeds have almost disappeared from much of the marketing of retail broadband services to consumers.

In addition, advertised download speeds are not a reliable indicator of upload speeds consumers can expect to receive because retail providers can choose the upload speeds to provision. This choice expanded to 100 Mbps NBN plans in May 2020, with NBN Co offering both 100/40 Mbps and 100/20 Mbps wholesale services from that time.

With less transparent information about retail broadband upload speeds when consumers rely on residential broadband services more than ever, we reviewed how our Broadband Speed Claims Industry Guidance (the Guidance) can promote more transparent information about upload speeds.

Our principal finding is that retail providers should make typical busy period upload speeds information available in their broadband marketing, in a similar way to how they already provide this information for download speeds. We also found:

- the methods that retail providers use to determine typical busy period download speeds can be readily adapted to also determine typical busy period upload speeds. This means most RSPs can leverage existing arrangements to provide consumers with more transparent information about the upload performance of their broadband services.
- typical busy upload speeds on fixed-line broadband networks can be predicted with confidence based on the maximum wholesale speed that is provisioned, which means it would be reasonable to take a formulaic approach to calculating this measure for broadband services supplied over those networks
- an active measurement approach is required to reliably present upload speeds on fixed wireless networks however, due to the potential for congestion management practices during the busy period and additional susceptibility to variable factors like weather and vegetation.

We consulted publicly in conducting the review and reaching these findings. While this allowed us to test and confirm our fundamental proposition that further specification of upload speeds would assist consumers to find the products of most benefit and value to them, it also brought forward strong opposition from retail providers about the potential costs to them, and differing views on the cohorts of consumers who would stand to benefit.

After considering the concerns about costs raised by retail providers in their submissions, we met with retail providers and other stakeholders to better understand these concerns. We were able to find a suitable approach that minimised the negative impacts to retail providers while still allowing consumers to benefit from access to important product information. This has allowed us to focus our recommendations, which includes allowing retail providers to use a common busy period for both download and uploads and prioritise including upload speed information in their online materials such as webpages and ordering portals.

We expect retail providers can make typical busy period upload speeds information available within three months after the Guidance is published for fixed-line services and within six months for fixed wireless services.

The revised Guidance also updates our position on the disclosure of factors that would likely affect the performance of services on fixed wireless networks, by adding to these factors and clarifying that such disclosures should be made for services provided over alternative fixed wireless networks as well as over the NBN.

2. Findings and position adopted

2.1. Findings

Changes in the market

- Broadband upload speeds have become less visible in retail marketing since 2020.
- Consumers have become more interested in upload speeds as they use broadband at home for work and study purposes more than before due to COVID-19.
- Since May 2020, retail providers could choose from more upload speeds in the speed tiers of the wholesale services they acquire to provide their retail services. For example, retail providers can choose from 25/5 Mbps and 25/10 Mbps services in the wholesale NBN25 speed tier and from 100/40 Mbps and 100/20 Mbps services in the wholesale NBN100 speed tier.
- In the absence of transparent information about upload speeds in retail marketing, consumers may not know the upload speeds they have paid for.
- Broadband services are available over a growing range of fixed wireless networks in addition to services provided over the NBN Fixed Wireless Network.

Barriers to more transparent upload performance

- Barriers to determine typical busy period upload speeds are generally low.
- The methods that are widely used to monitor download speeds and inform retail providers' current claims about the typical busy period speeds they provide can be readily adapted to measure upload speeds with low additional cost. This applies to services provided over fixed-line networks and services provided over fixed wireless networks.
- Retail providers monitor download speeds by measuring their own network's performance or using measuring services from third party providers.
- Third party testing providers include upload speed testing in their standard offerings.
- Retail providers that use only their own network performance monitoring for download speeds use processes that can be adapted to measure upload speeds with minimal additional implementation steps or cost.

Features of upload performance

- Upload speeds on fixed-line networks do not vary significantly over a 24 hour period.
- Upload speeds on fixed wireless networks are more variable over a 24 hour period than fixed-line services. This is because the technology is more likely to be affected by congestion management practices during the busy period and is more susceptible to interruption from inherently variable factors like the weather or vegetation.

- The busiest hours in a 24 hour period for upload speeds is 7pm to 11pm for services provided over fixed-line networks and fixed wireless networks.
- Upload speeds are not as affected by congestion during busy periods compared to download speeds. This is because networks are provisioned symmetrically to carry traffic in download and upload directions. This means when networks are provisioned for peak download use, which is greater than upload use, there is spare capacity available for upload used.

Factors that may affect the performance of services on fixed wireless networks

- Services provided over all fixed wireless networks may be affected by a range of factors.
- Factors that may affect the performance of fixed wireless services include the line of sight to a base station, the weather, vegetation, geography and buildings, radiofrequency band used, cell congestion, interference, and the location and quality of antennas and Wi-Fi modems.
- Many fixed wireless service providers disclose the factors most relevant to their services on their websites.

2.2. Position adopted

- Retail providers should publish typical busy period upload speeds to provide more transparent information to consumers about the upload performance of the broadband services they provide. See the revised Principle 1 in the Guidance.
- Typical busy period upload speeds should be prominently displayed at least on retail providers' websites. See the revised Principle 1 in the Guidance.
- The method in the Guidance to measure typical busy period speeds should be used to measure typical busy period download speeds and typical busy period upload speeds. That is, the method to determine the third lowest busy hour speed in a 14 day period observed in a representative sample of 75 services of a retail broadband plan supplied to consumers (Preferred Testing Methodology). See the revised Attachment A to the Guidance.
- Retail providers that offer broadband services over fixed-line networks and do not measure their own busy period upload speeds may estimate the typical busy period upload speeds of their services by using a new method in the Guidance. See the new section "Estimating typical busy period upload speeds on fixed-line networks" in the revised Attachment A to the Guidance.
- Retail providers that offer broadband services over fixed wireless services should use the Preferred Testing Methodology See Attachment A to the Guidance.
- Retail providers that offer fixed-line broadband services should publish typical busy period upload speeds within three months of the revised Guidance being published.
- Retail providers that offer fixed wireless broadband services should publish typical busy period upload speeds within six months of the revised Guidance being published. The additional time for these retail providers is to put in place appropriate arrangements to measure upload performance on their fixed wireless networks.

3. Introduction

3.1. About this report

This report outlines the revisions made to our [Broadband speeds claims – Industry guidance](#) (the Guidance) in 2022 and explains the basis for these changes.

The revisions follow a public consultation process in January-February 2022 and further engagement with stakeholders in July and August 2022. We issued a [consultation paper on revising the Guidance](#) (Consultation Paper) in January 2022 invited submissions on issues related to presenting typical busy period upload speeds to consumers and disclosing factors that may affect speeds on non-NBN (alternative) fixed wireless networks. We also liaised with stakeholders in July and August 2022 to further discuss these issues further.

This report provides a summary of the thirteen submissions we received to the Consultation Paper, our further engagement with stakeholders, and explains the position we have adopted in the revised Guidance. This report is intended to be read with the published revised Guidance. Public submissions are available on the ACCC [website](#).

3.2. Background

We seek to make markets work by promoting competition and informed consumer choice. One of the ways to achieve this is by reducing information asymmetry between retail providers and consumers.

Transparent information about the performance of broadband services promotes competition by helping consumers make informed decisions about the services that suit their preferences. Less transparent information increases the likelihood that consumers may make ill-informed choices and pay for services they do not need or do not receive. Less transparency also reduces competition by reducing pressure on retail providers to compete on the attributes of their services.

We published the Guidance in August 2017 as a best practice guide for retail providers on how to advertise speeds for fixed-line broadband services more transparently, which included clearly identifying typical busy period speeds. At the time, there were high levels of consumer dissatisfaction about slow data speeds' and consumer interest in information about broadband speed and performance that is easy to compare.

We updated the Guidance in May 2019 to cover services supplied over the NBN Fixed Wireless Network.

In 2020, we updated the Guidance to cover services with higher maximum download and upload wholesale access speeds. This followed NBN Co's launch of products with peak download/upload speeds of up to 100/20 Mbps, 250/25 Mbps and 500-900/50 Mbps.

In January 2022, we began consulting stakeholders about amending the Guidance to improve retailer providers' information about upload speeds and factors affecting the performance of services on alternative fixed wireless networks.

4. Changes to the Guidance

We have revised the Guidance to promote transparent information about the upload performance of broadband services made available to consumers.

This is in response to market development that include:

- a reduction in transparent information about upload speeds in consumer broadband plans from retail providers
- an increase in consumer use of broadband upload functionality in the home for work, education and recreation purposes due to the COVID-19 pandemic, and
- the availability of more upload speed options in wholesale products acquired by retail providers to provide their retail services.

We have also revised the Guidance in response to the growth of services provided over fixed wireless networks other than the NBN Fixed Wireless Network. The growth of these services and alternative fixed wireless networks reinforces the importance of ensuring the Guidance about disclosing factors that may affect speeds reflects the factors that may affect speeds on all fixed wireless networks.

This section of the report outlines the issues we have considered and the position we have adopted in the context of the revised Guidance.

4.1. Issue 1: Typical busy period upload speeds

4.1.1. Overview of the issue

Broadband speeds have historically been marketed with a focus on download speeds, reflecting the way consumers generally use broadband services. However, retail providers have traditionally identified both download speeds and upload speeds in their retail marketing.

The Guidance was introduced when download speeds were the primary factor other than price that consumers used to determine the broadband service that best matched their preferences.

The Guidance focuses on encouraging retail providers to provide consumers with the typical speeds provided during the busiest time of day – typical busy period speeds – when speeds are most likely to be slower due to congestion from more users. It does not limit typical busy period speeds to download speeds. However, in practice, retail providers have adopted the Guidance to inform their claims about the typical download speeds their broadband services provide in the busy evening period.

Recent developments have made upload performance less transparent and created uncertainty for consumers about the quality of the broadband services they have purchased. At the retail level, upload speeds have become less visible in retail marketing since 2020. By mid-2022, many retail providers did not include any reference to upload speeds in their marketing of residential broadband services.

At the wholesale level, retail providers now have access to additional upload speed options to provide retail broadband services. For example, NBN Co offers speeds of 25/5 Mbps and 25/10 Mbps at the NBN25 speed tier. In May 2020, NBN Co introduced a new product with speeds of 100/20 Mbps at a lower price than its existing 100/40 Mbps product. Some retail providers acquired the 100/20 Mbps product to support retail services they previously supplied using the 100/40 Mbps product.

With less transparency in retail marketing and more upload speed options for retail providers to choose from to provide retail services, published download speeds are no longer a reliable indicator of the upload performance of services provided to consumers.

At the same time, COVID-19 has resulted in consumers working and studying at home more than ever before and relying on upload performance for video conferencing and sharing

large files, which was previously done with IT services in the workplace and educational institution.

In light of these developments, we have considered whether the Guidance could be revised to promote more transparent information about upload performance for consumers, such as publishing typical busy period upload speeds.

In our Consultation Paper and subsequent further engagement with stakeholders, we sought comments on issues that include:

- barriers to providing typical busy period upload speed information
- the four-hour busy period in a 24 hour period for upload speeds, and
- constraints on a fixed network line or fixed wireless cell that affect upload speeds in a way that deteriorates service quality experienced by an end-user.

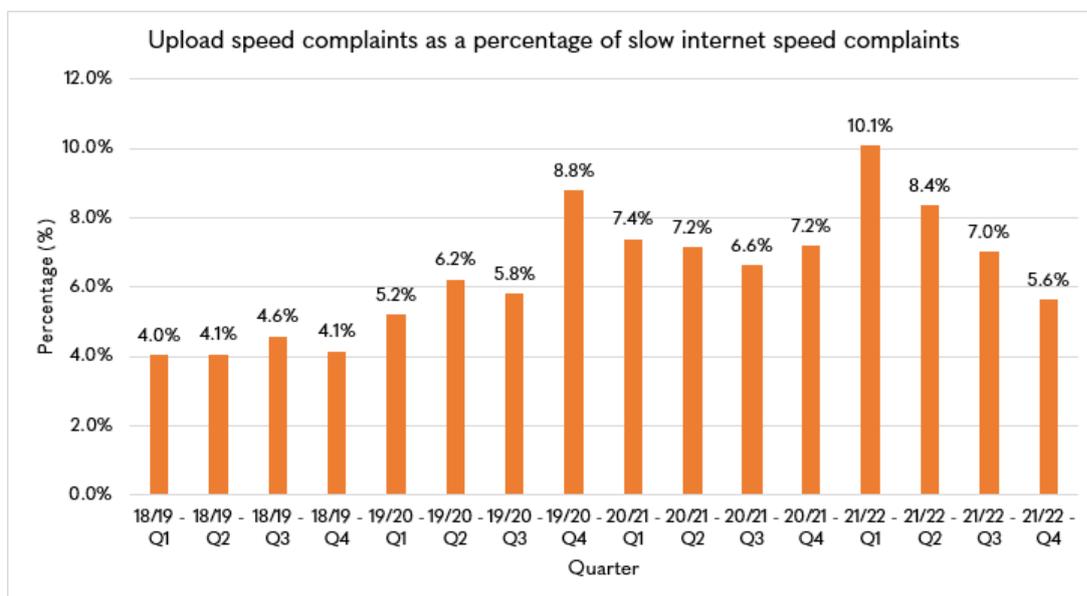
4.1.2. Issues raised in consultations with stakeholders

4.1.2.1. Consumer complaints

Many industry submissions initially claimed they had received a low level of consumer complaints about upload speeds which meant there was no consumer demand for further upload speed information. During subsequent engagement, one large retail provider observed it was aware of an increase in consumer interest in upload performance.

The Telecommunications Industry Ombudsman (TIO) submitted that it had observed complaints about upload speeds were increasing as a share of all complaints about slow speeds, particularly when most consumers were working and educating at home during peak COVID-19 lockdowns. On further engagement, the TIO provided its most recent complaints data on this trend, which is included below.

Table 1 - TIO data on upload speed complaints – FY2019-FY2022



Source: TIO.

We have also received complaints from consumers about broadband upload speeds. The issues raised in these complaints include upload speeds not meeting consumers' needs, information about upload speed being removed from marketing material, retail providers

unilaterally reducing upload speeds without reducing retail prices and with an impact on consumers' ability to meet work and educational obligations from home.

4.1.2.2. Network congestion affecting upload speeds

Industry submissions commonly expressed the view that fixed-line networks have sufficient capacity to support upload speeds, which are less affected by congestion than download speed during busy periods.

This is because fixed-line networks are provisioned symmetrically to carry traffic in download and upload directions, and with sufficient capacity to carry the largest volume of traffic, which is download traffic at many multiples more than the upload traffic.

Industry submissions claimed this means a key reason for publishing typical busy period speeds for download speeds – transparency about the impact of congestion on speeds during busy periods – does not apply to upload speeds. As such, industry submissions claimed this means there is no need to publish typical busy period upload speeds, particularly for fixed-line networks.

A number of industry submissions also submitted that there is more variability in upload speeds on fixed wireless networks due to the nature of fixed wireless technology and factors that may affect speeds on these networks. These factors are considered later in this report.

One major fixed wireless service provider expressed the view that testing upload speeds risked congestion on their fixed wireless network. However, another major fixed wireless provider tests and provides upload speeds for its fixed wireless services. In addition, a smaller fixed wireless provider explained that congestion on fixed wireless cells is a manageable part of testing network performance with appropriate scheduling and sampling. The impacts of congestion in a fixed wireless cell can also be reduced by network traffic management practices.

4.1.2.3. Costs of testing typical busy period upload speeds

In the public consultation process, some industry submissions raised strong concerns about the anticipated costs of providing typical busy period upload speeds to consumers. These costs related to the anticipated need to develop new IT, processes and reporting arrangements to determine typical busy period upload speeds in accordance with the Preferred Testing Methodology. This was claimed to apply to upload speeds on fixed-line networks and on fixed wireless networks.

In response to these concerns, we consulted stakeholders further about the anticipated costs. We sought to understand the additional costs that would be incurred by retail providers that already monitor their download speeds in order to make claims about the typical busy period speeds they provide. During these additional consultations, most retail providers moderated their initial concerns.

The additional consultation found that most retail providers monitor download performance using a combination of their own network testing and measuring services from a third-party provider of network performance testing services. The retail providers that used only their own testing had nonetheless adopted processes that could be readily adapted to measure upload performance, including for fixed wireless services, with minimal additional costs.

Some retail providers we consulted confirmed that they publish some typical busy period upload speed information. Further consultations found that for some providers, the complexity and costs of providing typical busy period upload speeds in all forms of marketing was a greater concern than the costs of measuring upload performance. Further

consultations also found that concerns about establishing a process to determine different busy periods for upload speeds and download speeds would not apply if the busy period for upload speeds and download speeds was the same.

4.1.2.4. *Busy hours*

Industry submissions commonly observed that the busy periods for upload speeds and download speeds is around 7pm to 11pm across fixed-line networks. During these periods, upload speeds do not vary significantly.

However, upload performance on fixed wireless networks is not widely measured by retail providers. Of the retail providers that do, they generally observed the busy hours for upload speeds was 7pm to 11pm. One smaller retail provider observed a busy period of 10am to 2pm on its fixed-line and fixed wireless services, reflecting peak times for business and education use from its customer base.

4.1.2.5. *Sample size*

Industry submissions broadly supported the existing sample size of 75 for testing typical busy period speeds in accordance with the Preferred Testing Methodology.

Some operators of fixed wireless networks suggested the variability of upload speeds on fixed wireless networks meant a different sample size was appropriate for testing upload speeds on those networks. Some smaller retail providers also suggested a smaller sample size may be more appropriate for smaller retail providers. However, in both cases, there was little consistency or clarity among alternative sample sizes suggested.

4.1.2.6. *Which marketing material*

Industry submissions strongly resisted any obligation in the Guidance to provide typical busy period upload speeds in all forms of marketing material. There was a widely held view that adding this information to all forms of marketing material would add complexity, time and costs to providing this material, and the added complexity may confuse consumers, particularly if busy periods were different for download speeds and upload speeds.

The largest retail providers expressed the view that if typical busy period upload speeds were to be provided, they should only appear in longer forms of marketing material, such as Critical Information Summaries and Key Fact Sheets.

4.1.3. *Position adopted in the Guidance*

We have amended the Guidance to promote more transparent information about upload speeds to benefit consumers in urban areas and in regional areas, irrespective of whether consumers receive fixed-line services or fixed wireless services.

We have refined the proposals in the initial public consultation after taking into account the submissions we received, particularly submissions that raised strong concerns about the costs of the original proposals, and the outcomes of additional consultations we undertook with stakeholders.

In particular, we have sought to minimise the costs of following the Guidance in a number of ways. The revised Guidance adopts the same busy period for upload speeds and download speeds to minimise the complexity of speed testing and making typical busy period speed claims. It also limits the publication of typical busy period upload speeds to retail providers' websites rather than all forms of marketing material. The revised Guidance also includes a

new low-cost method to estimate typical busy period upload speeds on fixed-line networks as an alternative to the Preferred Testing Methodology.

Amendments have been made to Principle 1 to promote both typical busy period download speeds and typical busy period upload speeds. The revised Guidance also states that typical busy period upload speed information should be prominently displayed at least on retail providers' websites but does not state it should be in all forms of marketing material. Attachment A to the Guidance has also been amended to specifically refer to typical busy period download and upload speeds.

We explain the reasons for these changes below.

4.1.3.1. Fixed-line vs fixed wireless services

Transparent information about broadband service performance, including for upload speeds, is important for informed consumer choice and competition irrespective of the technology supplying the service.

It is also important that consumers who rely on fixed wireless networks to access broadband services, such as some consumers in regional areas, receive the same level of transparency as consumers able to receive broadband over fixed-line networks.

Limiting transparent upload speeds to fixed-line services could lead to consumers in regional areas receiving less transparent information than consumers in urban areas where fixed-line services are more widely available. This would increase disparity between broadband services in regional and urban areas at a time when fixed wireless services are rapidly developing.

From our engagement with stakeholders, we understand the barriers to measuring upload speeds on fixed-line networks and fixed wireless networks are low. It is technically feasible for retail providers to measure both fixed-line and fixed wireless upload speeds because the options available to measure download speeds can be readily adapted to measure upload speeds. Leveraging existing arrangements also involves minimal additional cost. These issues are considered in the sections below.

We therefore consider revising the Guidance to promote transparent upload performance for both fixed-line services and fixed wireless services would promote competition and benefit consumers.

4.1.3.2. Costs of testing typical busy period upload speeds

We explored the concerns that had been raised about the costs of testing upload speeds in further consultations with a range of stakeholders. In these further consultations, stakeholders generally moderated their views.

This is particularly the case for retail providers that already test download speeds because the options widely used to measure download speeds are readily adaptable to test upload speeds at negligible incremental cost.

For example, the Broadband Forum¹ – an international industry organisation that develops broadband network specifications – has published a technical report setting out processes for testing download and upload performance.² The processes in this report have been

¹ The Broadband Forum is a non-profit industry organisation that develops broadband network specifications. Its members include network operators, service providers, device and equipment vendors, consultants and independent testing labs.

² Broadband Forum's Technical Report TR-143 "Enabling Network Performance Testing and Statistical Monitoring".

widely adopted in the industry, and retail providers that have adopted these processes would have IT, monitoring and reporting that could be applied to test download and upload speeds. Retail providers we engaged with confirmed their existing testing arrangements are consistent with these Broadband Forum processes.

Speed testing is also available from third party providers. A major third-party provider we engaged with confirmed that its standard suite of network testing products includes testing upload speeds with no incremental cost if download speeds are already being tested. Also, the method and technology used by that provider to test upload speeds on fixed-line and fixed wireless technologies is the same.

Nevertheless, we have sought to provide retail providers with guidance on lowest cost methods for providing typical busy period upload speeds to consumers. To do this, we have included a new option for estimating typical busy period speeds that does not involve undertaking network testing in some circumstances. This is explained later in this report.

4.1.3.3. Congestion due to testing typical busy period upload speeds

To better understand concerns about congestion caused by testing upload speeds, we consulted stakeholders further. The additional consultations revealed there are ways to minimise congestion from testing upload speeds just as there are for minimising congestion from testing download speeds.

Testing network performance occurs within narrowly defined parameters. These parameters include the range and size of samples to use when testing network performance, as well as when to schedule tests and the duration of tests. These parameters all limit the impact of testing performance on network congestion.

Also, network performance testing is widespread in the industry to measure download speeds on fixed-line and fixed wireless networks. This indicates that service providers are able to manage the network utilisation used to test network performance with minimal disruption or impact on services to end-users.

Further, the methods widely used to test download speeds can be readily adapted to test upload speeds, and we are not aware of any factors that would increase network utilisation from speed testing to levels that would deteriorate the quality of services received by end-users.

In addition, Attachment A to the Guidance already explains the circumstances in which retail providers can exclude services from test samples if they are subject to congestion, a fault or limited off peak speed. In such cases, retail providers should inform consumers that their service may be limited by these issues, and the remedies available if they occur. Such remedies include refunds, changing retail plan and exiting a contract without further charge.

A major fixed wireless retail provider has raised congestion from testing as an issue. However, another major fixed wireless retail provider tests and provides upload speeds for its fixed wireless services, and a smaller fixed wireless retail provider has advised that it considers congestion on fixed wireless cells a manageable part of testing network performance with appropriate scheduling and sampling. Retail providers also already use network traffic management practices to reduce congestion.

4.1.3.4. *New method for estimating typical busy period upload speeds on fixed-line networks*

The preferred method to determine typical busy period upload speeds is to follow the Preferred Testing Methodology.

We have also added a new section to Attachment A to the Guidance with a method for estimating typical busy period upload speeds on fixed-line networks without testing the upload speeds on those networks.

Retail providers that do not wish to test the upload speeds of their fixed-line services may estimate typical busy period upload speeds by selecting an upload speed that is 15 per cent below the maximum upload speed in the product description. For example, for a retail product with maximum download/upload speeds of 50/20 Mbps, a 15 per cent reduction on the 20Mbps upload speed would be 17Mbps.

This method reflects the limited variability in upload speeds on fixed-line networks. It also takes into account MBA data showing upload speeds across fixed-line technologies are consistently less than the maximum upload speeds in product descriptions by no more than 15 per cent in all hours of a 24 hour period. A 15 per cent reduction is a conservative estimate based on the fixed-line technology with the lowest upload speeds (FTTN). A link to MBA data on the ACCC website is in a new footnote to the new section.

Retail providers may use a different reduction where the network owner overprovisions the uplink to cover network overheads in upload speeds, and the retail provider can show their end-users consistently receive higher speeds during the busy period.

The estimate method provides retail providers with a lower cost option for providing typical busy period upload speeds to fixed-line consumers so that more consumers may benefit from this information. It also provides an incentive for retail providers to test the upload speeds of their services because speeds in test results may be higher than those estimated.

This estimate method does not apply to upload speeds on fixed wireless networks. Upload speeds on fixed wireless networks are more variable than on fixed-line networks due to a range of issues, including traffic management practices used to address congestion in fixed wireless network cells, environmental and other factors considered later in this report. These issues mean typical busy period upload speeds on fixed wireless networks are not a consistent proportion of the wholesale access speed tier, unlike on fixed-line networks. Thus, the preferred way to determine typical busy period upload speeds on fixed wireless networks is the Preferred Testing Methodology.

4.2. *Issue 2: Factors affecting speeds on fixed wireless networks*

4.2.1. *Overview of the issue*

The Guidance was reviewed in 2019 to cover services provided over fixed network services. At the time, the predominant fixed wireless network was the NBN Fixed Wireless Network.

Since then, fixed wireless services have become available over a range of non-NBN fixed wireless networks. This includes the mobile network operators and their resellers, Uniti Group and smaller RSPs such as Swoop.

The growth of these networks has prompted us to consider if the Guidance appropriately applies to new and emerging fixed wireless networks other than on the NBN, particularly in relation to disclosing factors that may affect speeds.

We invited views on issues that include:

- a list of factors that may affect speeds across different types of fixed wireless networks,
- barriers to disclosing factors that may affect speeds on different fixed wireless networks, and
- a proposal for retail providers of services on non-NBN fixed wireless networks to disclose the factors that may affect their fixed wireless services.

4.2.2. Issues raised in consultations with stakeholders

Industry submissions commonly agreed that the factors consulted upon as potentially affecting speeds on different fixed wireless networks were all relevant. They include factors such as service availability and drop-outs, latency, frequency band used, cell congestion, line of sight to a base station, interference, weather, location-specific factors, and the location and quality of antennas and Wi-Fi modems.

Many service providers indicated they already disclose the factors most relevant to their services on their websites.

Industry submissions noted the inherent variability of many of these factors and the difficulty in determining their effect on speeds with certainty or precision. However, there was also general acknowledgement that there were not significant technical barriers to disclosing such factors in general terms.

Consumer representatives considered factors such as vegetation, geographic features and buildings may also affect fixed wireless signals and should be disclosed to consumers as relevant factors.

Industry submissions resisted any obligation to disclose all of the potentially relevant factors in all forms of marketing material as unnecessary and potentially confusing for consumers. Several submissions expressed the view that it should be sufficient to disclose the relevant factors that affect speeds on their fixed wireless networks in longer form marketing material, such as on their websites and in Critical Information Summaries and Key Fact Sheets.

4.2.3. Position adopted in the Guidance

We have amended the Guidance to promote further transparency about the factors that may affect speeds on all fixed wireless networks. Our consultations found general agreement about the factors that could affect the speeds of services supplied over all fixed wireless networks, whether the NBN Fixed Wireless Network or other fixed wireless networks.

We recognise that fixed wireless retail providers generally disclose the most relevant factors to consumers on their websites, and that this is a low cost way to provide consumers with transparency about factors that may affect the performance of fixed wireless services they obtain.

We have made minor amendments to Principle 4 of the Guidance to clarify the Guidance applies to services supplied over the NBN Fixed Wireless Network and over other fixed wireless networks.

The first paragraph in the section 'Services utilising fixed wireless technology' has also been amended to refer to a wider range of factors that may affect the performance of services supplied with fixed wireless technologies.

We recognise that many fixed wireless retail providers include information on their websites about the factors that can affect the speeds of their fixed wireless services. We expect any further information that may result from implementing the revised Guidance on these factors would be made available on RSPs' websites in a similar manner.

4.3. Implementation

4.3.1. Issue 1 – Promoting transparent upload speeds

4.3.1.1. Transparent upload speeds of fixed-line services – three month implementation period

Fixed-line broadband retail providers should make available typical busy period upload speeds within three months of the publication of the revised Guidance.

A three-month implementation period provides fixed-line retail providers with time to leverage their existing arrangements for measuring download speeds to measure upload speeds and inform their claims about the typical busy period upload speeds they provide.

A three-month implementation period also provides time to implement any necessary changes to marketing material. As noted earlier, we expect retail providers to make available typical busy period upload speeds in a form that is prominently displayed in close proximity to the corresponding broadband plans, at least on their websites. Limiting typical busy period upload speeds to retail providers' websites is one of the ways we seek to minimise the costs of following the Guidance.

We also welcome retail providers who choose to include typical busy period upload speeds in Critical Information Summaries, Key Fact Sheets, and other marketing material.

4.3.1.2. Transparent upload speeds of fixed wireless services – six month implementation period

Fixed wireless retail providers should make available typical busy period upload speeds within six months of the publication of the revised Guidance.

A six-month implementation period gives additional time for fixed wireless retail providers that need to further develop arrangements for measuring the upload speeds of their networks, which can be more variable due to inherent aspects of the technology.

This additional time also gives fixed wireless retail providers time to implement corresponding changes to their marketing material. We expect fixed wireless retail providers to make available typical busy period upload speeds at least on their websites in a form that is prominently displayed in close proximity to the corresponding broadband plans. Limiting typical busy period upload speeds to retail providers' websites is one of the ways we seek to minimise the costs of following the Guidance.

Also, like fixed-line retail providers, we welcome fixed wireless retail providers who choose to include typical busy period upload speeds in Critical Information Summaries, Key Fact Sheets, and other marketing material.

4.3.2. Issue 2 – Factors affecting speeds on fixed wireless

Fixed wireless retail providers should make available all of the factors that may affect the performance of their fixed wireless services by following the revised Guidance on these factors within six months.

A six month implementation period gives fixed wireless retail providers time to implement the revised Guidance on factors that may affect the performance of fixed wireless services at the same time as implementing the Guidance on transparent upload speeds.

A shared timetable for providing additional transparency about upload performance and factors affecting performance on fixed wireless services would mean consumers receive both forms of information about fixed wireless service performance at the same time.