

Analysis of Costs for Small Providers to Provide SBAS Layer 2 Service Australian Competition & Consumer Commission

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EXECUTIVE SUMMARY

In September 2016 the ACCC released the *Superfast Broadband Access Service and Local Bitstream Access Service Final Access Determination Joint Inquiry - Discussion Paper* as part of its consultation for making the final access determinations (FAD) under section 152BC of the Competition and Consumer Act 2010 (CCA) for the superfast broadband access service (SBAS), and the local bitstream access service (LBAS).

The ACCC has indicated that it would consider the costs of compliance for Small Providers as part of its inquiry into the FAD for the SBAS. The ACCC has sought advice on the likely additional costs that smaller vertically integrated retail only service providers could face in developing and supplying a wholesale layer 2 bitstream service.

UXC was engaged by the ACCC to analyse the likely compliance costs for Small Providers to provide a SBAS, to determine whether costs of compliance could be too onerous on Small Providers and if so to propose the scale at which a Small Provider exemption could reasonably apply.

The analysis takes into account the large range of technical architectures and business models deriving from differences in history, location, scale and complementary offers of the Small Providers. Significantly there was a consensus amongst small and medium providers of superfast broadband services, including LBAS and SBAS, that some form of separation of their wholesale and retail business operations is required for practical commercial reasons, even when not required by the SBAS regulation.

UXC analysed the incremental financial impact of the SBAS declaration, including fixed wholesale pricing, and the incremental costs required to provide this wholesale service, to indicate the overall financial effect. The major costs considered were:

- Backhaul Transmission Cost
- Systems Cost
- Network Infrastructure cost
- Headcount

UXC concludes that the Small Providers would be negatively affected to sufficient degree to warrant a continuing exemption from SBAS declaration for businesses below a certain threshold. However because of the large range in business models, network architecture and uncertainties in developing a definitive assessment an exemption range has been proposed. The exemption range proposed is a total superfast broadband services figure of between 7,500 and 12,000 services.

1. BACKGROUND

1.1 Introduction and Objectives

On 29 July 2016, the ACCC released its final decision to declare (regulate) the supply of a Superfast Broadband Access Service (SBAS) for five years, and issued interim terms and conditions (an interim access determination or IAD), including wholesale prices, for the service. The Local Bitstream Access Service (LBAS) was declared in 2011, and applies only to networks built, upgraded or extended by more than 1 km since 1 January 2011. The ACCC also made a final access determination for the LBAS in 2012, which has been extended until the day before a new LBAS FAD comes into effect.

A declared superfast broadband service is a fixed-line service supplying a download data rate normally greater than 25Mbps (or a Fibre Access Broadband service, such as that already supplied by Telstra on its fibre networks in the South Brisbane and Velocity estates.) Declaration of this service requires affected carriers to offer a wholesale layer 2 bitstream service to access seekers on request.

The IAD for the SBAS exempts providers with less than 20,000 SBAS and/or LBAS end-users from all access obligations for the 12 months of the SBAS IAD:

“5.2 A carrier or carriage service provider is a Small Provider if the total number of end-users supplied using a Specified Service provided by:

- a) the carrier or carriage service provider;*
- b) any carrier or carriage service provider that is an Associate of the first-mentioned carrier or carriage service provider or of whom the first-mentioned carrier or carriage service provider is an Associate; or*
- c) any carrier or carriage service provider that is an Associate of another person of whom the first-mentioned carrier or carriage service provider is also an Associate.*

taken together, does not exceed 20 000.”¹

In this document the term **Small Provider** refers to an organization that meets these criteria.

In September 2016 the ACCC released the *Superfast Broadband Access Service and Local Bitstream Access Service Final Access Determination Joint Inquiry - Discussion Paper* as part of its consultation for making final access determinations (FAD) under section 152BC of the Competition and Consumer Act 2010 (CCA) for the SBAS, and the LBAS.

The ACCC has indicated that it would consider the costs of compliance for Small Providers as part of its inquiry into the FAD for the SBAS. The ACCC has sought advice on the likely additional costs smaller vertically integrated retail only service providers would face in developing and supplying a wholesale layer 2 bitstream services.

¹ Interim Access Determination No. 1 of 2016 (SBAS), Date of decision: 29 July 2016, page 2

1.2 Scope

The scope of the work is for UXC to analyse the likely additional costs that would be incurred, by smaller vertically integrated providers of retail superfast broadband services, to provide declared SBAS if they do not currently supply such a service.

The scope specifically relates to the SBAS obligation that would apply to a non-Telstra SBAS; that is an entry-level service of:

- 25/5 Mbps data rate
- residential-grade service characteristics
- if requested by the access seeker, a prioritised, symmetric bitstream of sufficient capacity to provide a voice service.

UXC was engaged by the ACCC to analyse the compliance costs for Small Providers to provide a SBAS, to determine whether costs of compliance could be too onerous on Small Providers and if so provide advice on the scale at which a Small Provider exemption could reasonably apply.

1.3 Approach

UXC Consulting has analysed the additional costs estimated to be incurred by Small Providers of superfast broadband networks in developing and offering a wholesale SBAS layer-2 bitstream service.

UXC has used the following approach for this assignment:

- Interview several of the vertically integrated providers of retail superfast broadband services, wholesale only providers of SBAS and LBAS services and companies offering both retail and wholesale services.
- Review submissions to the superfast broadband access service declaration inquiry and SBAS Final Access Determination Inquiry 2016.
- Explore the various technologies, business models and differences in operation that occur across these companies and develop an analysis of overall additional cost of compliance.
- Carry out an analysis that seeks to integrate the varying models of the Small Providers into a generalised business model. The analysis is focused on incremental costs, that is it does not seek to analyse the complete cost of providing a SBAS or retail superfast broadband service but simply to identify the incremental cost an existing retail operation could incur to supply the SBAS (compliance cost.)

1.4 Framework and Principles

The following process was used to determine whether removing the exemption from declaration of the SBAS for Small Providers would impose an unacceptably high burden on those Small Providers.

The analysis considers specific incremental costs associated with the development of a wholesale SBAS service (when a retail superfast broadband service is already supplied), these are considered along with revenue associated with selling the SBAS to determine the overall financial impact.

The additional costs considered include:

Backhaul Transmission services	Backhaul to a suitable Point of Interconnection may include various technologies such as dark fibre, metro Ethernet services and wireless provision. The option of regulated bandwidth services (DTCS) is used as an upper limit on transmission cost.
Equipment	Most, but not all, of the providers have similar architectures and had gateways located in local cities or central PoPs. Engineering and integration costs and as well as hardware cost are considered. This includes the cost of providing a network-to-network Interface (NNI.)
Operations and Business Support Systems	Broadly, running an additional wholesale operation requires additional software licenses to be purchased or for development and integration of in-house systems.
Operational headcount	In a similar fashion there needs to be separation of roles and responsibilities to operate a wholesale business in addition to the retail business. Only <i>additional</i> headcount are considered.
Overhead	Several operators detailed that there was considerable cost in activities and resources associated with regulatory compliance (for instance a regulatory officer.) and management of non-price terms and conditions.


It should be noted that the analysis assumes that the operator is required to implement some form of separation of their wholesale and retail business operations even though functional separation is not a regulatory requirement of SBAS². This is because the service providers have noted that it would be a commercial requirement for a vertically integrated business providing both wholesale and retail superfast broadband services.

The analysis also considers overhead compliance costs associated with the SBAS IAD non-price terms and conditions:

We set non-price terms in this IAD consistent with those in the recent Domestic Transmission Capacity Service FAD. The non-price terms and conditions in the current SBAS IAD are set out in Schedules 2-10 of the Interim Access Determination No.1 of 2016 (SBAS) and include:

- a. billing and notifications*
- b. creditworthiness and security*

² Other than for Superfast broadband networks in existence before 1 January 2011 and altered to provide services to residential customers

- 
- c. general dispute resolution procedures*
 - d. confidentiality provisions*
 - e. suspension and termination*
 - f. liability and indemnity*
 - g. communication with end-users*
 - h. network modernisation and upgrade notice periods*
 - i. changes to operating manuals*
 - j. recourse to regulated terms.* ³

A key assumption used in the analysis is that the SBAS architecture must be functionally useable by access seeker RSPs, both commercially and operationally. This leads to the conclusion that the point of interconnect must be centralised, for instance located at a CBD location.

³ Interim Access Determination No. 1 of 2016 (SBAS), Date of decision: 29 July 2016, schedules 3-12

2. INFORMATION REVIEW AND ANALYSIS

2.1 SBAS Wholesale Service Description

The description of the wholesale SBAS that is being used in this report is from section 4.3 of the Interim Access Determination:

“(b) in the case of other carriers or carriage service providers, a SBAS with the following characteristics (25/5 Mbps):

Note:

- i. a downstream data transfer rate of 25 megabits per second (peak information rate)*
- ii. an upstream data transfer rate of 5 megabits per second(peak information rate)*
- iii. residential-grade service characteristics*
- iv. if requested by the access seeker, a prioritised, symmetric bitstream of sufficient capacity to provide a voice service.”⁴*

The operation of the declaration for SBAS applies to:

“Other networks that supply superfast carriage services, including superfast broadband networks that existed before 1 January 2011 (which are not subject to Part 7 of the Telecommunications Act)”. The details of the SBAS are covered in SBAS declaration and the SBAS Interim Access Determination. For a summary of other terms and conditions see the SBAS and LBAS FAD discussion paper⁵.

For the purpose of this report the SBAS service operates between the end users’ premises and the SBAS provider’s point of interconnection. The location of the point of interconnect is assumed to be at the access providers aggregation node (e.g. one per city.)

2.2 Small Scale Fixed Line Superfast Broadband Network Operators

2.2.1 Market Segments

The scope of this report only relates to vertically integrated, Small Providers (<20,000 end user services) of retail only superfast broadband services using networks that were deployed before January 2011. See Table 1 below.

⁴ Interim Access Determination No. 1 of 2016 (SBAS), Date of decision: 29 July 2016, section 4.3, page 2

⁵ Superfast Broadband Access Service and Local Bitstream Access Service Final Access Determination Joint Inquiry, Discussion Paper, September 2016 sections section 2.3.2 and 2.4.2.

Table 1 - Fixed-line superfast broadband network operators⁶ (includes LBAS and SBAS)

Wholesale only	
Small < 20,000	Comverge Networks, Optic Network, Red Train,
Medium < 100,000	The Local Broadband Network Company (LBN Co), OPENetworks, Opticomm,
Large 100,000+	
Vertically integrated - wholesale and retail	
Small < 20,000	
Medium < 100,000	TPG (iiNet-TransACT), Telstra (South Brisbane & Velocity)
Large 100,000+	TPG (AAPT-Pipe)
Vertically integrated - retail only	
Small < 20,000	Arise, Clearstream, Club Links, Frontier Networks, Fuzenet, Halenet, Pivit, Places Victoria, Spirit, UCG
Medium < 100,000	TPG (TransACT-Ballarat, Mildura & Geelong), Vocus (Amcom and M2)
Large 100,000+	Telstra (HFC), Optus (HFC),

The providers in question are identified by the ACCC as vertically integrated. In this case this specifically means the provider is the owner of the access infrastructure and are the provider of retail superfast broadband network services. Retail only means that they currently do not offer a wholesale service that can be purchased by other Retail Service Providers (RSPs).

As they all have less than 20,000 end user customers, together they represent a small percentage of the total market for superfast broadband in Australia.

2.2.2 History

Small Providers have been operating for some time, most for over a decade and their networks by definition were built before 1 January 2011. They were built before the current regulations were in place for superfast broadband, and are shaped by a range of factors.

Commonly the companies made rational business decisions, given the regulations that were in place at the time the time of construction, to build networks that might only be profitable as a retail only business and/or by offering associated services,.

The Small Providers in general are providing specialist offerings and addressing different specific niche markets. This has resulted in a range of business models used by retail superfast broadband network operators and includes the following:

- Before January 2011 developers of housing estates did not have the option of a NBN as a provider of last resort for high speed broadband services. They sourced companies to run a fibre broadband business and in some cases the only way the business was viable was if the service provider could make a retail margin.

⁶ Superfast Broadband Access Service declaration inquiry, Final decision, July 2016

2.2.4 Locations and scale

The number of locations and the potential number of end users at each location varies widely between the various operators. Some operators have sites located in outer metro and regional locations with a scale of approximately 200 potential customers per site, whilst some operators have broad acre residential estates in the metro area with up to 1600 homes per estate.

In the CBD the scale equation is different. With a relatively low entry cost per building, it is more a matter of achieving a sufficient number of residential or business customers in each building.

It should be noted that there are attractive locations and less attractive locations for cost effective provision of superfast broadband services, based on the cost of connecting backhaul transmission.

A broad proxy is to say the CBD locations are the most attractive, metro next and regional the least favourable. However on closer consideration it is clear that the attractiveness of the locations relate to the availability of competitive transmission backhaul. The shortest fibre runs, with the higher number of providers will always be the most attractive. It should be noted that the distance from the end- user location (e.g. estate) to the nearest competitive fibre has a large impact on available services and the cost of transmission backhaul, regardless of whether this metro or regional.

Apart from the one CBD provider, who has a deliberate strategy of targeting attractive geography, all other providers are structured to provide services in locations determined by the property developer with little consideration of the cost of telecommunications backhaul to those locations.

Before 2011 there was no option for a developer to ensure the availability of high speed fixed broadband other than to contract a fibre based service provider, as the NBN did not exist at the time. Providers had no control over where developers built and if the site had a high cost for backhaul transmission because of location, the provider would need to factor that into their retail and/or wholesale pricing.

The same is true of brownfields sites, and for service provision to senior housing communities.

The scale of the sites was similarly determined by the developer. To win business with a developer Small Providers often had to commit to providing all residences within multiple facilities where size might range from a [c-i-c starts] [redacted] [c-i-c ends] to a 1600 dwelling housing estate.

2.2.5 Technical Architecture

The different operating models and history has led to a range of technical architectures:

- The standard configuration of Fibre to home / HFC connecting to a local head end or switch located at the customer building or estate. This is then connected via layer 2 networking (single domain) back to a PoP located in the nearest capital city. The backhaul connectivity varies from location to location but can be dark fibre, Gigabit Ethernet or wireless.

- A different architecture is used where the sites are more dispersed and of a smaller scale. This has a similar fibre, HFC or UTP copper at the customer end connecting to a small switch. This is then connected into an upstream Internet provider. Traffic is then routed back to the Small Provider's national PoP. This overcomes the issue of the high cost per user service of accessing many transmission links for the dispersed sites.
- The CBD architecture connects to the residential unit over UTP copper cable, [c-i-c starts] [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED] [c-i-c ends]

2.2.6 Competition

One of the key drivers for the SBAS declaration is that last mile technology can be a natural monopoly and that overbuilding may be economically inefficient and once a provider has connected up a given location it is unlikely that another provider will overbuild that location. However given the varied histories at each site, different levels of competition exist at each location.

The levels of competition also vary between the operating models. In some locations the Small Providers HFC and/or FTTH networks overlap with Telstra copper. The NBN could access these copper pairs and they could be used to provide a FTTN service in competition to the Small Providers service. Although it may not yet be enabled, the threat of a new entrant to the estate puts some constraint on the potential monopoly behaviour of a Small Provider.

In CBD Areas there are or could be multiple providers of high-speed broadband access in the multiple dwelling unit (MDUs). In this business model there is a relatively low entry cost for serving a new location and since the connection to the unit is Ethernet over UTP cabling (e.g. cat 5) multiple providers can coexist.

2.2.7 Summary

Small Providers appear to have taken different approaches to developing their services, either through innovation or to meet specific needs of the market at the time the networks were rolled out. As a result there are many differences in technical and operating models between the Small Providers.

They serve different markets, have different business models and utilise different architectures. There is no single "reference model" of an archetypical small retail operator that can be used to analyse the impact the requirement to provide wholesale SBAS would have.

However they do face some common challenges in the context of being required to offer a declared SBAS, this is outlined in the next section.

2.3 Small Provider Business Challenges

Applying the SBAS declaration to small retail operators could have various impacts on these small businesses. These impacts would come about as a result of the different histories of these Small Providers (all networks were constructed before 2011) or scale issues associated with the fact that these operators are small.

This section addresses these issues.

2.3.1 Site Location and Transmission Cost Issues

SBAS requires a small number of points of interconnect, for instance one in each capital city. It would be inefficient for each RSP to provide parallel long line transmission to estate/complex so it is expected the access provider is responsible for this connection to centralised point of interconnect.

Each RSP would select the amount of backhaul transmission they require, and pays for that required bandwidth. The access provider provides dedicated (uncontended) bandwidth to each RSP and each RSP contends the transmission pipe provided them (across the RSPs customers), to the level that they choose.

Usually the Small Provider already has a long line connection back to a PoI in the nearest capital city but without the advantage of being able to daisy chain together connections from multiple locations for a lower cost per transmission link as could be achieved by a provider with a more extensive footprint such as NBN Co. For the typical Small Provider, the cost of backhaul to support SBAS is high on a per service basis. This transmission represents a significant cost component for Small Providers to offer SBAS.

It is important to consider whether the location is regional, metro or CBD, and especially how the location relates to transmission cost. As an example, if there is no competitive fibre in a metro location, the cost of transmission could well be higher than the cost of transmission at a regional location that does have competitive fibre.

The types of backhaul vary from dark fibre in the CBDs and select metro locations, to competitive Gigabit Ethernet services and finally to DTCS transmission, as a declared service (other than routes and localities exempted from declaration) and where practically available⁷.

An example of how this affects the Small Providers, there is at least one operator who, even though they required a one gigabit service at approximately 20km from the Melbourne CBD they have chosen to build and license a radio link system as the most affordable way of obtaining backhaul transmission for their superfast broadband service.

At the other end extreme, in the CBD, multiple competing dark fibre and Ethernet service are typically available at each building location.

⁷ Telstra is not required to sell DTCS services where there is no spare capacity

2.3.2 Site Scale

The difficulty with purchasing cost effective transmission is not only the location of the sites themselves, but also the scale of each site. The way transmission is purchased (looking at the DTCS FAD model for example) is such that the price of a 1G service is only approximately four times the price of a 100M service. To put it another way the price per bit for a 100M service is approximately 2.3 times higher than for a 1G service. This is a significant impost on cost per service basis to smaller sites, for example in smaller scaled senior housing communities which might only have a total of 200 residences.

Table 2 - Price Per Bit for Low Capacity Sites

DTCS FAD pricing calculator – April 2016			
Data Rate	Distance	Monthly Charge	Cost per Mbit/s
100M	10km	\$1,682	\$16.83
100M	200km	\$2,496	\$27.97
1000M	10km	\$3,115	\$3.12

The table also shows the per Mbit/s cost of transmission become an even greater impost where the sites are regional.

The site scale also becomes very important when we consider that when a new RSP connects to a smaller provider, the smaller provider has to configure a backhaul circuit at least as large as the largest service the RSP offers. Obviously the RSP will not reach the planned contention level for some time. For example to achieve 20:1 contention ratio, 20 services would need to be connected:

- The RSP connect to the Small Provider and buys the first circuit– 100Mbps
- The Small Provider purchase backhaul at a price that results in low margin (based on the fact that there is still low revenue from access charges)
- It then takes some time to win the access business, with both the RSP out of pocket and the access provider making only a small mark-up

In this scenario the RSP is paying \$17.50 per Mbit/s per month * 100M = \$1750 per month. The Small Operator is paying approx. \$1682 per month for the 100M assuming DTCS pricing,

So small site scale results in poor margins as above for communications, which is exacerbated each time another RSP connects, and can even be a negative margin in some cases.

Other Issues

It should also be noted that a common term for the sale of dark fibre to a retail carrier is that that capacity cannot be on-sold to another carrier. This means that Small Providers utilising Dark Fibre sourced from third parties may not be able to simply add that capacity to their existing transmission, for instance in CBD areas.

2.3.3 Providing an (NBN like) standard NNI

Network Architecture

All of the Small Providers [c-i-c starts] [REDACTED] [c-i-c ends] backhaul their services back to a centralised aggregation point of presence (known generally as a PoP) within the network. Mainly these PoPs are located in capital cities as described above.

[c-i-c starts] [REDACTED] [c-i-c ends]. To provide and SBAS this architecture would require implementation of support for tunnelling of layer 2 connections over a layer 3 VPN – this would require a cost to upgrade their PoI switch and their NTUs.

Network-to-Network Interfaces (at PoI)

Although the particulars of a standard network interface are not defined, the current arrangement for retail providers is that in general the handoff from the service provider PoP to the Internet is a Gigabit or a 10G Ethernet switch port. Several Small Providers mentioned that their current switches were not configurable to isolate the traffic of a wholesale customer.

The costs of network infrastructure changes have been factored into the analysis of additional costs that a Small Provider would have to offer SBAS. All Small Providers of SBAS would need to upgrade their existing network switches, and/or invest engineering effort in their network to be able to partition network traffic for RSPs to access SBAS.

The estimated costs vary between manufacturers and models from \$10,000 to \$35,000 per PoI switch and/or up to six months of engineering effort.

It should however be noted that all of the respondents commented that the key issue of an NNI is not in fact the cost of a switch capable of connecting to RSPs, the key barrier is systems and processes discussed below. Of the LBAS and SBAS access providers interviewed none had any of the largest four RSPs in the country (Telstra, TPG, Optus and Vocus) who together account for 97%⁸ of the market, other than [c-i-c starts] [REDACTED] [REDACTED] [c-i-c ends]

Systems and Processes

Several access providers stated that even with the appropriate wholesale infrastructure in place the cost for an access seeker RSP to utilise the smaller SBAS and LBAS providers networks was dominated by operational concerns; for example the fact that they would have to interface with and learn a new ordering system for each wholesale provider, and that they would not be consistent with the NBN.

Several commented that the optimal solution would be for the NBN to offer a gateway service to integrate to the smaller LBAS and SBAS providers. An NBN gateway service would require NBN to operate as a wholesaler of wholesalers. They would need to implement a standard billing interface,

⁸ NBN Wholesale Market Indicators Report 30 September 2016

standard ordering interface and a standard ticketing system. This in addition to interconnecting with access providers and providing a common NNI to RSPs.

UXC believes that take up of wholesale services, that would be offered by Small Providers of SBAS, by the four major RSPs is likely to be very limited so long as there are multiple different ordering systems that need to be integrated within their system and operations (ordering, activation and trouble ticketing).

A medium size wholesale provider stated they had experience working with the next tier of RSPs. However it should be noted that for Small Providers the limited size of the opportunity would mean that it is likely that only one or two RSPs could profitably provide services at each site.

One alternative would be that LBAS and SBAS service providers develop a standard system integration approach and align it with the NBN. If this was implemented the NBN would also need to comply with these standards on a continuing basis, so that that they did not unilaterally change their practices stranding Small Providers.

The cost of developing new systems to provide service management to RSPs in a manner that complies with the NBN is out of scope for this report.

2.3.4 Company Scale

In addition to the cost differential that occurs for transmission at small sites there are similar cost curves that occur for other purchases, for instance the cost per bit on hardware similarly reduces with volume. As an example when a technology is mature, a device with 10 times the capacity of a similar device sells for 2-4 times the price bringing the cost per bit down.

Similarly the cost of systems per end customer reduces significantly as the number of end users increases, and for instance integration cost is distributed over a larger number of users.

The cost economies are in addition to the pricing discount achieved simply by purchasing larger quantities.


2.3.5 Compliant SBAS Services

For most Small Providers providing a service technically complying with the SBAS service definition would not, in technical terms, be a huge hurdle (other than backhaul). For at least one Small Provider the current offering is a symmetrical only service, however this is still compliant with the SBAS definition.

As stated above, all Small Providers would need to upgrade the switch at the PoI to support multiple RSPs.

2.3.6 Overhead costs

All of the Small Providers contacted have a very small number of staff varying from a handful (~7) of staff to a couple of dozen (~23). For each operator to support the SBAS non-price terms and conditions and to be able to sell to wholesale customer would be a significant challenge requiring additional staff.



While SBAS declaration does not require a provider of retail superfast broadband to implement business separation, the SBAS operators who were surveyed (not Small Providers) who currently operate in both the retail and wholesale areas are in fact separated – one functionally and one structurally.

The justification for this is that Small Providers need to be attractive to RSPs. Hence to facilitate take-up of services a level of trust must be in place between the SBAS access providers and the RSP. One issue is that a RSP purchaser of wholesale access service would want to be assured that customer information will not leak over to retail part of the access provider's business. As an example of this concern, when an end user customer comes to the end of contract the RSP does not want the access provider churning that customer over to themselves.

Hence being a SBAS provider would require some form of separation of their wholesale and retail business operations. This is not a legal or regulatory requirement but rather a practical commercial concern.

2.4 Analysis of the Impact of SBAS

We have analysed the potential impact on the Small Providers of the need to comply with the SBAS declaration based on cost over time and associated service revenue. This analysis looks at a five-year horizon and takes the following into consideration.

Scenario Assumptions and Givens:

End User Service Speed 25/5 Mbit/s
 Backhaul to PoI Oversubscription of approx. 22:1
 End user Port Charge per Month \$27 (SBAS regulated)
 Aggregation Charge Per month - \$17.50 per Mbit/s (SBAS regulated)
 Number of existing retail services – 2500
 Number of POIs - 2
 Number of RSPs connected - 5
 Number of Locations – 6

2.4.1 Wholesale Revenue

The maximum revenue that a SBAS provider can achieve for a 25/5 Mbit/s service is provided in the ACCC Determination. The explanatory note to the interim access determination for the superfast broadband access service lists the wholesale prices of SBAS services as follows:⁹

Table 3 - Price terms for SBAS services, Telstra FAB services and other (non-FAB) SBAS services

Services	Port (end-user access) charge	Aggregation charge
	Charge per port per month	Rate per Mbps per month
Telstra FAB Services – Zone 1	\$22.14	\$29.27
Telstra FAB Services – Zones 2/3	\$26.87	\$29.27
Other non-Telstra (non-FAB) SBAS services	\$27.00	\$17.50

With footnote 105 of the Superfast Broadband Access Service declaration inquiry Final decision¹⁰ going on to describe.

If the wholesale access price is assumed to be set with reference to the NBN wholesale prices then with an AVC charge of \$27 per SIO per month and a CVC charge of \$17.50 per Mbps, assuming a contention ratio of 1.15 Mbps, and a retail mark up of 20%, this results in a retail price of \$57, which is significantly

⁹ Interim access determination for the superfast broadband access service Explanatory Note - July 2016

¹⁰ Superfast Broadband Access Service declaration inquiry Final decision, July 2016

lower than the retail prices of those providers using the vertically integrated retail only operating model, suggesting there is opportunity for retail price reductions.

The Small Providers confirmed that 1.15 Mbit/s per subscriber represents a reasonable oversubscription ratio (of approx. 22 times) for a wholesale service once there is sufficient volume.

2.4.2 Additional Transmission Costs

We have analysed on the basis of an effective doubling of broadband services of an existing Small Provider over a 5-year period; that is the retail business remains flat and the wholesale business grow to equal it. We have assumed a small number of RSPs connected and have assumed a five-year growth rate to reach the target.

The minimum purchase assumed by a RSP is 1x25Mbps (assuming the RSP only offers services up to 25Mbps) backhaul per RSP and the RSP may oversubscribe up to 22 times.

The overall cost of backhaul transmission is driven by the number of locations, and therefore the number of transmission links, and the number of RSPs.

Transmission Assumption:

Telstra wholesale (DTCS) transmission available

Pricing is based on Telstra wholesale rate card 2016

Minimum size of transmission purchased by access provider 25Mbit/s

2.4.3 Additional Equipment cost

A small cost is assumed for the provider to upgrade the PoI to support multiple RSPs in the analysis. Cost estimations varied from \$10,000 per switch per location to \$35,000 per switch per location, with up to six-months of engineering effort.

Equipment cost Assumption:

Costs of equipment ranges from \$10,000 per to \$35,000 per device

Integration cost ranges from ~0 to \$100,000 (one off)

2.4.4 Business Separation and Other Overheads

Smaller providers would require an additional number of staff and estimates vary based on scale. This is for a full time wholesale manager, 20% of a systems and/or operations manager's and a percentage of a compliance officer's time.

The wholesale manager is responsible for sales and relationship management with the RSPs and takes P&L accountability for the wholesale line of business, which is reasonably senior role. This role is key in that RSPs will not want end user customer information flowing to the retail side of the business and will require some form of separation of their wholesale and retail business operations.

The analysis assumes a low cost approach to operational separation, however the analysis assumes separate customer care / CRM license and a separate billing license or in-house systems development, again to make sure customer data does not flow between the wholesale and retail business

There are possible additional costs depending on the level of operational separation for example for separate accommodation, meeting rooms, phone systems etc. Because the models of separation varied this was not included in the analysis.

It should be noted that [c-i-c starts] [REDACTED] [c-i-c ends] as an initial cost of separating their retail and wholesale businesses.

Separation Cost Assumptions:

Software development and integration \$150,000 one off

Headcount of less than two FTEs (across Wholesale management, operations and compliance)

On-costs for headcount 35% uplift of the FTE cost

2.4.5 Overall Impact

The overall additional cost for provision of SBAS can be negative to small operators during the five-year period even assuming relatively aggressive growth rates of the business (doubling the size of the business in five years). This is due to the additional costs outlined in the preceding sections.


Importantly it should be noted these businesses are quite small and the businesses interviewed have stated that they have only recently begun making a profit, and that profits are relatively low – hence it takes only a relative small cost of compliance with the SBAS declaration to move some of these businesses back in to loss making.

Our analysis shows that because investment must primarily take place in advance of substantial additional revenue, and assuming that 2500¹¹ additional wholesale services (for a total of 5000 superfast broadband services) are connected over five years, a Small Provider would have negative cumulative incremental cash flow in the first three years.

Although the business model of the Small Providers vary greatly, our analysis shows that for a typical scenario a Small Provider’s cumulative cash flow of negative ~\$616,000 by the end of second year and does not reach positive cumulative incremental cash flow until year five. This presents a significant business risk to Small Providers who typically are either in significant debt and/or are already in negative profitability.

Our analysis shows that for the same scenario, if the business reaches a threshold of 7500 total services, (5000 additional) over five years that largest negative cumulative impact would be ~\$430,000 in the first year and makes positive cumulative cash early in year three. Given that the growth rate of new services in this scenario is 1000 services per year, at this assumed scale this appears to be an acceptable business risk for a Small Provider to add a wholesale line of business.

¹¹ 2500 was selected because the assumed existing business has 2500 so we are seeing the doubling of the existing business.



It should be noted that we have not analysed the impact of providing wholesale SBAS on the existing retail business, i.e. the risk that higher margin retail services are replaced with lower margin wholesale services. Also it is noted that there are other costs not considered that while less significant than those assumed in the analysis; these may have impact and then profitability may be delayed or not reached at all.

For these reasons we believe that the SBAS exemption needs to allow for these risks. We consider that an appropriate upper limit for a SBAS exemption could be around 12,000 total services. Minimal business risk would be incurred at this level.

3. CONCLUSION

The issue of whether the compliance cost for Small Providers of retail superfast broadband services also being required to also offer a declared wholesale SBAS is too much of a financial burden for smaller retail only vertically integrated service providers is a complex one.

These issues of complexity have been evident in responses provided by providers of superfast broadband services to the ACCC SBAS/LBAS FAD Discussion Paper September 2016. The complexity of the issues were also evident in the interviews that UXC Consulting have conducted with some of the providers of superfast broadband services and include:

- A range of operational models, access technologies and infrastructure
- Differing retail products and product mixes, and service models
- Site specific differences of scale and location resulting in disparate transmission solutions
- Different approaches to aggregation which would require differing NNI solutions

What is common across Small Providers is that they would incur additional hardware costs, increases in transmission cost, operational systems cost and headcount cost to provide SBAS. These costs would be significant in all cases.

In all cases the Small Providers face the double risk of the need to invest in order to deliver the SBAS and the negative margin impact they would suffer if declared SBAS services substitute for higher margin retail services. Several of these operators have yet to reach profitability or have high levels of existing debt and these profit impacts could threaten their viability.

These small operators represent a small share of the overall superfast broadband services market, serving only a small number of users. In addition this market segment is capped by the fact that the networks had to be in existence prior to 2011.

With the three points in mind; that the business models are quite different, that small operators face increased business risk if there is a change in the cost model and that the total market (number of end-users) is small, it is appropriate, to select a simple rule that reflects the size of the business to define a Small Provider and to continue with an exemption from the SBAS declaration.

Hence in our opinion a practical and reasonable approach would be a SBAS exemption for Small Providers based on the total number of superfast broadband services. Due to the differences in business models it is not feasible to definitively estimate a single number of services for exemption. We suggest that the low end for exemption would be 7500 end user services, ranging up to 12,000 services to make allowance for the risk of substitution of wholesale services for retail services that have higher margins. This would ensure the small retail only providers of superfast broadband services do not have their business viability unreasonably compromised with the requirement for compliance to the declared wholesale SBAS.

ATTACHMENT A: GLOSSARY OF TERMS

ACCC	Australian Competition and Consumer Commission
ADSL	Asymmetric Digital Subscriber Line
CBD	Central Business District
CCA	Competition and Consumer Act 2010
c-i-c	commercial in confidence
CLC	Carrier Licence Conditions
DSL	Digital Subscriber Line
FAB	Fibre Access Broadband
FAD	final access determination
FTTB	fibre to the basement
FTTN	fibre to the node
FTTP	fibre to the premises
HFC	hybrid fibre-coaxial
NNI	Network to Network Interface
IAD	interim access determination
LBAS	local bitstream access service
LTIE	long-term interests of end-users
Mbps	megabits per second
NBN	National Broadband Network
PoI	point of interconnection
PSTN	Public switched telephone network
RSP	retail service provider
SAOs	standard access obligations
SBAS	superfast broadband access service
SAU	Special Access Undertaking
SIO	services in operation
UTP	Unshielded Twisted Pair (cable)
VDSL	very-high-bit-rate digital subscriber line