



# **NBN Co submission on the Design of Alternative Voice Service Trials – request for comments and expression of interest**

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## **NBN Co Limited submission on the Design of Alternative Voice Service Trials**

Recognising the importance of good-quality voice communications to the people of rural and remote Australia, NBN Co Limited (**nbn**) welcomes the opportunity to comment on the Design of Alternative Voice Service Trials, released by the Australian Government for comment on 20 December 2019. **nbn** believes that such trials are important to draw upon industry expertise, from within Australia and potentially overseas, to find new and innovative solutions to provide reliable voice services for people in rural and remote areas.

Consistent with the Productivity Commission's recommendations on Universal Service Obligation (**USO**) reform in 2017, **nbn** suggests that the Government's key focus in exploring alternative voice solutions should not be to find a single voice service solution to replicate and replace Telstra's Standard Telephone Service; but instead to identify voice coverage gaps, and enable the way for multiple voice solutions to be introduced where they are needed.

It is also important to demonstrate to people that there are viable alternatives to high capacity radio concentrator (**HCRC**) network services, and potentially to copper line services, which are becoming increasingly expensive to maintain as use decreases. Opportunity exists for targeted investment in service improvements and choice of technologies. It will be valuable for rural consumers and businesses to have access to different technologies to test and comment on their effectiveness as they use them in daily life.

**nbn** would like to support the trial by providing voice services over the **nbn**<sup>™</sup> Sky Muster Satellite and Fixed Wireless networks to be tested and compared with other alternative voice services. However, we also think it is important to ensure that the regulatory settings for alternative voice providers are carefully pitched to promote greater diversity and competition, instead of further service level assurances.

### **nbn<sup>™</sup> Sky Muster Satellite and Fixed Wireless not suitable for USO voice but could be part of diversified connectivity mix**

The primary purpose of the **nbn**<sup>™</sup> broadband access network is to provide broadband services. In most areas where there is a fixed-line telecommunications networks the **nbn**<sup>™</sup> network is replacing the existing Telstra copper landline-based phone services, and Telstra is required to migrate its wholesale and retail customers to the **nbn**<sup>™</sup> network within approximately 18 months of the **nbn**<sup>™</sup> network services becoming operational. In contrast, **nbn**'s Fixed Wireless and Satellite networks in rural and regional areas were always designed to complement, not replace, Telstra's existing copper services. As a result, there is no migration obligation and no mandatory disconnection of those copper services.

**nbn** is not the provider of USO voice services, and its networks weren't designed for this purpose, particularly in **nbn** Satellite and Fixed Wireless areas. **nbn**'s network can be used by retailers to provide voice services, but in **nbn** Fixed Wireless and Satellite areas they can't be used to meet a USO obligation because:

- they operate under a different assurance framework from Standard Telephone Services, and **nbn**'s wholesale Satellite and Fixed Wireless products don't support retail Customer Service Guarantee (**CSG**) or Priority Assistance (**PA**) services under the terms of **nbn**'s Wholesale Broadband Agreement; and<sup>1</sup>

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<sup>1</sup> Voice over Fixed Wireless has no perceptible difference in voice quality and speed to a fixed-line service, but it is not assured to the level of a fixed-line service and, as explained later, it hasn't been designed for that level of penetration. Voice over satellite needs to traverse 34,000km to the satellite in geostationary orbit around the equator, and back again. Even travelling at the speed of light this means a 125millisecond delay.

**nbn**'s informal testing for voice and video calls indicates a small delay that is almost imperceptible. Calling from one voice service over satellite to another satellite service means a "double hop" in satellite transmission and the delay is more noticeable. However, satellite services also face other reliability issues, including short periods of service interruption



- the networks weren't designed with the necessary capacity<sup>2</sup> to meet the needs of a universally-available, high-penetration service.

While **nbn** voice services over Fixed Wireless and Satellite are not suitable to meet the needs of a USO voice service as currently mandated, they can play an important role as part of a mix of services, alongside mobile phone, low-frequency radio<sup>3</sup>, satellite VoIP or mobile satellite phone, to provide diverse communications paths.

**nbn** already offers several different options for the provision of voice services over its Fixed Wireless and Satellite networks. A feature is available to Retail Service Providers (**RSPs**) called Traffic Class 1 (TC1), which is included in **nbn**'s wholesale ethernet product and is primarily used to support voice services. TC1 is designed to provide access to a Committed Information Rate (**CIR**) and appropriate bandwidth allocation at the wholesale level to support voice communication quality and to make voice communication cost-effective. If voice is provisioned by an RSP as part of a bundled plan it may not be obvious to the consumer that they are no longer using a copper line. Alternatively, consumers could use their **nbn** Satellite or Fixed Wireless broadband to access an over-the-top application for voice or video calling like Whatsapp or Skype and not order a voice plan from an RSP. Or, they could simply revert to mobile for voice if they are in a coverage area and use **nbn** for broadband only.

With appropriate funding and systems adjustments there are options to provide upstream network diversity on **nbn** Satellite services. In this case the end user could have a secondary satellite Network Termination Device (NTD) configured for an alternative satellite (**nbn** has two satellites - 1A and 1B), reducing the risk of an outage from satellite equipment failure on one satellite.

Noting that the introduction of new alternative voice services will require significant reform to the current USO arrangements, **nbn** believes that the following points should be considered by Government when assessing the success of this upcoming trial, and future viability of whatever solutions this trial may identify.

### **1) Funding targeted to voice solutions for those with no reliable mobile coverage is more likely to achieve the Universal Service Guarantee policy objective to find a cost-effective alternative to the USO**

We know that radio systems like HCRC are at end of life and increasingly difficult to maintain. We are also conscious of the Government's 2017 Universal Service Guarantee (USG) policy, which committed the Government to keeping Telstra's existing USO arrangements in place until a 'more cost-effective' solution could be found.

With this policy objective in mind, we suggest that the Government will have the greatest chance of success in identifying a viable alternative voice solution(s) if it:

- acknowledges the role of mobile networks and mobile products and pricing when assessing the availability of voice services, noting that mobile services are available to 99 per cent of the population;
- is prepared to fund a range of alternative voice service solutions, rather than try to find a 'blanket solution' to serve all areas;
- focuses on identifying alternative voice solutions for the areas which are most in need – that is, those in the Satellite footprint without access to reliable mobile services. The Productivity Commission estimated that this affects approximately 90,000 premises in Australia;

or degradation from weather events, or "rain fade". Heavy rain at an earth station can affect transmission of services to satellite beams hundreds of kilometres away where there are fine conditions. It is worth noting that these outages are normally of a short duration as rain-related weather events are typically very localised and fast moving.

<sup>2</sup> For example, the fixed wireless network was initially designed based on an assumed take up of around 22 per cent. Take up varies in different locations depending on the availability of alternative services, but the average take-up of FW in areas where it has rolled out is now closer to 50 per cent.

<sup>3</sup> The attenuation from rain which causes 'rain fade' is less significant in lower frequency radio services.



- recognises that legacy copper-based voice services operating in regional and remote areas of Australia are likely to become increasingly uneconomic with declining numbers of subscribers; and
- ensures government funds or industry levies are used on targeted, transparent, non-discriminatory and cost-effective voice alternatives, so that any cost savings could be directed to improving services for regional and rural communities, such as improving the resilience of key voice communications.

With variations in the coverage areas of different networks, consideration could be given to increasing awareness of the availability of 112 emergency calling on mobile phones.

## **2) No network can operate without interruption, and power backup needs consideration. Messaging should change so that consumers understand the impacts of power interruptions on modern communications.**

Just as people with a cordless phone may keep an old corded phone in the cupboard in case of a power outage, in the future people should also look at keeping backup services for emergencies. In mobile coverage areas this could be a charged mobile phone, and/or a spare portable mobile phone charger. Outside of mobile coverage areas there are already a range of satellite phones available on the market<sup>4</sup>. While satellite phones may not be suitable for primary or everyday voice connection, they could be considered for emergency communications in addition to other voice services.

No network can be guaranteed to operate 100 per cent of the time. For this reason, where possible, people should try and maintain multiple communication options, and voice over **nbn**'s Fixed Wireless or Satellite networks could be considered as part of that mix of diverse options.

As the recent bushfires demonstrated, even where telecommunications networks may be operational, lack of mains power is a key risk to the loss of services. Telecommunications exchanges and mobile towers generally have backup power which can be supported over longer periods by fuel-supplied generators. Most modern telecommunications services usually rely on power sources in the home to operate, from modems and Wi-Fi routers to cordless handsets. For resilience it may also be important to consider testing in-home backup or battery power for alternative voice services.

Technology is not disaster-proof and the consequences of becoming the "lifeline" communications provider may be a disincentive for retailers, and potentially discourage some trial participants, particularly smaller innovative companies, from partaking in the program. Consideration should therefore be given to the regulations that will govern alternative voice services.

## **3) Satellite backhaul could provide mobile coverage to smaller communities**

Consideration could also be given to using satellite backhaul to extend mobile coverage to very small populations currently outside the terrestrial mobile networks where costs of connecting to transit networks is prohibitive. **nbn** is currently exploring options for products which have an application for the provision of backhaul for mobile services. This would be most efficient for voice services which use very little data.

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<sup>4</sup><https://www.pivotel.com.au/solutions/consumer/satellite-phones/>  
<https://www.pivotel.com.au/pivotel-advantage/>



#### **4) Consideration of regulatory relief on voice services to encourage options/diversity over 'gold-plating'**

The current USO voice service is overlaid with an extensive list of requirements built up over many years to ensure reliability, timely installation and repairs, modern features (like call forwarding) and, when Telstra was the monopoly access network, means to contract with alternative retail suppliers of voice calls (pre-selection and override). Consideration should be given to the benefits of signalling a change to the market, and to the needs of telecommunications users, that any alternative voice service will be less prescriptive in its terms and conditions. Further, while standards may be set for quality and reliability, diversity of communications is an appropriate means of ensuring connection in an emergency.

An alternative voice trial service provider may be concerned about the regulatory obligations that will be applied to the service and the liability that would attach to any service failure. To attract participants, the Government could consider signalling to the market what regulatory conditions would apply to an alternative service. For example, the provisions of a Standard Telephone Service and all the terms and conditions that have been built up over the years could discourage participation. No telecommunications service can be guaranteed to operate all the time, and consideration should be given to making that clear with regulatory forbearance. While we understand the need for high standards of reliability in voice services, we should also work to educate consumers that they need to diversify their voice services if they want the best chance of maintaining a connection in an emergency. An appropriate way to ensure continuity of service is to have multiple connection systems. Even in alternative voice trial areas outside of mobile coverage, people should consider battery-powered radio and satellite phones for emergency backup.

**nbn** is encouraged by the pace of improvements and innovation in the telecommunications sector and looks forward to seeing the results of this trial. We realise the enormous benefits that new and emerging voice solutions can bring to rural and remote Australia. We reiterate our willingness to support the voice trials through provision of comparison voice services over our regional networks.