

nbn Industry Consultation Paper: Options for establishing an industry- wide procurement process to make greater use of third-party fibre infrastructure

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1. Consultation purpose

This document has been developed by **nbn** to detail **nbn's** initial thinking in relation to possible new approaches for procuring dark fibre services from network carriers in customer locations already served by fibre.

Specifically, this document seeks industry feedback on two possible processes for procuring dark fibre services to enable **nbn** to meet the growing demand for broadband connectivity from Australia's business, enterprise and government customers (collectively referred to as **business customers**). It should be noted that **nbn's** business is focussed on connecting end-user customers and it does not propose to use this process to acquire connectivity for non-end-user supply related services (e.g. to data centres or for long distance transmission).

Option One would involve the adaptation and expansion of **nbn's** current Request For Proposal (**RFP**) process in which **nbn** would request one or more pre-qualified **nbn** approved suppliers to provide a proposal to supply dark fibre connectivity services at specific locations.

Option Two involves **nbn** establishing an industry-wide reverse auction process by which **nbn** would, on an ongoing basis, conduct standardised reverse auctions allowing existing fibre network providers to bid, on a confidential basis, to supply **nbn** with dark fibre connectivity services to specified locations.

Both options seek to optimise the use of Australia's existing fibre network infrastructure, potentially enable **nbn** to connect customers sooner and at no greater cost, and are consistent with **nbn's** Multi-Technology Mix (MTM) approach to rolling out the **nbn**TM network.

The purpose of this industry consultation paper is to seek industry feedback on this important initiative to maximise the efficient use of, and investment in, Australia's fibre network infrastructure and to potentially address industry's concerns about **nbn** overbuilding and potentially stranding of existing, privately owned network infrastructure.

The remaining sections of this Consultation Paper address the following matters:

- Advantages of procuring third-party dark fibre connectivity services – section 2.
- **nbn's** planning and technical specification for dark fibre connectivity services – section 3.
- Contractual considerations relevant to **nbn's** procurement of dark fibre connectivity services – section 4.
- Confidentiality and information security considerations – section 5.
- Procurement approaches being considered by **nbn** – section 6.
- Next steps – section 7.



2. Advantages of leveraging third-party dark fibre connectivity services

nbn's Multi-Technology Mix approach to connecting residential and business premises across Australia seeks to maximise the use of existing network infrastructure as well as new infrastructure. Even though the **nbn**TM network rollout involves the installation of new network on an unprecedented scale, **nbn**'s approach to rolling out the network relies heavily on utilising existing in-place network infrastructure, where available and efficient to do so, rather than duplicating or overbuilding existing networks. For example:

- The Definitive Agreements between **nbn** and Telstra allow **nbn** to access Telstra facilities and infrastructure over a minimum period of 35 years.¹
- **nbn** currently utilises third party dark fibre services to provide connectivity and layer 2 broadband services to more than 700 multi-dwelling units (MDUs) across Australia.
- **nbn** currently utilises third party managed service backhaul (MSB).

Initially, **nbn**'s approach to connecting business customers to the **nbn**TM network relied heavily on a mix of copper-based technologies, such as FTTN, FTTB and FTTC. However, with bandwidth needs continually growing, increasing numbers of larger organisations now require dedicated high-speed, business grade, symmetrical services that can only be delivered over fibre infrastructure.

Today, **nbn** meets the needs of these customers by making available to RSPs and business customers the option to request a change of network technology at a business premises to either **nbn**TM Fibre to the Premises (FTTP) or **nbn**TM Enterprise Ethernet. Currently, when **nbn** upgrades the network technology it installs a new fibre connection. This is irrespective of whether that location is served by any existing third-party fibre.

However, as has been noted by a number of network operators and industry commentators, in certain circumstances the goal of encouraging economically efficient use of, and economically efficient investment in, telecommunications infrastructure may be better served by **nbn** leveraging existing fibre network infrastructure where the current owner is willing to sell access to that fibre and it meets **nbn**'s operational and commercial requirements. Accordingly, **nbn** is interested in establishing an industry wide process for procuring from third party fibre network operators dark fibre connectivity services that meet **nbn**'s requirements in order to facilitate the efficient supply of **nbn**'s suite of wholesale, layer 2 services to business customers (including but not limited to the **nbn**TM Ethernet TC2 service and **nbn**TM Enterprise Ethernet service).

¹ **NBN** Co Limited, NBN Co and Telstra Sign Binding Definitive Agreements, <https://www.nbnco.com.au/corporate-information/media-centre/media-statements/nbn-co-and-telstra-sign-binding-definitive-agreements>



3. nbn's planning and technical specification for dark fibre connectivity services

For **nbn** to be able to effectively and efficiently incorporate third-party fibre into the **nbn** network, there are a number of **nbn** specific planning and technical specifications that must be adhered to. These are described at a high level below.

3.1 Planning specifications

Connecting premises to the **nbn**TM network using third party dark fibre services will require **nbn** to provide network providers with details of:

- the end point location where dark fibre connectivity is required; and
- possible points of interconnection (for example FAN site locations).

The ideal start and end point(s) location data provided by **nbn** to network providers will be specific and relate to **nbn**'s existing network topography. However, **nbn** recognises that useable third-party dark fibre may have slightly different routing. Accordingly, **nbn** may choose to build network between the third-party hand-off, and a required location, on a case by case basis.

nbn may also require that a fibre connection be diverse from any other route (e.g. where it is being built for end-user customer redundancy purposes). Where this is the case, **nbn** will identify the route or points that the new connection must avoid.

3.2 Technical specifications

nbn will also make available to network providers the relevant technical specifications. At a high level **nbn** will require physical compatibility of fibre, meeting or exceeding the ITU fibre standards, including but not limited to:

- "*Characteristics of a single mode optical fibre and cable*"²;
- "*Characteristics of a bending-loss insensitive single-mode optical fibre and cable*" - attributes of category A and category B fibres³; and
- relevant standards for compatibility of fibre connectors⁴.

Network providers will also have to demonstrate compliance with **nbn** specific requirements including, but not limited to, the following:

² [ITU G.652 D \(11/2016\) - Characteristics of a single-mode optical fibre and cable](#);

³ [ITU G.657 \(11/2016\) - Characteristics of a bending-loss insensitive single-mode optical fibre and cable](#). In particular, the standards set out in Table 1, 657.A2 and Table 2, G.657.B3

⁴ detailed within the IEC 61754 standards for Fibre Optic Connector Interfaces for example SC/APC, LC/APC etc.



- **nbn** uses a combination of single and ribbon fibre (in a 12 fibre matrix) cables. **nbn** may require a specific type of fibre cable, or potentially both types of cables, to be accommodated at the hand over locations.
- Meeting or exceeding the **nbn** minimum end to end signal performance. For example attenuation per unit distance per wavelength, distortion, return loss, etc., inclusive of all cables, splices, connectors, etc.
- Time to service in operation is no longer than other options available to **nbn**.
- All **nbn** specific labelling and testing requirements.
- Compatibility and access to the fibre optic closures, or other similar devices, used to contain physical connection between **nbn** and third-party-fibre.
- Recording requirements for third-party infrastructure physical and logical inventory, commercial interface arrangements and capacity utilisation (fibres in-use, reserved, damaged and available).
- Physical separation, or other approved mitigating techniques, from other fibre pathways for the purposes of route redundancy as required.
- Visibility and access to physical plant for field operations, planning and design purposes.
- Operational requirements, including minimum performance limits, processes for augmentation, new connections, fault finding, repair process and reporting responsibilities.
- Compliance with all relevant **nbn**'s security requirements and policies.

Currently, **nbn** is giving further detailed consideration as to whether, other **nbn** specific standards may be required in addition to the above technical specifications and requirements. It is **nbn**'s intention to undertake further industry engagement in respect of all relevant technical and operational matters as part of this consultation process. Additionally, **nbn** expects that it will explicitly communicate to all interested parties all relevant technical specifications and operational standards as part of any future procurement process for dark fibre connectivity services.

4. Contractual considerations relevant to **nbn**'s procurement of dark fibre connectivity services

As part of any future procurement process **nbn** will propose what it believes to be appropriate terms and conditions of supply. The exact terms and conditions would be detailed and discussed with potential fibre suppliers as part of finalising the framework for **nbn**'s acquisition of existing fibre services.



Any future procurement process would be subject to typical process terms and conditions. Importantly, a key process term would be that **nbn** would retain the right to reject all offers made in a future procurement process if **nbn**'s technical specifications, operational requirements or service levels cannot be met. The establishment of a standard process should enable **nbn** to utilise a third-party's dark fibre connection service where the expected overall economic costs and/or time to delivery are less than **nbn** otherwise faces in deploying its own infrastructure (including a commercial cost of capital no less than the rate agreed with the ACCC in its Special Access Undertaking).

4.1 Assurance service level agreements

nbn will likely require service levels that support the optional enterprise-grade service levels that customers may order as part of the **nbn**[™] Ethernet TC2 and **nbn**[™] Enterprise Ethernet service (these can be found in **nbn**'s Wholesale Broadband Agreement (**WBA**)). **nbn** will also require defined fault response times, along with the right for **nbn** to pass on the cost of any rebates paid by **nbn** to any RSP(s) arising from any service level failures by the network provider. Finally, **nbn** will establish a standard reporting regime detailing actual network performance (i.e., incidence of network outages, faults etc) relative to agreed service levels.

4.2 Unlimited & exclusive access

As **nbn**'s use of third-party dark fibre connectivity services will be an alternative to building physical infrastructure, **nbn** will require unlimited, exclusive access to the entire optical spectrum available over the dark fibre connection. This requirement will commence from the time of connection until the disconnection of that service. **nbn** will also require the ability to use the fibre to carry any signals, and change the signals carried over the fibre at any time.

4.3 Duration of access

The duration of access terms will be stipulated as part of the procurement process. **nbn**'s current expectation is that the contract period will mirror the end user customer contract terms and that **nbn** will have the right to renew the terms of supply for an agreed period, which may extend the remaining life of the fibre.

Questions for interested parties:

Question 4.1: Does your organisation see a requirement by **nbn** for fibre suppliers to have a 24x7 Australian based Network Operations Centres (NOCs) to support dark fibre as a major barrier to participation?

Question 4.2: What SLAs can your organisation adhere to in both Metro and Regional areas if a truck roll is required?

Question 4.3: Does your organisation have any specific security (network or data) and privacy considerations that need to be considered as part of any procurement process?



5. Confidentiality and information security considerations

Any information exchanged between the network operator and **nbn** as part of the procurement process needs to be kept confidential by both parties and used for limited specific purposes to be agreed by the parties. Additionally, noting that **nbn** may be a competitor (or potential competitor) to the network operators which may wish to participate in the procurement process, it is appropriate that **nbn** and all other participating network operators establish appropriate information security protocols for ring fencing of confidential and commercially sensitive information, including a commitment to periodically review the effectiveness of those protocols and to remedy any systematic failures. For clarity, these protocols would apply equally⁵ to **nbn** in order to protect the confidentiality of sensitive information provided by participating network operators, to **nbn**.

It is **nbn**'s intention to include in its standard terms and conditions of supply under any procurement specific operational protocols and information system requirements that must be established and maintained by both parties to ensure appropriate ring-fencing of confidential and commercially sensitive information. When considering what protocols and system requirements are appropriate **nbn** will consult with both industry and the Australian Competition and Consumer Commission (ACCC). For clarity, any protocols and system requirements specified by **nbn** will represent the minimum requirements that each party must establish and maintain in order to comply with their contractual obligations.

In addition to confidentiality and information security requirements all participating network operators will be required to align with relevant **nbn** policies, including **nbn**'s security policies, at **nbn**'s discretion.

Questions for interested parties:

Question 5.1: Does your organisation have any concerns about establishing and maintaining appropriate informational security protocols to ring fence confidential and commercially sensitive information?

6. Procurement approaches being considered

6.1 A standard RFP process

nbn has a current RFP process for procuring MSB for Multi-Dwelling Units (**MDUs**) that could be upgraded. This process currently involves candidate sites being identified by **nbn**'s Network Planning and Deployment team as well as the network and service requirements.

⁵ Subject to **nbn**'s legally binding disclosure obligations including under the *Public Governance, Performance and Accountability Act 2013*.



In general, once **nbn**'s requirements have been identified, the **nbn** procurement team issues an RFQ to the MSB panel of providers to respond with capability, pricing and an estimated delivery date. **nbn** reviews all compliant responses received and selects a supplier based on its commercial, operational and technical needs. Once the provider has been selected an order is placed via the provider's portal or via an order form, and the order delivery is tracked. Once the MSB is delivered, the provider will integrate the MSB into the **nbn** network and **nbn** will perform acceptance testing and verify the MSB delivery status and delivery date. Following this practical completion will be granted and nbn will commence offering wholesale services to the relevant MDU.

This current RFP process described above is unlikely to be fit for purpose for procuring dark fibre connectivity services due to its on-demand nature and the likely larger scale (and associated SLAs) often demanded by larger customer organisations seeking fibre based services. **nbn** would likely need to amend elements of the current RFP process, rather than simply scaling the largely manual resourcing of the current RFP process, to meet the expected volumes of connections.

6.2 A reverse auction

An auction is a sales process wherein potential buyers place competitive bids on assets or services either in an open or closed format. In a general sense, the process of an auction reveals both the buyer's willingness to pay and the seller's willingness to supply which, if matched, allows the exchange of a good or service. There are several different types of auctions each of which have specific benefits and drawbacks. This section explains why **nbn** believes that a reverse closed auction conducted online is an appropriate form of auction for the procurement of dark fibre services from third-party fibre network operators.

6.2.1 What is a reverse auction?

A reverse auction is a price negotiation tool that is conducted in real time (often online) between a buyer and a group of sellers. Sellers are often prequalified or short-listed through an established means such as an Expression of Interest (EOI), a Request for Quotation/Tender/Offer, or an existing panel of suppliers. Reverse auctions have grown in popularity since the 1990s in the business to business (B2B) and government procurement communities. Examples of the use of reverse auctions in Australia include:

- the South Australian Department of Health for the procurement of medical supplies;
- the Australian Capital Territory (ACT) Government's use of reverse auctions to contract for the construction of renewable energy generation; and
- the Sydney Fish Market selling fresh and live seafood via a reverse auction process involving over 350 active buyers located across Australia and New Zealand.

During a reverse auction, suppliers lower their prices to compete against each other to win the business of providing goods or services that have clearly defined specifications for design,



quantity, quality, delivery, and related terms and conditions. In a reverse auction bids reduce in value as the auction progresses rather than increase as they do in a traditional auction.

Reverse auctions are typically conducted online. Using specialised software, suppliers submit successively lower bids during a scheduled time period. The supplier with the lowest price wins the reverse auction.

A particular feature of reverse auctions is that as suppliers lower their bids their rankings/pricing may be revealed (as discussed below). However, their identity is not revealed and all suppliers receive the same information at the same time.

6.2.2 Different types of reverse auctions

There are several ways to conduct a reverse auction, with the most common being either positional bidding or leading price bidding. During positional bidding the bids are not visible to the participating suppliers; suppliers are only informed of their own positions, for example 1st, 2nd, 3rd. During leading price bidding, suppliers see the lowest (leading) bid without the identity of the leading supplier being revealed to other bidders.

nbn's preferred auction type is a positional bidding reverse auction for the following three reasons:

1. A positional bidding reverse auction often improves the motivation of suppliers to bid.
2. Relative to a positional bidding auction a leading price auction can dampen the competitive process potentially resulting in limited options for the buyer.
3. The leading price action may breach the confidentiality of bidder. Specifically, in a leading price auction, if the business is awarded to the leading bidder the bid price is revealed to all auction participants during the negotiation. This issue is exacerbated in auctions with a limited number of bidders or where the bidders are known to each other.

Questions for interested parties:

Question 6.1: Does your organisation have a preference for the standard RFP process or a reverse auction process for procuring dark fibre services?

Question 6.2: Would your organisation be interested in participating in a trial reverse auction process? If so, what is your organisation's views on the appropriate duration and scale of trial?

Question 6.3: Does your organisation have any other suggestions for approaches for third party network operators to supply fibre connectivity services to **nbn** (which might even include lit fibre), on a basis that would be comparable to **nbn's** current costs, and meet our technical and operational requirements?



7. Next Steps

nbn invites written submissions from industry participants by close of business 24 February 2020. **nbn** will treat all submissions as confidential.

In parallel with this consultation, **nbn** welcomes the opportunity to meet with industry participants individually, to discuss your submission in more detail and obtain feedback. If you would prefer to provide verbal feedback rather than make a written submission, please email [James Endres](mailto:jamesendres@nbnco.com.au) (jamesendres@nbnco.com.au) or contact your **nbn** account manager to request a meeting.