



Response to the ACCC Discussion Paper
National Broadband Network Points of
Interconnect



A Leighton Company

Appendix 1: Issues for Discussion

Responses to the Questions Raised by the ACCC

1. Effect on Relevant Markets

Number	ACCC Question	Nextgen Response
1.	To what extent will the number and location of POIs impact competition in the backhaul market in the short term and long term?	<ul style="list-style-type: none"> • The number and location of POIs will be a critical determinant of competition in Australia's backhaul market. • This market is largely determined by the bandwidth and price requirements of RSPs who continue to grow coverage, and generally provide uniform pricing across all markets to provide any to any connectivity for their customers. • The fixed RSPs targeted by the NBNCo business model account for the vast majority of backhaul traffic generated in Australia. As at June 2010, the ABS estimated that these players with 44% of subscribers accounted for 91% of broadband data downloaded. • The preferred model proposed by NBNCo removes any commercial scope to provide backhaul to the RSP market, except for the highly competitive inter-capital routes, where it is unknown if this is a, sustainable stand alone business. • In the short term, competition will be impacted immediately. <ul style="list-style-type: none"> ○ RSPs are already reassessing their business models and deciding whether to operate within cost structures based on maintaining network assets or adopting a resale only model where they rely entirely on the NBNCo facilities. ○ This means investment decisions are delayed pending potential exit from requirements for backhaul entirely. • In the long term, competition will be structurally and irreversibly undermined. <ul style="list-style-type: none"> ○ The market will fragment into two separate classes of RSPs: <ul style="list-style-type: none"> i. Those with their own backhaul facilities; and ii. Low value added pure resale players. ○ Without the traffic generated by third party RSPs, there will be effectively no wholesale market for transmission services. ○ Nextgen would expect a market characterised by additional consolidation with fewer RSPs, especially in regional areas. There will be reduced scope for RSPs to compete on price, innovation or through a local market strategy.

2.	<p>To what extent do you anticipate that any of your transmission assets (or other relevant assets) will become stranded under any of the approaches to POIs on the NBN? What is the value and location of those assets?</p>	<ul style="list-style-type: none"> • Nextgen will be left with significant stranded assets under any consolidated NBNCo POI approach. • If the RSP market is required to adopt bundled AVC + CVC connections via centralised POI arrangements, it will undermine the ongoing viability and sustainability of all current competitive backhaul assets. • Nextgen has made a significant investment in building competitive backhaul over the last decade based on known technical, commercial and regulatory risks. • Our network footprint which comprises historical and currently committed construction activity comprises access to: <ul style="list-style-type: none"> ○ 17,000 kilometres of national fibre optic cable in all mainland States and Territories. 80% of Australia's population in built up areas are within a 5km range of this infrastructure. ○ High capacity DWDM transmission equipment geared for current ADSL and future FTTP environments. ○ 133 metropolitan and regional population centres. ○ Carrier grade equipment and co-location space for interconnection. • These network assets were primarily built to service the same RSP market now targeted by NBNCo, and were historically placed at a structural and competitive disadvantage to horizontally integrated market players who controlled their own backhaul transmission networks. • We would strongly argue that any approach adopted by NBNCo to consolidate interconnection around just 14 Aggregation POIs will lead to significant levels of stranded regional Nextgen assets. • Essentially these stranded assets relate to all network facilities, excepting those inter-capital routes nominated by NBNCo which remain contestable. These include; <ul style="list-style-type: none"> ○ All fibre routes and facilities used to address RSPs utilising ULLS and SSS. ○ Value of network tails and transmission equipment. ○ Value of contractual IRUs negotiated on regional routes • These particular assets are primarily located throughout Melbourne, Adelaide, Perth and Regional Australia. • When assessing the value of 'stranded assets', Nextgen looks at a broader concept of 'stranded value' which represents not only the economic value of stranded assets but also 'network impairments' to its broader network. • In addition to assets that are stranded by virtue of their physical overlap with a 14 POI NBN configuration, Nextgen will have significant network assets that are 'impaired' by the aggregation that a 14 POI NBN configuration represents.
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		<ul style="list-style-type: none"> • A particular feature of Nextgen's business as a wholesale network services provider to the Government, carrier and corporate markets is its status as a national network owner that can provide national 'whole of network' contracts to customers. • Some of these whole of network contracts are long dated and significant in terms of capacity size. • When assessing 'impairment' to its broader network one particular contract example is instructive. <div data-bbox="818 537 1338 831" style="background-color: black; width: 100%; height: 100%;"></div> <ul style="list-style-type: none"> • In our view, the NBNC Co will (under the 14 Aggregation POI case) demonstrate an inevitable tendency to a monopoly and will erode the value of entire existing networks and not just components of those networks (i.e. 'stranded assets') that overlap with NBNC Co. • At this juncture it is difficult to provide a full analysis of Nextgen's assessment of the stranded value to its network arising from a 14 POI configuration. • The factors that make this analysis difficult are: <ul style="list-style-type: none"> ○ Lack of clarity on the configuration, business plan, product offering and pricing structure of NBNC Co. under the 14 Aggregation POIs case; and ○ Limited time to respond to the ACCC Discussion Paper. • Despite these difficulties Nextgen's preliminary assessment of 'stranded value' made up of 'stranded assets' and 'network impairment' is outlined on a commercial-in-confidence basis to the ACCC. • These calculations support the recently published statements of Optus that conclude the 'government faces compensation claims running into 'hundreds of millions of dollars' from the telecommunications industry unless the regulator stops NBN Co from bypassing infrastructure owners' assets. <p>[note: The Australian Financial Review, <i>Optus Warns of NBN Compensation</i>, 08 November 2010]</p>
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<p>3.</p>	<p>What is the current state of competition in the relevant backhaul markets? To what extent are backhaul services priced competitively in CBD, metro, regional and remote areas?</p>	<ul style="list-style-type: none"> • Nextgen submits that existing competition in backhaul markets has served the long term interest of end users well over the last 5 years. • This is evidenced by the fact that while no major new backhaul networks have been built over this time, yet the cost per megabit second continues to fall as is evidenced by the ever increasing Gigabit allowances being provided to the retail consumer. • Where the consumer has been let down is in adjacent bottleneck access infrastructure to copper, where there has been constant uncertainty over price and availability, and in international backhaul which has recently been boosted by PPC1 and is the major reason for consumer price movement over the last 18 months. • Nextgen submits that backhaul competition is available to around 87% of Australia's population and that the development of this backhaul is subject to; <ul style="list-style-type: none"> ○ The limited capital availability of ISPs and a preference to roll-out DSLAMs in capital city metro areas before looking regionally; ○ The price disparity on ULLS providing incentive on metro DSLAM rollout over regional.; ○ The high barrier to entry to become an ISP using competitive DSLAMS; ○ The bundling and terms (with embedded incentives not to roll-out) of wholesale Layer 2 ADSL2+ services; ○ The inability to disaggregate backhaul and DSL Port elements of wholesale Layer 2 ADSL2+ services, so that a competitive backhaul service can be used. ○ The general lack of competition in the telecommunication sector effecting upstream and downstream markets, i.e. tightly held content and media distribution, International backhaul capacity etc. ○ Continued intervention into regional broadband markets. • Nextgen submits that the wholesale backhaul market is intolerant of price differentials between metro, regional and remote areas and that wherever competition exists prices are generally based on national averages. • Nextgen acknowledges the current ACCC process for exempting competitive routes as part of the Declaration of Domestic Transmission Capacity Service (DCTS) as an appropriate proxy for the existence of effectively priced backhaul. • It is noted that the most recent ACCC Declaration (2009) excludes: <ul style="list-style-type: none"> ○ All State inter-capital routes. ○ A number of routes between capital and metropolitan locations. ○ 23 capital to regional routes.
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		<ul style="list-style-type: none"> • Nextgen notes that the ACCC currently evaluates competition on the basis of 3 competing cables within 5km of a GPO, but submits that the only way to determine the true state of competition is through a genuine tender process. This submission notes that the extent of backhaul competition in Australia is effected by the following inter-related factors; <ul style="list-style-type: none"> ○ The presence of existing fibre where alternate options for supply will cause favourable conditions for a buyers; ○ The number of providers or potential providers where the greater the number of providers will create a higher level of uncertainty for the seller leading to a focus on cost plus selling approaches; ○ The routes that the fibre takes to access locations; ○ The protection options and requirements for diversity to support specific applications; ○ The cost to build fibre to a location from an existing transmission point; ○ The upgrade cost on the fibre for transmission equipment to support demand is undertaken in a sustainable manner; ○ The size of the accessible markets between and at the end of the fibre; ○ Retail market elasticity on capacity. This is where, increasing the available capacity improves market uptake or competitiveness; ○ The commercial imperative of the fibre owner. The dependency of the owner of the fibre to generate commercial revenues on the asset in order to support its overall business; ○ The level of vertical integration of the backhaul provider with a potential business driver to limit supply or price in order to protect retail market share; ○ The level of horizontal integration of the backhaul provider with a potential business driver to limit supply or price in order to protect investments on other network investments ○ Upstream and downstream, bottleneck infrastructure required to facilitate application demand. For example, international capacity constraints or limitations on use of access networks constrain market elasticity to a point where increasing the available transmission capacity will have no impact on demand, because it simply cannot be used. ○ Regulatory uncertainty. The potential for Government intervention into markets will drive investment decisions. ○ Time and internal resources available to a market participant to participate in tendering processes.
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4.	How would investment in backhaul infrastructure used for other networks, such as mobile and non NBN fixed networks be affected by the number and location of NBN POIs?	<ul style="list-style-type: none"> • Investment in national backhaul infrastructure would be substantially undermined by any consolidation of NBNCo POI locations. • The viability of investment in this infrastructure is critically dependent on obtaining access to the largest volume of traffic demand as possible. • Any reduction to the total of the traffic demand undermines the business model for backhaul suppliers because the technology such as DWDM and/or DF requires large up front investment. • As the NBNCo FTTP deployment grows, consumer broadband will dominate total data traffic demand in Australia. • If this traffic is carried exclusively by NBNco as a result of the adoption of centralised POI model underpinned by a bundled CVC product, the remaining requirements for backhaul from mobile, corporate data and content delivery purposes will always represent a small and increasingly uneconomic fraction of the total. • Nextgen already provides backhaul services that are ultimately used by a wide range of alternative network users. These businesses may be severely compromised by the proposed NBNCo POI approach. These customers include operators of mission critical infrastructure and bandwidth requirements for major industry interests such as: <ul style="list-style-type: none"> ○ Cellular network operators ○ Utilities ○ Emergency services networks ○ Systems integrators ○ Broadcasters ○ Mining, energy and finance industry data needs • This new market reality will have two particular impacts on the relative competitiveness of these alternative network offerings; <ul style="list-style-type: none"> ○ They will have to pay much higher prices for backhaul than the specialist transmission products offered by operators such as Nextgen and others today. ○ There will be a significantly reduced business case to extend existing backhaul network reach in the future as the significant traffic generated by fixed RSPs cannot be aggregated with the demand for other network uses. • In addition to the underlying economic impacts of POI consolidation, of more concern are recent indications that NBNCo will use dominance in the last mile to lock in new revenue opportunities in related backhaul markets from players such as Vodafone Hutchison Australia <i>[note: The Australian, NBN Could Compete with Backhaul Providers, 26 October 2010]</i>
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5.	To what extent will the number and location of NBN POIs impact competition at the retail level in the short term and long term?	<ul style="list-style-type: none"> • The number and location of NBNC Co POIs will have a significant impact on the current structure of the retail market as well as the long term prospects for retail competition in Australia's broadband industry. • Rather than deliver the 'lowest cost total solution for Access Seekers' and assist in 'promoting healthy competition', through a consolidated number of POIs, Nextgen views that a different scenario is the more likely outcome. • In the short term, there will be a significant consolidation in the RSP market around those few operators who have capability to bypass the NBNC Co cross subsidy between metro and remote CVC pricing. We would note: <ul style="list-style-type: none"> ○ The draft to the <i>Telecommunications Legislation Amendment (NBN Measures – Access Arrangements) Bill 2010</i> proposes Ministerial powers to exempt certain network elements. If this is intended to facilitate backhaul exemptions, only those with a point of difference through their own facilities will be able to compete in the NBN 'flat earth' environment. ○ There will be no opportunity for smaller RSPs (particularly those with a specific regional focus) to construct competitive networks to overcome the cost differential on backhaul. ○ New market entry will stall and there will be dramatically reduced choice in RSP options for end users. • In the long term, the inefficient transport of traffic (where users pay for backhaul whether calls are switched locally or not) will require a significant extension of the USO in order to meet voice only retail requirements currently provided competitively by the market. Nextgen envisages; <ul style="list-style-type: none"> ○ A potential differential between current retail PSTN Access Charges and NBNC Co retail Access charges of around \$30 per month. ○ On this basis, it becomes an open question on the market implications of: <ol style="list-style-type: none"> i. The quantum of residual 'voice only' customers and their attitudes to having their Standard Telephone Service costs doubling; ii. Who pays for the \$30 per month differential: the consumer, NBNC Co (which will compromise their business case) or a USO mechanism (which industry will not be able to afford) • The number and location of POIs will also be a critical factor in RSPs being able to offer discrete, regionally based services. A highly consolidated approach will lead RSPs to adopt a national, but not regional focus.
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<p>6.</p>	<p>Is the emergence of a Layer 3 wholesale sector likely under the NBN? If so, how will the likely location of NBN POIs affect the market in the short term and the long term?</p>	<ul style="list-style-type: none"> • On this basis, Nextgen considers that Layer 3 wholesale services will emerge under NBNC Co. • These Layer 3 services will provide national reach and coverage for new market entrants or existing RSPs willing to expand their footprint. • Layer 3 services will allow industry sector players without significant telecommunications experience or infrastructure to develop new applications of national scale (and therefore a national market) to exploit new broadband infrastructure. It is noted that this is one of the major policy objectives underpinning the NBN. • The most likely participants in the creation of Layer 3 wholesale networks to compliment the NBN would be backhaul providers. • It would also be expected that a separate class of provider specialising in efficient peering would emerge similar to [redacted] or more likely [redacted]. All these providers now have little commercial incentive to operate or ability to differentiate and are unlikely to exist outside of a vertically integrated model. • In the short term, the opportunities for Layer 3 service provision will be highly dependent on the number of POI locations. • The fewer the number of POI locations, the fewer the number of ports available to sell to the market. If NBNC Co are seeking to maximise the value of downstream Layer 3 products, it should offer industry players more than just basic traffic aggregation opportunities in a small number of locations. • It should seek to provide a much greater number of POIs with associated backhaul opportunities to allow Layer 3 providers to differentiate and value add. • Over the long term, a healthy, vibrant and profitable Layer 3 market will be a threshold requirement to support innovation to cater for those products and applications (such as cloud computing) that will emerge through the NBN environment.
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2. Location of NBN POIs and Provision of Related Services

Number	ACCC Question	Nextgen Response
7.	What is the preferred number of POIs and why? How would this be different in the short term and the long term?	<ul style="list-style-type: none"> • With certain undertakings, the Composite POI figure of 209 may be an acceptable initial number to Nextgen as it gives a reasonable balance between backhaul and local infrastructure. We note that this figure comprises, as a minimum: <ul style="list-style-type: none"> ○ 14 aggregation POIs located in Sydney, Melbourne, Brisbane, Adelaide and Perth. ○ 195 Connectivity Serving Areas (CSA) provided in locations across Australia. • Nextgen remains concerned that interconnection at these CSAs will only be available in 'limited circumstances' such as for technical reasons (such as latency, avoidance of tromboning etc) or to provide connectivity for certain broadband content and applications. • Nextgen strongly believes that interconnection should be made available unconditionally at all NBNSCo CSA locations. Further, backhaul to these CSAs should be: <ul style="list-style-type: none"> ○ Priced - and offered to the market - on a standalone basis; ○ Transparent to all users of wholesale backhaul capacity; and ○ Fully contestable. • This position is consistent with previous ACCC statements on POI location which represent valid precedents in the context of this Discussion Paper including: <ul style="list-style-type: none"> ○ 'It does not appear justifiable to restrict interconnection to points higher in the network where greater aggregation of traffic has occurred' in its assessment of the FANOC SAU in December 2007. ○ 'POIs which are commercially feasible for service providers and which support competition, including competition for backhaul services from the first point of aggregation would be a minimum requirement' in its report to the NBN Expert Panel in January 2009. • However the potential 209 POIs should be seen as an initial planning figure rather than an absolute number. • The final optimal number of POIs will depend on many factors both commercial and technical. On this basis it is not useful to set a 'right number' rather NBNSCo should adopt a position of flexibility which allows rational economic investment decisions, based on real costs, to drive planning decisions. • This requires a level of transparency which will not be available with UNWP as it is currently proposed.

<p>8.</p>	<p>What are the strengths and weaknesses of the NBNCo's preferred 'composite' model outlined in its Public Position Paper?</p>	<ul style="list-style-type: none"> • On balance, Nextgen considers that the weaknesses of the NBNCo composite model far outweigh the potential strengths. • Nextgen have consulted with leading technology vendors and innovative service providers to obtain their practical views on the likely market impact of composite model proposed by NBNCo. • In terms of the potential strengths, the composite model can offer the market: <ul style="list-style-type: none"> ○ A relatively straightforward connection strategy for traditional ISP internet access. ○ One aspect of a general move toward Uniform National Wholesale Pricing • The likely weaknesses of the composite model will lead to a range of market distortions and inefficiencies, including <ul style="list-style-type: none"> ○ The adoption of a model with an in-built and hidden cross subsidy will hinder innovation because new ideas will be competing with cross subsidies rather than genuinely finding new solutions. ○ Connection in CSA is a requirement for innovation, yet this is considered to be a special case subject to undefined 'Business Rules' that are not articulated in the NBNCo Public Position Paper. ○ Under the composite model RSPs providing innovative services, such as multimedia delivered by a content delivery network, will be required to buy a CVC product from NBNCo, (potentially with large bandwidth per user) as servers will be located in capital cities. This denies the RSP the opportunity to optimise costs by balancing transmission and storage - one of the basic functions of a content delivery network. ○ A centralised POI approach will compromise real time video and other large file delivery processes, adversely affecting the value proposition and business case for IPTV, some aspects of WEB TV and even the way health and educational services might be delivered. ○ Innovative RSP also providing bundled internet will need to either purchase an additional AVC (the major cost item in each customer service) or purchase additional backhaul capacity back to the capital city - even though it is already paying for CVC at a price which would cover backhaul to the capital city. Effectively the RSP would be paying at least twice and probably more for backhaul. ○ The adoption of a pricing model which does not reflect underlying costs will increase costs to innovators and effectively hold back technical and productivity gains.
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<p>9.</p>	<p>Where a composite or low-medium consolidation is adopted for NBNC Co POI locations, what factors should be taken into account in determining the location of distributed POIs? For example is the number of available backhaul routes relevant? If so, what should be the threshold?</p>	<ul style="list-style-type: none"> • Nextgen believes that allowing the market to provide competitive, transparent, modular and lower priced backhaul to POI locations should be the key factors underpinning the interconnection approach adopted by NBNC Co. • Such an approach preserves the investment in - and resulting competitive outcomes from - the development of alternative network infrastructure. • Nextgen submits that the precise number of available competitive backhaul routes can be determined through a framework that involves: <ul style="list-style-type: none"> ○ Market participants being granted the opportunity to tender a binding wholesale offer with Equivalence Undertakings for the provision of competitive transmission services against a genuine and known market offer from NBNC Co on AVCs aggregated at reasonable quantity of POIs; ○ This process should be based on an agreement that where offers meet NBNC Co's underwritten target hurdle rates on price and volume that POIs will be established and will remain contestable; ○ In those areas where contestable backhaul does not currently exist, NBNC Co will make this available to the market through a Special Access Undertaking (SAU); ○ This SAU will guarantee backhaul as an unbundled, modular, transparent and separately priced transmission product; ○ Going forward market participants should be given regular opportunity to contest NBNC Co backhaul arrangements at points of aggregation deeper into the network; and ○ The currently undefined business rules and terms for providing and accessing backhaul to CSA locations should be developed, articulated and agreed in conjunction with industry consultation. • Against this background, Nextgen believes that it would be in a strong position to provide competitive backhaul to all of the 209 potential POI locations nominated by NBNC Co under their composite model. • We have provided competitive backhaul mapping against the published FSA locations for the consideration of the ACCC at Attachment 3 of this submission. • It is understood that there is also likely to be other potential providers of transmission capacity that could reach a significant number of these sites. • It is also consistent with the views of other operators such as SingTel Optus who are on the record as saying 'The proposal under consideration from NBNC Co, if implemented, represents a significant case of overreach that would cross a very bright demarcation line between contestable and non-contestable infrastructure.'
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		<ul style="list-style-type: none"> • [note: The Australian Financial Review, <i>Optus Warns of NBN Compensation</i>, 08 November 2010] • The number and location of NBNCos POIs should also consider the fundamental technical requirements of applications and content that will be delivered across the network; including: <ul style="list-style-type: none"> ○ For voice services - and particularly for those that occur within traditional call collection zones - the need to 'trombone' this traffic to and from a capital city location will result in significant latency and performance issues. ○ For those next generation and 'bandwidth hungry' services where caching and servers will need to be located closer to the customer in order to minimise the requirement for costly transmission resources. • The NBNCos POI Public Position Paper also seems to acknowledge these are likely to represent significant technical issues where 'interconnection for applications or technical reasons' should be made available at NBNCos CSAs.. • However, the NBNCos Public Position Paper does not offer any practical or meaningful response to these application and technical challenges, but leaves this as an open question that is 'subject to unspecified request, timing and business rules.' It also says that its clear preference is for the 14 Aggregated POIs in 5 nominated capital city locations will form 'the default position for interconnection.' • Nextgen believes that the CSA locations nominated by NBNCos should be made default POIs
<p>10.</p>	<p>On what terms should NBNCos supply backhaul from the small number of centralised aggregation POIs to the decentralised POIs if its composite model is adopted?</p>	<ul style="list-style-type: none"> • Nextgen have outlined the key factors in response to Question 9 above that will be useful in evaluating the number and location of NBN POIs. These also provide the framework for determining the terms under which backhaul should be made available to these locations. • The imposition of a UNWP for connection to a CSA regardless of the route length will distort the economics of network planning and design and lead to inappropriate investment decisions which will, in the end, stifle service and network innovation. The terms and conditions under which backhaul will be made available to RSPs will also be crucial. • We note the NBNCos has now publicly identified: <ul style="list-style-type: none"> ○ A preference that the 14 Aggregation POIs be the default location for interconnection. ○ Connections to the 195 proposed CSA locations will only be made available for unspecified 'technical or application reasons'. ○ Interconnection at these CSA locations will be subject to undisclosed timing considerations and business rules.

		<ul style="list-style-type: none"> • There is no valid cost or technical reason apparent to Nextgen on why all CSA locations identified by NBNCo should not be mandated as POIs in their own right. • As a consequence, POI to CSA links should be made fully contestable with NBNCo providing a USO (or equivalent) funded service only in those circumstances where market failure can be demonstrated to have resulted in lack of competition. • In addition to adopting a transparent process by which the number and location of NBNCo POIs may be determined, Nextgen strongly endorses a position that would result in the removal of a requirement for RSPs to acquire a bundled access (AVC) and backhaul (CVC) product in locations outside the five major capital cities. • Nextgen notes that there is no direct relationship between the AVC and CVC in the sense of orderable components. They should be priced and offered to the market in a separable and transparent form. • By providing a mechanism to allow RSPs to obtain lower priced and contestable backhaul to all of the 209 locations envisaged in the NBNCo composite model, Nextgen believes that this would be better placed to achieve: <ul style="list-style-type: none"> ○ The stated policy objectives that have been articulated for the NBNCo; ○ Takes advantage of cost efficiencies by using pre-existing network facilities; ○ The promotion of competitive outcomes and end user choice; and ○ Sends the correct investment signals to industry to continue to fund the development of Australia's national information infrastructure, especially to regional areas.
<p>11.</p>	<p>If NBNCo supplies backhaul, should this be on a Layer 2 Ethernet basis or in the form of dark fibre (or both)?</p>	<ul style="list-style-type: none"> • Nextgen's underlying position that backhaul should be provided to RSPs in an NBN environment on the following basis: <ul style="list-style-type: none"> ○ Where competitive backhaul exists, RSPs can acquire transmission services from the market under a ceiling; or ○ Through NBNCo in those geographic locations where there is no competitive backhaul as a national provider of last resort. • As a leading provider of wholesale transmission capacity to carriers and ISPs, Nextgen observes that Layer 2 (Ethernet) backhaul is likely to be the most practical and economic approach for connecting RSPs to the network when the service is to be directly connected to NBNCo fibre access systems (PON) • Also, as a general statement of broader technology trends, it is highly likely that Layer 2 (Ethernet) will be the default industry standard going forward.

		<ul style="list-style-type: none"> • It is understood that most RSPs are likely to require highly standardised and simple Layer 2 (Ethernet) products. • However, data transmission services will not necessarily have the same attributes as a last mile connection to the NBNSo network. For example, certain Ethernet industry standards are now evolving which are optimised to support the needs of cellular mobile operators. • A one size fits all approach based on the specific requirements of the NBNSo FTTP broadband services will not be appropriate for all potential backhaul customers. • This includes particular arrangements for content delivery networks with distributed servers that are located in CSAs. The requirements of the server are not necessarily the same as the interface to the NBNSo access network. • In some instances, such as those where NBNSo are the backhaul provider of last resort, it may elect to offer dark fibre as a means of providing the broader industry with the maximum opportunity to value add and/or structure their business models with additional flexibility to compete on service differentiation and price/value proposition
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3. Timing and Business Rules for Interconnection

Number	ACCC Question	Nextgen Response
12.	Under the NBNC Co 'composite model', what business rules should govern when NBNC Co will allow interconnection at the distributed POIs?	<ul style="list-style-type: none"> • Nextgen submits that there should be a minimum and practical set of business rules only in order to govern interconnection at NBN POI locations. • These business rules should be aligned with threshold standardisation, operational and technical requirements. • There should be no arbitrary or financially driven rules which distort fundamental costs and underlying market behaviours. • All industry participants should be allowed to connect at distributed POIs providing they are qualified to connect to central POIs. • Interconnection should be provided upon request by a competitive provider supported by an offer to wholesale transmission at under the ceiling price.
13.	What should be the process to co-ordinate the addition of interconnection at the disaggregated POIs?	<ul style="list-style-type: none"> • Nextgen believes that interconnection arrangements at all disaggregated FSA locations should be reviewed on a regular basis. • A framework for assessment of key factors determining the viability of POIs in specific locations in outlined in the response to Question 9 above. • These processes should be fully transparent so that NBNC Co cannot get into a position of having its internal business drivers used to undermine competitive market outcomes.

4. Changes to the Initial POIs

Number	ACCC Question	Nextgen Response
14.	What factors should trigger a review of the location of NBNC's initial POIs?	<ul style="list-style-type: none"> • Our response assumes a baseline NBN Composite model which involves 209 discrete POIs incorporating: <ul style="list-style-type: none"> ○ 14 aggregation POIs located in Sydney, Melbourne, Brisbane, Adelaide and Perth. ○ 195 Connectivity Serving Areas (CSA) provided in locations across Australia. • From a network planning perspective, a review of these initial number of POIs should relate to a consideration of the following parameters: <ul style="list-style-type: none"> ○ Baseline population and demographic data relating to new greenfields developments or large scale industry schemes (such as coal seam gas in Queensland's Surat Basin or Iron Ore proposed expansion in the Pilbara). ○ Traffic profile and growth in the demand for bandwidth on a per FSA basis. This may involve approaches such as the splitting of POIs where changes in traffic warrant. ○ The evolving technical and business requirements of RSPs, such as emerging and sophisticated applications providers. ○ The availability of new and competitive backhaul infrastructure to a region may also alter the economics of POI location decisions • In order to cater for a dynamic NBN environment, all network arrangements need to be constantly reviewed against a robust and fully transparent cost/benefit framework. • As a result the architecture of the NBN needs to be highly scaleable and flexible. • In approaching these issues, NBNC is in a unique position. Unlike traditional vertically integrated market players who have undertaken network planning decisions primarily on the basis of their own self provisioning needs, NBNC will need to give priority to their wholesale customers • As a result, it will need to manage potential trade-offs between: <ul style="list-style-type: none"> ○ Its own cost drivers (especially under a regime that guarantees UNWP) and the business requirements of RSPs seeking to open up and exploit new geographic markets; and ○ The need to prioritise and cater for the competing interests of individual RSPs.

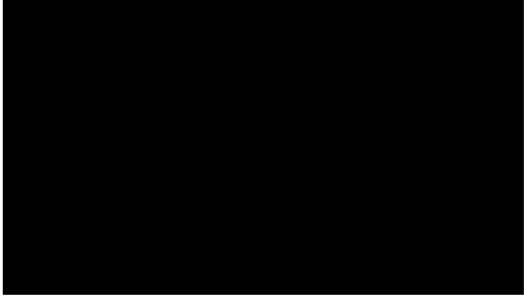
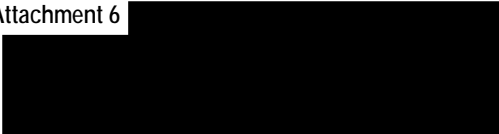
15.	<p>What mechanisms should be used to effect a change to the location of NBNCo's POIs (ie consultation requirements and notification periods)?</p>	<ul style="list-style-type: none"> • Against the threshold tests for network planning outlined in our response to Question 14 above, Nextgen would support any transparent and consistent mechanisms to effect changes in the location to POI locations. • On this basis, these arrangements should be set out as contractual obligations on NBNCo through its formal agreements with Access Seekers. • As an example, the rights of Access Seekers to Nextgen facilities are governed through our Master Services Agreement and Standard Form of Agreement. This framework outlines non-price terms and conditions on which services are supplied including provisions that are relevant to this Question: <ul style="list-style-type: none"> ○ Activation, ordering and provisioning; and ○ Changes, upgrades and service interruptions. • These obligations should also include the consultation requirements and notification periods outlined in the ACCC questions. • Information relating to POI locations will be critical for the network planning, business development and service delivery forecasting for RSPs.
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5. Unbundling

Number	ACCC Question	Nextgen Response
16.	<p>What are the implications of the number and location of POIs for potential Layer 1 unbundling and home-run network topology for the NBN?</p>	<ul style="list-style-type: none"> • Nextgen notes that Layer 1 unbundling and home-run network topology does not necessarily need to be addressed as the same, integrated issue by NBNC. • In the context of FTTH, 'home-run network topology' can be defined as a network in which each premises has one or more dedicated fibres which go to the serving site. • The PON network architecture proposed by NBNC takes dedicated fibres from the premises to a nearby point, usually a street cabinet, from where they share fibres back to the serving site. Using this approach the fibres which are dedicated to each premises (many) are relatively short and the shared fibres back to the serving site (few) are considerably longer. This reduces the overall amount of fibre used in the network. • In OSI terminology, Layer 1' refers to the signals going over the transmission medium (eg SDH is a Layer 1 standard) • In this context, Layer 1 services can be taken a point to point transmission, and explicitly not the Layer 2 Ethernet service to be provided by NBNC. • In some technology options, including the PON architecture adopted by NBNC, it is not possible to share Layer 1 and 2 services on the same infrastructure. • In such cases the provision of an unbundled Layer 1 service would also require a home-run fibre. Layer 1 unbundling would therefore allow a third party to use NBN infrastructure to establish a point to point path between their equipment and a customer premises. • It would then be possible to combine two Layer 1 unbundled services and some backhaul services to provide a point to point transmission link between two customer premises without engaging any of NBN Co standard products. • The street cabinets deployed by NBN Co will be used to house Passive Optical splitters which are a key part of NBNC PON architecture. • These cabinets can also house other types of sharing technology (eg Passive DWDM) filters which allow Layer 1 services to use individual fibres to the premises and share fibres back to the serving site. This allows Layer 1 services to operate without the need for home-run fibres. • Nextgen considers that layer 1 unbundling in FTTH networks represents global industry best practice. • NBN Co will be the dominant fibre asset owner in Australia. It is unlikely that other carriers will ever be able to achieve the volumes of business required to make future access fibre deployments economic.

		<ul style="list-style-type: none"> • In such an environment, gaining competitive access to infrastructure via access unbundling will be essential to promote innovation and keep downwards pressure on prices. This is equivalent to today's position on access to the copper CAN. • As indicated in the technical discussion above, Layer 1 unbundling can be achieved by 'home-run' fibres but does not require them. NBN Co should develop products which allow the provision of Layer 1 based services which optimise the use of fibre to minimise costs. • Pricing should be based on real costs and allow NBNCo to achieve a return on its assets.
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6. Uniform National Wholesale Pricing

Number	ACCC Question	Nextgen Response
17.	To what extent can UNWP be achieved independently of decisions about the number and location of POIs?	<ul style="list-style-type: none"> • UNWP can be achieved independently of decisions related to arbitrarily consolidating the number of POI locations • The location of NBNC Co POIs and related backhaul requirements is just one factor of many used to determine the retail price of an FTTP service.. • In highly competitive markets such as ADSL2+ service provision, the UNWP backhaul cost identified by NBNC Co only represents 3% [inter-exchange] of the average retail price for a bundled Voice + Broadband offer.  <ul style="list-style-type: none"> • In terms of the 87 percent of Australians located within reach of competitive backhaul fibre, the transmission component of the wholesale price remains an important, but marginal input. • Importantly, backhaul costs in these competitive locations are continuing to reduce over time. Nextgen notes that the average M/bit per month for carrier grade backhaul has declined by a rate of [redacted] per annum since 2006 on major routes • The proposed consolidated POI approach set out by NBNC Co would foreclose on any of these efficiency gains generated by market competition to the detriment of end users. • It is worth noting that wholesale service offerings an NBN FTTP environment will be increasingly complex and will involve bundled voice, data and content inputs. • For regional areas not currently serviced by competitive backhaul, there is strong evidence to suggest that beneficial retail pricing outcomes can certainly be achieved independently of the proposed NBNC Co POI consolidation approach. • As indicated in some more detailed analysis provided at Attachment 6 

<p>18.</p>	<p>Is the NBNC Co definition of UNWP 'that Access Seekers should face the same total wholesale cost from any premises to a designated State capital city point of presence' an appropriate one? If not, what alternative definition would you propose?</p>	<ul style="list-style-type: none"> • Proposed definitions related to the UNWP should be seen for what they are. The UNWP is a subsidy for users who live in areas where the cost to supply a broadband service to their premise is higher than another user. • The definition proposed within the NBNC Co POI public Position Paper appears to define UNWP exclusively around the provision of backhaul. • Although backhaul costs may be likely to result in differential pricing for a small proportion of the population, they are not the only (or greatest) source of cost discrepancy. • Of more relevance will be significant variations in the capital costs of connecting last mile FTTP infrastructure. These particular costs are estimated to range from \$500 - \$8,000 per home. • Any effort to redefine the mandate of NBNC Co around wholesale backhaul pricing is inappropriate. As the KPMG – McKinsey & Co NBN Implementation Study correctly points out: <ul style="list-style-type: none"> ○ 'NBNC Co should intervene in markets only where necessary to ensure end user access to services and that RSPs have affordable and equivalent access to bottleneck assets' ○ 'This means limiting NBNC Co's participation to the access network and transit backhaul on monopoly routes' • On this basis, and consistent with its stated mandate, Nextgen proposes that the UNWP definition apply only to the: <ul style="list-style-type: none"> ○ National last mile FTTP footprint and related AVC, Port and NBNC Co Charge; and ○ A universal ceiling price for CVC that is applied on monopoly backhaul routes. • All RSPs and end users of NBNC Co facilities should be able to access the best possible wholesale pricing for transit backhaul. • As already indicated in its response to Question 9 above, Nextgen believes that there is strong evidence to suggest that competitive supply of transmission services can be assured to all of the potential 209 POIs in the proposed composite model. • A UNWP built around 14 Aggregation POIs forecloses on the competitive outcomes and subsequent pricing and innovation benefits that can be achieved by moving interconnection further out into the network.
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<p>19.</p>	<p>To what extent can it be ensured that Access Seekers face the same total wholesale cost in supplying services to end users across regions independently of decisions about the number and location of POIs? That is, is there alternative ways to the proposed approach of NBNCo of ensuring that Access Seekers face the same total wholesale cost in supplying services to end users across regions?</p>	<ul style="list-style-type: none"> • Access Seekers cannot be assured the same wholesale costs by a singular focus on POI numbers and locations. • As already indicated in our response to Question 1, Nextgen submits that there will be two classes of Access Seekers that will develop under the proposed NBN Co approach to number and locations of POIs: <ul style="list-style-type: none"> ○ There will be those who own networks who will be able to differentiate their market offer by using a combination of the NBNCo network offering in combination with their own; and ○ Others who will rely on the NBN Co network offering exclusively. • The proposed NBN Co approach on POI structure will provide for both a price cap and a price floor on the wholesale price for the two cost elements of access and regional backhaul used by Access Seekers to make a retail service. • That the two cost elements of access and backhaul used by Access Seekers to make a retail service are only part of the costs of providing a service to end-users. • Access Seekers will still face different wholesale costs for regions aggregated at different capital cities owing to variation in supply price between different capital cities to access both interconnection and content sources. • Within this context Nextgen submits, in response to the question. but not by way of recommendation, that any attempt to 'ensure that Access Seekers face the same total cost in supplying services to end users across regions' can only be achieved with: <ul style="list-style-type: none"> ○ The enforced structural separation of all owners of alternate networks that operate regionally; ○ A highly regulated approach to price caps an floors across all operating regional infrastructure options; ○ Intervention and regulation of all content services operating across networks to ensure open access of supply and equivalence of inputs; ○ Intervention into the transmission market between capital cities and international interconnection; and ○ Strict regulation of peering between providers.
<p>20.</p>	<p>If NBNCo's preferred composite model were to have no price differentiation between interconnecting at designated capital cities or CSA locations, what impact would this proposal have, particularly on regional retail markets and regional backhaul transmission markets?</p>	<ul style="list-style-type: none"> • The preferred composite POI model - where there is no price differentiation between interconnecting at designated capital cities or at disaggregated CSA locations - fundamentally undermines commercial incentives to invest in alternate wholesale networks, especially in regional locations. • However, there will be incentives to arbitrage an inflexible NBNCo market offer and provide differentiation of service at a retail level that will be unavailable to those who do not own network infrastructure. • Nextgen's regional backhaul transmission network will be unable to sell services to an NBN market given that:

		<ul style="list-style-type: none"> ○ Access will be denied except for under special circumstances, and ○ It will be competing with a effective \$0 competition in NBN Co's offer. ● The only source of revenue potential for that will exist for wholesale network operators will be to sell services directly to retail markets, which is in effect forces the vertical integration or existing wholesale providers. ● It is expected that in order to NBNC's preferred model to operate, it will require exemption from the current declaration of Domestic Transmission Carriage Services. As this is a universal requirement it is expected that the ACCC will not be able to discriminate against all other networks and that the exemption will be universal. ● Existing providers who survive the transition through to becoming regional RSPs will likely use their existing assets to support product differentiation unavailable to competitors who do not own networks. ● This will be a particular feature in Corporate and Government markets where product and price differentiation will be the key buying decision and likely to lead to a hastened consolidation of providers to these markets. ● This outcome undermines NBNC's mandate to lower barriers to entry for RSPs and facilitate a higher number of players to encourage retail competition and innovation. ● Innovation at the content level will be dominated by the major content players who are controlled internationally over which the ACCC has little control. Further they will be attracted to RSPs who will provide them with a superior level of access to customers and are likely to be the ones who have the greatest potential for product differentiation and existing customer bases, which as it currently stands are one and the same. ● Ultimately regional backhaul transmission markets will be non existent, and regional retail markets will be dominated by a few privileged players.
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7. Wireless Services

Number	ACCC Question	Nextgen Response
21.	Should the same approach for the number and location of POIs for NBNCo's fibre services be adopted for wireless and satellite services? Why and/or why not?	<ul style="list-style-type: none"> • For technical reasons, typical mobile networks have a limited number of connection points to external networks. LTE - as used in a fixed wireless configuration - may economically support more connection points. It is still, however, likely to be less than the number of connection points which can be supported by the NBN FTTH network. • VSAT based satellite networks usually have one large ground station (sometimes two if a backup site is required) which all traffic passes through. Thus at a simplistic level, satellite technology would lead NBNCo to establish a single national Satellite POI at the Ground Station. • Our preference in all cases is to adopt a pricing and operational model which allows prices to align with the real underlying costs. On this basis the number and location of POIs would be different for each technology (FTTH, fixed wireless and satellite). The actual number would depend on the details of the technology and the deployment strategy but should be as high as practical, based on the principles outlined in other parts of this response. • Practical problems may arise, for example a regional Queensland RSP needing a link to Broken Hill to access a Satellite POI for a single service on the edge of a regional town. NBN Co will need to work with both the RSPs and the backhaul providers to develop approaches which are in the Long Term Interest of End Users and which expose real extra costs to be addressed by policy rather than hidden cross subsidy.

8. Other Issues

Number	ACCC Question	Nextgen Response
22.	<p>In relation to the data provided in Appendix A of the NBNCo Public Position Paper, do you believe that NBNCo's input information is accurate and has NBNCo correctly assessed the current state of the backhaul and competitive DSLAM markets?</p>	<ul style="list-style-type: none"> • Nextgen has checked the number of backhaul providers with 20km of the proposed NBN Co FSA/CSAs named and agrees that the large number of potential alternate backhaul providers within 20km of all of the 209 CSAs, is accurate. • Nextgen notes that the location names are open to error when measuring distance. • Nextgen notes that distance to FSA/CSAs is the only measure that NBN Co has put forward for its assessment. • As indicated in its response to Question 3 above, Nextgen submits that a range of factors need also to be taken into account when assessing backhaul competition. • Nextgen does not consider that the material published as part of the NBNCo POI Public Position Paper provides the depth of analysis required to make an informed assessment of current market for competitive backhaul. • Our assessment of these matters is further undermined by the commercial-in-confidence nature of the Telstra Financial Heads of Agreement (FHOA) and how this applies to the provision of competitive backhaul to the RSP market. • As this transaction moves towards the finalisation of a Definitive Agreement, any acquisition of dark fibre or managed transmission services from Telstra in the absence of a transparent and competitive tendering process is likely to further distort and disrupt the market for backhaul. • Observations in relation to the current state of the backhaul market as being 'subject to ongoing problems' are unsubstantiated by any empirical or documentary evidence. <div data-bbox="818 1436 1317 1776" style="background-color: black; width: 100%; height: 100%;"></div> <ul style="list-style-type: none"> • Within this context, the range of four (4) options considered as a framework to identify the number and location of POIs by NBNCo is appropriate.

		<ul style="list-style-type: none"> • However, only two (2) of these options provide the industry with any accurate or definitive position on the precise number and location of these POIs. In particular we note that: <ul style="list-style-type: none"> ○ The Option 2 - low consolidation - model provides no detail on the precise number and location of any of the proposed POIs ○ Treatment of the 195 CSA as potential POIs as part of the Option 4 - composite model - is subject to undefined business rules and further industry consultation.
<p>23.</p>	<p>Are there any other considerations or information that you think are relevant to the selection of the NBNC Co POI locations?</p>	<ul style="list-style-type: none"> • Nextgen considers that the issues raised in the ACCC Discussion Paper provide an appropriate framework for the informed consideration about the potential options for the number and location of NBNC O POIs. • We would note that the key arguments put forward by Nextgen in this response to the ACCC Discussion Paper is consistent with - and supported by - industry representations made to NBNC O in the course of its own public evaluation process. • In particular we note the following from the Consultation Paper on 'Proposed Wholesale Fibre Bitstream Products' February 2010: <ul style="list-style-type: none"> ○ Telstra Corporation <ol style="list-style-type: none"> i. 'If NBNC O were to apply its rule of contested backhaul in light of the fibre deployed in regional areas, the number of POIs would be much greater than the number [100-200] indicated.' ii. 'Given the economics of backhaul development, the majority of contested backhaul ... would fall within NBNC O's 90% coverage areas.' iii. 'A low number of POIs, as proposed by NBNC O, will be detrimental to competition and will inhibit end user choice because it will cause existing assets of multiple parties to be stranded and it will deter future investment in regional areas where it otherwise may be commercially viable.' ○ Macquarie Telecom <ol style="list-style-type: none"> i. POIs should be located in the 'existence of, or expectation of, competitive backhaul' ii. 'RSPs should have a choice of backhaul provider ensuring that backhaul pricing will be competitive.' iii. Chief among the concerns to be managed is the risk of inefficient infrastructure duplication. NBNC O should not displace infrastructure provided by competitive commercial backhaul players. That is, NBNC O should offer RSPs an