



**Submission**  
**NBN Points of Interconnect**  
**ACCC Discussion Paper**

**November 2010**

ATUG welcomes the opportunity to respond to the ACCC Discussion Paper on NBN Points of Interconnection.

Rather than respond to the detailed questions posed in the Discussion Paper, ATUG's comments will focus on the preferred outcomes for end users –

- a policy context focused on the long-term interests of end users (rather than investment returns, infrastructure deployment per se or innovation per se),
- a competitive communications sector with strong competition in all market segments and
- affordable NBN-grade broadband services ubiquitously available, supporting multiple services and multiple service providers.

ATUG has included its entire submission to the NBN Implementation Study as many of the recommendations and advices go the effectiveness of competition, the efficiency of investment and the affordability of services for end users.

### **Introductory Comments**

ATUG notes that responses to the Discussion Paper will inform ACCC and NBN Co decisions as to the number and location of NBN POIs and that "NBN Co's objectives are not limited to the LTIE but more broadly involve the cost effective implementation of Government policy".

ATUG's position is that the LTIE already covers "cost-effective implementation" under the requirement for "the efficient in use of, and investment in, telecommunications infrastructure". In ATUG's view, the ACCC cannot make regulatory decisions or recommendations in the telco sector on grounds other than those specified in the Trade Practices Act.

NBN Co Objectives are outlined in the NBN Companies Bill Exposure Draft 15/02/2010 at 3(1):

The main objects of this Act, when read together with Part XIC of the Trade Practices Act 1974 are as follows:

- (a) To provide a regulatory framework for NBN corporations that promotes the long-term interests of end-users of carriage services or of services provided by means of carriage services;

ATUG understands the National Broadband Network Companies Bill will be reintroduced into Parliament shortly and argues that the main object of Government policy should remain the long-term interests of end users and not the "cost effective implementation of government policy".

In any case, ATUG's view is that this secondary objective will be best achieved through use of the LTIE test which promotes:

- Competition
- Any to any connectivity, and

- The efficient use of and investment in infrastructure

**ATUG concerns:**

- A much wider footprint for NBN than first envisaged and significant intervention into markets beyond local access and regional backhaul.
- Possibility of higher prices due to non-transparent cross-subsidies and inefficient investment.
- Reduced in competition in fixed network backhaul markets.
- Rebalancing away from infrastructure based-competition where feasible to retail services competition only. This will limit the opportunity for innovation as a competitive differentiator.
- One size fits all POI decision of 14 certain points and 195 “depending on undefined NBN Co business rules” which creates considerable uncertainty and puts significant decision making into the hands of NBN Co without a policy framework.
- Impact of consolidating POIs on the possibility of Layer 1 unbundling in future. Possibilities for future infrastructure based competition should be preserved.

**ATUG prefers:**

- NBN focuses on the bottleneck markets separately – local access; regional backhaul – and under-served areas and addresses these as its priorities, placing POIs where contestable backhaul is available and only building backhaul in uncompetitive markets (as with the Regional Backbone Blackspots Program). The regional backhaul markets have been already been analysed in ACCC Declaration processes and in determining the Regional Backbone Blackspots program.
- ACCC monitors the development of the Wholesale Regional Backhaul Market and the Layer 3 Wholesale Market. If these markets are not delivering outcomes in the long-term interests of end users, NBN Co should be required to enter the markets by building backhaul infrastructure to ensure the strongest competitive impact for end users.
- Uniform National Wholesale Pricing should be “unbundled” into Local Access Wholesale Services and Wholesale Regional Backhaul Services.
- Investigation of the application of the Uniform National Wholesale Regional Backhaul Pricing “affordability” construct to providers other than NBN Co. The Uniform Price may provide a Cap on all providers offering service in the backhaul market – with options for commercial negotiation below the cap.

- NBN Co pricing for Wholesale Regional Backhaul Services should reflect an explicit subsidy to allow for Uniform National Prices. This subsidy should be a once-off amount paid for from NBN funding and absorbed by RSPs and should not be built into end user prices (as happened with the Access Deficit for fixed line rentals). The NBN Implementation Study at page 338 finds:
- “Our estimate is that a price less than 15 percent of the wholesale ARPU – less than \$4.50 for a \$30 wholesale services – will be required to achieve affordability for all geographies. This would equate to approximately 10 percent of an expected entry level retail broadband service. At this level, most retailers would be expected to absorb the difference and offer consistent pricing nationally.”
- This approach could achieve the Government’s objective without unnecessary market distortion. It may be that such a cross-subsidy could be offset against any USO levy requirement.

### **Corporate and Government markets**

ATUG notes on page 16 and 17 the ACCC comment on corporate and government markets:

“Large business and government entities may also acquire transmission capability directly from carriers which they will manage to suit their specific use.”

This option should be preserved in an NBN environment and such customers should be able to buy directly from NBN in markets where only NBN Co services are available.

### **Uniform National Pricing – Wholesale? Retail?**

The Government’s commitment was outlined in the Agreement to form Government of 7<sup>th</sup> September 2010.

#### *National Broadband Network*

*A Labor minority Government will ensure that every community in regional Australia gets fair and equal access to affordable high-speed broadband through the National Broadband network. This includes:*

- *For the first time, **broadband prices will be the same** for households and businesses regardless of where they are located – in the city, in regional Australia or in more remote parts of the country.*
- *For the first time, the Government will put in place a cross subsidy to achieve a **uniform national wholesale price** so that regional areas **can pay the same as people in the city.***

- *A uniform national price for broadband will mean that unlike a phone call between Tamworth and Sydney or Mt Isa to Brisbane that costs more than a phone call within a capital city, prices for communicating through the NBN will be the same regardless of where you live.*
- *High speed broadband services in Tasmania are available for around \$60 a month currently based on wholesale prices, which will now be applied on a national basis.*

It is not clear to ATUG that the only way of giving effect to this commitment is for NBN to provide only 14 POIs and control all the backhaul assets back to these POIs. In ATUG's view such an interpretation puts at risk the possibility of competition driving better outcomes for end users than a monopoly market dominated by NBN would deliver.

### **NBN Implementation Study – Backhaul**

In May 2010 ATUG provided a submission to the NBN Implementation Study.

ATUG comments are highlighted in RED.

#### **Comments and Recommendations:**

Unavailability of competitively priced backhaul is a bottleneck to providing affordable, high-speed broadband services in many parts of Australia today. In addition to building its fibre access network, NBN Co should therefore also provide sufficient transit backhaul capacity to alleviate this bottleneck. This should be achieved through two targeted investments.

First, the NBN should include approximately 70,000 km of transit backhaul on routes that are currently monopolies. This backhaul should connect NBN Co's fibre exchanges to points located deeper in the network where multiple backhaul service providers are available, to ensure service providers can always link to NBN Co's network via competitive backhaul connections. This portion of the transit backhaul build would include the 6,000 km of links being constructed under Government's Regional Backbone Blackspots Program. Second, NBN Co should provide approximately 3,500 km of additional transit backhaul to connect to wireless tower locations, where required by the provider(s) of the future fixed-wireless network.

NBN Co should be prepared to build its own backhaul network, but should also be open to securing long-term indefeasible rights of use (with concrete options to renew) from existing dark fibre assets on these routes.

NBN Co transit backhaul services should be specified and priced separately from access services and available to other network operators on an open-access, equivalent basis. Where transit is offered, to ensure a level playing field, all service providers should be required to use this service to connect to the NBN access network, and not permitted to connect below the POI.

Transit backhaul should be priced affordably, for example as a small percentage of the total price of the access service for a given premises, given a defined contention ratio.

The shared transit backhaul network is most appropriately run as a public asset over the long term due to the risks of anti-competitive behaviour in a privatised model. Regulation of backhaul assets will be difficult given high projected levels of traffic growth, and corresponding needs for investment in active equipment.

**Recommendation 48. 332** That NBN Co be required to construct a transit backhaul network to connect all fibre exchanges to the nearest practical point where backhaul services are available from Government (e.g., Regional Backbone Blackspots Program) or multiple providers, not including NBN Co; for fibre exchanges that are already located at a point with multiple backhaul providers or Government backhaul services, NBN Co not to construct transit backhaul links.

**ATUG:** These markets should be assessed by the ACCC for effective competition and NBN like pricing so that end users have access to NBN prices for broadband services even if they are not using NBN Co network elements. The mere presence of physical links may not mean competitive outcomes for end users. The Study discusses the issue of monopoly and duopoly pricing at page 326. At page 334 the Study refers to the "...the presence of multiple backhaul operators did not translate into affordable pricing on selected routes..."

**Recommendation 49. 332** That NBN Co be directed to construct the transit backhaul network including passive fibre elements and active electronics, except where NBN Co is able to secure long-term indefeasible rights of use (with options to renew) to other parties' fibre assets at the physical layer ('dark fibre') more economically.

**ATUG:** supports the recommendation on the basis of investment efficiency

**Recommendation 50. 333** That NBN Co be required to offer a single POI in relation to a given premises:

1. At a fibre exchange where there are multiple alternative backhaul providers;  
or
2. At a fibre exchange linked to the Regional Backbone Blackspots Program;  
or
3. At a point accessible from the fibre exchange over an NBN Co transit backhaul link.

**ATUG:** the objective in backhaul market policy decisions should be enhanced competition in the interests of end users

**Recommendation 51.334** That the location of NBN Co's POIs be reviewed on a regular basis to permit new investment below the POIs and to ensure the objectives of affordability and a level playing field are met above the POIs.

**ATUG:** supports this recommendation. Outcomes for end users should be monitored annually and NBN Co required to respond if outcomes are not meeting policy objectives.

**Recommendation 52. 336** That for defining NBN Co's backhaul services:

1. NBN Co be required to offer backhaul services as single Ethernet links from the POI to the fibre exchange, with some level of protection (alternative secondary links in the case of outages on the primary link) available on all links;
2. The transit backhaul bitstream product to be specified as a separate product from the access bitstream product, allowing service providers to select their preferred combination of backhaul capacity and access services;
3. NBN Co not to offer or be required to offer connection below the POI to an NBN Co access network.

**ATUG:** it may be possible to secure enhanced competition for end users through choice (for service providers) of backhaul below the POI. Measures should be implemented to deal with anti-competitive conduct (such as predatory pricing) in this specific market. This issue needs further consultation with industry and end users.

**Recommendation 53. 338** That NBN Co be required to specify transit products to meet an affordability test; specifically:

1. That the price of transit backhaul services attributable to a single premises' access service be not more than a certain percentage of the retail price of a typical entry-level NBN wholesale broadband product;
2. That Government define the percentage, preferably not more than 10 percent; the transit backhaul service be defined from the POI to the fibre exchange, on a per-user basis, given a defined contention ratio;
3. That NBN Co be required to set a minimum contention ratio based on international benchmarks, and to review it annually based on ongoing monitoring of customer experience and observed network performance;
4. That the NBN Co transit backhaul prices scale linearly with bandwidth for contention ratios higher than the one used in the affordability test.

**ATUG:** The Study says at page 338, "The price points in the affordability test should be determined by Government. This is a policy decision as the transit price drives the difference in price between regional and metro areas. It also requires a trade-off between consumer affordability and the commerciality of the NBN backhaul network. Our estimate is that a price less than 15 percent of wholesale ARPU—less than \$4.50 for a \$30 wholesale service—will be required to achieve affordability for all geographies. This would equate to approximately 10 percent of an expected entry-level retail broadband service. At this level, most retailers would be expected to absorb the difference and offer consistent pricing nationally." It will be important that retail service providers meet the policy objective of consistent pricing nationally. This may need to be included in Licence Conditions for the providers. At page 338 the Study says,

"The minimum unit of transit backhaul connectivity should be economically viable for a small service provider." This should be a requirement for NBN Co to ensure to promote competition in regional communities.

**Recommendation 54. 342** That NBN Co be required to provide transit backhaul services to alternative network operators, specifically:

1. That such transit backhaul services be offered on equivalent terms to those offered to customers of its own access network;
2. That NBN Co provide a point of interconnect for the transit backhaul service in the fibre exchange environment (but not the access service if not at a POI) and access seekers be responsible for all costs of reaching and entering the fibre exchange environment to meet this point of interconnect;
3. That the Minister consider granting temporary relief from this requirement, but not in relation to backhaul services necessary to enable the provision of wireless broadband services beyond the fibre footprint, once it is defined.

**ATUG:** supports the "characterisation of backhaul as a public utility" and the role of open access to such backhaul "to stimulate competition on all access technologies, not only on FTTP."



## Background

ATUG has maintained consistent positions through the development of NBN policy and legislation. The 2009 and 2008 positions are also included below and the comments relevant to the POI Discussion Paper October 2010 are highlighted.

### 2010 - ATUG NBN Business User Policy Principles

- The Long-term Interests of End Users must remain the focus of NBN policy and regulatory decisions, whether they are made by Government Regulators or by Industry in Self-Regulatory processes
- The big benefits from the Government's NBN Policy will emerge when there is over 90% take up of the higher speed services offered over the NBN. Take-up must be encouraged.
- Business needs for speed, service levels, service security and rapid restoration must be factored into NBN planning – consumer grade is not good enough for business; best endeavours Internet grade is not good enough.
- Migrating to the NBN should not cause any detriment to business operations. Planning periods must take account of business budget and capex cycles.
- NBN must be a wholesale only operator BUT if higher level wholesale network services, to support application and content services innovation, are not developed by market players, NBN should be required to supply them.
- Customer experience must be consistent across the network elements that will comprise the National Broadband Network, whether these elements are owned by NBN Companies or other infrastructure owners.

### 2009 - ATUG's Board discussions

- End users want an "NBN" - a range of business grade services including access to dark fibre, higher speed service offerings, point to point Gbps options, service/content innovators over L3 wholesale access platforms
- End users want an "NBN that works" – high quality NBN offering reliability, resiliency, redundancy. A "patchwork NBN" comprising different assets may present a problem with end to end quality of service.
- End users want an "NBN that works all the time" – simple, clear provisioning and repair arrangements, seamless migration
- End users want "an affordable NBN" – uniform national pricing with identified subsidies being funded by Government

- End users want more choice and stronger competition – e.g., Network Owners bundling Services and Service Innovators bundling Comms Services; policy must avoid an unintended consequence of reduced competition
- End Users want access to fit for purpose services – including low bit-rate, low cost services for sensor networks, security services

## 2008 - Key Issues for ATUG in NBN discussions

- **Policy Objectives** – the **Long-term Interests of End Users** and an effectively competitive services (access and content) market place.
- **Affordability** is the key to take-up. Regulation must support the cost effective building of the NBN as well as recognise that effective competition is the strongest tool for delivering affordable prices. An entry level “safety-net” package should also be developed
- **End User Choice** – network design is central to competition and choice. Only designs that promote competition should be accepted. When infrastructure competition is not possible, services competition based on open access and service equivalence at a wholesale level must be ensured.
- **Wholesale Service Equivalence** and effective services competition can only be assured by establishing:
  - clear separation and no ownership conflict between wholesale-only (NBN Company) and retail service providers, and
  - a new pro active, pro competition independent industry based oversight body, with the task of implementing the Open Access and Equivalence Frameworks
- **Customer Experience** in the NBN environment - must be carefully managed to ensure a successful transition and good end user outcomes. Service quality and security standards must be established at a level to reflect the key role of the NBN in the lives of all Australians.
- **Ubiquity** – all Australians must be connected to the NBN. Ubiquity is not only about network availability but also about affordability and accessibility.

## **Background Comments – NBN: Regulatory Reform for 21<sup>st</sup> Century Broadband, June 2009**

ATUG's submission to the NBN: Regulatory Reform for 21st Century Broadband Discussion Paper reflected members concerns at that time with the effectiveness of competition in the telecommunications sector.

This submission is attached and includes the following comments -

ATUG represents business, government and community organisations that depend on communications services to develop and deliver their products and services to clients and customers. These businesses represent the wider economy interest in efficient and effective outcomes in the telecommunications sector. Members come from all sectors of the economy - financial services, mining and construction, transportation, retail, health, education among others.

Central to ATUG's approach to policy in the communications sector since 1981 is the core role for competition in delivering the best outcomes for end users – choice, price, service quality and innovation.

The characteristics of monopoly behaviour – high prices, poor service and delayed innovation – have been in evidence in the market for fixed network services in Australia despite the introduction of open competition in 1997. These problems have implications for businesses competing in other sectors of the economy and internationally, and for government and community organisations trying to deliver services as efficiently and cost effectively as possible.

Over more recent years ATUG has regarded the move from negotiate-arbitrate to negotiate-arbitrate-litigate as further evidence that the current approach to competition regulation in fixed network services is not delivering outcomes in the long-term interests of end users.

Comments by the ACCC Chairman at a recent (March 2009) ATUG conference outlined succinctly why the current approach to competition regulation in telecommunications (the negotiate/arbitrate model) is broken...

The ACCC Chairman concentrates on the impacts of delay and uncertainty on the telco industry. But businesses, government agencies and community organisations buying communications services also feel the impacts of these delays and uncertainties – competition is weak, choice is limited, prices are high, quality is low, innovation is limited. The costs of these impacts go beyond the interests of shareholders in the telco sector and affect the interests of stakeholders throughout economy.

ATUG is pleased that the Government has recognised the deep seated problems in regulating for competition in the fixed network services market and has proposed to move to a complete legal and structural separation of the network in the new fixed network services market –

the build of the National Broadband Network. The NBN operator will be structurally separated, will provide wholesale services only and will offer them on an open access, fully equivalent basis. No retail company will be able to control the network in its own interests.

This is a big solution to a big problem – the incentives a vertically integrated owner of a bottleneck fixed network has to deny access and to discriminate against access seekers in favour of its own retail units.....

ATUG expects to participate in discussion about the policy framework and approach to practical implementation of the National Broadband Network to ensure that the long-term interests of end users remain at the core of decisions by the National Broadband Network operator....

The role of regulators and Government in providing incentives for industry action and behaviour has been reduced in recent years. In the fixed network market, competition has not been strong and now Government has responded with a fundamentally new approach to the development and deployment of Australia's next generation fixed fibre network.

## **NBN Implementation Study – ATUG comments.**

### **A. Achieving the national broadband objective**

It is worth being clear about NBN's coverage objective outlined on page 54 of the Study with ATUG highlighting key elements:

The coverage objective of the National Broadband Network is to ensure all Australian homes, schools and workplaces have access to affordable, high-speed broadband services. Government has set an objective that 90 percent of premises will receive superfast fibre-to-the-premises (FTTP) connections providing data rates of 100 Mbps. All other premises will be able to access high-speed broadband services providing at least 12 Mbps peak data rates, through a combination of next-generation wireless and satellite technologies.

**ATUG:** the emphasis is on Services not physical network connections

While NBN Co will be responsible for ensuring coverage to all premises, the network it builds need not be ubiquitous or contiguous. Government's investment in creating an open-access platform for the country will have the greatest value if NBN Co intervenes only where markets have not provided the necessary infrastructure to enable superfast broadband or where the infrastructure that does exist cannot be accessed on affordable terms.

**ATUG:** The National Broadband Network will be a "patchwork of networks" including NBN Company network assets.

In practice, this means NBN Co should focus on two key bottleneck assets: the customer access network and uncompetitive backhaul routes. Through investments in the construction of—or the acquisition of enduring rights-of-use to—these bottleneck assets, NBN Co can enable retailers to offer superfast products to end users at affordable prices, and deliver against Government's objectives within the initial capital expenditure estimate.

**ATUG:** NBN Company focus will be on bottleneck assets – customer access and uncompetitive backhaul, with a focus on affordable prices, the Government's objectives and staying with expenditure limits.

NBN services should be aimed at enhancing competition and innovation amongst service providers. Services should therefore be provided at the level in the Open System Interconnection (OSI) stack that lowers barriers to entry while permitting differentiation and innovation for service providers, large and small. These services should also be modular, so that households are not limited to a single retail service provider, and so that there is flexibility to construct offerings that combine transit capacity with a variety of access services.

**ATUG:** NBN Company should aim to enhance competition and innovation – why limit this to old sector notions of "service providers"? Households should have choice – as should business, government and community organisations.

NBN Co's network design should assume a preference for FTTP technology where consistent with commercial constraints. FTTP coverage should be extended beyond Government's initial target of 90 percent, to reach 93 percent of premises by the end of roll-out. NBN Co should endeavour to build a passive network topology which anticipates future services, plausible evolutions of market structure and regulatory developments. In particular, this topology should anticipate the need to provide competition at the active layer over a significant portion of the fibre footprint. NBN Co should also ensure that its initial basic service offering represents a significant improvement on existing services, to substantiate the promise of the fibre technology.

**ATUG:** supports these outcomes, in particular the comments in regard to use of Home Run topology to support future market demands and evolution to a more competitive environment. Emphasis on outcomes for end users is critical to the commercial success of the NBN – speed outcomes must be matched by ongoing pricing and service performance outcomes.

In the non-fibre areas, a separate tender process should be employed to secure third-party provision of fixed-wireless services. Cost modelling by the Implementation Study indicates this fixed-wireless network should extend to roughly 4 percent of premises between the 93<sup>rd</sup> and 97<sup>th</sup> percentiles. NBN Co should deploy two next-generation Ka - band satellites to deliver a step change in broadband service performance for the most remote premises, compared with today's remote data solutions.

**ATUG:** the rationale for competitive wireless, where the tenderer operates in both wholesale and retail markets, is unclear. ATUG is mindful of the USO tender outcome in the 2002-2003 timeframe – unsuccessful. ATUG would prefer NBN Company to provide the wireless option for end users in the 93-97 percentiles directly under NBN Company pricing and access regimes.

NBN Co will capture a significant share of the fixed-line revenue pool over time. The superior quality of services offered will bolster the growth of fixed broadband services. Superfast broadband will increasingly become an essential utility for households and businesses, and their requirements are expected to exceed the capabilities of mobile networks over time.

**ATUG:** the Implementation Study focuses on the build phase of NBN Company's assets. Service quality is mentioned but not fleshed out in terms of industry operational and technical arrangements and regulatory standards for basic services. The role for Comms Alliance in co-ordinating this work in the "patchwork of networks" environment is not clear. End to end service quality through multiple network segments will not be an easy task. Service quality reporting by NBN on its customers experience will be not sufficient surety in regard to outcomes for end users. This and other issues lead ATUG back to an earlier idea which we expressed at the time as "NBN Australia", an industry based body to oversee the range of industry issues which will need to be settled to ensure end users experience the promise of Australia's National Broadband Network policy – whether or not they are connected to NBN Company assets. In ATUG's view a National Broadband Market Company (similar to NEMCO but with wider responsibilities) will be needed to ensure end user outcomes.

In the early years, NBN Co should optimise pricing to drive take-up, acknowledging that other networks can still meet many of the needs of today's customers. Over time, the perceived value of superfast services will grow, yielding higher ARPUs. The long-term business case for the project generates a return exceeding the assumed Government bond rate under most reasonable assumptions for cost and revenue as described in Part B.

**ATUG:** notes that the Implementation Study indicates a regime of regulated prices increases for NBN services over time. This regime should be subject to separate consultation with stakeholders to identify whether such a regime is justified and if so what processes would be. There may be a range of other options that should be canvassed given the expectations of higher ARPUs further down the value chain. In particular when NBN Company becomes a privately held monopoly owner of infrastructure, end users will be concerned about pricing power.

## Chapter 2 – Establishing a mandate for NBN Co

- Government should set NBN Co an objective to provide wholesale-only FTTP coverage to 93 percent of Australian premises and wholesale-only satellite coverage to the remaining 7 percent of premises. A separate tender process should be run for a commercial operator to provide fixed-wireless service to premises in the 94<sup>th</sup> to 97<sup>th</sup> percentiles. (R5)

**ATUG:** the rationale and implications for out-sourcing the wireless part of the NBN are unclear.

- By the end of network roll-out, NBN Co should ensure availability of wholesale broadband NBN services (or acceptable equivalents) to all homes, schools and workplaces in Australia, including those constructed during the roll-out period. During the network build, NBN Co should implement a transparent, public process for communicating its progress against this goal via a coverage register. (R2, R3)

**ATUG:** supports the Coverage Register but more consultation is needed on decisions by ACCC pg 63/ACMA (the Implementation Study suggests both in different areas of the report) as to “adequately served” or “deemed covered”. In particular business premises in CBD areas (pg 64) may not in fact be adequately served if access is not available within the building up riser facilities. End user views should be sought during these processes. In other situations physical backhaul links may be available but pricing by asset owners may mean they are not “commercially available”. The National Broadband Network Policy and the establishment of NBN Company are responses by Government to failure in the market for high speed broadband services – not only in regional areas. Decisions that areas are “adequately served” should be taken based on actual end user experience in specific markets – not economic theory or policy preference. The criteria listed on pg 64 are all very important determinants of “adequate service”. Enterprise customers are specifically mentioned on pg 65. The reality of choice for

these customers will need to part of the ACCC's assessment process. A number of potential access problems for competitors are outlined at pg 86.

- Government should permit NBN Co to provide connections to non-premises locations on a commercial basis, and retain the option to require NBN Co to cover specified classes of non-premises on terms approved by Government. (Rec 4)

**ATUG:** The study specifically excludes non-premises from NBN's remit on the basis of "slowing down the roll-out" and because the definition does not include them (unlike Comms Alliance Network Reference Architecture model). The migration options for non-premises needs should be carefully managed with the end users in question. A notice of "deactivation" from Telstra will not be sufficient. In markets where copper network services are decommissioned, the options and prices for these "special services" will need to be developed directly with the end users and not via NBN wholesale customers. The importance of many of these services – banking, traffic management, roadside assistance, lift phones are examples – requires good coordination and early planning for migration.

- NBN Co should intervene in markets only where necessary to ensure end-user access to NBN services and that retail service providers have affordable and equivalent access to bottleneck assets. In practice, this means limiting NBN Co's participation to the access network and transit backhaul on monopoly backhaul routes. (R1)

**ATUG:** the report is clear at pg 61 "NBN Co should not construct an end-to-end network across the country." For end users, this means achieving high quality end to end service will require coordination across a number of networks, and certainty about performance, open-access wholesale arrangements, wholesale prices and coverage footprint (pg 64). The effectiveness of competition and access rules in those areas where NBN Company is not constructing assets will be critical. A new body will be needed to ensure this happens – National Broadband Market Company, NBM Co.

- NBN Co should create a set of enduring assets (through ownership or long-term rights of access) which accommodate population and demand growth and technology innovation. FTTP should be the preferred fixed-line technology; however hybrid-fibre-coaxial (HFC) technology could be used for an interim period if it provides open-access services meeting NBN specifications. (R22)

- NBN Co should price its wholesale services to ensure affordable access to all end users and encourage take-up. (R23)

**ATUG:** notes the comment that policies for low-income households are beyond the scope of the Implementation Study. ATUG supports pricing designed to encourage take-up and the Implementation Study's position that NBN Co should bias towards achieving take-up rather than maximising revenue.

- End-user disruption should be minimised during the transition to fibre services, with legacy services continued where necessary and legacy



networks deactivated in a managed fashion including sufficient notice for users and service providers. (R29)

**Recommendation 5. 72** That Government set NBN Co the objective that, once NBN roll-out is complete, all premises in Australia have access to superfast broadband services, specifically that:

1. 93 percent of premises be covered by a fibre-to-the-premises (FTTP) network that can deliver speeds of up to 100 Mbps;
2. All other premises be covered by NBN Co via satellite technologies that deliver peak speeds of at least 12 Mbps;
3. A fixed-wireless network be provided beyond where fibre is deployed to 4 percent of total premises, but that this not be the responsibility of NBN Co unless there are no acceptable tenders by commercial operators;
4. These coverage objectives be reviewed over time based on actual costs of deployment and technology developments.

**ATUG:** The Government’s commitment at the time of announcing the NBN was clear – “The NBN will connect 90% of premises with Fibre-to-the-Premises technology providing speeds of 100Mbps, and remaining premises with next generation wireless and satellite services that will deliver 12Mbps or more.” Use of the terms “peak speeds of at least” is stepping away from Government commitment to end users outside the fibre footprint.

**Recommendation 6. 75** That NBN Co select a number of priority areas for roll-out that together comprise a representative mix of the country. That once NBN Co has completed its roll-out to these priority areas Government review whether NBN Co is on track to achieving the objective of 93 percent FTTP coverage and use performance management mechanisms as required; that the Minister request NBN Co include details of its progress in achieving the 93 percent FTTP coverage objective in each corporate plan.

**ATUG:** supports the recommendation

**Recommendation 7. 77** That NBN Co be permitted to establish a mechanism by which a community can fully or partially fund the extension of the FTTP network to cover its location, provided that these premises will not be counted towards the FTTP coverage objective. This could include financial contributions towards the network extension from businesses, not-for-profit organisations, state and local governments or from Government, independent of its equity investment in NBN Co.

**ATUG:** supports the recommendation

**Recommendation 8. 78** That until the FTTP roll-out is complete in a given area, only premises that cannot access a metro-equivalent service as defined under the Australian Broadband Guarantee program be eligible for an NBN satellite service.

**ATUG:** Under the Australian Broadband Guarantee, a metro-comparable broadband service is defined as any service that offers a minimum 512kbps

download and 128kbps upload data speed, 3GB per month data usage at a total cost of \$2500 GST inclusive over three years (including installation and connection fees). ATUG understands that this definition allows mobile broadband services to be classified as ABG services and reduces the call on Government subsidy funding. The definition should be re-visited to encourage mobile broadband providers to offer faster services to end users whose only option for broadband is an ABG service.

**Recommendation 9. 82** That NBN Co be granted a right of access to shared property in multi-dwelling units to undertake the inspection, installation and maintenance of FTTP infrastructure and that an obligation be imposed on building managers and bodies corporate to facilitate NBN Co exercising that right of access.

**Recommendation 10. 83** That NBN Co follow a defined process in the event that it cannot install FTTP infrastructure in a multi-dwelling unit (MDU) because it has been denied access to the building; that this process include:

1. NBN Co conducting a notice process to ensure the building entity understands the implications of its decision;
2. If the building entity does not grant NBN Co access to the building after the notice process, then NBN Co can list the MDU on the NBN Coverage Register as 'frustrated';
3. If the building entity later invites NBN Co to enter the building and install FTTP infrastructure, NBN Co is to undertake the installation but to have flexibility over when it will do so.

**Recommendation 11. 84** That NBN Co be required to install FTTP in MDUs as opposed to alternative technologies such as VDSL; that Government review this policy if widespread building access problems or cost overruns emerge as NBN Co seeks to cover MDUs in the early phase of the roll-out.

**ATUG:** supports these recommendations. The inspection right should be used to determine the actual choice available to business end users in MDUs as part of the determination of "adequately served" by the ACCC. The factors outlined Exhibit at 2-10 can also cause problems for competition even when street based fibre is available.

**Recommendation 12. 91** That NBN Co's coverage objective include new premises that are constructed during the period of the roll-out; however, that NBN Co not be expected to cover these new premises prior to the NBN access network being deployed to that geographic area.

**Recommendation 13. 93** That NBN Co be required to act as the network provider of last resort for premises constructed within, or adjacent to, NBN Co's fibre access network; that developers be required to cover the costs of trenching and providing the duct, pit and pipe network; that NBN Co cover the costs of installing all other FTTP network infrastructure up to the premises.

**ATUG:** agrees that NBN is the natural party to provide FTTP to greenfields areas. This is easier if NBN has deployed its customer access nearby BUT given the timeframes associated with Greenfields Developments it may be possible to coordinate with NBN planning to ensure developments can be easily included in NBN's fibre footprint. The Study makes an assumption that copper services will be delivered. ATUG understands that Telstra's position is it will no longer deploy copper services and will deliver its USO obligations using wireless services. ATUG understands this position. The solution to delivering NBN services to premises in Greenfields areas is for NBN to provide the backhaul services in all cases and the access services in cases where a commercial market solution does not emerge. Developers should make such areas "fibre-ready". If FTTP standards are available, NBN could outsource the construction task for the fibre deployment to contractors who will be building assets for NBN Co in brownfields areas.

**Recommendation 14. 94** That ACMA be tasked with issuing national FTTP design standards that all parties should adhere to when deploying an FTTP network for the purposes of providing telecommunications services to the public; that these standards should align with the network architecture deployed by NBN Co in its roll-out; that Government and NBN Co work with state governments to reference the design standards in state planning and building controls.

**ATUG:** supports the development of National Design Standards to ensure consistency over the network of networks that will comprise the NBN. This will be essential to ensure a high quality end to end experience for end users. ATUG also supports the application of NBN Co approach to "wholesale products and pricing that enable service providers to enter and deliver services..." In ATUG's view this approach should apply in cases where premises are defined as "adequately served" because of the existence of fibre network links and the link is a bottleneck service and not only to areas where new fibre networks will be constructed. End users wherever located should benefit from the Government's NBN Policy approach whether or not NBN Co constructs their customer access service.

**Recommendation 15. 95** That the national FTTP standards require that the topology deployed in new developments be home-run and not shared; that this requirement be reviewed in conjunction with the broader review of topologies to be completed by the earlier of:

1. Coverage of 15 percent of premises within the proposed fibre footprint;
2. 31 December 2013.

**ATUG:** supports this recommendation

**Recommendation 16. 95** That NBN Co overbuild third party FTTP networks that do not comply with the FTTP design standards; that, where a deployment does comply with the FTTP design standards established by Government, NBN Co may:

1. Apply to ACMA (earlier the Study refers to the ACCC pg 63 and pg 65??) to have the premises declared 'adequately served';
2. Attempt to secure access from the network owner that would allow NBN Co to offer wholesale services over the network;
3. Overbuild the network where NBN Co is unable to secure necessary access and the premises are not declared 'adequately served'.

**ATUG:** supports this recommendation as an alternative to applying a fibre access regime to all fibre providers: existing and new. Prices at which such services are secured would have to enable NBN Co to offer wholesale services at the uniform wholesale rate.

**Recommendation 17. 97** That all new developments where fixed telecommunications infrastructure is deployed be required to provide a duct, pit and pipe network with sufficient additional capacity to allow for an FTTP deployment by NBN Co; that this infrastructure be provided at the developer's expense—an exemption being made for new premises where no fixed-line telecommunications infrastructure is installed.

**ATUG:** supports the recommendation provided the exemption is limited to developments outside the fibre footprint of NBN Co. The practical effect of Telstra's current decision to NOT install any more copper in new developments, if combined with the proposed exemption, may be that NO new developments would require duct, pit and pipe to be installed. Legislation needs to be drafted taking account of the Telstra decision.

**Recommendation 18. 97** That the national FTTP design standards include a requirement, to come into effect after a sufficient notice period, that internal wiring installed in all new premises be of a standard that allows high-speed data transfer, e.g. CAT 5 or CAT 6.

**ATUG:** supports the recommendation. Relevant industry associations and training organisations will need to be part of the implementation.

**Recommendation 19. 99** That a register (the NBN Coverage Register) be maintained of all premises in Australia; that the register meet the following requirements:

1. Be publicly available through mechanisms approved by Government;
2. List premises in specific categories that detail the coverage status of each premises;
3. Be updated at regular intervals;
4. Identify premises with specific geographical location data.

**ATUG:** the register should have a capability to take end user feedback in regard to decisions that areas are "adequately served".

**Recommendation 20. 99** That a register be maintained of all monopoly transit backhaul routes between NBN Co's proposed fibre exchanges and POIs, on which NBN Co intends to build or purchase capacity; that NBN Co be required to update this register as it secures access to and offers services

over each backhaul route; that the backhaul register be made accessible to wholesale customers of NBN Co.

ATUG: it is not clear why such information could not be in the public domain. It could be relevant to the planning decisions of enterprise and government end users.

**Recommendation 21.100** That NBN Co be required to deliver in its annual report detail of its progress towards meeting its coverage objective, expenditure incurred in doing so and provide such interim progress reports as Government requires and are reasonable.

**ATUG:** supports the recommendation

**Recommendation 22.107** That NBN Co be permitted to use HFC networks as an interim technology, provided that these networks are capable of providing wholesale open-access services; that NBN Co be required to plan and establish a construction schedule to achieve its FTTP coverage objective by the end of its roll-out, regardless of coverage of HFC networks.

**ATUG:** supports the recommendation taking account of the challenges detailed in Exhibit 2-19

**Recommendation 23.110** That NBN Co be directed to set wholesale prices and offer migration incentives with the objective of achieving broadband take-up targets that Government sets at regular intervals and in accordance with the applicable regulatory pricing regime.

**ATUG:** supports the recommendation and the setting of take-up targets by Government.

**Recommendation 24.112** That NBN Co be permitted to apply differentiated wholesale pricing for each technology platform used in its customer access network; that, within each technology platform, uniform wholesale pricing be required for all access products.

**ATUG:** Government will have to ensure the end user affordability objective is met for each technology platform.

**Recommendation 25.112** That the entry-level services offered over each technology platform in NBN Co's customer access network be available to end users at a comparable but not necessarily identical price; that the same performance specifications of entry level services on different technology platforms not be required.

ATUG: supports this recommendation in regard to entry level prices. Backhaul prices are covered later in the report but need to be factored into assessing "affordable" and "comparable".

**Recommendation 26.114** That NBN Co be required to provide industry standard PSTN emulation at the ONT on all connections to its FTTP access network and bear the associated network costs.

**ATUG:** supports the recommendation and agrees with the Implementation Study on the importance of “managing a smooth transition from today’s services and networks.” As the report says, “maximising take-up can only be achieved by minimising customer disruption” and “The customer migration experience will initially be a measure of the success of the NBN policy implementation.” This is exactly the measure end users will use when assessing the success or otherwise of the NBN.

**Recommendation 27. 116** That NBN Co be required to provide an ONT power supply unit to all FTTP customers with the potential for a back-up battery to be installed; that Government establish a program for subsidising the provision of back-up batteries for end users that Government identifies as requiring lifeline services at the time that those customers migrate from the copper network to the NBN—with the distribution and maintenance of batteries to be undertaken by retail service providers; that beyond these identified end users, provision of a battery be the choice of the end user and supply and maintenance be the responsibility of the end user.

**ATUG:** an end user information campaign and industry support procedures (reminders re batteries etc) will be needed to support the successful introduction of this change of policy especially given Recommendation 26 which is designed to minimise change over costs and may well result in an end user with a “telephone” that no longer has uninterrupted power supply. It may be more suitable for some customers to be given information about UPS alternatives, given the number of devices that will be connected in homes or offices. Reliability of communications services is a key requirement of end users.

**Recommendation 28. 117** That NBN Co be required to support retail service providers’ ability to provide end-user location information including the enablement of emergency call operators to automatically locate a caller.

**ATUG:** this recommendation should be discussed with Emergency Call Service Advisory Committee and relevant Comms Alliance Working Groups among other experts in this field.

**Recommendation 29. 118** That a minimum public notice period be required for deactivating any copper exchange; in this context ‘deactivating’ would mean the withdrawal of a significant proportion of copper services.

**ATUG:** deactivating copper services will require more than a minimum notice period to ensure “measures to minimise end user inconvenience” are put in place. Experience with the shut down of the CDMA network indicates the complexity involved in a task of this size. Formal structures for consultation and information dissemination should be put in place with end user direct involvement. The Digital TV SwitchOver Taskforce may also provide a model. End users are experienced with carrying the costs of transitioning services.

**Recommendation 30. 121** That a review be undertaken to determine how the universal service regime and other carrier and service provider obligations

may apply to NBN Co and other carriers and service providers; that this review be completed by the end of 2011.

**ATUG:** supports the recommendation

**Recommendation 31. 129** That NBN Co be directed to develop a Charter that outlines how it will conduct its affairs to best meet the needs of stakeholder groups—for example, the Charter should state a commitment to consultation with the industry and end-user groups.

**ATUG:** was pleased to see the focus on end user needs in the Implementation Study. The distinction between Retail Service Providers and Content and Application Service Providers is useful and allows for discussion of the innovation potential that the NBN may enable and the consequent nature of new wholesale services to support emerging services, markets and providers. ATUG would like to see the commitment go beyond words in a Charter, transparency and information provision to a commitment to engage with business, enterprise, community organisation and government end users in discussion about the needs and experiences of these end users who will be using NBN enabled services to develop markets, achieve productivity goals and drive innovations in their sector. ATUG would suggest two Forums each year to allow NBN and End Users to have direct dialogue.

### Chapter 3 – Establishing a new generation of services

- In the early years, the focus of the NBN will be on replacing copper infrastructure with fibre to serve current fixed-line demand for voice, Internet, and other broadband applications, over a faster and more open delivery platform.
- The initial NBN service set should be limited to Layer 2 wholesale services in the fibre access network, and should ensure that these services are specified in a way that enables other service providers to deliver sophisticated Layer 3 services such as IPTV. The NBN service set may also evolve to include passive fibre services.
- Longer term, the NBN will transform the end-user experience by enabling faster and richer services and supporting innovative applications and devices. To facilitate this, NBN Co should upgrade its Layer 2 active equipment over time, with reference to international benchmarks and industry standards.
- In the non-fibre footprint, wholesale services should be delivered at Layer 3, given the limitations of the access technologies deployed.
- Video delivery should be enabled primarily through bitstream services. RF services should only be offered where they support a multiple-operator platform but are not expected to be commercially attractive to NBN Co.

**Highlight.** Current usage caps for fixed-line broadband packages in Australia are among the most restrictive in the world. Retail usage caps are

likely to become less restrictive on the NBN due to increased backhaul affordability and greater retail competition

**ATUG:** This feature of Australia's broadband market has impeded take-up and use of broadband and is one of the reasons for the market failure which is being addressed by the Government's NBN Policy, including NBN Company and NBN Funding. Different pricing models should emerge in a much stronger retail market enabled by NBN access services and transit backhaul services, priced for affordability in the early years of the NBN and a reasonable commercial return over the life of the NBN assets.

Page 138 - Telstra is the largest provider in this market, with limited competition for multi-site and non-CBD customers. The NBN will offer more affordable services, grow the market, enable innovative retail service offerings, and allow all service providers to compete for national accounts.

**ATUG:** This is a key expectation of ATUG members – that NBN will enable much stronger competition for national accounts. This issue is one the reasons ATUG is concerned to ensure that a strongly competitive wholesale market emerges at Layer 3 and that the incentives for operators with retail operations to discriminate against their wholesale customers (at Layer 3) does not become a feature of service providers in an NBN world. Moreover, now that it is clear that NBN Co is only building part of the NBN, the issue of how to ensure strong competition across a network of networks so that end users with national accounts have effective choice (and good service performance) remains a concern.

Page 141 – New Services:

Standalone, using a wholesale bitstream service. In this scenario, an application provider—say, a healthcare monitoring service—would offer services directly to the end user, without an interaction with a traditional telecommunications service provider. The user would access the service through an identified ONT port and pay the application provider directly.

**ATUG:** This is exactly the sort of innovative opportunity that ATUG members predict, where communications platforms are used as part of a supply chain rather than as a retail opportunity. It is important that the opportunity for services innovation is enhanced by NBN policies and not limited by previous models of licensing and sector structures.

**Recommendation 32. 149** That NBN Co only be permitted to operate at the lowest layer of the network stack that enables sufficient retail competition and diversity of services for end users. Initially, this will translate into Layer 2 bitstream services in the FTTP network, and Layer 3 IP services in the satellite access footprint; that Government request that the ACCC periodically monitor competition, and recommend necessary modifications of the service portfolio to best serve the long term interests of end users; that this include considering the offering of passive services.

**ATUG:** supports this recommendation. It provides an opportunity for the market for Layer 3 services for develop but an option for a response by



Government in the event that conflicted incentives prevent the emergence of an effective Layer 3 wholesale services market. ATUG is pleased to see the focus on Long-term Interests of End Users in the review and recommendation by the ACCC and the inclusion of passive services.

**Recommendation 33.** 151 That NBN Co be required to offer services with comparable levels of performance in all geographies within a technology footprint, specifically:

1. While it is the sole provider of active layer NBN services, NBN Co should upgrade services over time and demonstrate that the functionality and performance of its services are in line with international benchmarks; NBN Co's upgrade plans should be submitted for ACMA's approval that they are sufficient to maintain Australia's broadband position internationally;
2. As network elements are upgraded over time, NBN Co should ensure all equipment within an access technology platform is on a similar upgrade path. If active-layer competition is in place, NBN Co's offers in competitive areas should be consistent with NBN services in all areas;
3. In the satellite footprint, NBN Co should ensure that CPE upgrades continue to be offered via service providers.

**ATUG:** is pleased to see the Study focus on service performance but the measurement should take place at the end user level so that the outcomes for end users are seen. Given the NBN is a network of networks, benchmarking should take place across the whole NBN and not just NBN Co's assets to ensure that all end users (not just those receiving services over NBN assets) are enjoying international benchmark service performance.

Page 146 - Regulators like Ofcom, have also examined and endorsed the ability of Layer 2 active services to meet the needs of a range of service providers.<sup>1</sup>

**ATUG:** is aware that in the UK wholesale services can be bought by anyone who wants to buy such services – not limited by licensing arrangements. This enables big buyers of services to exert direct competitive pressure on providers to demonstrate that their value added in creating a retail level service justifies the retail margin which applies.

### **Page 148 - Delivering services to meet a broad range of needs**

Most immediate demand for services will come from carriers, who are focused on voice and best-efforts Internet services, as well as delivering enterprise and mobile services. However, NBN Co should consider the needs of smaller, emerging, or non-traditional providers. These providers will require services which serve specialised needs and are available at a low marginal cost. For example, a smart grid meter may require a low-bandwidth connection, which can be priced very cheaply as it poses no substitution risk to broadband.

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<sup>1</sup> Ibid

Conversely, a remote health consultation provider may require high-grade symmetric services, for which a premium can be paid.

A specific dimension of specialist connectivity is quality of service (QoS). QoS is a means of prioritising packet-switched traffic to create different classes of service to suit different application needs. Currently, wholesale bitstream services are mainly used to deliver Internet services—most notably in the UK and NZ, where ISPs leverage bitstream services on DSL platforms. While creating QoS services across network boundaries at Layer 2 is still relatively unproven for mass-market advanced services such as IPTV, it is well established in carrier network management and should be technically feasible within the fibre footprint. For the satellite service, Layer 3 wholesale services can be created to handle voice, the main QoS service likely to be available on that platform.

NBN Co's role here is to offer the range of services and protocols to service providers that enable end-to-end QoS. It remains the responsibility of the service providers to manage the services across network boundaries.

**Advice.** That the NBN Co Board ensure the NBN supports service providers in the delivery of next-generation services that are specified to conform to international and industry standards, including emerging standards for Quality of service parameters and classes of service; that reference points include principles and standards published by regulators (such as Ofcom); and technical specifications defined by international forums (such as the Metro Ethernet Forum or Broadband Forum).

**ATUG:** more emphasis is needed on aspect of Quality of Service. The Study should have included recommendations rather than Advice to NBN Co Board on QoS issues. Again, ATUG is pleased to see the focus on innovative, specialist applications service providers. However, we are concerned by the position taken that “It is the responsibility of the service providers to manage the services across network boundaries.” For end users end to end service performance is a critical issue which cannot be left undefined now that it is clear NBN Co will only be building part of the NBN. It may be one of the tasks of the NBN Co., the coordinating body to develop standards, protocols, procedures etc to ensure that across networks performance parameters are maintained to achieve end user expectations.

**Recommendation 34. 158** That Government permit NBN Co to offer an RF overlay service on its FTTP network provided it meets these conditions:

1. Except where necessary to compete for greenfield FTTP contracts, RF overlay supports multiple providers and the RF port on the household ONT is not exclusive to a single provider;
2. The deployment of RF overlay capability is commercially viable for the Company as a standalone service.

Page 161 - Delivering the necessary QoS across multiple networks is technically possible, but some industry stakeholders are concerned that it will

not be straightforward in practice. NBN Co will need to provide the protocols and functionality to enable service providers to deliver QoS across the network boundary to make the sophisticated IPTV functionality possible. This is a specific case example of the broader need for QoS enablement discussed in Section 3.2.2. (ATUG: 3.2.1 refers)

**ATUG:** earlier concerns re QoS apply to a number of services, not just IPTV.

**Recommendation 35.** 161 That NBN Co be required to provide a wholesale Layer 2 bitstream service which enables multi-operator delivery of next-generation video services (e.g. high definition, video-on-demand) that meets industry standards.

**ATUG:** earlier concerns re QoS apply not just for video entertainment services.

Page 166 – Enabling future e-government capabilities.  
Developing a set of technical and service requirements for NBN Co with respect to e-government is difficult, as many services are in the early stages of development. ..

For many of these services, the network is not the bottleneck, and the services could be delivered over most ADSL2+ and cable connections today. The barriers to implementation are often the systems and processes of the relevant Government entity.

**ATUG:** NBN Co should consult closely with Government service providers to ensure innovative plans for service delivery are enabled. The issues in regard to network services have included affordability and State and national addressability. While it is true there are many other issues such as policy, training, IT and the like to be addressed in service delivery transformation efforts, it is not true that broadband services have been available to support government innovation. NBN addresses this problem and “will enable a step-change by ensuring broadband services are available and affordable to all Australians” (page 170).

Page 171 - It is likely that Layer 3 wholesalers, and integrated resellers, would naturally provide such services as part of their offering—those that did not would lose market share. Nevertheless, there is a possibility that no wholesale service provider emerges which can meet the specifications on a national basis, and for key government services, some further stimulus may be required.

**Highlight.** If Government departments aim to develop national e-government capabilities that leverage the NBN, they should consider developing or procuring dedicated Layer 3 systems designed specifically to meet their needs. These services would be provided by intermediate wholesalers utilising NBN and other network services. If multiple Departments are pursuing similar objectives there are likely to be synergies from combined efforts.

**ATUG:** it is not clear why Government agencies should not be able to buy Wholesale Services from NBN if that is what they require to deliver on Service Transformation objectives. Discussion at the National Broadband Development Group has been exploring the issues of Government Service Models.

Page 172 - NBN Co is likely to price enterprise-grade services for business users at a price premium relative to mass-market services (Section 4.5). However, such prices may prove prohibitive for public institutions delivering Government services over digital platforms, which have significant ongoing needs for connectivity.

Government should aim to work with NBN Co and service providers to develop a special class of wholesale services that can be used by service providers to develop affordable services for institutions delivering Government services. Offering discounted services to these institutions could make commercial sense for NBN Co. There are many examples of the private sector offering discounts to the public-service sector—e.g. education discounts for IT equipment, in recognition that while valuable customers these institutions do not have same financial resources as private sector enterprises.

As described further in Section 4.5.2, defining specific classes of wholesale services for end users does not violate NBN Co's equivalence obligations as long as those wholesale services are offered on an equivalent basis by NBN Co to retail service providers.

**ATUG:** notes the options canvassed by the Study to ensure Government services are affordable and meet the specific needs of agencies.

#### **Chapter 4 – Building a fibre access network to +90% of premises**

- NBN Co should build a fibre access network to deliver superfast broadband services to 93 percent of premises in Australia.
- Selecting the fibre topology to deploy in this network is one of the most important implementation decisions facing NBN Co and Government—it will shape the industry landscape for 40 years or more. NBN Co should deploy a topology that facilitates active-layer competition across a substantial portion of the network.
- A home-run topology provides a future-proof solution and delivers competitive benefits by enabling active-layer competition through physical unbundling of fibres. Implementation Study modelling suggests this topology can be deployed across 50 percent of premises in the fibre footprint for an approximately 4 percent increase in the total cost of the fibre access network, relative to a fully-shared topology.
- NBN Co should conduct trials of alternative topology options during its early roll-out to determine the appropriate mix of topologies to deploy, in consultation with Government and the ACCC, and determine its target topology by the earlier of the completion of the roll-out to 15% of premises or the end of 2013.

- Active equipment deployed on top of the fibre is expected to be a mix of GPON and Ethernet point-to-point technologies. 100 Mbps data rates are achievable in the access network using both technologies—20 Mbps is an appropriate speed for an entry-level broadband service. Technical standards for NBN Layer 2 services must support a range of high-bandwidth and next-generation retail services and facilitate entry by Layer 3 service providers.
- The NBN should achieve high penetration in the fixed-line market in the long term— with steady take-up year-on-year of 6-12 percent of homes covered in line with international experience. Mobile substitution is not expected to be a long-term threat to achieving take-up, and service providers will have an economic incentive to migrate customers onto the NBN.

**Recommendation 36. 191** That NBN Co be required to deploy fibre topologies that support the ongoing needs of multiple stakeholders, including:

1. Service providers who may seek access to Layer 1 services, anticipating the likelihood of future unbundling requirements;
2. High bandwidth, dedicated class-of-service requirements for enterprise and government users, and for mobile base-stations and other users.

**ATUG:** The recommendation to consider Home Run topology including options for Layer 1 services and future unbundling is welcome. Preserving options for competition in the post-build phase of the NBN Co assets is important and must not be left to NBN Co decision processes. This is a matter of Government policy. ATUG supports the view that a mix of 50% home-run and 50% shared topology within the fibre footprint at an additional cost of a 4% premium is a good value option.

The emphasis on class of service for enterprise and government users is important. The complication of achieving this across the network of networks so that end user service expectations are met will need significant industry focus and effort. Measurement of success should be end to end, end user experience rather than hand-off point performance.

**Recommendation 37. 192** That NBN Co be required to ensure that the assets used to physically deploy the network support an enduring open-access network; specifically for:

1. New trenches and ducts: to be over-provisioned to ensure sufficient space for future expansion or alternative use; detailed records of the location of ducts to be maintained;
2. Existing ducts: perpetual or long-term (with firm options to renew) indefeasible rights of use to be sought to ensure renegotiation of leases cannot put the future network, or commerciality of NBN Co, at risk; short-term leases to be avoided;
3. Existing overhead poles: long-term rights of use, ease of access and longevity of assets to be ensured; rights and obligations for future repairs and

maintenance to be set out; political and community risks to network security and longevity to be considered.

**ATUG:** supports this recommendation. The recommendation should extend to MDU environments where access to assets may also be required by NBN Co.

Page 195 – Ethernet Point-to-point

**Advice.** That the NBN Co Board consider that the NBN is likely to require a mix of Ethernet point-to-point (EP2P) and GPON technology; that EP2P can provide superior performance to GPON in terms of speed and security; and that there is potential for strong demand for EP2P services by SMEs and premium residential users (not just large enterprises) over time, and hence the company should provision sufficient fibre accordingly.

**ATUG:** welcomes the Study's recognition of the needs of business customers for an EP2P service option and that NBN Co should provision sufficient fibre to meet these needs.

Page 196 - Once a network capable of delivering 100 Mbps is in place, the NBN wholesale services will determine the end-user experience

**ATUG:** decisions made by retail service providers will also influence the experience for end users, which is why service performance of NBN services needs to be assessed from the perspective of the end users.

**Recommendation 38. 197** That the network access point at end-user premises (i.e. the ONT) be required to provide a sufficient number of physical ports to enable multiple providers to offer services to each premises; that NBN Co ensure physical access to this point within the premises, at a location reasonably requested by the user (e.g. within close proximity to existing copper lead-in); this requirement includes:

1. If the ONT is installed externally, an internal patch panel providing open access to service providers on an equivalent basis; or
2. If the ONT is installed internally, that NBN Co be permitted to contract with retail service providers to implement these network access point requirements.

**ATUG:** supports the commitment to multiple services from multiple service providers and expanded choice for end users by requiring a multi-port ONT.

**Recommendation 39. 199** That an entry-level wholesale bitstream service for NBN Co's fibre network be defined that would be the minimum acceptable service for residential broadband use, specifically:

1. That this bitstream service enable a significant improvement over typical experiences on other fixed networks, and offer at least a 20 Mbps peak download speed within the fibre access network;

2. That this entry-level speed be reviewed over time to ensure it continues to deliver sufficient performance relative to other fixed broadband networks;
3. That exceptions for a lower-speed entry-level service be considered for commercial reasons where most end-users will take retail services using at least a 20 Mbps wholesale bitstream service.

**ATUG:** the reversion to “peak” download speed especially for the entry level product is not acceptable to end users. Contention in the backhaul network needs to be explored. End users want more certainty about speed and have been expecting that NBN Co services will mean the end of “up to” “peak” and the like descriptions of service offerings. The caution to NBN Co about “moderate assumptions about price increases” is well advised. The issue of price increases needs to be the subject of further discussion and consultation. The review of entry level specifications is supported. The availability of lower speed fit-for-purpose services available on a commercial basis is supported. ATUG acknowledges the impact other bottlenecks can have on “experienced speed” but makes the point that end users are expecting much better performance from NBN Co services than from existing fixed network broadband services.

Page 201 - **Advice.** That the NBN Co Board ensure the company offers an ATA voice service as a pure-play service, once access has been purchased, separate to the data service. This would be most relevant if and when the copper network is deactivated, or to do a whole-of-business migration deal with a service provider who has some voice-only customers.

**ATUG:** This advice to the NBN Board should be a recommendation to Government and be included in the policy parameters for NBN Co for the reasons outlined in the Advice.

**Recommendation 40.** **202** That NBN Co be required to offer wholesale services that support the implementation of carrier-grade QoS functionality, allowing retail service providers to deliver premium services from within their network to end users:

1. Initially, this means ensuring that the appropriate specifications are adopted through consultation with industry and potential customers;
2. Over time, this may require offering services that are higher in the network stack, as has already been considered for IPTV, where IGMP functionality is being considered, and/or extending the geographic extent of the Layer 2 network (i.e. further upstream); such decisions to expand the scope of NBN Co operations should not be taken lightly, and should be based on demonstrated inability of NBN wholesale services to enable services that are feasible within other networks internationally and for which there is demand.

Page 201 - The challenge lies in anticipating the implementation of standards. Although protocols for providing end-to-end QoS across multiple networks are well advanced, such protocols have not yet been deployed at scale to support commercial services. Most implementations of QoS-dependent services on telecommunications networks are still reliant on multi-protocol label switching (MPLS), or similar solutions which employ control planes within the same

Layer 2 environment. However, there is good reason to believe that these carrier-grade Ethernet standards should be widely implemented over coming years.

NBN Co will need to strive to employ the best standards available, and be open to modifying its wholesale services accordingly. Active equipment should be purchased which supports the greatest number of standards paths, and aligns with the largest global ecosystem.

**ATUG:** the issue of quality of Service as experienced by the end user is key to the success of NBN services and their use for innovation. ATUG sees an important role for Government in specifying performance parameters through industry processes in conjunction with the ACMA. In Recommendation 40 ATUG understands “potential customers” to mean end users not just wholesale customers of NBN Co.

#### Page 203 – Enterprise and Government Users

Enterprise and Government customers typically purchase point-to-point connections as part of a managed services relationship with a major ICT services provider, or a sophisticated carrier such as Telstra, Optus, or AAPT. The exact specifications vary depending on the solutions being implemented for that customer, but these links typically have a number of requirements.

First, high-end enterprise and Government users generally require very high, symmetrical speeds—at least 1 Gbps. This is 50 times faster than the suggested minimum speed for residential users on the NBN (20 Mbps). Second, they require redundancy via physically diverse paths. Third, the connections must provide security of transmission. Finally, these users need a range of options for class of service.

High-end services to these customers are typically delivered using Ethernet point-to-point technology over dedicated fibres. NBN Co should anticipate this demand in its network design and service specification. Over time, these services are likely to become increasingly attractive to a range of users, due to the ubiquity of the NBN and competitive offers it will enable.

Specifically, the increased availability and affordability of high-bandwidth point-to-point services is likely to increase the demand from small and medium enterprises. These services have typically been out of reach for users of this scale, but it is reasonable to expect some latent demand in the market. One example would be a small graphic design company that requires a high-speed symmetrical service to quickly transfer large data files and images. NBN Co should anticipate increased demand of this nature, and provision its network and services accordingly.

**Advice.** That NBN Co Board encourage the company to undertake consultation with enterprise service providers to determine the appropriate



specifications to serve the enterprise market, including implications for the mix of fibre topology.

**ATUG:** NBN Co should take account directly of the needs of enterprise and government customers through consultation.

#### Page 220 – Migration Costs

Some premises will require rewiring or new CPE within the home. Exhibit 4–22 explains these migration costs, which the end user or the retail service provider would bear. We modelled a migration incentive of \$300 per premises connected, which NBN Co would provide to the service provider to assist with migration and help drive take-up. This is modelled as an offset against the revenue as NBN Co receives from service providers. It is assumed that apart from the one-off migration payment, the service provider will fully absorb migration costs. The amount of equipment and level of service an individual end-user demands will ultimately determine the precise cost of new CPE or rewiring.

**ATUG:** supports this approach. End users will not want to incur migration costs in moving to NBN Co based services.

Page 233 - **Highlight.** Mobile broadband growth does not directly substitute fixed-line services; they are complementary in many cases, and address different user bases.

**ATUG:** agrees with this conclusion about the relationship between fixed and mobile services and with the findings on page 234:

Australian fixed-line broadband services are slow, expensive and usage-constrained when compared with international peers. Among OECD countries, services are third slowest, prices seventh highest and usage ‘caps’ are the norm.<sup>d</sup> Usage caps are standard for fixed-line connections in only four other OECD countries.

The quality of fixed-line broadband offers is set to improve dramatically once fibre is introduced. The NBN roll-out, combined with increased competition amongst service providers, will deliver significantly better fixed broadband services. Mobile broadband is likely to look much less attractive compared to fixed-broadband as applications requiring high-bandwidth became more widely used.

#### Page 243 – Pricing for affordability

**Priced for affordability and take-up, not as a premium product.** NBN Co should have an obligation to price for affordability and take-up in the near term. The lack of consumer willingness to pay premiums for higher speeds before the widespread emergence of applications to take advantage of this capacity has been correctly identified as a concern by analysts and stakeholders. On the NBN, wholesale prices should be set so that consumers can be offered superior speeds at comparable prices to current

plans and this should facilitate the development of the aforementioned applications ecosystem.

**ATUG:** this approach is essential to achieving take-up rates that will support innovation.

**Community support and awareness.** NBN will be perceived by Australians as a large-scale, nation-building program. Its high profile and the pride associated with this build are not present to the same degree in many other countries. This may help with awareness and take-up in early years.

**ATUG:** there should be recommendations for Government and NBN Co on measures to build community awareness.

Execution Risks - There are also several execution risks which may affect fibre take-up. Smooth migration and effective marketing are critical to the success of fibre. Take-up will also depend on having a desirable product, which requires users recognising the value of higher speeds. This will depend on the availability of quality video content and other bandwidth hungry applications. With the major pay TV operator half-owned by Telstra, a lack of competing video content over fibre is a particular risk for NBN take-up. Effective management of download caps will also be critical to consumers' perception of value.

**ATUG:** there should be recommendations for Government and NBN Co on measures to reduce these risks.

**Recommendation 41. 247** That NBN Co be permitted to provide one-off incentives to service providers to encourage migration of their customers onto the network; that these incentives be transparent and offered on a broadly equivalent basis within geographic areas at a point in time; that uniformity of incentives across geographic areas or time not be required.

**ATUG:** supports the recommendation

Page 255 – 256 The revenue trajectory has implications for NBN Co and any pricing agreed with the ACCC. Given the uncertainty of future demand, NBN Co may need flexibility to introduce price increases to achieve an adequate return on investment over time. Price increases should be negotiated between NBN Co and the ACCC as part of the special access undertaking, to ensure entry-level prices continue to uphold the affordability requirement outlined in Chapter 2. NBN Co should ensure that its special access undertaking specifies a mechanism and timing for reviewing and setting prices, with a view to long-term cost recovery.

**ATUG:** advice to NBN Co Board at pages 255 and 256 about pricing powers should have the status of recommendations and be reflected in Government's legislation and mandate to NBN Co. the ACCC and Government should be required to consult with end users about changes to prices for access services.

**Recommendation 42. 257** That Government not constrain the commercial flexibility of NBN Co to design and update a price architecture, within the requirements of regulation and its obligations for affordability and take-up of

services; that Government support NBN Co's adoption of price mechanisms such as price differentiation (except where it is based on geographic location) and differentiated commercial terms and charges that are consistent with equivalence.

**ATUG:** supports this recommendation as it enables social benefits to be achieved while commercial returns are secured.

Page 259-260

**Advice.** That NBN Co Board offer a range of commercial terms and additional charges, as long as the offers are:

1. Equivalent and do not distort competitive outcomes;
2. Transparently calculated and reflect reasonable recovery of costs for providing that service, e.g. cost of connecting customers.

**Advice.** That NBN Co Board avoid usage-based wholesale pricing for uncontended services in the long term, once the network is profitable and/or cost recovery is assured; that if usage-based pricing mechanisms are implemented for a transition period, they should:

1. Not constrain reasonable use of cloud-based services;
2. Only differentiate between consumption of sufficiently distinct products or services—e.g. at a level corresponding to considerable usage of IPTV per day;
3. Be of a similar magnitude to those implemented in comparable economies around the world.

**ATUG:** supports this Advice to NBN Co Board

Page 260 - Government seeks to stimulate competition in fixed-line products through the NBN. This goal is explicitly non-revenue maximising for NBN Co.

Pricing a bundle of wholesale services (e.g. voice and data) at a discount to the price charged for each service creates an advantage for large retailers. It reduces competition after the first service provider has secured access to a household. It also limits the flexibility of customers to choose only the retail products that suit their needs and to diversify these purchases across retailers.

We also recommend against two other types of bundling. First, bundling could occur across services—for example, a last-mile bitstream service bundled with backhaul. This could also reduce retail competition, by reducing both pricing transparency as well as the flexibility of service providers to specify products that suit their needs. Second, physical components of the wholesale services necessary to reach end users could be bundled. For example, if

individual charges are levied for access to the ports of the ONT, service providers should not be able to acquire multiple ports at a discount.

**ATUG:** the Study should have made recommendations to Government on these issues. Government should reflect these considerations in appropriate instruments to ensure the goal of enhancing competition is achieved.

Page 266 – Price growth over time

- **Price growth over time.** Real prices of NBN Co services may need to increase over time to allow a fair return on network investment. We assume real growth of between 0 and 2 percent per year across the range of services modelled—lower for voice, higher for services such as IPTV.

**ATUG:** as noted before price increases for NBN Co services should be subject to consultation and ACCC review and be inline with Government policy for NBN outcomes.

## Chapter 5 - Ensuring national availability of high speed broadband

- High-speed broadband services can be provided within Government's initial capital expenditure estimate by deploying a mix of fibre, satellite and wireless technologies.
- Based on the nature of the geographies served and the characteristics of wireless and satellite technologies, Government's coverage objective should be interpreted as ensuring at least 12 Mbps peak data rates are available to all premises beyond the fibre footprint. Under the solution proposed by the Implementation Study, many premises in the final 10 percent would receive substantially higher data rates of up to 100 Mbps.  
**ATUG:** the re-emergence of "peak speed" is of concern – the objective is for end users to experience at least 12Mbps speeds
- Detailed geospatial and cost analysis indicates that the fibre footprint should be extended to 93 percent of premises. This will enable 100 Mbps broadband data rates to be delivered to almost a third of premises in the final 10 percent.  
**ATUG:** welcomes this finding. Government should accept this recommendation
- NBN Co should offer a wholesale Ka-band satellite broadband service targeting the final 3 percent of premises, but available to all premises beyond the fibre footprint to ensure the NBN coverage objective is met. This next-generation technology will deliver a step change in performance, enabling average data rates more than 20 times higher than today. Government should also facilitate a near-term improvement in current Ku-band satellite performance.  
**ATUG:** this implies NBN could be a fibre and satellite provider only. Feedback from many years of Regional Roadshow events to ATUG is that where no other options are available, end users are satisfied with satellite

broadband. Where fixed wireless services can be delivered these are preferred for both performance and price reasons. NBN should be required to deliver the fixed wireless network commitment outlined by Government in its NBN project outline of April 2009.

- Government should tender for the provision of a fixed-wireless service delivering at least 12 Mbps peak data rates. The successful tenderer(s) should offer both wholesale and retail services to end users. Cost analysis suggests this network should cover premises between the 94<sup>th</sup> and 97<sup>th</sup> percentiles, with the specific coverage area to be proposed by the tenderer and approved by Government as part of the tender process. Should no commercial tender prove adequate, NBN Co should be instructed to build the network.

**ATUG:** the rationale for a tender process and for allowing the wireless operator to provide both wholesale and retail services is not clear to ATUG. ATUG does not support this recommendation. NBN Co should provide the wireless part of its network as a wholesale only, open- access provider.

- NBN Co should provide fibre transit backhaul to tower sites priced consistently with the rest of NBN Co's transit backhaul, in areas where the fixed-wireless provider faces backhaul bottlenecks. Transit backhaul to towers should be offered to other market participants on an equivalent, open-access basis.

**ATUG:** supports this recommendation. It should provide increased competition for mobile broadband services and better price and performance outcomes for end users.

**Recommendation 43. 293** That NBN Co be required to provide a next-generation satellite service ensuring access to at least 12 Mbps peak data rates to all premises beyond the fibre footprint. Satellite system capacity should be dimensioned to offer an average data rate per premises that reflects potential growth in usage patterns over the lifetime of the satellite system.

**ATUG:** NBN should be required to provide wireless services in the 93-97 percentile area beyond the fibre footprint. End users should experience 12Mbps on average. The use of "peak speed" in determining objectives and success should be avoided.

**Recommendation 44. 301** That Government ensure affordability of next-generation satellite broadband services for premises underserved by other technologies through a program that funds satellite CPE costs incurred by retailers and guarantees a high quality of service.

**ATUG:** supports the recommendation

**Recommendation 45. 309** That an Expression of Interest (Eoi) and tender process be conducted for a commercial provider to build and operate a fixed-wireless network, specifically:

1. That the network offer services on both a wholesale and retail basis beyond the fibre footprint to cover 4 percent of total premises;
2. That the services include an offer with at least 12 Mbps peak data rates and high average data rates, with service characteristics subject to periodic review; that the services include an entry-level offer providing a high-quality broadband experience at a specified price comparable to entry-level pricing on the fibre and satellite footprints; that Government specify as part of the tender a mechanism for adjusting prices of the entry-level and 12 Mbps offerings over time, for example via a cap on annual price rises or another regulatory mechanism;
3. That the tenderer(s) describe an expected upgrade path for the implemented technology;
4. That spectrum renewal rights for the fixed-wireless network operator be guaranteed;
5. That, in the absence of an acceptable bid, NBN Co be required to build the network and offer services on a wholesale-only basis.

**ATUG:** sees the use of a tender process for the wireless component of the NBN as an unnecessary complication in an already difficult task. End user expectation is that NBN Co will provide wireless services directly in the 93-97 percentile area and that the speed experienced by the end users will be average 12Mbps. Any regulatory price increase regime that may be needed should be developed after a public consultation process. The reasons provided are not strong. It is not clear why these reasons apply to the wireless network component only:

- Industry participants are better positioned than NBN Co to construct the network as they would be able to construct and operate the network at a significant discount to NBN Co, by making use of existing assets (e.g. towers, backhaul and spectrum) and expertise (e.g. existing wireless network engineers and technicians). For some operators there would be the added incentive of protecting against loss of revenues.
- If an industry participant constructs the network, they can offer both wholesale and retail services, preventing the potential retail market failure that might result if NBN Co builds a wholesale-only network, given that some communities of users will be small and remote and potentially unattractive to retailers.
- If a commercial tender process is run, Government is better placed to run the tender than NBN Co since it can provide objectivity (preserving the right to ask NBN Co to build the network as a fallback in the event of an unsuccessful tender), and is the logical entity to provide oversight after the tender is executed.

**Recommendation 46. 316** That carrier licence conditions associated with the 700 MHz spectrum be added to require network operators to implement future technology upgrades in rural/regional areas in parallel with metropolitan areas; that Government review prior to the 700 MHz auction the value of requiring one or more successful bidders to expand their coverage footprint.

**ATUG:** is not clear about the role of this recommendation in the development of the NBN

**Recommendation 47. 317** That Government instruct NBN Co to extend transit fibre backhaul to existing towers and new tower sites needed by the fixed-wireless network operator to provide coverage in the designated areas (e.g. between the 94th and 97th percentiles); this transit backhaul to be offered to all operators and priced at the same rates as transit backhaul within the fibre footprint.

**ATUG:** supports the recommendation

## 5.5 Ensuring national availability of voice services

Copper-based fixed lines are currently the primary delivery method for voice services to customers in the final 10 percent and are expected to remain so in the near term. While a detailed consideration of voice services and treatment of the USO by Government is beyond the Implementation Study's scope, it is important to understand the implications for voice of migrating customers to wireless and satellite broadband solutions....

A number of premises that today receive copper-based voice services will, however, be unable to receive mobile voice services. Some of these premises will fall outside mobile coverage areas, while others will fall inside coverage areas but be located in coverage blackspots. While small in number, these premises will be scattered throughout the area beyond the fibre footprint....

In this model, if a customer outside the fibre footprint wants a standard telephone service, it would be provided over the mobile telephone network but with untimed local calls offered within a zone corresponding to the user's premises. Over time, price levels would evolve with regulatory reviews of access fees and call charges as is done today.

**ATUG:** the USO study must incorporate these issues of availability, performance and price. Voice services are critical for end users. Migration issues need to be worked through and responsibilities clarified.

## Chapter 6 Ensuring ubiquitous backhaul availability

- Unavailability of competitively priced backhaul is a bottleneck to providing affordable, high-speed broadband services in many parts of Australia today. In addition to building its fibre access network, NBN Co should therefore also provide sufficient transit backhaul capacity to alleviate this bottleneck. This should be achieved through two targeted investments.
- First, the NBN should include approximately 70,000 km of transit backhaul on routes that are currently monopolies. This backhaul should connect NBN Co's fibre exchanges to points located deeper in the network where multiple backhaul service providers are available, to ensure service providers can always link to NBN Co's network via competitive backhaul connections. This portion of the transit backhaul build would include the

6,000 km of links being constructed under Government's Regional Backbone Blackspots Program.

- Second, NBN Co should provide approximately 3,500 km of additional transit backhaul to connect to wireless tower locations, where required by the provider(s) of the future fixed-wireless network.
- NBN Co should be prepared to build its own backhaul network, but should also be open to securing long-term indefeasible rights of use (with concrete options to renew) from existing dark fibre assets on these routes.
- NBN Co transit backhaul services should be specified and priced separately from access services and available to other network operators on an open-access, equivalent basis. Where transit is offered, to ensure a level playing field, all service providers should be required to use this service to connect to the NBN access network, and not permitted to connect below the POI.
- Transit backhaul should be priced affordably, for example as a small percentage of the total price of the access service for a given premises, given a defined contention ratio.
- The shared transit backhaul network is most appropriately run as a public asset over the long term due to the risks of anti-competitive behaviour in a privatised model. Regulation of backhaul assets will be difficult given high projected levels of traffic growth, and corresponding needs for investment in active equipment.

**Recommendation 48. 332** That NBN Co be required to construct a transit backhaul network to connect all fibre exchanges to the nearest practical point where backhaul services are available from Government (e.g., Regional Backbone Blackspots Program) or multiple providers, not including NBN Co; for fibre exchanges that are already located at a point with multiple backhaul providers or Government backhaul services, NBN Co not to construct transit backhaul links.

**ATUG:** These markets should be assessed by the ACCC for effective competition and NBN like pricing so that end users have access to NBN prices for broadband services even if they are not using NBN Co network elements. The mere presence of physical links may not mean competitive outcomes for end users. The Study discusses the issue of monopoly and duopoly pricing at page 326. At page 334 the Study refers to the "...the presence of multiple backhaul operators did not translate into affordable pricing on selected routes..."

**Recommendation 49. 332** That NBN Co be directed to construct the transit backhaul network including passive fibre elements and active electronics, except where NBN Co is able to secure long-term indefeasible rights of use (with options to renew) to other parties' fibre assets at the physical layer ('dark fibre') more economically

**ATUG:** supports the recommendation on the basis of investment efficiency



**Recommendation 50. 333** That NBN Co be required to offer a single POI in relation to a given premises:

1. At a fibre exchange where there are multiple alternative backhaul providers; or
2. At a fibre exchange linked to the Regional Backbone Blackspots Program; or
3. At a point accessible from the fibre exchange over an NBN Co transit backhaul link.

**ATUG:** the objective in backhaul market policy decisions should be enhanced competition in the interests of end users

**Recommendation 51.334** That the location of NBN Co's POIs be reviewed on a regular basis to permit new investment below the POIs and to ensure the objectives of affordability and a level playing field are met above the POIs.

**ATUG:** supports this recommendation. Outcomes for end users should be monitored annually and NBN Co required to respond if outcomes are not meeting policy objectives

**Recommendation 52. 336** That for defining NBN Co's backhaul services:

1. NBN Co be required to offer backhaul services as single Ethernet links from the POI to the fibre exchange, with some level of protection (alternative secondary links in the case of outages on the primary link) available on all links;
2. The transit backhaul bitstream product to be specified as a separate product from the access bitstream product, allowing service providers to select their preferred combination of backhaul capacity and access services;
3. NBN Co not to offer or be required to offer connection below the POI to an NBN Co access network.

**ATUG:** it may be possible to secure enhanced competition for end users through choice (for service providers) of backhaul below the POI. Measures should be implemented to deal with anti-competitive conduct (such as predatory pricing) in this specific market. This issues needs further consultation with industry and end users.

**Recommendation 53. 338** That NBN Co be required to specify transit products to meet an affordability test; specifically:

1. That the price of transit backhaul services attributable to a single premises' access service be not more than a certain percentage of the retail price of a typical entry-level NBN wholesale broadband product;
2. That Government define the percentage, preferably not more than 10 percent; the transit backhaul service be defined from the POI to the fibre exchange, on a per-user basis, given a defined contention ratio;

3. That NBN Co be required to set a minimum contention ratio based on international benchmarks, and to review it annually based on ongoing monitoring of customer experience and observed network performance;
4. That the NBN Co transit backhaul prices scale linearly with bandwidth for contention ratios higher than the one used in the affordability test.

**ATUG:** The Study says at page 338, “The price points in the affordability test should be determined by Government. This is a policy decision as the transit price drives the difference in price between regional and metro areas. It also requires a trade-off between consumer affordability and the commerciality of the NBN backhaul network. Our estimate is that a price less than 15 percent of wholesale ARPU—less than \$4.50 for a \$30 wholesale service—will be required to achieve affordability for all geographies. This would equate to approximately 10 percent of an expected entry-level retail broadband service. At this level, most retailers would be expected to absorb the difference and offer consistent pricing nationally.” It will be important that retail service providers meet the policy objective of consistent pricing nationally. This may need to be included in Licence Conditions for the providers. At page 338 the Study says, “The minimum unit of transit backhaul connectivity should be economically viable for a small service provider.” This should be a requirement for NBN Co to ensure to promote competition in regional communities.

**Recommendation 54.** 342 That NBN Co be required to provide transit backhaul services to alternative network operators, specifically:

1. That such transit backhaul services be offered on equivalent terms to those offered to customers of its own access network;
2. That NBN Co provide a point of interconnect for the transit backhaul service in the fibre exchange environment (but not the access service if not at a POI) and access seekers be responsible for all costs of reaching and entering the fibre exchange environment to meet this point of interconnect;
3. That the Minister consider granting temporary relief from this requirement, but not in relation to backhaul services necessary to enable the provision of wireless broadband services beyond the fibre footprint, once it is defined.

**ATUG:** supports the “characterisation of backhaul as a public utility” and the role of open access to such backhaul “to stimulate competition on all access technologies, not only on FTTP.”

## **B – Creating sustainable commercial arrangements**

### **Chapter 7 – Presenting an Integrated Business Case**

- Detailed cost modelling by the Implementation Study indicates the NBN can be built for approximately \$43 billion in capital costs under conservative estimates. Infrastructure sharing agreements with existing service providers could reduce this amount.
- Post-construction, NBN Co will have strong free cash flows and margins, with a very high EBITDA margin estimated at 75 percent.

- Under most plausible scenarios, NBN Co will generate returns in excess of Government's cost of borrowing. If a lower-return scenario starts to emerge, NBN Co can use the repetitive nature of the project to drive efficiencies, or Government can be more flexible on policy settings to improve the expected return.

**ATUG:** the need to build the NBN Co assets as efficiently as possible is necessary so that prices to end users can be as low as possible.

**Recommendation 55.** 363 That Government, in consultation with NBN Co, expand the definition of Low Impact Facility in the *Telecommunications (Low-impact Facilities) Determination 1997* to include facilities likely to be included in NBN Co's roll-out; that Government consult NBN Co to determine the appropriate items for inclusion in the revised definition.

**ATUG:** supports the recommendation

**Recommendation 56.** 364 That Government reform the process of seeking access to infrastructure of telecommunications carriers under Part 5 of Schedule 1 of the *Telecommunications Act 1997* such that:

1. The 'negotiate-arbitrate' model is replaced with a model consistent with the changes to the access regime in Part XIC of the *Trade Practices Act 1974* proposed in the *Telecommunications Legislation Amendment (Competition and Consumer Safeguards) Bill 2009*;
2. This reformed right of access is extended to grant NBN Co access to infrastructure potentially relevant to its network deployment, including ducts, poles and pipes belonging to non-telecommunications utilities and other parties, such as owners of ducts in greenfields.

**ATUG:** supports the recommendation

**Recommendation 57.** 364 That Government require telecommunications carriers, non-telecommunications utilities and other owners of relevant infrastructure, such as owners of ducts in greenfields estates, to provide to Government such information on their networks, infrastructure and operations as Government requests from time to time for purposes directly related to the deployment of the NBN; that Government provide such information to NBN Co on a confidential basis for purposes directly related to the deployment of the NBN, subject to appropriate safeguards around commercially confidential information.

**ATUG:** supports the recommendation

**Note:** page 363 refers to the ACCC's role in determining "adequately served". In other parts of the Study this role is given to the ACMA.

## Chapter 8 – Funding the NBN

- To implement its policy objectives and use its resources efficiently, Government should retain full ownership of NBN Co until roll-out is complete; this includes not issuing equity in return for vended-in assets.

- The peak Government funding requirement will be approximately \$26 billion in Year 6—this would be a temporary funding need since subsequent to this peak, NBN Co is expected to be able to support private sector debt of up to \$32 billion by year 15.
- Government should be prepared to adapt its funding strategy over time to uncertainties in the capital market and changes in project returns, for example by varying the amount of Government equity or debt, providing guarantees or exploring use of project finance.
- Government’s intention is to privatise NBN Co after roll-out is complete. Acquiring a stake in NBN Co could appeal to a wide range of investors. Given the size and complexity of NBN Co’s business however, flexibility should be maintained in the timing and structure of that privatisation, for example by privatising the active and passive assets separately.
- Funding certainty is important for NBN Co’s ability to engage with customers and suppliers, and can be implemented by Government entering into a formal funding agreement with NBN Co.

**Recommendation 58.** That Government retain full ownership of NBN Co until roll-out is complete; that this include not issuing equity in return for vended-in assets.

**ATUG:** supports this recommendation as it provides certainty that incentives will drive outcomes for end users that meet Government policy objectives for the NBN and NBN Co as per page 371, “The NBN initiative is designed to meet a number of objectives that are not purely commercial, including a coverage target and desired competition structure, as well as achieving socio-economic benefits in areas such as health and education.” This needs to be clear and certain in NBN Co Board’s decision making.

**Recommendation 59.** That NBN Co be funded with Government equity until NBN Co can support private sector debt without explicit Government support and achieve an investment grade credit rating; that private sector debt be permitted to be accessed to repay Government capital while maintaining an investment grade credit rating.

**ATUG:** supports the recommendation as it will allow pricing to encourage take-up in the early stages of NBN Co roll-out

**Recommendation 60.** That flexibility be maintained in the timing and structure of privatisation of NBN Co: prime determinants of timing should be favourability of market conditions and readiness of the company for private ownership.

**ATUG:** supports this recommendation. Other factors to be taken into account before privatisation include the effectiveness of competition and the impacts of privatisation on end user outcomes. The Study proposes a review of the regulatory framework at page 388 – this should be a recommendation. The need for end user impact assessment is outlined at page 389, “The risk of policy goals impacting investors’ returns (e.g. by forcing NBN Co to undertake

activities that are not purely commercial or by limiting pricing flexibility) can be mitigated by the definition of a clear mandate for NBN Co and well-defined licence requirements.” This clarity is needed as much for end users as it is for investors and should be the subject of an open consultation process.

Page 389 – Structural Separation of NBN Co at privatisation

**Highlight.** Separating NBN Co into Active and Passive companies could make privatisation easier given a greater ability to target different investor needs.

**ATUG:** supports exploring this approach. It may be in the interests of end users to have the passive elements of NBN Co’s assets in a separate company. The issue of further separating the unprofitable backhaul assets also needs to be considered.

**Recommendation 61.** That NBN Co be directed to evaluate alternatives for a corporate structure that preserves flexibility and considers transaction costs at privatisation.

**ATUG:** Government should be determining the structure of NBN Co at the time of privatisation for the reasons outlined above – the objectives for this decision are not only commercial and within the remit of NBN Co Board

**Recommendation 62.** That Government and NBN Co enter into formal agreements for security of funding.

**ATUG:** supports this recommendation as it provides certainty and confidence for industry and end users. The impact of migration to NBN Co services will not be insignificant for enterprise and government customers. There is opportunity for service providers and others to reconfigure their service delivery processes, to develop innovative applications and to update their communications and IT platforms and investments. But until it is clear that the NBN project will proceed none of the planning and budgeting for these changes can begin. This impact of funding certainty goes well beyond NBN Co’s interests and existing telco sector interests – it affects many other sectors and organisations in the economy.

## **C Ensuring a competitive telecommunications industry**

Government must ensure that the NBN’s design, regulatory framework and impact on the broader telecommunications market structure support the development and widespread adoption of **innovative services**.

Government has a significant role to play in ensuring that the **new industry evolves** into a sustainable and dynamic structure in which service providers compete to drive long-term innovation, technological progress and cost efficiencies.

It is also important during this initial phase to ensure that the framework of **pricing regulation** is consistent with Government’s objective of providing affordable superfast broadband services to all Australians.

Even at the early stages of establishing the NBN however, Government's policy framework must anticipate the market structure and **competition outcomes that it seeks to achieve in the longer term** (Phases 2 and 3). In particular, Government needs to prevent NBN Co from making decisions that may facilitate network deployment in the short-term but ultimately frustrate Government's long-term policy objectives.

**ATUG:** these are key objectives and risks for end users in the shift to an NBN and the development of NBN Co's assets and services. Government needs to ensure the objectives are met and the risks are managed.

## Chapter 9 – Understanding adverse competition scenarios

- The innovation path for services and business models enabled by new, long-lifespan technologies is uncertain. Decisions made today around implementing the NBN need to anticipate a range of possible innovation paths and should support the development of a vibrant market along any of these paths in the long run.
- NBN Co's open-access, wholesale-only status is not sufficient to preclude the development of adverse competition scenarios. Concentration of ownership in backhaul and/or content can stifle market dynamics. Fierce competition with limited investments in infrastructure can stifle innovation.
- Allowing the NBN fibre infrastructure to achieve monopoly status across most of the fibre footprint is desirable at the passive layer over the long term for reasons of investment efficiency, provided it is capable of supporting sufficient active-layer competition.
- Allowing monopoly status to extend into the active layer is also acceptable in the short-term to ensure a level playing field for retail providers, and to give NBN Co flexibility on service pricing. However, this presents longer-term risks of adverse monopoly conduct by NBN Co that must be guarded against.

**ATUG:** these are all important considerations that must be translated into policy and practice. As the Study highlights at page 421, "The decisions surrounding the deployment of the NBN need to account for this uncertainty to avoid constraining future innovation and market evolution." These are key issues for ATUG.

Page 423 - A new network such as the NBN should anticipate multiple paths of industry evolution. Industry consultation, debate, and public scrutiny should continue as the initial specifications for NBN services are developed. If poorly defined, these specifications could limit or bias the innovation paths through which new applications are developed, favouring some providers or business models and distorting healthy market competition.

**ATUG:** the need for consultation rightly includes end users. This should be a requirement from Government to NBN Co. The danger of favouring existing competition should be avoided by ensuring the market for NBN Co services is

as open and dynamic as possible. Requiring buyers of wholesale services to have telco licences seems counter-intuitive to ATUG as the objective is to open the market to future competition and innovation. The Highlight on page 424 outlines the potential for change – this should be supported. Policy choices that limit change should be avoided.

Page 425 – Backhaul - As we discuss in Chapter 6, if Telstra is granted access to connect below NBN Co's POIs using its own backhaul network, it will gain a cost advantage over other retailers. Hence the Implementation Study recommends that such access not be permitted.

**ATUG:** the impact of this recommendation on outcomes for end users needs to be assessed.

Page 426 - Nonetheless, the Implementation Study believes this limited intervention is appropriate, as the peering environment has been strengthening locally, and international transit pricing is falling steadily. In addition, NBN Co's intervention in the transit backhaul market is likely to drive further third party investment in the Layer 3 market.

**ATUG:** the market for peering and transit should be kept under regulatory review. ATUG has been observing this market for a decade and previous assurance that the market is developing have not resulted in better data prices and downloads for Australian end users – as highlighted by the OECD data quoted earlier in the Study.

**Recommendation 63.** That the Government request the ACCC to monitor and report annually on the market for Layer 3 telecommunications services.

**ATUG:** supports the recommendation. Time will tell whether the incentives for an operator to favour their own retail operation ahead of their wholesale customers are not in play in an NBN environment. Standalone L3 providers may emerge – we are yet to see this. As the Study says at pg 427, “there are no truly viable options for niche service providers to reach the home directly via a managed IP service.” Starting from this base, ATUG remains cautious about the L3 market and supports monitoring and review annually. The problem is exacerbated by the Study's requirement that NBN Co only sell services to organisations licenced under the existing regulatory regime. This limits potential buyers of wholesale services unnecessarily in ATUG's view and is another reason we are concerned for this market to be monitored. This monitoring should incorporate international comparison to determine whether, and if so, how far behind relevant services and innovation curves Australia is. The Study supports this at page 431 and 432.

**ATUG:** Page 430 – the principle of open access platforms for content services should be a requirement specified for NBN Co

Page 439 **Highlight.** The creation of a single national open-access fibre customer access network is economically efficient, as it avoids wasteful duplication of infrastructure

**ATUG:** agrees with this highlight and with the statement on page 440 that competitors should be allowed to construct competing networks on

reasonable terms, while meeting similar public interest obligations. This will need to be reflected in policy and legislation. Options should be kept open for Government to support the development of competition at the active layer at a suitable time and for access deeper in the network than bitstream.

#### Page 443 – Adverse monopoly conduct by NBN Co

NBN Co will be a powerful participant in the Australian telecommunications market, and the owner of what will be a future bottleneck asset. At the passive layer, NBN Co is likely to have a monopoly on mass market fibre access. During the time in which it is the sole operator of active electronics on its fibre, it will also be a vertically integrated wholesale monopoly with control over the nature and pricing of the broadband products which power Australia's digital economy.

While NBN Co should be encouraged to use its powerful position to deliver a solution for today, it must not be allowed to become the central obstacle to competition in the future. This is particularly important given the prospect of private ownership, as the unpredictable evolution of the industry will make it more difficult to balance private shareholder interests with public policy goals.

**ATUG:** these risks must be managed by Government to end outcomes that are and remain focused on the Long-term Interests of End Users.

#### Page 444 – expanding scope of customers

**ATUG:** it is not clear why customers who want wholesale services are not able to buy them. There are no restrictions on customers in the UK. The regulator in that market sees the potential for customers to buy wholesale services as providing useful competitive pressure on retailers to demonstrate that their claimed value add is worth the retail margin that applies. In many cases the customers agree and buy the retail service – but with much more certainty about the value proposition.

#### Page 444 – Operating Inefficiently

**ATUG:** these examples – high prices and poor service are issues of concern to end users. ATUG supports the development by Government of an incentives based approach to mitigating these risks.

#### Page 445 – Failure to Innovate

**ATUG:** The Study should have identified for Government possible policy approaches to managing these risks.

### **Chapter 10 – Securing Competition Outcomes**

- NBN Co should operate as transparently as possible, subject to requirements of commercial confidentiality. This includes publishing data on roll-out progress and service performance levels and engaging in regular industry consultation.



**ATUG:** NBN should consult directly with end users as well as industry

- NBN Co should offer services on a wholesale-only, open-access and equivalent basis. It should structure its services and pricing to facilitate vigorous retail competition on a level playing field, for example by offering services on a modular basis and locating POIs at points where there are multiple backhaul providers.
- NBN Co should enable development of the wireless broadband market by offering fit-for-purpose access and transit services to wireless base stations within the FTTP footprint on a commercial basis and extending transit backhaul links to existing towers and new tower sites where requested by the fixed-wireless NBN provider(s).
- Government and the ACCC should ensure that the fibre topology implemented by NBN Co supports both physical and wavelength unbundling in the future, to enable active-layer competition.
- Government should discourage inappropriate 'cherry picking' of attractive markets by other carriers building superfast broadband networks. This can be achieved by imposing technical standards to ensure these networks are compatible with NBN infrastructure, as well as applying open-access and equivalence wholesale conditions.
- Prior to privatisation, Government should hold an independent inquiry to determine the optimal timing and structure of privatisation, potentially including structural separation of NBN Co. NBN Co should take appropriate interim steps to preserve the option of structural separation.
- Given that uncontested backhaul will remain a bottleneck asset that is difficult to regulate, it is unlikely that backhaul should be privatised.

**Recommendation 64.** That NBN Co be required to conduct its strategy, planning and operations in a publicly transparent manner, subject to any requirements of commercial confidentiality.

**ATUG:** supports the recommendation. End Users should be engaged in consultation as well as industry.

**Recommendation 65.** That NBN Co be required to ensure its service offerings are developed in consultation with a wide variety of service providers through a transparent process including:

1. Holding regular industry forums to seek the views of current and prospective customers on the service offering;
2. Publishing a revised service development roadmap on at least an annual basis, and ensuring that demonstrable and reasonable market requirements are met.

**ATUG:** supports the recommendation. End Users should be engaged in consultation as well as industry.

**Recommendation 66.** That NBN Co be required to publish in its annual report comprehensive information on its performance, including:

1. Network roll-out performance and costs;
2. Achievement of service levels;
3. Faults;
4. Customer complaints;
5. Any matters, whether or not related to those above, that Government, represented by the shareholder Ministers, considers appropriate.

**ATUG:** given the complexity of the network of networks approach to the NBN, ATUG is concerned the end to end, end user service experience is measured and reported and not just the experience of wholesale customers of NBN Co.

**Recommendation 67.** That NBN Co be prohibited from engaging in commercial or investment activities unrelated to the provision of wholesale telecommunications services in Australia. For the avoidance of doubt, provision of content services as defined by the *Telecommunications Act 1997* would constitute prohibited activities.

**ATUG:** supports the recommendation

**Recommendation 68.** That Government implement a wholesale-only restriction on NBNCo preventing it from offering or providing services to anyone other than a carrier or service provider as defined by the Telecommunications Act 1997, that Government retain the flexibility for the Minister to make exceptions to this rule.

**ATUG:** NBN Co can be restricted to wholesale services without restrictions on customers. Organisations who want to buy wholesale services should be allowed to do so. ATUG sees no value in requiring buyers to go through the processes outlined on page 457:

Therefore, to the extent that a large and sophisticated end user business finds it more efficient to establish such a shell retailer, this would indicate a lack of efficiency or value-add on the part of the major retailers. On balance, there is a strong practical argument that such an outcome would **represent enhanced competition at a retail level**, rather than being interpreted as an implicit entry of NBN Co into the retail market. Accordingly, the Implementation Study believes there is no need at present to make a special provision in relation to this scenario. Similarly, the Minister should have the discretion to make exceptions to the strict definition of customers defined as wholesale.

**ATUG:** agrees with the reasoning but not the conclusion. In any case it is unclear how the Minister would exercise this discretion and more details are needed.

**Recommendation 69.** That NBN Co be prohibited from investing in retail telecommunication companies and content service providers, subject to

special provisions for transitional ownership where incidental to the acquisition of network assets relevant to its objectives.

**ATUG:** supports the recommendation

**Recommendation 70.** That NBN Co be subject to an access regime similar to that set out in Part XIC of *the Trade Practices Act 1974*, but including an obligation to provide all services (other than those not available to any external parties) on an open-access, equivalent basis defined as follows:

1. Except in relation to services that NBN Co also provides to itself, equivalence should not require identical terms, conditions and processes so long as any variations (e.g. discounts) aid efficiency and are available to all access seekers in like circumstances, where 'like circumstances' are not taken to include scale unless **at least three access seekers** are of sufficient scale to qualify;
2. NBN Co is to publish any such variations;
3. In relation to services provided by NBN Co to itself and to other access seekers (such as any unbundled Layer 1 services), equivalence should be defined on an 'equivalence of inputs' basis, requiring identical terms, conditions and processes of supply;
4. The principle of open access should not require NBN Co to offer services to access seekers where NBN Co has good cause to believe the access seeker is not creditworthy or is otherwise unlikely to comply with the terms and conditions of supply.

**ATUG:** supports the recommendation. ATUG would prefer the amended Part XIC as proposed in the Telco Reform Bill of 2009 which is yet to be passed by Parliament.

Page 461 - It is not a trivial matter to determine whether a particular backhaul link is genuinely competitive. We propose that NBN Co should build backhaul on links that are clearly not competitive, i.e. links where there is only one provider. While the presence of two backhaul providers does not guarantee competitive pricing, we believe that NBN Co should not extend its backhaul network to such links at this stage

**ATUG:** the effectiveness of competition where there are two backhaul providers should be assessed by the ACCC before NBN decides not to build backhaul. End Users should be getting the benefit of competitive pricing (NBN type pricing) before a decision not to build is taken. The ACCC's anti-competitive conduct provisions have proven difficult to implement in a timely way. Eight years+ is too long a period before review of the issues where "mechanisms fail to address concerns on some links".

**Recommendation 71.** That NBN Co be required to provision its physical infrastructure, including POIs and fibre exchanges, to accommodate reasonable expectations for customer equipment in anticipation of multiple retail competitors:

1. Seeking access to its Layer 2 services;

2. Seeking access to transit backhaul services;
3. Seeking access to unbundled physical fibre or wavelengths in the future.

**ATUG:** supports the recommendation

**Recommendation 72.** That NBN Co be required to design its price architecture on the basis that services with distinct characteristics (e.g. level of aggregation or capacity) should be offered on a modular basis. For example, a multicast product suited to IPTV delivery should be sold independently of a standard bitstream service.

**ATUG:** supports the recommendation

**Recommendation 73.** That any future fixed-line superfast access network built in Australia must offer wholesale services on an open-access and equivalent basis and, if it is an FTTP network, must comply with the technical specifications mandated in relation to the construction of FTTP access networks in greenfields; that this recommendation be subject to the following qualifications:

1. This requirement should not apply to existing superfast access networks or to existing or future small proprietary networks that are not covered by the *Telecommunications Act 1997*;
2. For the purposes of this recommendation, a fixed-line superfast access network should be defined as a fixed-line access network delivering download data rates consistently exceeding 25 Mbps;
3. ACMA should be empowered to agree to variations to the technical specifications in specific cases where those variations do not interfere with the Government's NBN objectives and result in significant cost savings through the use of existing infrastructure.

**ATUG:** supports the recommendation

**Recommendation 74.** That, if plans are announced for significant third-party deployments in high-value, low-cost areas of fixed-line superfast access networks (defined as a fixed-line access network delivering download speeds consistently exceeding 25 Mbps but excluding small proprietary networks) during the NBN roll-out, Government consider the introduction of a universal service levy on the owners of all such networks; this levy to be inversely related to a network's contribution to the Government's objective of providing affordable broadband coverage to all Australians. It would be hypothecated to fund telecommunications subsidy schemes; any such levy to be subject to a sunset clause causing its expiry after no more than ten years.

**Recommendation 75.** That, to determine NBN Co's fibre network topology:

1. Once NBN Co has gained adequate network roll-out experience and has had the opportunity to conduct demonstrations of alternative topologies NBN Co determine the appropriate network topology to enable both physical and wavelength unbundling;

2. NBN Co, in consultation with the ACCC, develop a plan setting out the appropriate extent of deployment of this topology having regard to construction cost and competition outcomes;
3. Government determine interim deadlines to complete this process in consultation with the ACCC and NBN Co;
4. NBN Co be required to secure Government approval of its topology plan, by the earlier of: coverage of 15 percent of premises within the proposed fibre footprint; and 31 December 2013.

**ATUG:** supports the recommendation and the involvement of Government and the ACCC. Network topology is a core policy decision. ATUG prefers Home Run topology for the benefits that are delivered for competition.

Page 473 - **Advice.** That the NBN Co Board arrange for trials of alternative network technologies across different geographic types; these trials should include home-run topology and shared topologies involving varying levels of aggregation at the splitter cabinet; the trials should be conducted as early as possible so that they can inform network design at an early stage in the roll-out.

**ATUG:** the First Release site provide an opportunity for NBN Co Board to arrange for these trials.

**Recommendation 76.** That Government not require NBN Co to unbundle Layer 1 services before network roll-out is almost complete; that Government endorse unbundling of Layer 1 services to occur at the earliest of:

1. Voluntary unbundling of Layer 1 services by NBN Co;
2. Declaration of Layer 1 services by the ACCC;
3. A requirement to provide Layer 1 services being imposed by the Minister.

**ATUG:** supports the move to Layer 1 unbundling and would prefer this be kept under review rather than be excluded until 8 years hence. An ACCC Declaration Process provides an opportunity for this review.

**Recommendation 77.** That NBN Co be asked to demonstrate that in the design of its products, systems and processes it has anticipated the likely unbundling of Layer 1 services on an equivalence-of-inputs basis and future ACCC price regulation of Layer 1 services based on actual costs; that in doing so NBN Co have regard to the commercial impact and technical feasibility of upfront preparation compared with steps taken at the time of unbundling.

**ATUG:** supports this recommendation. The advice to NBN Co Board on these issues should become part of the agreement between NBN Co and Government and not be left to the discretion of the NBN Co Board.

Page 477 - In the absence of appropriate regulatory measures, there could be a strong incentive for NBN Co to:

- Under-invest in upgrading and maintaining its network infrastructure, leading to degraded service standards and a failure to adjust to ongoing technological innovation;
- Seek monopoly rents by increasing prices, without commensurate improvement in value delivered;
- Even if basic service prices are regulated, use market segmentation to improve returns by extracting monopoly rents from premium products, reducing the take-up of premium services.

The enhanced risk of such conduct will need to be addressed through regulation at the time of privatisation.

**ATUG:** the Study identifies the risks of monopoly behaviour from NBN Co. Regulatory mechanism need to be put in place now to ensure these risks are not material. Service performance rules and monitoring; price rules and monitoring and monopoly pricing for premium services and segments all need responses by Government now and not just at the time of privatization.

Page 477 - The flawed nature of the current market structure has led Government to intervene in a substantial and unprecedented way to reform it. The privatisation of NBN Co will see Government relinquish its principal lever of intervention. If the structure is not right when Government withdraws from the industry as an owner, competition issues will become much more difficult to address.

**ATUG:** many of the lessons learned during the past decade and more in the fixed services market apply to NBN Co now and at privatization.

**Recommendation 78.** That for the purposes of safeguarding competition outcomes in the event of privatisation of NBN Co:

1. Government commission an independent review into the telecommunications market structure and competition safeguards subsequent to the completion of roll-out and prior to privatisation;
2. The review assess the achievement of the competition objectives of the NBN initiative, and recommend any adjustments to regulatory and other arrangements required to maintain an effective wholesale model under private ownership (including, if appropriate, structural separation and/or divestment of interests in real property associated with the network);
3. Government determine its privatisation plans and schedule on the basis of that review.

**ATUG:** supports the review but suggests an open consultation in regard to competition safeguards with suitable time period for decisions unlike the process used for the T3 sale.

**Recommendation 79.** That the independent review of competition prior to privatisation start with a rebuttable presumption that backhaul not be privatised.

**ATUG:** supports this recommendation and the associated Advice which should have the status of a requirement from Government to NBN Co:

**Advice.** That NBN Co Board ensure that NBN Co anticipate structural separation of its transit backhaul assets, including:

1. Maintaining accounting structures and asset registers designed to enable structural separation of NBN Co's transit backhaul assets;
2. Maintaining modularity of transit backhaul services;
3. Maintaining its interests in physical infrastructure directly associated with the transit backhaul network in a separate corporate entity.

**Recommendation 80.** That the Minister be empowered to issue an instrument ordering structural separation of NBN Co at one or more levels (such as between active and passive layers), with the nature of separation defined by the instrument.

**Recommendation 81.** That the Minister be empowered to issue an instrument ordering NBN Co, or a company formed from structural separation of NBN Co, to divest its interests in defined assets or classes of asset (for example: access-network ducts, pits and exchanges; transit backhaul assets).

**Recommendation 82.** That NBN Co be required to maintain its interests in real property directly associated with the access network, including ducts, pits, poles and exchanges, in a separate corporate entity to facilitate divestment in the event that it is required in the future.

**Recommendation 83.** That an individual ownership cap (including associated interests) be set of no more than 15 percent each on Carriers, CoSPs and CaSPs in relation to shareholdings in NBN Co, subsidiaries of NBN Co, or any company resulting from structural separation of NBN Co; that practical control tests be imposed in relation to such investors; that a public inquiry be required before altering these caps.

**ATUG:** supports these recommendations

**Recommendation 84.** That Government instruct NBN Co to provide fit-for-purpose access services to wireless base stations within the FTTP footprint on a commercial basis where requested by mobile operators; these access services to include transit backhaul where required to reach an NBN Co POI.

**Page 492** - This will remove one of the largest barriers to expanding wireless coverage areas beyond the fibre footprint: lack of access to competitively priced backhaul at adequate capacity. This transit backhaul should be **priced**

at the same rates as transit backhaul in the fibre footprint and, consistent with NBN Co's open-access requirements, would be offered to other operators in addition to the fixed-wireless NBN network provider(s).

**ATUG:** supports the recommendation for access services including transit backhaul within the fibre footprint and for transit backhaul for wireless services beyond the fibre footprint.

## Chapter 11 – Facilitating implementation of the NBN

- The development and approval of NBN Co's corporate plan provides an effective mechanism to achieve formal alignment between Government objectives and the design and operation of the NBN, as the company translates these objectives into practical measures and manages implementation risks.

Government will need to provide timely guidance to NBN Co on the Implementation Study recommendations. This guidance will inform decisions that need to be taken over the next few months around network design, product and service specifications and regulatory undertakings.

- Government should explore a governance approach which balances the legal and administrative responsibilities of multiple Government departments with the need for unique levels of co-ordination, flexibility, expertise and timeliness in decisions.

**ATUG:** a number of items are mentioned in Chapter 11 which need responses from Government – whether requirement on NBN or internal responses:

1. Experience with other roll-outs has shown that in addition to any legislative action, active outreach to local communities, councils and state governments is essential to success—for example to establish rights to deploy cables aerially or gain access to homeowners' private property. Similarly, as outlined in Chapter 2, access to common areas in MDUs will be essential...
2. In addition, NBN Co should therefore engage early with existing carriers and carriage service providers to understand the likely challenges around interfacing with their systems to provide service.
3. Corporate Plan elements – of interest to end users:
  - Customer service operations plan
  - Network maintenance plan;
  - Operational targets and SLAs for service activation and maintenance
  - Quality control procedures and reporting, including faults and customer complaint reporting;



- Policy and program for engaging with householders, building managers, and bodies corporate to gain necessary access;
  - Local community engagement, including potential for various forms of community collaboration, including property access, funding of coverage extensions, etc.
4. To respond to unfolding events and provide guidance on emerging policy issues, Government will need to ensure that it maintains at all times a detailed knowledge of progress on the NBN initiative and potential issues
  5. Government will need not only to provide rapid policy guidance, but also the right guidance. There will be situations where NBN Co's commercial interests diverge from Government's coverage and competition policy objectives, which may lead to healthy tension and debate, if constructively managed. The temptation will be for officials maintaining a 'watching brief' over NBN Co to accept the Company's proposals and assurances uncritically, rather than subject them to genuinely independent review. It is critical therefore that there be departmental officials assigned to the NBN project with sufficient depth of expertise that they can identify key issues and have sufficient confidence in the detail that they can challenge NBN Co's positions.
  6. While it is beyond the scope of this report to address issues internal to Government regarding how it might provide ongoing oversight and guidance to NBN Co, the Implementation Study highlights that these challenges need be considered by Government in designing its internal governance model for the NBN Co initiative.
  7. Two issues that are not addressed in the draft legislation should be considered for inclusion:
    - **Uniformity of pricing.** Government has announced a policy of uniform pricing on the NBN. This is not provided for in the current draft legislation. However, it is possible to address this issue through a Ministerial Pricing Determination.
    - **Future changes to market structure.** Chapter 10 discusses the importance of making provision now for potential future changes to market structure, such as the divestment of ducts and exchanges or the separation of NBN Co into passive and active businesses. Under our recommendations, an independent review prior to privatisation would consider what changes are appropriate.