



Australian Government  
Department of Broadband,  
Communications and the Digital Economy

## National Broadband Network: Greenfields Consultation Paper

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## Preface

The following paper directly addresses the ALL 36 questions put forward by the Department. The paper is compiled from a collection of responses received from members of the Digital Economy Industry Work Group (DEIWG). A list of key participants is included at the end of this submission.

The DEIWG Community consists of approximately 150 companies and around 200 representative members. DEIWG delegations have recently had productive meetings with Minister Conroy and Deputy Prime Minister Gillard, and are currently seeking to engage other Ministers in useful discussions to advance the Australian Digital Economy.

The purpose of DEIWG is to bring issues associated with the Digital Economy to the fore and generate interest and awareness for the Digital Economy. The DEIWG Community has representatives from Health, Education, Telecommunications, Property Development and Media that collectively form a hub of expertise for building productivity and a strong, modern economy.

Domestic consumers need to be presented with a single connection to a multiplicity of services, all conforming to a unified and electronically secured connection platform. Proper and regulated management of the NBN and a ubiquitous FTTH network promise to resolve this issue.

A unified national platform will allow a trans-sectoral utilisation of national infrastructure. Education, health, emergency services, power and electricity utilities can all use the same infrastructure to deliver information services to businesses and consumers.

DEIWG welcomes the opportunity to participate in the 'Greenfields' discussion and endorses the notion that a unified national telecommunications FTTH platform will deliver outcomes in the nation's interest. DEIWG's key message here is that an open access, trans-sectoral approach is necessary to achieve greatest utility out of any new national infrastructure.

DEIWG identifies a need for Government leadership on directions for the Digital Economy. The Government must provide a regulatory framework that allows all businesses, community service providers, and consumers to access the national platform in a secure and equitable environment.

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# Response Submission

## Purpose

The purpose of this submission is to respond to the Department of Broadband, Communications and Digital Economy (“the Department”), in relation to the Stakeholder Consultation Paper published in May 2009 entitled “National Broadband Network: Fibre-to-the-premises in greenfield estates Consultation paper.”

## Introduction

The respondents of this paper welcome the opportunity to respond to the Government’s consultation paper on Fibre-to-the-premises in greenfield estates.

This represents an unprecedented opportunity to contribute to the development of equitable policy that will treat property developers, FTTP providers, carriers, local government authorities, retailers and new residents in greenfield estates fairly in order to support the proposed benefits of a National Broadband Network that upholds the principles of ‘Open Access’.

## About the respondent, DEIWG



The DEIWG is an independent and informal collective of various industry groups, corporations and companies with a special interest in the Australian digital economy. The DEIWG Community consists of approximately 150 companies and 200 representative members whose purpose it is to bring issues associated with the Digital Economy to the fore and generate interest and awareness for the Digital Economy. The DEIWG has been facilitated by Paul Budde.

The DEIWG Community has representatives from Health, Education, Telecommunications, Property Development and Media that collectively form a hub of expertise for building productivity and a strong, modern economy.

## Consider previous DEIWG submissions

The Digital Economy Working Group has previously submitted a number of papers to the Department and Expert Panel on the topic of the NBN namely:

- An Industry Vision for the National Broadband Network Plan – 6<sup>th</sup> March 2008
- An Industry Vision for the National Broadband Network Plan Supplementary Report – 30<sup>th</sup> March 2008
- A Regulatory Submission for the National Broadband Network – 25<sup>th</sup> June 2008 (*Submitted by eASIG – forerunner to DEIWG*)
- A Response to the Digital Economy Future Directions Paper – 11<sup>th</sup> February 2009
- A Response to the National Broadband Network Regulatory Reform Paper – 3<sup>rd</sup> June 2009

These reports can be located at:

[http://www.budde.com.au/presentations/Digital\\_Economy\\_Industry\\_Group.asp](http://www.budde.com.au/presentations/Digital_Economy_Industry_Group.asp)

A number of the responses in these papers relate to the topic of greenfield and brownfield and are still relevant to the current discussion. For example, the following greenfield recommendations are detailed in the An Industry Vision for the National Broadband Network Plan Supplementary Report:

- Establish a sustainable funding model for backhaul networks. (See sections 4.4.1)
- Establish a sustainable funding model for community networks. (See section 4.4.2)
- Reduce anti-competitive conduct by offering funding and rebates *only* for true open access networks. (See section 4.4.3)
- Promote education and support for the industry at all levels regarding NBN topics such as benefits, capabilities, standards, services, funding etc, (See section 4.4.4)
- Reduce Legislative and Regulatory Obstacles. (See sections 4.4.5)
- Improve Coordination of Government Agencies at all levels (See section 4.4.6)

We urge the Department to consider the content of these papers as a part of their consultation process on this topic.

## Industry response to the consultation paper

To our knowledge, there are a wide range of respondents to the greenfields consultation paper from various industry verticals. Each of these verticals are considered to be stakeholders in the outcomes of the proposal to mandate FTTP in greenfield estates by July 2010 and include:

- Property Developers and Australian Property Industry Associations
- Local Government Authorities
- FTTP Technology Providers
- FTTH Council Asia Pacific
- FTTP Providers & Operators

This is entirely appropriate as it demonstrates that the industry has the breadth and capabilities to tackle the various dimensions and topics that the Department seeks.

Unfortunately in the limited two week timeframe afforded to these groups to prepare responses, there has been little time to federate these groups to provide a consensual industry view to assist the Department. To date, this typically has been the role of the DEIWG and is the way that the previous papers above were prepared.

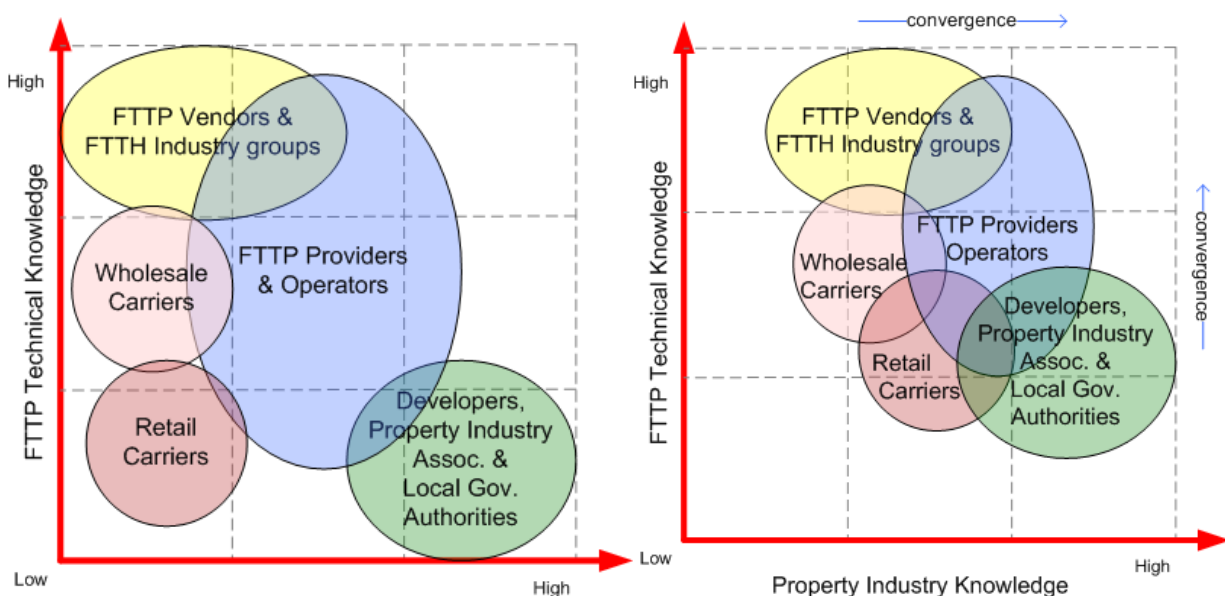
From our involvement in discussions with these various groups, it is clear that there is fantastic knowledge within the industry and there are a number of distinct themes that emerge across them. There are, however, also identifiable knowledge gaps between them. For example:

- The FTTH technology groups and providers are still on a learning curve with respect to how the Property Development industry operates on a range of different types of developments and in different state and local government contexts.

Similarly;

- The Property Development industry is largely at the earliest stages of understanding about FTTP technology and the associated costs, benefits, various delivery models and implementation methods.

Figure 1 illustrates these knowledge gaps.



**Figure 1** – Current & desired future states of FTTP & Property Development Industry knowledge

What is desperately needed is more time to bring these various groups together to share concepts and to ensure a compatible and aligned approach to this topic. This will also ensure the Government's proposed legislation has a greater chance of support from the various industries.

Considering the significant implication of this consultation process translating to legislation, it is critical that the Department continues to consult with, and receive the immediate benefit of, the experience and lessons learnt that already exists in the industry.

## The importance of a conducting a consultation workshop

For the reasons previously identified, we would strongly recommend to the Department that a consultation workshop be held as soon as practicable after the submission date with key representatives from each submission group. This workshop will provide an opportunity for the Department to hear first hand the key concepts of each group and provide an opportunity for the various groups to understand the various elements of the other submissions. The purpose of the workshop would be to:

1. Present key concepts from each submission in a summarised format.
2. Gain a common understanding of key concepts and potential concerns of each group
3. Identify potential solutions to any areas of key concern
4. Improve industry knowledge on FTTP

This workshop would then provide more succinct and time effective environment in which to digest and consider the submissions and to gauge first hand the level of importance placed upon various topics that are often difficult to articulate in a written format.

Paul Budde from the DEIWG can help facilitate this workshop.

## Identified key themes for greenfields FTTP planning

In discussions with a broad range of industry stakeholders it is evident that a number of key themes are common across the various industry groups. We present the following commentary for consideration.

### 1. Agree a working definition of greenfields

The Government, for the purposes of the proposed legislation needs to agree upon a working definition of greenfields should be a critical consideration for the proposed legislation.

The intent of the legislation is to ensure that all new developments utilise FTTP infrastructure as the preferred method of providing broadband and telecommunications.

One of the key difficulties is the variable use of this term. There are two distinct industry views:

- **The telco/technology network industry.** The installation and configuration of a network where none existed before.
- **The property development industry.** The property development industry defines three types of areas that are potential candidates for deployment of FTTP solutions. The following definitions are supplied by the NSW government Department of Planning as a part of their annual Metropolitan Development Program (MDP) report<sup>1</sup>.
  - **Greenfield Release Areas.** New metropolitan fringe areas released by state Government for Residential Development and formally included on the MDP.
  - **Infill.** Development occurring in residential suburbs within an established area but outside transit nodes.

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<sup>1</sup>2007, NSW Government Department of Planning. *MDP 2007/08 Report – Metropolitan Development Program*



- **Major sites.** Major sites are proposed development sites with the potential for approximately 50 or more dwellings. These sites have development under construction or are sites that have the planning process with criteria such as having a master plan or development application submitted for approval.

The various Departments of Planning in each state publish an annual report that produces a databook, atlas and audit of all greenfield and major sites.

The Department should consider the use of these planning industry definitions as they are already established and documented.

Further consideration needs to be made as to the handling of infill and major sites that are not strictly greenfield but need to consider the use of FTTP.

## **2. Agree a pragmatic approach to compliance and thresholds**

Establishing any level of threshold for exemptions to for FTTP compliance in greenfields is likely to lead to workarounds and misinterpretations.

Since the intent of the legislation is to ensure that all new developments utilise FTTP infrastructure as the preferred method of providing broadband and telecommunications, there has to be flexibility in how this intent is realised during the transition to this new technology.

It is suggested that at a minimum, all new developments, greenfield, infill or major sites, need to at least make *spatial allowances* for the provision of FTTP infrastructure. Where practicable, it can be determined whether a development is able to install a FTTP solution at the time of development under an agreed industry equitable funding arrangement or deferred until the NBN brownfields rollout. This decision will largely be based upon the availability of supporting FTTP infrastructure such as backhaul at the time of the development.

## **3. Develop an equitable funding model for all stakeholders**

Equitable finding is a major issue for all stakeholders as the build of a FTTP network represents an element of financial risk. Therefore, there needs to be a balanced view of who pays for what component of FTTP networks in greenfield estates as a part of the National Broadband Network.

From a taxpayer's perspective, there is already a perception that purchasers could potentially end up paying twice for FTTH in a greenfield development:

- Once via the built-in infrastructure costs to their land
- And then again, via taxes they will contribute to the build of the NBN across Australia.

Therefore, if FTTH is to be mandated for greenfield, there is a significant and realistic issue of affordability and the treatment of purchasers in greenfield estates as taxpayers that needs to be addressed.

One of the key recommendations from many groups is to consider a tax rebate for purchasers of property in FTTP provisioned greenfield estates.

## **4. Resolve backhaul issues**

One of the largest variabilities and issues with the cost of provisioning FTTP into greenfield estates is the issue of backhaul availability and costs. For example:

- One greenfield development in SE Queensland faces a cost prohibitive scenario of funding a major 16Km, \$700,00 backhaul cost to service only 500 homes.
- This is the only viable fibre option available because the nearest backhaul provider that is only 4Km away, wants to charge 4x the current market access rate due to a lack of competition.

- Disappointingly, the 16Km backhaul route would pass an airport and an urban growth corridor, but the timing is not right to assist.

There appears to be a consensual view that one of the key roles of the NBN company is to address the funding of FTTP backhaul.

## 5. Promote industry incentives

The Government is targeting an aggressive 8 year program to deliver FTTP to an estimated 10.7 million dwellings across Australia. Even with all of the technological and legislative mechanisms in place this is an ambitious target considering the degree of behavioural change and industry skills that will be required to achieve this result. It is not felt that legislation alone will provide the desired effect that the Government hopes to achieve.

It is therefore important to consider what financial incentives can be put in place that provide an equitable funding model that will compel developers, local government authorities and FTTP providers to co-operate, support, and accelerate the implementation process.

## 6. Use greenfields as a catalyst for brownfields

This consultation paper and the proposed legislation it relates to, appears to treat greenfields differently to brownfields. Whilst on the surface, greenfield developments may appear to be “low hanging fruit” and a more easily achievable objective, there are actually just as many issues and complexities to consider. Greenfield developments are in fact just the first phase of an industry transition to a new model of delivering telecommunications. Therefore for the purposes of equitability and fair treatment of all industry stakeholders it is best to think of greenfields and brownfields equally, with respect to legislation and funding models.

In fact, greenfields should be considered to be a catalyst for the rollout of FTTP infrastructure for brownfields. The logic for this thinking is as follows:

- Greenfield developments have the immediate need to be supplied with FTTP as there is typically no existing telecommunications infrastructure in these locations.
- A greenfield development will most likely have to resolve issues of backhaul and the provision of, or access to, a communications head end.
- With the provision of the backhaul and communications head end, there is potential to also connect neighbouring brownfields sites from this infrastructure.
- This would serve to lower costs for the greenfield development and to accelerate the deployment of FTTP in the neighbouring brownfields regions.

## 7. Remain technology neutral

Although the delivery of the proposed FTTP based NBN is planned to be completed in 8 years, it is likely that a number of associated technologies will change during that time.

Therefore, in the drafting of any legislation or definition of any National standards, it will be important to ensure that these mechanisms are technology neutral and recognise that the architecture of the solution “may have to initially involve some hybrid technology components.”<sup>2</sup>

In particular, the drafting of any legislation needs to anticipate that technology does and will change over the course of time.

## 8. Leverage existing lessons learnt

Despite the relative infancy of the FTTP industry in Australia, there is already a significant amount of knowledge in the industry and over 140 known FTTH implementations in Australia.

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<sup>2</sup> p6. An Industry Vision for the National Broadband Network Plan

It would be highly beneficial for the Department to conduct a confidential audit and review of the existing FTTP implementations to:

- Identify the number, location and size of the implementation.
- Identify the technologies and typologies deployed.
- Collate the anecdotal and document experiences of these implementations

In addition it would also be relevant to interview and meet with industry stakeholders with considerable track records in this industry.

## **9. Allow for spatial planning**

A lot of focus in the submissions to the Department on FTTP will relate to technologies. However, an often overlooked aspect of physical network technologies is the spatial considerations necessary to successfully and efficiently deploy FTTP networks.

For example, one of the key contributing factors to delays and additional costs associated with deploying FTTP, relates to the availability and agreed access to existing or proposed pit and pipe infrastructure.

In general this is a complex area and the current ownership of pit and pipe access pathways is usually controlled by incumbent carriers.

The Government should therefore consider spatial access to access pathways in which the necessary FTTP infrastructure will need to be deployed and perhaps consider ownership of these newly constructed access pathways to ensure equivalence for all access seekers under open access principles.

## **10. Support Open Access principles**

It is significant that a key fundamental principle of the National Broadband Network is to establish underlying foundation based open access principles.

As previously stated in DEIWG's first discussion paper on the NBN, the aim of the government should be to "Promote a strong commitment towards 'Open Access Networks', with a clear enabling set of rules attached to it. These rules will provide access seekers with equal opportunities to deliver content and services as well as to be provide them with equal access to the network at identified demarcation points."<sup>3</sup>

Pragmatically, this will mean that the NBN needs to consider an open access network at three basic levels:

- a. A common access conduit network (aka pits and pipes);
- b. Dark fibre services; and
- c. Active network bit stream services

Bruce Duyshart  
Chair – FTTH Group  
DEIWG

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<sup>3</sup> p6. An Industry Vision for the National Broadband Network Plan

## Questions

1. What are the relative merits of the model outlined? Which is the preferable approach? Why?

### Response

#### Q1. The Preferred Model

Model 2 is preferred. Model 2 ensures that the National network is built to a standard topology and the Communications pits and pipes (carriage way) can be installed along with the utilities under the governance of local councils and development authorities.

In Model 2, the pits and pipes would be rolled out with the utilities leveraging the role of the Local government and planning authorities. The developers are responsible for then only responsible for the cost of installation of the pit and pipe sub-structure and un-lit (dark) fibre network only, and allocation of land for the communications Hub site within that estate in accordance to the National network topology and design. The installation is then ceded back to an Authority (probably the NBN company).

The development should then go to tender for a wholesale carrier to provide the active equipment and operate the network for a period under a contract.

This model ensures that the fibre infrastructure is installed from day one, and grows with the estate having clear demarcation lines between developer, carrier and the NBN company. The operating carrier operates and maintains the network and provides the services to the subscribers. The operator allocates 'open access' network space to other service retailers under rules governed by the NBN company.

This model can also work for greenfield Multi Dwelling Units (MDUs) and including MDUs with commercial shops typical of CBD developments. The apartment and commercial retail MDU developments have dark fibre infrastructure installed into the building as part of the building developer's responsibilities (similar to utilities provisions) and the retail service carriers will tender to supply carrier services to that site. The developer of the building should also be required to allocate space for a communications room.

#### Regulation

The model has to be a standardised facility, viz. water, power, etc. The model has to support PON, Active & hybrid models, and not lock-in one technology. Perhaps in the transitional phase to completion of the NBN an exemption could be provided to allow both copper and dark fibre to be made available, to facilitate legacy systems such as alarms, and environmental monitoring.

The current mix of Optus/Telstra cable rollout, and a plethora of overlapping wireless and cellular networks devoid of roaming is an experience that suggests we need Government to

regulate ONE ubiquitous, and uniform, retail infrastructure.

Federal legislation would ensure that the state and local governments comply with the framework (model laws and templates) adopted nationally.

FTTP in greenfield areas requires regulations, bylaws and planning guidelines which the federal government will negotiate with state governments who, in turn, would pass responsibility to local governments to custom tailor site specific requirements, (while adhering to the main framework of the planning guidelines).

This allows for maximum flexibility in the way that the work is carried out – a main contract for each major catchment area with sub-contractors for sub-areas within the catchment. This achieves the best from both models, i.e. a central authority setting requirements and standards and individual work authorities, to be styled for each site within the catchment. Broadband is a connection eventually paid for and purchased by the prospective owner. True Open Access obviates the need a USO solution. In an environment where FTTP/WIRELESS/SAT provides ubiquitous coverage it won't be necessary to continue with USO.

One of the outcomes from the NBN should be reduced regulation regarding access, and a shift to greater regulation applied to the provision (SLAs and OSS access) and supply of services. Local authorities should only be involved in ensuring that the planning permit treats the NBN connection like any other utility.

### **Operations**

A simplified solution might be to legislate that all new greenfield estates have some form of community title, whereupon a fee could be charged for the ongoing maintenance and operation of the FTTP within that neighbourhood/community development.

Also, if as in many current community titled developments, it was legislated that no aerials or satellite dishes are to be installed on dwellings then the FTTP could be used for delivery of FTA television and Pay TV. These basic services could be allocated one core of the FTTP and terminated in a community owned communications room with a Head End transmitting the services including Video on Demand. The other FTTP cores would be terminated 'ready' to be used by the NBN service providers as the backhaul is installed. During transition to the NBN it would allow Telstra to provide its services ensuring that the USO legislation was upheld.

Thus the NBN can be staged to allow practical and financial realism whilst still allowing residents access to current services.

## Role of government

### Observations

- It is noted that in the description of planning laws, that “retail services are available from at least one retail provider”.
- In order to support the principles of open access and consumer choice there should be at least a choice of two or more providers.

### Questions

2. Is any action required by the Australian Government to facilitate local councils and planning authorities requiring the installation of FTTP facilities?
3. Would the preparation of model laws, templates and/or national specifications or guidelines assist local councils and planning authorities with implementation?
4. Would the development of educational tools for industry assist? If so, what?
5. Would the introduction of a certification system for the installation and performance of FTTP networks be beneficial?
6. To what extent is a nationally co-ordinated approach preferable to one where state and territory or local governments take the lead?

### Responses

- **Q2.**

There is a need for the Australian government to facilitate local councils and planning Authorities with templates for planning and in-building cabling specifications used by the planning authorities. This will provide guidance to the network design and build to a national Standard and to meet a minimum specification standard and criteria.

To ensure consistency and level playing field for competition, the Australian Government may oversee implementation of planning guidelines, albeit through state governments, to facilitate local councils in implementing FTTP facilities.

Particular action will be required to ensure that the sharing of a single Pit and Pipe infrastructure is legislated and that all installations conform to the same design and installation criteria and standards to allow a seamless integration of the NBN as it is rolled out.

- **Q3.**

Australia’s existing network has been built by national carriers to a standard. In the NBN roll-out, new fibre networks will be built by Developers or small retail Carriers who have very little knowledge of Communication networks in the planning for scalability, flexibility and future requirements. It would be essential for templates and National Specification / guidelines to assist with the design and topology of the network and ensure that it complies with the national requirements.

Uniform standards on installation, commissioning and maintenance will reduce

costs, and time, when network upgrades are required in the future to accommodate advances in technology and services available.

Given that the technology and ideas we are discussing here are very new, and never implemented at such a scale before preparation of national regulations, bylaws, templates and guidelines would be of paramount importance for local councils.

Local councils do not have inherent telecommunication skills and, to mitigate this shortcoming, the Federal Government will need to provide significant support, through the program office for the NBN, with a precise communication plan targeting their specific needs. It is clear that developers and councils will be key stakeholders in the implementation of the NBN and they will need mobilising to ensure buy-in.

### **Council 'Buy-In'**

To engender Council 'buy-in' the NBN company could

1. Provide Councils with information on Next Generation Networks (NBN) technology as an enabler to build the context of the NBN.
2. Provide clear 'roles and responsibility' matrices so there is an understanding of where Developers and Councils feed into the NBN roll-out process, and what is expected of them.
3. Provide a clear resource plan specific for Developers and Councils. Both are always reluctant to employ profiles which sit outside their functions so, they need to understand the need.
4. Assist the councils with duct maintenance procedures.
5. Assist the councils to understand how this would change their planning processes, particularly in the information management of planning permits.
6. Assist the Developers and Councils to understand their relationships with Telecommunications Service Providers in an 'open access' environment.
7. Road-show this information, with particular emphasis on regional, and remote, Councils.

- **Q4.**  
Yes.

The use of educational tools will assist the transition process. These educational tools should be those already existing and administered by the Telecommunications Industry Training Board (TITAB). All of these educational tools under TITAB are designed to meet national competency benchmarks and be periodically reviewed.

The Telecommunications Industry worldwide has grown over time and ITU-T Geneva regulations are available as general guidelines. Also, there are Australian Standards for Optical Fibre implementation eg. AS009 which can be further fine tuned/evolved to suit FTTP infrastructure with regard to testing and commissioning. The expertise required to develop industry's educational tools would be a big challenge and national (TITAB) and international assistance may be needed in developing these tools.

Training topics should include;-

1. Understanding of a FTTP network and technical overview.
2. Physical fibre installations to meet Australian Standards for Fibre cabling termination and splicing. Reference to Current Australian Standards AS009 and tested to those standards.
3. Physical copper infrastructure for in-building ethernet cabling to be in accordance to Australian Standards AS009.
4. Australian Standards for Safety handling fibre "Draft AS\_NZS 2967 Optical Fibre Safety Standard"
5. Performance Fibre Link Testing to ISO/IEC 11801 6 test methods set out in ISO /IEC 14763-3

The availability of Standards and Guidelines on the Web would assist to ensure a common approach in design and application.

- **Q5.**  
Yes.

It is absolutely essential to have a FTTP certified network to meet a National Standard of performance. The Industry can fulfill this role as has been done with the current standard for the Structured Cabling infrastructure in Australia. The Industry can be armed as Authorised regulators, with Government guiding accreditation for assessment. NBN accreditation can be sought from Authorised trained and licensed network assessors.

A National network certification process is essential to ensure country-wide interoperability, and to ensure no network degradation due to differing installation standards, i.e. cable types and splicing etc.

A skills certification program under TITAB control would achieve consistent national competency levels. These programs and courses already exist. For example, the installation of pit and pipe pathways is part of the national competencies program under ICTTC018D.

The ITU (and other such organisations) all provide documents that assist with the development of certification standards.

- **Q6.**  
This is a National Network and as such should be coordinated at a national level with the Federal Government taking the lead whilst facilitating State and Local Governments and Planning Authorities.

Since different States and Territories will have their own roll out strategies, determined by their own key business drivers, it would be prudent to allow these governments to drive the NBN roll out whilst still having a commitment to the Federal government on key milestones with respect to completion.

Whilst, they may be entrusted with site-specific implementation of templates and model laws, the main guidelines, oversight and coordination of the NBN roll-out by a national body is extremely important. Initially, all stages of greenfield estates may



require close supervision by the NBN company. As more experience is gained by key players, such oversight may be handed over to state governments, with the national oversight only required for larger projects.

With appropriate standards developed by the NBN company in conjunction with industry leaders, and the necessary legislation implemented, the local Councils can be empowered to enforce the standards by means of National certification.

A national co-ordinated approach provides national training competencies, regular reviews, better design and installation practices. Existing state, territory or local government approaches to training, design and installation in almost all construction and services industries have produced a range of variations that cause confusion and complications.

It is often very difficult to run and achieve all of the program tasks in a centralised model - primarily because of the size and complexity of the program. The NBN will be no different given that it is twice the size and complexity of previous roll-outs. Government will need protect, monitor and control the program strategy from a central point. The project budgets should not be decentralised.

The federal Government should also assist the development of asset management and information management processes/tools. Most of the councils in Victoria have already implemented or in the process of implementing such information systems.

All this can be leveraged to prevent the development of innumerable spreadsheets to support progress reporting to the NBN centralised program.

## ***Other roles and responsibilities***

### **Observations**

- The 'Optical Fibre Distribution Centre' or Communications Head end is missing from the roles and responsibilities in figure 2.

### **Questions**

7. If the Australian Government were to place obligations on developers and builders, at what stage of development should obligations be placed and on whom?
8. Is there scope for the provision of lead-ins in greenfields to be made contestable?

### **Responses**

- **Q7.**  
The paper appropriately suggests that the trenching and the 'pit & pipe' sub-structure

should be the responsibility of the developer and that local planning rules should apply. And, in a scenario that is analogous to the electricity and water services, the developer should cede that substructure to the NBN company on completion of the conduit installation. The developer should have no further role, or responsibility, in the establishment of the FTTH.

The National Building Regulations and Codes must be amended/adopted to reflect the laws governing laying of pipes and conduits, ducts and sub-ducts in greenfield areas, specific to optical fibre cable infrastructure. Once the trenching, pit and pipe sub-structure is completed and successfully handed over by the Property Developer to the NBN company, their responsibility ceases and shifts to the NBN nominated carrier.

The obligations on the Developer are at Master Plan stage to allow the local council to review the design of the proposed greenfield roll out strategy and to ensure it complies with NBN Federal standards.

The obligations on the subsequent Builder, at the time of DA submission, are also to ensure compliance with the NBN Federal standards.

The obligations on the Carrier/Service Provider, upon NBN termination, are for testing and acceptance according to the authority vested in the Carrier/Service Provider by the NBN.

- **Q8.**

The provision of Lead-ins should be the responsibility of the NBN authorised carrier/service provider for that estate, or building, where the new subscriber requests connection to the network and the provision of services.

Generic specifications need to be formulated and made contestable (open access) for developers, and related key players. The NBN company would ensure such regulations are adhered to. The NBN company at this stage, through tender and open competition, would have appointed the incumbent carrier to implement the FTTP connection to the site.

The lead-ins need to be contestable, as it will be the builder's responsibility to gain approval from the local council via the DA submission to identify that the installation of the lead-in is in accordance with NBN Federal standards.

Beyond the premise boundary, the FTTH reticulated, trunked infrastructure should be contestable amongst the carriers, and the NBN company should govern the process by which an NBN appointed Carriers/Service Provider is awarded the right to install in any given greenfield site.

Similar to the plumbing and electricity lead-ins, the Builder and sub-contracted accredited tradesmen who connect tenants, could be authorised to install lead-ins under the guidance of the Carrier, and according to appropriate Australian Standards and Codes. A cautionary note is that larger buildings (MDUs and multi storey commercial buildings) will require different levels of skills/knowledge, and hence

different accreditation.

The Carrier, who has responsibility to install the reticulated FTTH infrastructure, should have authority and imprimatur to ensure that lead-ins are standards compliant.

## **Possible legislation**

### **Observations**

- The Department needs to carefully consider any wording of amendments to the act so as not to be technology specific in the same way that the current act refers to copper.
- The Department needs to carefully consider any wording of amendments to the act so as not to be too specific in the description of the characteristics of fibre.

## **Definitions**

### **Greenfield Estates**

## **Questions**

9. What is the appropriate number of lots or premises required for a development to qualify as a greenfield development requiring FTTP? What other issues or factors should inform the definition?
10. What mechanisms could be used to achieve a consistent approach across large developments involving multiple developers and/or over an extended period of time? For example, what provision should be made in relation to estates in which lots are released over a number of years?

### **Responses**

- **Q9.**

The greenfield estate size to qualify for FTTP could depend on a case-by-case basis with considerations of distances from a POP, or, alternatively, to a common Head end or hub site to serve several greenfield locations.

History shows that zoning and land use intended for the greenfield area may change over time. Usually, the initial planning of a greenfield site of less than 250 lots renders a site commercially unviable for a Carrier/Service Provider with regard to deployment of FTTP infrastructure.

However, comparison with roads and power (utility) norms, which dictate that once the lots are planned, trenching, ducts and sub ducts infrastructure must be put in for ALL lots (irrespective of how many lots will be developed in the initial stage) leads us to suggest that at a minimum ALL new greenfield estates should be provided with NBN pit and pipe infrastructure with a capability to draw in fibre at some later date if the greenfield FTTP is not yet viable.

However, there are exceptions to the rule and this may include factors such as

whether the development is in a rural area that can only be served by wireless broadband or satellite, or where timing may mean that it will be several years before connection to the wider network is feasible.

Even in remote locations it may still make sense to cover all lots in an area even though it is below a nominal lot count level simply because the cost to remobilise the civil contractors later would result in duplicated and unnecessary costs.

Another consideration is that nominating a threshold could exacerbate red tape. The aim should be to get as much work done as possible at the time of civil construction and not spend time wondering whether the numbers do not agree with nominal criteria.

- **Q10.**

In large developments, which release in stages over an extended period, the design of the NBN could be captured at the Master Plan phase, thus ensuring that the NBN Federal standards will be adhered to. In essence a FTTP is the same as any other utility the provisioning rules with regards to long term roll out applies equally.

Large developments say, of 1000 lots or more may have multiple Developers working over an extended period of time. In such cases, again the analogy with utility infrastructure is that all lots are covered by access roads, electric supply and water piping for ALL lots planned and approved by the council irrespective to when the individual lots are developed.

Similarly, as FTTP is also an infrastructure, trenches, ducts and so, pit and pipe sub-ducts must be laid along with other infrastructure for all lots, as this will facilitate ready connection when the next stage is completed. This laid FTTP infrastructure would remain in the ownership of the NBN company until such time as a nominated Carrier is awarded the contract for a particular stage.

Property Developers should only be required to install the pit and pipe sub-ducts as each Stage is developed, but they should be required to build it for ALL developments. The door must be 'left open' for any carrier to decide later to install a FTTH network in circumstances where changes in adjacent sub-divisions have made the FTTH more viable. The NBN corporation would have guardianship over empty 'FTTH ready' sub-ducts.

Case by case exemptions, to the requirement for a Developer to install sub-duct, might be made for Developers of remote and regional estates, but they should not be given in a cursory way.

## **Multi-dwelling units and office blocks**

### **Questions**

11. Are there any special requirements for multi-dwelling units or office blocks?

12. Should the threshold for the connection of FTTP for new multi-dwelling units be lower than other estates or should all new multi-dwelling units be connected with FTTP? What threshold, if any, should apply?

### Responses

- **Q11.**

It is usually more cost effective to deploy to multi-dwelling units (MDUs), so mandatory FTTP should apply to all MDUs.

For MDUs and commercial buildings, an NBN standard needs to be established to decide where an FTTP termination is per floor, or per apartment/office lease. The industry is not currently united on this matter, but as the FTTP matures it will likely result in a per floor solution as the most cost effective means of delivering the services required by the NBN standards to these types of units/blocks.

In Multi Dwelling Units (MDUs) retrofitting optical fibre cable infrastructure is very expensive, due to the inherent difficulty in managing wall and floor penetrations after the building is complete. Therefore, it is imperative that all MDUs must have FTTP infrastructure built into the dwellings like any other utility, ready for NBN connection when it is occupied.

The Builder must be responsible for the fibre infrastructure inside the building or building complex, as well as the copper structured cabling inside the living units. This includes the lead-in, floor and wall fibre distribution and allocation of a room for Head-end establishment. All must be built according to Australian Standards and Codes, and compliance will be determined by the carrier appointed by the NBN company for the particular property development.

When cabling MDUs and commercial premises Australian Standards for cabling must be observed: AS/NZS 3080 for commercial premises, AS/NZS ISO 15018 for residential and multi-dwelling units, the mandatory AS/ACIF S008 for Customer cabling products, and the mandatory AS/ACIF S009 Installation of customer cabling (Wiring Rules). There is also a new Optical Fibre Safety standard AS/NZS 2967 (currently at public comment stage). It is also important that the cable and/or termination for service, as well as diagrams of in situ cable, should be clear and easy to access.

The Builder could tender the fibre infrastructure portion for the building to National accredited FTTP installers. The accredited FTTP installers should already be certified installers for Structured cabling where the same installers provide the premises data and telephone cabling (Structured Cabling) as well as the fibre infrastructure for the building. The in-building fibre infrastructure and the Structured cabling for the living units commercial premises and office blocks would be cabled and ready for connection to a Carrier's network.

The Property Developer (unless they are also the Builder) in this case has no obligation. Where a number of MDU lots are sold by the property developer at a given site, then the normal P&P sub-structure obligations apply to that Developer.

Finally, Carriers would then contend to be the operator and the provider of services to the subscribers of that building or building complex.

- **Q12.**

The threshold should be zero, i.e. all greenfield MDUs should be fitted with FTTP and be deemed 'NBN ready'.

If an NBN cable is being laid in an area in proximity to the site, then it makes sense to have all branching pipes installed concurrently with the development. Internally, fibre should be installed and tested by the developer.

If a particular MDU is too small (commercially) to be connected to an FTTP network from day one, then the MDU should be certified 'NBN (dark) fibre ready' for both building fibre infrastructure and also Copper Structured Cabling (data, Voice and RF) inside the living units. In this instance the building telephone copper infrastructure should be installed for the interim for telephone and data services. At a minimum, in these cases 'blown fibre' solutions should be considered to ease any future required upgrades.

In contrast to the estates, retrofitting MDUs with respect to FTTP infrastructure is relatively costly, difficult and labour intensive due to the intrinsic design of most MDUs. It must therefore be incumbent upon the developer to have these fitted and laid during construction of MDUs. There is no room for a threshold here. Each and every MDU must have pre-laid FTTP infrastructure.

Note: All living units copper Structured cabling for Data services should be a minimum CAT 6 copper cabling. The same CAT 6 copper cable is also certified for 10Gbps up to 33 metres. This distance inside MDUs and Single Dwelling units places the CAT 6 cable as a future proof cable up to 10Gbps inside the average house or apartment.

## **Fibre to the premises**

### **Observations**

- Legislation should not be specific to the technology characteristics of FTTP to be future ready.
- Funding for FTTP should not just be for black spots. It should be for all backhaul infrastructure.

### **Questions**

13. What specified characteristics should be considered for the purposes of defining FTTP for greenfields?
14. Are there particular issues in relation to backhaul between the greenfield estate and point of interconnection to a national network that need to be considered?

## Responses

- **Q13.**

Templates, Specifications and guidelines are of the utmost importance for a national FTTP network. A common fibre infrastructure should meet a common national network basic criteria and a topology standard allowing for growth, flexibility and Future proof as mentioned earlier.

The standard should ensure the following minimum criteria for the fibre network over the same fibre infrastructure:

- a) That any cable network deployed must be capable of delivering speeds of at least 1 Gbps or better from end to end.
- b) To be able to provide Point to Multipoint fibre.
- c) To be able to provide Point-to-Point fibre to any subscriber from the Head end / Hub site to the subscribers premises over the same fibre infrastructure.
- d) To be capable of supporting CWDM and DWDM wavelengths to subscribers
- e) To be able to provide on-net and off-net access.
- f) To be able to provide for complete separate and private networks e.g. Government and security etc...
- g) To have provision for an average of 20% to 25% sparing/growth in the fibre serving area.
- h) To have spare fibre availability to any premises
- i) To be based on a Plug and play fibre network design with centralise splitters for maximum flexibility and scalability
- j) Provision and accessible for an Open Access network at the physical layer
- k) Provision for easy upgrade for future services and technologies
- l) Easily accessible, easy trouble shooting and serviceability and low maintenance
- m) Core size, distance runs, splice bomb size, cable manufacturer, splicing method and dB loss, e.g. -3db at commissioning.

Our greenfields today are our brownfields of tomorrow. It is therefore important to provide a flexible, scalable and future-proof Fibre network.

- **Q14.**

Distance from the nearest point of interconnection to the NBN and accessibility to the interconnection is a high priority issue for resolution.

A development of some distance away from an accessible backhaul could be cost prohibitive to trench to the nearest interconnection apart from the Telstra Network.

Because the cost of the backhaul from the FTTP development to the NBN is not commercially viable, then the development may have to default to a Telstra only network.

This issue is an imperative to the success of the NBN and must be explored extensively in future stakeholder workshops.

## **Exemptions**

### **Questions**

15. What exemption arrangements, if any, would be appropriate and how should they be administered?
16. Are there any particular circumstances under which developments should be exempt from the Australian Government's requirements for FTTP in greenfields (for example, for large area subdivisions in rural and remote Australia)?

### **Responses**

- **Q15.**  
Exemptions should be considered on a case-by-case basis, but granting exemption should not be cursory. Like all large infrastructure projects, the simpler the model (i.e. the least exemptions), allows a sliding cost scale by virtue of the volume of installations.
- **Q16.**  
There will be areas where a greenfield construction may have to be given exemption by the Australian Government.

These will primarily fall outside the NBN's fibre footprint. e.g. mountainous regions, remote locations.

However, the NBN proposal does cater for such areas with either Satellite or wireless coverage. This however, does not guarantee 100 Mbps but only 12 Mbps and may not comprise more than 10% of the population.

If such areas have existing copper network (Telstra), then based upon cost-benefit analysis, exemption to use a copper only network may be granted to the Property Developer by the NBN company.

## **Commencement date**

### **Questions**

17. Are there any factors that the Australian Government should be aware of in relation to the commencement of FTTP requirements?
18. Under what circumstances, if any, should transitional arrangements allow for the installation of copper-based infrastructure?
19. Should the FTTP requirement apply to developments approved before 1 July 2010 but for which telecommunications infrastructure has not yet been contracted or provided? What transitional arrangements may be appropriate in these circumstances?



## Responses

- **Q17.**

Consideration should be given to the date building construction regulations should be effective from. While the 1<sup>st</sup> July 2010 is when the FTTP requirements come into effect, there is no 'Black and White' demarcation of the date building construction regulations should be implemented.

The Construction Industry would be well advised to phase into the new regulation for any construction approved between the start of 2010 and the cut-in date on 1st July 2010.

The Australian Government needs to encourage, and educate the Construction Industry, to ease into the new technological requirements over a six-month period to ensure full compliance on target date.

The Government should also take into account the issue of cost-effective access to the Backhaul to connect a greenfield site to the NBN, in implementing those regulations.

- **Q18.**

Circumstances would include the following:

a) Where the development site is a small site of a few subscribers where FTTP is not commercially viable for FTTP.

However, the building would be required to have provision in its pathways and conduits for FTTP infrastructure installation all the way to the living unit. The living units would be required to be cabled for RF Video, Voice and Data to multiple points in the living units. Data Cabling should be a minimum of CAT 6 cable.

b) In rugged, mountainous terrain where a copper network is in close proximity to the greenfield site and the cost-benefit analysis dictates prohibitive costs associated with implementing an FTTP infrastructure.

c) If fibre will be delayed for a long period due to exceptional circumstance.

- **Q19.**

Only if the NBN Federal standards are agreed and legislated, could a developer be expected to adopt a FTTP solution prior to 1 July 2010.

And, given the responsibility for emergency calls currently resides with Telstra under the USO, the telecommunications act will need to be amended before the onus can be passed to another party.

One transitional arrangement may be to offer incentives for early adopters to become 'test sites' for installation procedures.

## Competition and regulatory framework

### Questions

20. Is the Australian Government's intention that the NBN company not overbuild existing FTTP developments in greenfield estates appropriate?
21. Are there any specific issues that should be considered in relation to the role of the NBN company in greenfield estates?

### Responses

- **Q20.**

The Optical Fibre Cables should be sized to cater to any future long-term requirements. A properly designed infrastructure with built in redundancy for many carriers to have 'plug n play' access should be enough.

This facilitates a second operating Carrier gaining access to the same existing physical fibre infrastructure where there is enough capacity inside the Fibre Distribution Housing (FDH) to add the new carrier's splitters thereby providing plug and play access to the subscribers in that same serving area of that FDH. A customer could then be easily changed over to the second operating Carrier.

Provided that there is a well designed FTTP network, as described above, this Open Access at the physical layer level would obviate the need for an overbuild.

There may also be a case for two fibres per premises/home. The network is intended to provide Open Access for at least 30 years, and many countries that have developed FTTH networks are now planning and deploying two fibres per home. Two F2 fibres minimum are the preferred practices for many deployments in the US and Internationally (Singapore, Norway, Sweden, France to name a few).

For existing FTTH installations, there should be overriding legislation if the service provided by the contractor does not come within minimum standards required. It may be determined, dependent on the NBN Federal standards, that only the Head-end equipment needs to be modified for this existing FTTH installation to comply with the NBN.

If the standards cannot be generally met, then an NBN overbuild will need to be undertaken to ensure network integrity and interoperability.

- **Q21.**

The NBN company should be represented by the local council governed under the NBN Federal standards, legislation and guidelines produced and controlled by the NBN company.

Oversight of planning guidelines, model laws, templates and arrangement of backhaul (Fibre, M/W, Satellite) will need to be taken into account for all greenfield

sites by the NBN company.

Such oversight must ensure that minimum service standards are met and that service requirements are to specifications.

Issues that arise when specifically considering Backhaul to connect to the NBN are;

- Who will supply the backhaul infrastructure to a greenfield estate - now, during transition and when the NBN company is running?
- What is the minimum customer level at which the NBN company would be obliged to supply fibre backhaul?
- What will happen if the backhaul cost is too high for a retail ISP to sell any services in a greenfield estate?
- What backhaul capacity should be mandated?
- Should the NBN company be responsible for providing backhaul to ALL greenfield estates?

## ***Competition to service greenfield estates***

### **Questions**

22. What measures could the Australian Government introduce to facilitate competition for the provision of FTTP infrastructure in greenfield developments?
23. Could the competitive provision of FTTP in greenfields be facilitated by a national online database of proposed developments accessible either publicly or to licensed carriers? Could this also assist with the planning of telecommunications infrastructure in such estates?

### **Responses**

- **Q22.**

First and foremost, functional and structural separation of Telstra assets needs to be enacted to give all prospective carriers a level playing field and open access to existing infrastructure to enable all carriers to plan their FTTP infrastructure design for the greenfield development. A competitive return on investment by the interested parties must be assured by equitable access.

While a level playing field is important, it is also necessary to look at who is available to service various locations. In areas where competition can be robust and productive, it should be encouraged both by legislation and by policy. However if Telstra, or any other Telco, is the only operator in a particular location, then competition is no longer an issue. This should not mean that the Telco gets to dictate terms, however the pricing element now has to be sorted out with the knowledge that there is only one supplier in this instance.

Next, the Network Design and topology must be to the National Standard in new MDUs, commercial complexes, community based residential village campuses,

and high-density living and accommodation. The current trades based installers of fibre and copper data cabling companies can easily expand their business to include FTTP infrastructure as part of their daily business. This creates an immediate competitive market for FTTP infrastructure.

Consultants at the planning stage should include FTTP infrastructure as part of the building requirement. Builders could tender contestable FTTP infrastructure to National Accredited FTTP installers, similar to today's tenders for current fibre and copper data cabling.

The FTTP infrastructure inside these complexes would be designed and built to the national standard and then tested and certified as "NBN ready". The building complexes are now contestable for an NBN company appointed Carrier/ Service Provider to install activated fibre infrastructure, (an Open Access Platform).

Retail service providers are then contracted to join that network.

This process effectively divides the network up into three sections: Network Infrastructure / Operating Carrier / Retail Service Providers.

The same model can be for Broadacre developments.

- **Q23.**

Yes, provided it is kept simple and without any recommendation from the database provider.

The NBN company and the Australian Government will need to educate and train telecommunication companies and lead them 'by the hand' in the initial stages of FTTP implementation. A national database will assist in planning FTTP infrastructure in greenfield estates.

This would also allow stakeholders in the NBN roll out, a view of upcoming potential works. This would ensure that the necessary skill sets are in place to accommodate these works in a timely fashion, thereby ensuring that the Government time scale for the implementation of the NBN is achieved.

Provision of this online database would certainly encourage competition. As this field is also "greenfield" it will be a learning process for many prospective vendors and licensed carriers.

## ***Competition at the services layer: access and equivalence***

### **Observations**

- Note point that the "Government considers that customers are keen to have a choice of retail providers..." this is in contrast to earlier statements saying that a FTTP deployment should have "at least one provider".

## Equivalence

### Observations

- We do not believe it is a good idea for FTTP providers to also operate as retail providers.

*NOTE: The following questions (Questions 24-33) are answered in a previous submission by DEIWG; Response to the National Broadband Network Regulatory Reform Paper – Submitted to DBCDE on 3<sup>rd</sup> June 2009.*

## Questions

24. Is it sufficient for access to wholesale FTTP services in greenfield estates to be delivered through the telecommunications-specific access regime in Part XIC of the Trade Practices Act?
25. Should the ACCC conduct a Part XIC inquiry into the specification/definition of the access service to be supplied over FTTP networks, with particular reference to greenfield estates?
26. Should an alternative approach to providing access such as mandatory access to FTTP networks in greenfield estates be adopted? If so, what? Why?
27. Should it be mandatory that new FTTP networks in greenfield estates after 1 July 2010 be wholesale-only networks? If introduced, should there be exceptions to this type of rule and if so how should they be administered?
28. What are the minimum equivalence arrangements that should be put in place to ensure wholesale services are provided on equivalent price and non-price terms and conditions in greenfields?
29. Would it be appropriate and workable to have different access and equivalence arrangements for greenfield FTTP networks depending on whether or not they were operating before 1 July 2010?

### Responses

- Please see the aforementioned previously submitted Regulatory Reform Response.

## Obligations to supply retail services

### Retail pricing

## Questions

30. Should Telstra continue to be the universal service provider in greenfield estates where FTTP is deployed by an alternative provider and retail providers are able to use these networks to supply voice services?
31. If Telstra should continue as the universal service provider in greenfield estates, would it continue to be appropriate for Telstra to determine the technology it uses to fulfil its USO in those areas?
32. If Telstra were not to continue as the universal service provider, what, if any, obligations should be imposed on whom to ensure that consumers continue to have access to basic telephony services in greenfield estates?

33. Will the proposed greenfields model deliver satisfactory retail pricing outcomes? If not, would new mechanisms to regulate prices in greenfields be necessary and workable? What form might such mechanisms take? What would be the implications for such mechanisms on the broader market?

### Responses

- **Q30.**

Having Telstra as the USO provider in greenfield sites with FTTP is a conflict of interest and should not be allowed. FTTP is not just telephony, it is far larger.

Telstra and other Telcos with large telephony investments have a duty to their shareholders of maximising the Return from that investment. To suggest otherwise is to place directors in jeopardy with ASIC.

As Telstra will not own the network, or be able to regulate who has access, the onus lies with the NBN company to bear the USO and be responsible for the conditions and stipulations of the telecommunications act that Telstra currently are held to.

- **Q31 and Q32.**

Please see the aforementioned previously submitted Regulatory Reform Response.

- **Q33.**

The developers are concerned with the inequity of the proposed funding model, which at this stage appears to be that developers are expected to pay for the whole thing, which is then passed on to customers who are in turn, then taxed for the NBN again.

The classic Utility charging model is for the Telco to absorb all capital costs and then 'lease' services to consumers, recovering those costs along the way. This leads to closed and opaque costing and pricing regimes, which are the basis for excessive charges and non competitive pricing schemes.

There is no option for customers to elect to pay their share of the capital costs upfront and enjoy lower tariffs. To illustrate, It is only in the last few years that Telstra has given consumers the option of pre-paying for all calls within a selected area (higher rental for unlimited local/trunk calls).

A fundamental for NBN+FTTP needs to be Open & transparent costing and supporting true 'cost-plus' charging. This may require TPA amendments.

## Reporting

### Questions

34. How would progress in delivering FTTP in greenfield estates be best monitored and reported?

#### Responses

##### Q34.

The approach would be aimed at basic reporting of homes passed and homes connected.

Progress could be monitored and reported, against each development under construction, via test and commissioning results approved by the local council being uploaded and registered in the NBN national database.

## Next steps

### Questions

35. What further steps should be undertaken to support this initiative?
36. Would the establishment of a stakeholder group assist with the implementation? If so, how many members would be appropriate, and who should be represented? What should be its terms of reference?

#### Responses

- **Q35. Respondents Workshop**

DEIWG strongly recommends that a consultation workshop be held as soon as practicable with key representatives from each responding group. This workshop will provide an opportunity for the Department to hear first hand the key concepts of each group and provide an opportunity for the various groups to understand the various elements of the other submissions.

The purpose of the workshop would be to:

Present key concepts from each submission in a summarised format.

Gain a common understanding of key concepts and potential concerns of each group

Identify potential solutions to any areas of key concern

Improve industry knowledge on FTTP

This workshop would then provide more succinct and time effective environment in which to digest and consider the submissions and to gauge first hand the level of importance placed upon various topics that are often difficult to articulate in a written format.

Paul Budde from the DEIWG can offer to help facilitate this workshop.

### **Trans-sector Integration**

As the fibre presence grows there will be more integration between electronics and data, in both business and domestic markets. This convergence will require loosening up regulation so that electricians can work with data connections and data/telco technicians can integrate with the power grid. An example would be computer control of power supplies in households.

### **FTTP Solution Design**

An expression of interest should be undertaken by the NBN company seeking technical solutions and budgetary estimates from industry suppliers and FTTP vendors, to inform the design process.

### **Budgetary Advice**

A study of all currently proposed greenfield sites should be undertaken by a non-vested engineering company to determine the total size, time frame and approximate cost of the roll out on a per estate, per MDU basis. This would facilitate a model(s) to be published by the NBN company advising developers and builders of expected budgetary expectations to flow through to their respective models.

### **Education**

An education program should be developed for local councils advising on FTTP and the impact it will have on their various departments.

- **Q36.**

A stakeholder group would definitely add value. Organisations that should be represented include the Association of Consulting Engineers Australia (ACEA) to provide input to infrastructure design issues, the Property Council of Australia (PCA) to represent the interests of developers and possibly the Australian Telecommunications Users Group (ATUG) to represent the telecommunications sector or perhaps even DEIWG, representatives from a Council of Australian Government (COAG) sub-committee to represent state and local government interests, environmental representatives, community representatives, etc.

It is difficult to define what might be the appropriate number of members as this will be depend on identifying all the relevant stakeholders and making sure that all are represented. The terms of reference could be built around a framework of commitment to a collaborative process, clear purposes, timeframes defined, agreed role and operating guidelines, ensuring all stakeholders are represented, impartial facilitation and outcome-focussed discussions but also acknowledging the need for flexibility.



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