

A Submission to the Senate Select Committee on the National Broadband Network

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Introduction Since the Committee's last report the government has taken a number of steps toward its ambition of building an 'up to' \$43 billion national fibre to the home network. Draft legislation has been released on the governance, regulation and possible future ownership of the National Broadband Network company (NBN Co). Significant equity (\$200 million) has been injected into the rapidly growing fibre company which has announced a series of trials or pilot deployments in five mainland areas. In Tasmania the backbone network is being built and a large scale urban deployment announced to complement the initial plan of a pilot deployment in three rural areas. NBN Co has also begun to detail its planned network architecture and core service offering but as yet there has been no indications of planned tariffs.

All of these developments have paralleled the work undertaken by McKinsey and KPMG on the implementation study which the government has now undertaken to release. The release of the study will be of great interest as the consultants had been asked to undertake a range of tasks that might ordinarily have been expected to be undertaken prior to the government actually allowing NBN Co to engage in significant expenditure. At best it may be that the study will emerge as a post hoc rationalisation for the government's decision to commit to a stand alone, wholesale only FTTH network.

The Implementation Study Certainly the study has been pre-empted on critical issues such as technology choice and network topography and the consultants were not charged with undertaking a cost benefit analysis of the proposal, an essential prerequisite to any major project. Had the consultants been asked to undertake that analysis then the government might have had grounds to argue that their massive market intervention with a wholesale only FTTH network is the optimal way in which to deploy high speed broadband compared to an upgrade of the existing network. Regrettably the comparative costs of the various alternatives that might have been used to deliver high speed broadband will not be identified nor the net benefit that might have flowed from those options.

But even without a cost benefit analysis the release of the study will be significant as it should contain detailed estimates of the costs, revenues and consequential take up rates on the planned network. It may also indicate the significance or otherwise of the involvement of Telstra in the NBN given that there have been suggestions that Telstra's co-operation may not be essential for the network's viability.

Given the lack of any underpinnings derived from a full cost benefit analysis the study will have to mount an unimpeachable case that the untried model of a national wholesale network can be viable and that the government's unprecedented experiment can work. If it is to do that the study will have to present findings that defy the orthodoxy in the international telecommunications industry which remains that the vertically integrated model of network operation and retail service provision remains the most efficient structure for the industry, even in the age of fibre and Next Generation Networks (NGN's). The reality that the study has to overcome is that the government's structurally separated model ignores the weight of international

evidence and ignores the reality that large scale fibre deployments, including FTTH upgrades, are being led by the vertically integrated operators in all leading markets including the USA, Japan, Korea and in Europe.

International Precedents for Market Intervention Even in the UK, following regulatory adjustments marked by a relaxation of functional separation, British Telecom is engaged in a widespread deployment of both Fibre to the Node (FTTN) and FTTH leaving the government's planned intervention of just over A\$1.5 billion to meet the modest target of 2 Mbits to rural and remote areas. Similarly in the United States the administration is channelling A\$10 billion primarily into rural areas to increase broadband speeds.

Whilst the target speed announced by the Federal Communications Commission may equal the Australian goal, the money is being deployed through rather different means. Although a small amount of money may go to municipal networks most will be spent by incumbents including cable companies even in rural areas which are well placed to deliver the 100 Mbit target. In summary like other governments the US government is seeking to leverage the value of existing investments not displace or duplicate those investments.

The approach being taken in other markets reflects the continued confidence held by other governments and regulators and leading policy bodies such as the OECD and International Telecommunications Union that vertically integrated incumbents are best placed to lead large scale fibre deployments. Despite lengthy debates internationally about the merits of separation, the consensus remains that the vertically integrated model will yield efficiencies and the lowest price to consumers and enhance the speed and availability of broadband.

Consequently government interventions in other markets and especially in Europe are modest and are carefully structured so that there is no distortion of the market which may result in anti competitive outcomes. The European Commission which has earmarked A\$1.6 billion for broadband initiatives in a market with 500 million inhabitants, has strict rules governing state aid in any fibre/broadband initiative. Typically government interventions in Europe are modest and measured in the millions rather than billions of dollars being confined to backbone or fibre rings rather than large scale direct connection of consumers. These modest investments generally complement other state initiatives in development zones or areas.

Given the approach being taken in other markets the implementation study will have to provide a convincing argument to justify the Federal government's massive intervention. It will have to demonstrate understandings of the benefits of large scale government intervention which have, and which continue to, elude all other governments. The study will also have to demonstrate the value of the wholesale only network and highlight the competitive benefits and implicitly the benefits to consumers that will flow from this unique market structure. The consultants will have to provide a compelling case for a market structure that remains untested on any large scale and which, even in its more modest application, appears to be unable to deliver commercial returns or significant advantages to consumers.

International Experience with Separation and Wholesale Despite the international understanding that structural separation has costs that outweigh any possible benefits the government appears to have an unquestioning faith in its structurally separated model. It believes the wholesale only network will generate commercial rates of return that will initially make it attractive to private sector investors and ultimately create a candidate for full privatisation. But that faith is utterly unsupported by any evidence as no market other than the Singapore has

ventured down the separation path. And given the scale of the Singapore market and the dominant role that its incumbent Singtel and associated companies are playing in the Singapore NGN it scarcely provides a model for Australia.

Other than the 'national' Singapore rollout the only examples of structurally separated wholesale fibre networks are typically municipally owned ones such as those in the United States, Sweden and Holland. Again the scale of these networks is such that they cannot provide any guidance on the merits of the Australian national FTTH model especially as they are generally either directly subsidised from municipal rates and taxes or cross subsidised from other municipal services such as electricity distribution and supply. Consequently it is almost impossible to determine whether or not these municipal wholesale projects are 'commercially viable' or whether they are sustained by local governments because of the wider economic benefits it is hoped they will bring i.e. the overall benefits may outweigh the costs. Given that these wider economic benefits are in essence externalities not captured within the balance sheet of the network operator, it is unlikely that many of these networks are viable as stand alone entities.

The limited examples of stand alone, rather than subsidised wholesale only networks, that can be found confirm that the economics of the separated model may not be sustainable. There are two notable examples which might stand as a guide for the NBN's prospects. In Utah an ambitious wholesale only municipally owned FTTH network Utopia was launched in 2002 with a target of covering some 200000 plus homes and businesses and in Holland Reggefiber a private company began building a wholesale only, open access FTTH network to 500,000 premises in 2005.

The Utah network has hit significant financial problems despite the initial confidence that its utility standing and local government backed finance would lead to low costs of capital and consequently low build costs. Take up rates on Utopia have fallen well below target and costs have increased delaying the expansion of the network whilst the funding model of low cost municipally guaranteed debt has become a victim of the GFC with finance costs blowing out. 'Tax pledges' to support local government bonds initially totalling some \$250 million have had to be doubled by municipalities forcing some into an innovative funding model under which homeowners may either pay US\$ 3000 upfront for connection to the fibre or enter into a US\$20 per month lien on their property over twenty years to pay for the connection.

Obviously those connected must then pay for service from a retail service provider and few have shown interest in the top line triple play packages which might yield the revenues needed to sustain the network. Currently less than 20,000 of the target 200,000 plus homes are connected and the network is now underwritten by a \$600 million local government debt.

Similarly in Holland Reggefiber, a fully commercial venture, also ran into funding difficulties in 2009 and consequently entered into a partnership with the Dutch incumbent KPN which now owns 40% of Reggefibre and has an option on full ownership. Whilst Reggefiber remains open access and can be used by other service providers the network is being driven by KPN as a vertically integrated supplier of services and there is little wholesale activity. Although the take up rate of the KPN/Reggefiber network is far higher than that on the Utopia network it appears to have levelled off at 30% of the homes passed, below the level to generate any return which would be in excess of 40%. In a review of its fibre strategy in December of last year KPN effectively announced a consolidation of the existing rollout i.e. a focus on increasing take up within the existing footprint rather than any large scale further deployment of fibre in the short term.

In that assessment of its fibre strategy KPN noted that its far less costly FTTN deployment was achieving similar levels of penetration to FTTH but again believed consolidation of the existing investments was now needed. It is also of interest that KPN does not envisage a national rollout of either FTTH or FTTN and plans to extend fibre to only 70% of households within an as yet undetermined timeframe but one which it has indicated will be longer than the eight year NBN rollout. The Dutch incumbent also believes that wireless, principally LTE, has a significant role to play in serving the Dutch market with high speed broadband.

The Demand for FTTH The experience in Holland has obvious implications for the NBN. If the Dutch incumbent can't find a commercial case for a national rollout of fibre in a densely populated, high income market, that has favourable geography and geotypes for fibre deployment, it must be asked how the Australian business case for commercial returns based solely on wholesale margins can be sustained.

There are also other lessons from KPN's experience in that the levelling off in demand reflects patterns found in other markets. The take up rate in Holland for FTTH appears to reflect the rate of take up on the Verizon FTTH network in the United States which also appears to have reached a plateau of around 30% with users taking a mix of high speed internet and/or IPTV, but not necessarily taking the triple play which is essential to the viability of the network. In both markets although the incumbents are leveraging fibre off their existing assets and most importantly off their customer base they are finding it had to commercialize FTTH.

In summary the economics of FTTH even in leading markets remains in question with NTT in Japan struggling to break even on its investment and the Korean deployments is yet to yield returns but it is clear that the vertically integrated model is giving better results than the wholesale only model. This begs the critical question of whether wholesale model can ever be self sustaining and it must be asked, given the government's commitment to private investment and ownership, whether investors will 'buy' the notion of the NBN as utility and consequently accept utility returns on their investments. It should be noted that the concept of utility returns and low cost capital are integral to the government's wholesale only model.

Fibre as a Utility The notion of telecommunications networks as a utility has been floated on a number of occasions, most notably during the attempt by Babcock and Brown to structurally separate *eircom* the Irish incumbent. Babcock and Brown's argument for separation rested on the assumption that the network was a utility investment like water, gas or electricity distribution which could be spun off and then highly geared to attract low cost capital comfortable with secure utility rate of returns.

To separate the company Babcock and Brown needed the agreement of the other major shareholder in *eircom* the Employees Share Owners Trust (ESOT) which held 35% of the company on behalf of current and past employees. The ESOT which initially supported the split sought independent financial advice from Rothschild who advised that investors could not and would not accept any telecommunications network being considered as a utility investment because the risks were too high. Rothschild indicated the spin off of the network would not find investor support as the regulatory and competitive risks associated with telecommunications were far too high for investors to accept low rates of return and the company would yield better returns as a vertically integrated operator. They also noted that a stand alone wholesale only network would require higher margins than those typically generated by the network division of an integrated operator requiring an increase in wholesale prices that would not be acceptable to the regulator. Babcock and Brown abandoned attempts to split the company in April 2008.

NBN Co as a Monopoly Despite such views being held by the markets, that telecommunications is not a utility, the government and NBN Co describe the FTTH network as a low risk utility. Nevertheless it is confronted by significant competitive and regulatory risk unless it can be guaranteed a de facto monopoly. It is only with a fixed network monopoly that the economics of the wholesale only network could conceivably stack up and even then only through access charges which would be higher than those commonly levied in the Australian telecommunications industry.

The need to remove any competitive and or regulatory risk and so underpin the viability of the NBN explains the need to coerce Telstra into co-operation the explicit intent of the Competition and Consumer Safeguards Bill which purportedly offers Telstra the 'choice' of joining the NBN or forgoing access to fourth generation wireless spectrum. The bill is explicit either Telstra divests its fixed access network and cable TV and Foxtel interests or it won't have access to spectrum. Divestiture is required – not structural separation – as the bill says Telstra may not offer retail services over a network it owns or controls with the control threshold being set at a punitive 15% stake.

The government has suggested that divestiture could be satisfied by an agreement to progressively transfer Telstra's fixed line traffic to the NBN and then decommissioning its copper network. This is the clear objective of the legislation and the only outcome that would satisfy the government for irrespective of any assertion that the implementation study may make about NBN being 'viable' without Telstra, it defies all logic to expect the NBN to yield any return if it has to compete with Telstra.

Telstra and the NBN Telstra's involvement in the NBN would not only secure the network's customer base and guarantee it immediate access to significant cash flows it would also significantly lower the network build cost by many billions of dollars. This is not necessarily because of access to Telstra's assets such as ducts and the pit and pipe distribution network in suburban streets. The value of those assets was limited for Telstra itself when it deployed the HFC network in the mid 1990's. Fifteen years ago Telstra found that much of the pit and pipe infrastructure needed extensive and costly rehabilitation before it could be used for HFC and consequently Telstra used aerial deployment in all but limited areas.

Far more importantly than access to infrastructure, Telstra's agreement to transfer its traffic to the NBN would give certainty to the network rollout. If Telstra, which controls not just its own customer base but effectively the customer base of other ISP's reliant on Unbundled Local Loops (ULL) and Telstra wholesale products, agreed to 'turn off' its copper then it would bring 100% of the market to NBN. This would mean NBN could connect premises as it rolled out fibre leading to significant efficiency gains for the NBN as it would not have to backtrack later to connect premises. The alternative scenario to connection of homes as they are passed by the cable rollout would be for individual Retail Service Providers (RSPs) to identify customers in areas where fibre was being deployed, with the customers then being connected on a piecemeal basis. This would be inordinately expensive for NBN Co, leading to repeated visits to the same neighbourhood and even the same street.

In reality Telstra's agreement to transfer traffic to the NBN is vital to its success but that does not necessarily imply commercial success unless customers are prepared to accept far higher access charges that will be passed on to them by their RSPs. Commercial success would also demand very high rates of take up of top line packages that will maximise the wholesale payment made by the RSPs.

Access Charges Typically in the telecommunications industry the margins on access have not covered cost – connection has been given at below cost and gradually recovered, only in part through the access or line rental charge. A larger part of the costs have been recovered through above cost usage charges i.e. through the retail margin on services. This has led to the so called access deficit. Whilst that deficit has in part been unwound by tariff rebalancing, which has seen line rental charges increase and usage charges fall since the introduction of competition, access charges i.e. the line rental of approximately \$30 per month may still not cover costs. It is unlikely in servicing a significant debt and in attempting to generate commercial returns that will attract private sector investment and create the conditions for privatisation, that a \$30 per month access charge could conceivably cover the NBN's costs. It is unlikely that a \$30 average access charge i.e. a composite of what might be called basic access, through to top line 100 Mbit access, could cover costs even if the project, with a large aerial build component, came in at the low end of cost estimates. i.e. closer to \$30 billion rather than \$40 billion.

Nor will every home passed want the full suite of services that will be offered over the NBN. Some 22% of households still don't have a computer and they will want little more than basic access, a service that replicates the current standard telephone service. Other households, some 9% of households, have already opted out of the fixed line market preferring mobile and will have little interest in NBN access if it is more costly than the fixed line access they have already abandoned.

The Threat to RSPs And higher basic charges are not merely a challenge to consumers. Currently RSPs have built a solid market presence, although limited to urban areas, through the ULL regime under which de-averaged access prices gives RSPs local network access for \$15 per month to deliver DSL services in profitable metro areas. There would seem to be no chance that NBN Co could replicate such low pricing for access in metro areas and the minister has stated his intention that the NBN will offer uniform, national access charges. This means that the 100% margin RSPs now enjoy on access and which they use to sustain ADSL services will dissolve. Further difficulties will confront smaller RSPs as they may not have the scale to provide layer three service in their own right and consequently be caught by true 'double marginalisation' because NBN Co will be confined to layer two service.

NBN will mark up access to provide its profit/return and then smaller RSPs may be subject to further profit maximising behaviour by larger RSPs (probably the current tier one telco duopoly Telstra and Optus) who will provide layer three services on a wholesale basis. The outcome can only be that many smaller ISP's will be forced from the market meaning less competition rather than more competition. This loss of competitive pressure will reinforce the trend toward higher prices which is inevitable if the NBN is to cover costs and generate commercial rates of return even the planned low utility rate of return.

Taking Telstra Out of the Game As outlined those rates of return as a utility can only be secured if all competitive and regulatory risk is removed. That demands the removal of Telstra as a fixed network competitor. If Telstra withdraws from the market as an integrated operator prices to consumers will rise as there will be no discipline on the NBN as smaller RSPs exit the market and the remaining RSPs pay higher wholesale access charges.. It is a simple reality that the NBN's investment must be paid for whether it is \$30 or \$40 billion. Such huge additions to the cost structure of the sector cannot be paid for without a commensurate increase in revenues which means the cost of the NBN will be passed through to consumers. If Telstra rejects the choice offered to it and continues to offer service then the already dubious economics of the NBN will deteriorate further, with revenues far below costs.

In this case taxpayers would be left to foot the bill for a company which would not attract any private sector participation.

The NBN Co legislation seeks to codify a market structure which is unproven and which is unsustainable. That much is admitted in the legislation given that the minister may exempt NBN Co from the requirement that NBN Co's services be provided on a wholesale only basis. Potentially NBN Co, whilst not necessarily offering services to domestic customers, could be allowed to offer services to large business and government users. This would lie far from the initial concept of the NBN as a carriers' carrier.

That ministerial discretion may have future value as the government seeks to bolster the finances of the NBN but it also has immediate value as a further lever that can be used against Telstra to coerce the national carrier into cooperation. The enterprise market is a significant one for all carriers but especially so for Telstra and it could not compete with the NBN if its entry to that market was on other than fully commercial terms. Given the massive advantage that NBN will hold from its government ownership, which gives it access to cheap public debt and 'access' to public sector users, the entry of NBN into such markets would ignore key tenets of competition policy which are designed to ensure competitive neutrality.

But it is not merely the legislation that threatens to put further pressure upon Telstra. The network topography outlined by NBN Co, with limited numbers of points of interconnection (POIs) which will be sited where there is contestable backhaul, has enormous implications for Telstra and for the costs of the NBN. Clearly the decision to host POIs where there was more than one provider of backhaul i.e. where there is another carrier's network beside Telstra (typically Optus backhaul) threatens to strand thousands of kilometres of Telstra backhaul network and will mean NBN Co is running thousands of kilometers of backhaul at considerable cost. The rule of thumb is rural backhaul will cost \$40000 - 50000 per kilometre to build.

The decision to limit the POIs in this way is not an engineering one but a policy decision ostensibly to remove any monopoly on backhaul. Telstra owns 90% plus of the backhaul in regional areas and it is integrated into both fixed line and mobile service. Rendering Telstra's backhaul unusable for fixed line traffic in this way will have damaging impacts on the economics of wireless service in regional areas if fixed line revenues are removed from its regional network.

Also from a general pro competitive perspective the limited numbers of POIs will place significant costs on smaller RSPs and increase the challenges they face. It is clear from the work done by Ofcom in the UK that flexibility in the location of POIs and a proliferation of POIs within next generation networks is seen as essential to encouraging competition.

This decision on the location of POI's and backhaul and the discretion to offer services to end users suggests that NBN Co is almost as much about punishing Telstra for its alleged past sins as it is about delivering high speed broadband in the most cost effective manner.

Conclusion In conclusion the NBN Co legislation is appropriate to the company it will govern. It is a shell with much detail being left to be filled in. There are, for example, no ownerships limits or even foreign ownership limits all issues of central importance given that the NBN could become the core national communications infrastructure. There is no consideration of the critical issue of universal service and how this to be sustained and whether NBN will be obliged to act as carrier of last resort in providing universal service.

Like the NBN Co itself, which has quite unrealistic targets, the bill sets out a series of unrealizable objectives such as the fanciful belief that the company can and will be privatized and that it will attract private sector investment. It possibly can if Telstra is taken out of the game and the NBN company may realize its objectives if Telstra comes on board but until the relationship with Telstra is settled and a better and more efficient structure framed to leverage the exiting national infrastructure then the bill should be withdrawn and work on the NBN should stop .