

# **A Further Submission to the Senate Select Committee on the National Broadband Network.**

**Kevin Morgan 26 May 2010**

## **Introduction**

It is important to acknowledge what the Implementation Study actually does and what it doesn't do. In the introduction the study notes:

*“ The purpose of the Implementation Study is to advise Government on how best to implement its stated policy objectives, not to evaluate those objectives, given that the policies have already been agreed by Government. This report therefore focuses on translating high-level policy objectives into tangible actions for both Government and NBN Co to implement.”*

The introduction stresses:

*“ Explicitly, it does not:*

- *Evaluate Government's policy objectives;*
- *Evaluate the decision to implement the NBN via the establishment of NBN Co;*
- *Undertake a cost-benefit analysis of the macro-economic and social benefits that would result from the implementation of a superfast broadband network. “*

Given this qualification we cannot take anything from the study on whether or not the government's FTTH network represents value for money or is the optimal and most rational way in which to ensure that there is nationwide access to high speed broadband. What the study demonstrates is that if the hurdle for an investment is set low enough a business case can be reverse engineered into the original \$43 billion cost estimate, provided some bold assumptions are made.

## **The Risk Free NBN**

Foremost amongst those assumptions is that the government will be satisfied with a 'modest' return on \$26 billion which it will inject as equity, the sole source of funding of the NBN in its early years. Whilst the government has pointed to the projections of an up to 7% Internal Rate of Return in reality the return is truly modest given the equity injected will be funded by government borrowings raised at the long term bond rate. As other commentators have noted the project is implicitly being approached as risk free as the projected rate of return does not reflect the risk inherent in the project. As the study itself noted commercial investors in the project would have wanted returns of up to 25% in the early years of the project, a return which makes the infamous call for returns north of 18% by Telstra on its planned FTTN investment look quite restrained.

In summary despite the government's claims about the viability of the NBN the very low return on the project indicates that it is not, in the commonly understood meaning of the term, a commercial investment. Consequently if nothing else the study puts the lie to the initial announcement by the Prime Minister in April of last year that the

NBN would be effectively a Public Private Partnership and would attract private sector equity whilst it was being built. That implied the NBN could be justified on commercial grounds. Faced with the obvious finding of the study that the NBN investment could never be deemed to be a commercial undertaking the government's rhetoric on the NBN has now changed.

The NBN is now justified by the economy wide benefits it will bring, externalities that cannot be captured on its balance sheet. Regrettably in the absence of a cost benefit study we don't know what those benefits are or whether the ability to currently capture the externalities of higher speed broadband are a function of inadequate infrastructure i.e. low speeds and insufficient network capacity or the lack of applications. **In essence the NBN has become the answer to an as yet unidentified problem.**

Given the reality that the NBN cannot generate direct financial returns the government will have to park some \$26 billion in the NBN in the hope that somewhere down the track it may get some of its cash back. According to the study it may start to be repaid after year seven (2018), with possibly \$10 billion being returned by year 11(2022) and \$20 billion being paid back by year 15 (2026) as government guaranteed loans and the NBN's cash flow replace equity. These repayments merely return the government's cash and there may be no bonus for the government until the company, which will then hold a de facto if not legislated fixed line monopoly, is sold to the private sector. It should be noted the preconditions for privatization will be generated by effectively 'free' government equity and government backed loans. And the privatization bonus may not reflect the opportunity cost of the money that the NBN will tie up for a protracted period.

But the ability to create a business that may subsequently warrant privatization depends on more than just a free ride generated by direct government funding and government backed loans. It depends on the NBN achieving high rates of take up that defy any current experience. These rates of take-up can only be realized if retail service providers (RSP's) other than Telstra are prepared to forgo their current margins on Unbundled Local Loops (ULL) and if Telstra's is willing to forgo its significant margins on the copper network which is effectively a sunk investment.

### **The Study's Business Case**

The business case presented by the study hinges on a point of indifference (wholesale price point) where RSP's using ULL will be attracted to the NBN. That point of indifference is set fairly precisely against two benchmarks, the current Band 2 ULL price and a possible ACCC recommended higher ULL price. RSP's are clustered within the Band 2 (metro) ULL zone because of the margin it offers them on the common retail line rental of \$30 per month. According to the study with an entry level (wholesale) price of between \$28 and \$48 for a 20Mbps bitstream service RSP's will churn customers to the higher quality fibre network. The study opts for a mid range entry price between those extremes and at page 245 notes:

*“For the purposes of modelling, the Implementation Study has calculated that many retailers will have a positive business case for using fibre at a wholesale price of approximately \$30-35 per month.”*

Whilst the study team may well have tested the point of ‘indifference’ with the market it remains open to question as to whether RSP’s would readily forgo their existing margins which will be larger than just the line rental margin because many of the Digital Subscriber Line Modules (DSLAMs) they use to offer broadband over ULL are fully depreciated. The ‘roll in’ rather than ‘roll out’ strategy for fibre to the node (FTTN) that Telstra’s competitors articulated during the FTTN tender suggested many RSP’s believed they could sweat their DSLAM/ULL investments for a considerable number of years. One doubts that they are any less attached to the margins that ULL can generate or are any less committed to sweating their existing investments today merely because of the promise of fibre.

Yet whilst the indifference or tipping point for ‘competitor’ RSP’s using Telstra’s infrastructure appears to have been identified fairly precisely in the study, the point of indifference for Telstra is somewhat more vague. The study merely suggests that as customers opt for fibre, which Telstra would have to actively sell to its own customers, the fixed costs in operating the copper network would drive up the average cost of serving the remaining ‘copper’ customers. In effect the business case is predicated on the fact that Telstra would willingly hasten the point at which running the copper became uneconomic by aggressively selling fibre access on the NBN to its customers. This ignores the fact that in Hybrid Fibre Coax (HFC) and ADSL2 Telstra has products that are competitive with the NBN entry level offering which is a 20 Mbits bitstream.

Given that Telstra’s margins on the copper network still stand at some 60% the point of indifference at which Telstra opts for fibre may be further up the scale than the study assumes. Telstra’s copper network and the ancillary investments associated with it such as exchange buildings and exchange equipment are sunk costs and the fixed costs in the network may not prove to be as dominant in the decision to retire copper as the study argues. But even if Telstra isn’t readily attracted by the opportunity to migrate to fibre the study argues Telstra may not be free to ignore the use of fibre. The study assumes that in the absence of Telstra voluntarily structurally separating, and satisfying the terms of the Competition and Consumer Bill by transferring its traffic to the NBN, it will be subject to functional separation which will encourage it to migrate.

### **Confused Understandings**

In a somewhat curious understanding of the implications of functional separation the study argues:

*“A separated Telstra will behave differently to an integrated company. An integrated Telstra will optimise across the entire business, which could involve absorbing losses in its wholesale units to retain higher profits in its retail unit. However, if Telstra were separated and faced an ‘equivalence of inputs’ condition, then Telstra’s retail division would face the same economic choices as other retailers. “*

‘Equivalence of Inputs’ under separation applies to an incumbent controlling a bottleneck facility requiring them to supply inputs to a competitor at the same price and on the same terms it supplies its own retail arm. It does not mean the incumbent

or carrier should buy from another supplier at the same price that its competitors do. Regulation that set out the prices a company must put on a product would suggest a level of regulatory intrusion that could not be accepted or justified.

Nevertheless the study presumes that Telstra, perhaps because of regulation, will at some point concede that its copper network is uneconomic and that it would be better off using fibre. That of course presupposes that there is no competitive response from Telstra and that it does not choose to invest in upgraded infrastructure whether it is FTTN, Hybrid Fibre Coax or even on a limited scale FTTH. Nor does it consider that more value can be squeezed from the copper especially if competitive RSP's leave the Telstra network enabling the optimal delivery of higher speeds from Telstra's DSL infrastructure which would then be free from the problems of cross talk and interference generated by other RSP's DSLAMs.

In summary the argument presented by the study for Telstra readily moving to fibre is neither complete nor persuasive and the study does little more than assert that :

*“... , on balance, it is likely the economics of copper will deteriorate over the long term, making it more probable fibre will emerge as the predominant fixed-line infrastructure.”*

### **Take-Up Rates**

The assumption that Telstra will ultimately swing over to the NBN is of course critical to the take up rates which underpin the study's business case allowing pricing to be set so that revenues are sufficient to contain the cost of the NBN within the \$43 billion envelope. No doubt in juggling the spread sheets a satisfactory trade off was found between take-up rates and the entry level price. That is part of the normal iterative process in formulating a business plan. But in striking that trade off some fairly bold assumptions were nevertheless made about take-up although unfortunately, as with other critical assumptions and findings in the study, there is no detail – the spread sheets that model take-up aren't in the document. Consequently we have to be satisfied with the few glimpses into the take-up rate the study offers, principally at page 252.

The take-up rates in the exhibit on that page are derived from a key assumption the study makes at page 174 that:

*“ The NBN should achieve high penetration in the fixed-line market in the long term with steady take-up year-on-year of 6-12 percent of homes covered in line with international experience.”*

It is difficult to understand how an estimate of the yearly increase in the take up of fibre services that varies by 100% can translate into the fairly precise estimates of take-up set out at page 252 of the study. That exhibit suggests that at year four (2015) 31-35% of households passed by fibre will have taken the service and this will have grown to 54- 63% of households by 2020 when the fibre rollout will be effectively be complete. Ultimately in 2035 – twenty five years time - some 70–90% of premises passed by fibre will have taken the service.

## Take-Up and the International Experience

The study suggests these rates of take-up are achievable given the international experience. But sadly for the study team almost none of those markets they cite to base this claim on are comparable to the proposed Australian rollout. With the exception of some small wholesale only networks in Sweden and Holland, practically all the examples given are of markets in which vertically integrated operators are leading the deployment of fibre. That reality doesn't deter the study from drawing conclusions from other markets and much is made of the Verizon experience which is now actually seeing year on year growth below the study's claimed international range.

And quite how the penetration rates achieved by a vertically integrated operator can stand as guide for the success or otherwise of a wholesale only operator in Australia isn't explained. A vertically integrated operator, such as Verizon or NTT in Japan, already 'owns' the customers and is merely transferring the customer to fibre in the belief they will buy the higher yielding services such as IPTV that make fibre investment economic. And these vertically integrated operators have other advantages in that they own infrastructure that can be used for the fibre deployment such as ducts, exchange sites etc.

But even if we accept that the experience of a vertically integrated operators is relevant to the Australian proposal for a wholesale only network, there isn't much comfort in the figures. Verizon, which plans to pass 18 million households is effectively cherry picking its own market as it tries to meet the challenge posed by upgraded cable TV networks which hold the larger part of the US broadband market. Verizon only plans to deploy fibre in roughly 50% of the area that it serves. It has concentrated on high income neighbourhoods which are likely to yield the quickest return.

Even so, after six years, penetration seems to be leveling off and is not growing at the annual rate of 6- 12% the study claims as the international norm. The most recent Verizon quarterly accounts state that its fibre to the home service called FiOS had achieved 28.8% penetration. This is at year six of the rollout and growth was 5% i.e. below the low end of the study's generous range of estimated year on year growth for the NBN. But more significantly Verizon has only achieved 28.8% penetration after six years whilst the study believes the NBN will have exceeded that by achieving a 31- 35% take up at year four. The Verizon accounts show that:

*“Verizon added 185,000 net new FiOS Internet customers and 168,000 net new FiOS TV customers. Verizon has posted consecutive quarterly gains in the number of customers using fiber-optic-based FiOS services since FiOS Internet was introduced in 2004, and by the end of the quarter had 3.6 million FiOS Internet and 3.0 million FiOS TV customers.”*

What is also significant about the Verizon experience is that take – up of the higher yielding IPTV services was slower than the entry level 'broadband' or internet services. This must further cloud the study's belief that there will be a rapid take up of higher yielding services such as IPTV. Yet whilst high value IPTV take-up has been lower what the Verizon experience nevertheless demonstrates is that typically

fibre customers must be prepared to pay almost twice the amount for service that copper customers pay. The Verizon accounts state that:

*“ Consumer ARPU for wireline services was \$78.45 in the quarter, up 12.3 percent compared with first-quarter 2009. ARPU for FiOS customers was more than \$142.”*

As the Verizon figures indicate customers must be willing to pay over A\$160 per month for FTTH. That cost to the end user will be lower in the USA as Verizon has a vast range of video programming and shares the same ‘library’ of programmes as its cable competitors. Also because the majority of Internet traffic is contained within the United States consumers do not have to pay for expensive international backhaul. As the study notes the overwhelming dependence in Australia on internationally derived downloads heightens costs and can also lead to lower performance than the headline speeds promised by the NBN.

It is open to question whether a significant number of Australian households would be prepared to effectively double their fixed line telecommunications spend merely because fibre passed their door. The implementation study has no data on the willingness of consumers to pay for service. It has relied on RSP’s to tell them what they believe the retail demand for fibre services will be.

### **No Model for the NBN**

Of course had the study relied on take-up rates drawn solely from wholesale only networks it would have found little to consider. The reality, which the study diplomatically ignores, is that there is no model for the NBN internationally. There are no large scale layer 2, wholesale only fibre networks. True there are some small scale municipal networks which the study does mention such as those in Sweden and Holland but as with municipal networks in the USA the performance of these networks is not commonly disclosed. They are either directly subsidised from municipal taxes and rates or cross subsidised from other utility services. Commonly there is no commercial imperative driving these networks. They have been built in the hope they will generate additional economic activity or enhance the quality of life within the community. And even then the networks are typically Layer 1 networks offering dark fibre, and the take up rate may be driven as much by vertically integrated incumbents using the capacity.

This is true in Holland where the one large scale network conceived on a wholesale only basis, Reggefiber, is now in partnership with the Dutch incumbent KPN and the vertically integrated incumbent is driving the take-up of fibre. Reggefiber has few other takers of its open access wholesale offering and KPN may well move from being the minority owner of the network to a majority owner if it exercises its options over Reggefiber.

Yet whilst there are some references to European municipal networks the study makes no mention of the largest and most ambitious municipal network, Utopia in Utah, a wholesale only network. Perhaps the study was unaware of Utopia’s plan to pass 250,000 premises with a wholesale only FTTH network. The build began in 2005 but costs have blown out, penetration rates have fallen far short of expectations with only 20,000 connections and the call on municipal subsidy has doubled. It stands as an interesting example of how a wholesale network dependent upon RSP’s to stimulate growth cannot capture enough of the value chain to even cover its own costs.

And even though the study does draw upon the Singapore experience, which might at first glance seem to be the closest parallel to the planned NBN, the Singapore model varies in important respects. The network company is confined to Layer 1 and the operating company (Opco) provides the active electronics needs to provide higher layers including critically layer 3. Retailers will then offer services on the underlying Layer 3 service but retailers have found little interest from domestic consumers and face entrenched market power in the form of Singtel which has close to 90% market share in fixed line services.

Regrettably rather than acknowledge that there is no precedent for the national wholesale only NBN and admit that it is a risky policy, the study attempts to draw lessons for fibre deployments in other markets which have no real meaning in the NBN context. The reality remains fibre deployments are being led by vertically integrated operators in every market that we would care to be compared to, and for good reason because the wholesale only model is fraught with risk. The study discounts this risk by claiming the NBN is a utility.

### **Is the NBN a Utility?**

Despite the study parroting the orthodoxy that now dominates Canberra that the NBN is a utility, like electricity, water or gas, a telecommunications network is not and cannot be viewed as a utility.

There is something of a fallacy behind this utility argument. Indeed it is far too simplistic. It is suggested that the NBN is utility because broadband, the staple of the NBN, will become as essential to life as water and electricity are now. The utility characteristics of the NBN are though not to be found in whether or not it will become an indispensable underpinning of life in the coming years. One doubts that having 100 Mbit broadband rather than 1.5 Mbit broadband will be a pre condition as to whether or not an individual can really live or function in society. If the NBN 'utility' argument has merit it must lie in the economic characteristics of the NBN, not in some ill defined notion that it is essential to modern life.

The key economic characteristics of a utility is that it exists as a monopoly – that is what makes it risk free and may attract investors content with a low rate of return. In Australian telecommunications sector, as in other markets, we have had twenty years of policy designed to unwind monopoly. Telecommunications in Australia has rightly or wrongly been structured by legislation to become a competitive market and competitive markets significantly raise the risks attached to network investment. **The study discounts that risk by assuming that the NBN will emerge, by its technological virtue, as a de-facto monopoly, and if as the study notes there is a threat of 'cherry picking' market entry it can be deterred by a levy that dissuades market entry or investment in fibre by Telstra or any other company.** Consequently twenty years of policy is being denied and torn up. No longer is the competitive provision of infrastructure the objective – the objective is monopoly.

But it is not merely twenty years of policy that is being torn up. The study endorses a return to pre 1975 when the Whitlam government began the process of delivering telecommunications services on a more commercial basis by suggesting infrastructure should be funded off budget - in 1976 Telecom received its last advance from Treasury. That trend to fully commercial funding of the telecoms sector was pursued in the 1980's as Telecom was required to pay a commercial rate of 13% on

earlier loans raised at 6% by Treasury. Now that commercial discipline has been discarded and once again telecommunications infrastructure is to be funded at the risk free long term bond rate and if needs be, according to the study, any shortfall in NBN Co's revenues can be made good directly from the budget.

The need to deny twenty plus years of policy is central to the implementation study. The study is predicated on the basis that the NBN is risk free and that it can be 'dropped' into a competitive market place without any fear that there will be a competitive response from existing participants in the market.

### **Telstra and the NBN**

The assumption that the NBN is in essence risk free is not sustainable, with one significant caveat. It would only become risk free, the key to the unrealistic business case set out in the study and its risk free monopoly status guaranteed, if Telstra did a deal with NBN to transfer its traffic. It remains to be seen whether such a deal will emerge. But despite the uncertainties which surround a possible deal there is no question that Telstra's agreement to 'come on board' the NBN would make a profound difference to its prospects and not just for the reasons identified by the study that it could lower build costs because of access to existing infrastructure such as ducts and the 'pit and pipe' network that is used to feed the existing copper cable into each home and business.

But given the experience with the HFC deployment in the mid 1990's the real value of Telstra's ducts can only be determined literally on a street by street basis. Ageing ducts that consist of a mix of PVC, earthenware and even galvanised piping that are full of often equally old copper may have little value unless there is an extensive programme of rehabilitation and in many instances, the copper is removed. Telstra's HFC rollout using existing ducts became too expensive and caused significant damage to the copper network and was abandoned for a lower cost aerial rollout.

Despite these realities it may be, as the study suggests that some infrastructure sharing will lower the NBN's costs if Telstra decommissions its copper to allow ready access to the ducts but the real benefit of Telstra's agreement to use the NBN is twofold and ultimately has little to do with infrastructure such as ducts and 'pit and pipe'.

First and most significantly Telstra's agreement would substantially lessen, if not remove, any competitive risk although removing that risk does not necessarily ensure the viability of the NBN. And secondly Telstra's agreement would drive and make take-up rates predictable. If Telstra agreed to decommission its copper on an area by area basis as the fibre was deployed, then it would not just bring its own retail customers. Telstra would also bring every other RSP's customers that use Telstra's copper network either as a retailer of Telstra products or as a ULL customer. The mass migration of customers on a known schedule would make it economic to connect households and indeed necessary to connect households as they were passed by fibre. It would guarantee revenues although the revenues that Telstra transferred to the NBN would be offset by some form of compensation for the margins the incumbent would forgo.

The study has not considered the impact of Telstra's agreement to use the NBN because it would imply a somewhat different business case in which risk was genuinely minimised rather than assumed away. It may be that the government does



not wish to highlight the significance of Telstra to the economics of the NBN at this stage of its negotiations but it would be fanciful to suggest that Telstra's participation in the NBN would not have a profound impact on the NBN.

In summary Telstra's participation would deliver the de facto monopoly on which the study's business case is predicated. But instead of modelling Telstra's firm involvement and engagement with the NBN what the study gives us is a business case predicated on the assumption that Telstra will come of board because it experiences some unknown tipping point at which the copper network becomes uneconomic.

### **The Study's Underlying Assumptions**

In the host of assumptions about take-up, network build costs, points of indifference at which RSP's would switch to the NBN and Telstra's unspecified tipping point it is difficult to determine which is the least credible assumption. Clearly the take up rates in the study which seek to extrapolate the experience from utterly different markets (both because of geography, regulation and the vertically integrated nature of most companies rolling out fibre) are questionable. Then on the other side of the ledger the prices that have been determined that will attract RSP's are open to question given they demand that RSP's forgo a large part of their existing margins. And the cost estimates are similarly open to scrutiny.

Whilst the study's estimate of the costs of building the NBN validate the initial \$43 billion estimate the assumptions that underpin the network build costs are not fully revealed in the study. All we know is that the study's costing fits conveniently within the \$43 billion envelope suggesting a robustness in the initial estimates which is quite surprising. Given the fact the \$25 million study has validated those initial estimates it seems curious that no-one has claimed credit for that earlier work. We remain in the dark about the source of the study's estimates and unfortunately in the absence of any detailed spreadsheets revealing the cost modelling we are still pretty much in the dark about the provenance of the study's estimates of costs. We can only assume that they are fully validated. Yet despite the authority that comes with the brands of McKinsey and KPMG the accuracy of those cost estimates will not be known until NBN Co has completed its field trials in the five differing geotypes that it has chosen .

Nor will we know whether the risk free nature of the study's business case is realistic until it becomes clear whether or not Telstra has done a deal with NBN Co in the terms of the Competition and Consumer Safeguards legislation by transferring its traffic to the NBN and decommissioning its copper network. The assumption that Telstra will meekly climb on board the NBN in the absence of a deal that fully compensates its shareholders for the earnings foregone by prematurely retiring its copper, is perhaps the most heroic in the study.

### **Mobile Broadband and the NBN**

The other assumptions are not far behind that key assumption in their 'boldness' but solely focussing on the questionable nature of these four assumptions would do a disservice to other elements of the elaborate argument that the study has advanced. Foremost amongst these is the argument that mobile broadband doesn't pose a threat to take-up on the NBN. The report argues at page 174 that:

*“Mobile substitution is not expected to be a long-term threat to achieving take-up, and service providers will have an economic incentive to migrate customers onto the NBN.”*

The need to dismiss mobile (wireless) broadband as a threat to the NBN has emerged as a major theme not only in the implementation study but in arguments put by NBN CEO Mike Quigley. In a recent presentation which has been frequently repeated by Mr. Quigley, he has argued that mobile broadband cannot compete with fixed fibre based broadband. It is a curious and largely unnecessary argument that may miss the point and an argument in which both the implementation study and Mr. Quigley may have over reached themselves in their enthusiasm to lessen the threat that mobile broadband may pose.

Mr Quigley dismissed mobile broadband because of its costs and capabilities suggesting that up to 180,000 base stations might be needed if mobile broadband was to be able to match FTTH in metro areas. Curiously his modeling was based on use of 700mhz spectrum. Although mobile broadband is somewhat more ‘scaleable’ than Mr Quigley may have suggested no-one would seriously suggest it could ever match the speeds and capacity available on a fibre network. It is patterns of use of the two technologies which is of significance, not their underlying technical capabilities.

Like Mr Quigley the implementation study argues wireless mobile broadband can’t and won’t substitute for fibre delivered broadband. The study suggests mobile broadband will be a complement to fixed line service and this is one of the study’s more reasoned assumptions although it may in part ignore changing patterns of use especially amongst many users aged in their twenties and early thirties. These users may be content with fixed access at work and prefer the convenience and utility of mobile broadband for their personal use. But they may as the study implies may remain a small segment of the market.

Despite Mr. Quigley’s arguments which focus on dismissing mobile as a substitute for fixed fibre based broadband, the key issue is not substitution but competition for the consumers’ spending on broadband. This is where the complementary nature of wireless/mobile broadband may impact on the NBN’s revenues and especially the take-up of premium higher speed services. The question is given the limited amount consumers have available to pay for broadband, how will consumers allocate that spending between fixed and mobile services? The two services are not mutually exclusive but compete for the allocation of spending by consumers. Many consumers may wish to spend what might be deemed their premium spending on broadband on mobile broadband rather than on higher speed fibre based broadband and may be content with an entry level fixed line service complemented by the convenience of mobile broadband.

It would seem the implementation study has not undertaken any detailed market research on consumer behaviour and has relied on the 140 stakeholders it consulted with to filter through their expectations of consumer behaviour. This is perhaps an inevitable weakness in the study that mirrors the inherent flaw in the wholesale only model. The study is predicated on RSP’s understandings of likely consumer behaviour, not direct understandings of the likely behaviour and preferences of consumers. This reflects the difficulty the NBN finds itself in at large. It stands one

removed from the true drivers of possible large scale fibre uptake which is consumer demand. Consequently in the classic dilemma that faces a structurally separated operator, NBN faces the prospect that it will be responsible for investing in a network competent to deliver services that other parties may have little interest in selling.

This 'remove' suffered by a wholesale only operator is one of the obvious flaws in the wholesale only model. There are less obvious but important ones not considered by the study such as the allocation of returns in the telecommunications value chain. Based on common understandings in the sector the returns captured by a wholesale only network cannot support the planned \$43 billion rollout. The NBN will sit too low in the complex value chain in the telecommunications industry. Despite the claims, the NBN is not like a wholesaler in the electricity industry which is able to capture significant value because in essence a single consumer product, 240 Volt AC electricity is being supplied. The retailer adds no value to the basic electricity product other than perhaps through bundling with other utilities and the wholesale network operator does not forgo significant margin to the retailer.

In the telecommunications sector significant value must be added to the wholesale bitstream product before there is a consumer product. Retailers must invest and add value that will be expressed in a host of differing services. Obviously the wholesaler network operator does not enjoy the value that is generated at the retail level.

There are other structural flaws in the wholesale model, most notably that NBN Co will only offer Layer 2 services and it is perhaps the one issue canvassed by the study that adds some value to the document. The study asks what might happen if no Layer 3 wholesaler emerges. It is a legitimate question given especial weight by the doubts over whether or not Telstra will readily come on board the NBN. If Telstra willingly becomes a national service provider it is reasonable to assume it will offer wholesale Layer 3 and Telstra has already foreshadowed that it would be a wholesaler if it participated in the NBN. But if Telstra is not there to fulfill essentially the same role it now has as a national wholesaler how will that gap be filled? Is it reasonable to assume that smaller RSP's seeking to establish themselves in a new market with tighter margins would sacrifice their competitive advantage by wholesaling layer 3 which will be essential to their own success?

Given the significance of Layer 3 to the competitive landscape at best what may emerge is a duopsony with the two tier one telcos Optus and Telstra providing wholesale Layer 3. At worst there may be no willing wholesalers leaving it to regulation to force access to Layer 3 services or in an outcome that would utterly undermine the ideal of a wholesale only NBN, the company itself may be obliged to offer Layer 3 making the distinction between wholesale and retail not just blurred but meaningless.

It would seem NBN Co is aware of the emerging dilemma over Layer 3 and may retreat to Layer 1, the passive infrastructure, leaving it to others to provide the active layers. If so the problem of Layer 3 provision might be answered by companies mirroring the role the Singapore NBN's Opco but the economics of NBN Co would deteriorate further.

## **Conclusion**

In conclusion what real value lies in the implementation study? Not much it would seem given it offers little other than a series of projections based on unknown data that has been derived from untested assumptions. It is bulked out with a mass of public record material often used out of context such as the overseas 'fibre' experience. It is true the study does ask a number of important questions such as how will universal service be delivered in a structurally separated environment. But that question has been raised before and it hardly adds to our stock of understanding to merely restate the obvious, that the long standing underpinnings of universal service will dissolve with structural separation.

Obviously the value found in the study depends on the perspective taken. To the government it has immeasurable value given the favourable press its release attracted. The study comprehensively addresses the government's brief by backfilling an embarrassing policy void. That may be the study's only real value.