



Joint Standing Committee on the National Broadband Network
Submission to the Inquiry into the NBN business case
New Street Research, Australia and New Zealand
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About New Street Research

New Street Research (NSR) is the leading global independent research house in the telecom, cable, towers and satellite industries. We provide specialist research on these sectors to equity and debt investors in global capital markets. We write research on over 150 companies in the sector across the globe as well as reports on major industry developments including regulation and emerging technology such as 5G.

In relation to Australia we write and publish research for global investors on NBN, Telstra, Optus, TPG, Vodafone and other telecommunications companies. NSR and our analysts are licensed by financial regulators in Australia, the UK and elsewhere to publish valuation and investment recommendations.

We have over 200 institutional investor clients globally. Our research is produced by a team of over thirty analysts with extensive experience in the telecommunications sector, based in London, New York, Singapore and Melbourne. Our research is differentiated by being idea-driven, based on independence of thought and firmly focussed on fundamentals and valuation.

An overview of our research on nbn co

We have written investment research on nbn co since its inception in 2009. We model its operating performance and capital structure as if it were a commercial business and consider its value to investors in the same sense although we don't publish investment recommendations on it or publish the same level of detail behind valuation.

Our key interest in modelling the company is to better consider its impact on other telecommunications companies both its RSP customers, certain suppliers and its carrier rivals. Consideration of this impact requires a degree of rigour in analysis of nbn co's operations and capital structure, hence we need a good level of detail and insight in our modelling of the company. The modelling and analysis therefore requires us to form a view on nbn co's business outlook and what drives

its operating performance. We need to have a view on its long term prospects, management of risks and returns and its valuation prospects in order to consider its impact on other telecommunications companies. At the same time, many of our clients in Australia and overseas are interested in better understanding nbn co's business case and valuation in its own right.

nbn co business case and valuation

Broadly, we consider nbn co's value to be about A\$20bn post capital investment, based on long term discounted net cashflow. The valuation is somewhat fluid given the relatively early stage of cash generation. The key variables that drive our valuation are:

- The prospective trend in wholesale average revenue per user (W-ARPU), which we think will be significantly lower than indicated in nbn co's Corporate Plan 2018-21 (CP18).
- The expected number of premises activated, which may get close to the 8.0m+ indicated in CP18 by FY21, but is likely to fall away to a significant extent as wireless networks increase in capacity and coverage.
- Operating costs which are high through the peak migration years and may remain relatively high for a period beyond FY21 while the remaining difficult-to-connect premises are migrated from Telstra copper to NBN Multi-Technology Mix (MTM), and for a longer period if there is a rapid upgrade scheduled from lower capacity MTM access technology to FTTC/FTTP.
- Subscriber payments which look high in CP21 but which we consider do not fully compensate Telstra for the financial impact of the forced migration.
- Long term lease payments to Telstra (which we consider include an element of compensation) which rise to over \$1bn pa by completion. We consider this operating expense 'saved' nbn co from a considerable additional capital expense in terms of avoiding investment in hard-to-replicate infrastructure such as ducts, trenches and certain exchange facilities.
- Capital costs which seem to us within the range of comparable benchmarks on a unit cost basis.
- The long term discount rate.

A notable feature of the nbn's business case is the long lead time between incurring capital costs and generating revenue and operating cashflow. It's fundamental to the financial prospects of such infrastructure investment that network utilisation be built up as quickly as possible and monetisation of this follow quickly in order to build income and cashflow. The more quickly the gap between cash outflow and inflow is reduced and closed the better for the investment's financial prospects and valuation.

nbn co broke several infrastructure investment 'rules'

nbn co commenced business as a start-up initially lacking the relevant expertise, experience and established processes and practices needed to assess and manage infrastructure investment risk. It took several years to establish operations to a

point where it could manage these effectively. As such it didn't have an established income and operating cashflow stream with established operational support resources needed to manage cash flow.

nbn co initiated build exclusively (in fixed network areas) with the more expensive fibre to the premise (FTTP) technology rather than take advantage of access infrastructure that was already in place. A key issue with FTTP rollout is the difficulty in scaling up the final access component from the street to the premise, given that the circumstances of each property may be markedly different and in many cases very difficult to resolve. This adds to capital expense relative to using established access infrastructure while the longer time taken to rollout FTTP to ready for service (RFS) stage widens further the gap between cash outflow and the generation of income. We think this timing aspect of FTTP was an error that will prove fatal to nbn co's ability to recover the bulk of its investment.

These two fundamental errors were compounded by a 3rd error being the 'outside-in' build, that is the decision to build FTTP in many expensive, low population density, rural areas first rather than high density urban areas. This led to an expensive but fragmented build with geographically extensive infrastructure spread across hundreds of locations and requiring significant backhaul infrastructure to carry relatively small amounts of traffic.

That is not to say that governments shouldn't subsidise rollout of such technology to high-cost rural areas. That is a decision of elected representatives to be made on the merits of such investment. However there is clearly a substantial saving to tax-payer supported investment in rural areas with a better business model that prioritises and respects cashflow. So much more value could have been delivered or cost saved with better business planning in the initial stages of the NBN.

The MTM slowed the ramp up in the cashflow gap

By June 2015, just as the initial MTM technology began to become RFS, FTTP RFS had reached nearly 900,000 premises with 400,000 activated. Including satellite and fixed wireless (which were established from the beginning as non-commercial technologies) nbn co generated only \$161m in revenue in the 2015 financial year (FY15) while the operational cash loss of \$1.6bn was already ten times higher.

Peak funding had already reached \$13bn by June 2015, or \$14bn including a return to taxpayers on invested capital. Against that already huge initial investment only 5% of fixed premises were connected and generating income. This imbalance opened a wide gap between cash funding required to build the network, connect customers and operate the wholesale business and cash income.

FTTP activations doubled in FY16 to 800,000 premises while the rapid ramp up in FTTN activations through FY16 and FY17 more than doubled nbn co's fixed activations by June 2017 over FTTP alone. The rapid build-up in paying customers through FY17 drawing on the MTM slowed the growing gap between cash payments and cash income; it still widened but at a slower rate per premise. At the peak rate of FTTP rollout of 400,000 in FY17 it would have taken nbn co twenty years to reach its target activations with the cashflow gap opening wider each year, at

best until near completion, but possibly remaining negative indefinitely depending on emerging competition risks.

Valuation impact from cashflow gap c\$30bn, maybe more given risks

As things stand with the rollout, migration and service activation, and with the NBN now more than half way to completion, peak funding will be around \$38bn by 30 June 2018. nbn co CP18 indicates the company expects to reach cash flow breakeven in FY21 with over 8.6m users paying (through RSPs) an average price of over \$50 per month.

Beyond FY21 nbn co expects to be able to continue to increase connections, including business connections, and continue to raise average revenue while reducing operating cost. As well, its subscriber payments (to Telstra and Optus) will reduce rapidly after FY20. In contrast we consider nbn co would do very well to reach those FY21 targets and has little chance of exceeding them in the timeframe required to generate positive free cash flow:

- The average revenue outlook will need to be reconsidered in the light of changes in the price structure late in 2017.
- The subscriber growth outlook is uncertain beyond FY20 given that increasing capacity in rival wireless networks are likely to allow them to contest around 30-40% of the broadband market rather than the 15% indicated in nbn co's Corporate Plans.
- While nbn co's plans for the business market are yet to be detailed we consider the impact on operating cashflow is likely to be small considering nbn co's biggest customers have their own networks serving business user needs.

We consider nbn co will do well to reach a revenue target of \$4.5bn, sufficient to allow it to just meet operating costs, lease payments, maintenance capital expenditure and service its debt. Given the risk mentioned, if it reaches that level of revenue it will be hard pressed to maintain it. If all goes well then, its investment value would be around \$20bn, about the same as the debt funding with no value to equity.

There are significant risks for nbn co in even reaching this level of value including the average revenue outlook and subscriber take up. As well, there is a risk that completing the most difficult connections may take longer than indicated, require further capital investment beyond current contingencies, and delay closure of the gap between cash outflow and income. Along with a flatter ARPU trajectory and lower take up, this would have the effect of increasing peak funding beyond the c \$49bn indicated in CP18.

Don't blame the technology choice for a poorly considered business plan

We're concerned that the JSC NBN Inquiry seeks to consider 'the competitive risks facing the multi-technology mix'. There are substantial competition risks but they don't arise due to the MTM, rather nbn co is somewhat better placed to meet these risks because it has more income sooner as a result of moving to the MTM.

In our estimation the move to the MTM after FY14 reduced the rate at which the cashflow gap increased by bringing in cash income earlier than would be the case if nbn co had stuck with FTTP, and moved nbn co more quickly to reduce the cashflow gap. Ultimately, the MTM reduced NBN's peak funding by several \$10bns.

The long term damage to nbn co's valuation prospects was already established due to the delays to cash generation caused by the start-up nature of nbn co, the 'outside-in' build and the longer time to RFS required for FTTP.

There are competitive risks notably from wireless and mobile broadband which were on the horizon when nbn co's initial business plan was signed off in 2010. Those risks have little to do with the MTM technology but have now become more evident and have greater impact on nbn co's valuation because of the time taken to reach cashflow breakeven. The valuation impact from these risks would have been much lower if NBN had come to market with activations sooner than it had.

Better regulation could have avoided much of the capital cost

The key issues in the NBN business case are for government as owner of the NBN, in terms of how it best funds its investment decisions and directs telecommunications policy. We hope our submission helps parliament and government review and better consider how these decisions are made and carried through to implementation.

Separately there is a question about the role of the ACCC as industry specific regulator, and regulator of NBN's special access undertaking. An effective regulator would have questioned the assumptions in nbn co's special access undertaking submission of 2010. nbn co's Corporate Plan 2010 with full FTTP rollout clearly had many poor assumptions regarding the long term average revenue trend, likely take up rates and timing of network build. We haven't met an institutional investor that considers CP10 a credible business plan.

The ACCC approved the SAU in 2013, effectively supporting a business case it knew or should have known was false. It approved the SAU based on a business plan that had average revenue rising by c6% pa indefinitely and unrealistic FTTP build-out assumptions. It acted in support of nbn co to approve agreements that reduced competition with it. It agreed to reduce the points of interconnection from over 450 on Telstra's copper network to 121 on the NBN, removing much backhaul competition in the access aggregation market in support of NBN's plan to charge a capacity-based CVC. Each year the ACCC approves NBN capital spending and accumulation of losses in nbn co's Initial Cost Recovery Account knowing the industry and end users will never be able to meet this overhang.

In 2006 when the Howard Government sold its remaining stake in Telstra the ACCC valued Telstra's copper access network at \$32bn; when the Rudd Government negotiated with Telstra to reacquire the asset, the ACCC arbitrarily dropped the value to \$17bn.

The ACCC lobbied for an FTTP-based NBN in 2008 and early 2009 without considering the costs and benefits of the technology. The Independent Audit advised that the ACCC lacked the competence to make this recommendation.

We think the ACCC promoted FTTP-based NBN, supported the initial FTTP-based NBN and went to extraordinary lengths as a regulator to prop up the FTTP-based NBN business model because it had long sought structural separation in the sector and considered an FTTP-based NBN was a means of achieving it. Having made that call the ACCC sacrificed its independence as a regulator of the NBN to overlook the obvious commercial issues with the original business plan and special access undertaking.

In our view it was negligent in its role as telecommunications regulator in the long term interests of end users (LTIE). We need a better industry regulator.

Structural separation makes it much more difficult to manage cash flow risk

The NBN investment creates an enormous cashflow risk. Peak funding is likely to be at least \$50bn and may be as high as \$60bn. Any investor contributing capital to such an undertaking would want to be sure the related risks to meeting targets and generating a return were well assessed and well able to be managed. As we have indicated the best way to manage this risk is to ensure the gap between incurring the capital cost and generating cash income is as brief as possible and cash income is able to be managed up to target levels quickly.

nbnco's structural separation compounds this risk because it is not able to directly manage the winning of customers and the sale to them of cash-generating services. Generating active customers and selling services is instead in the hands of retail service providers (RSPs) who have no hand in the capital risk held by nbnco; indeed their interests are hard to align with nbnco's to the point where they are largely opposed to it. They may be driven initially to seek good market share of nbnco connections but prefer lower-priced, lower-value connections. They have little interest in selling higher value services where this reduces their own margin. And they have a long term incentive to bypass the NBN to carry traffic on their own networks to improve their own return on investment. It's notable that the three main RSP customers of nbnco (Telstra, Optus and TPG), who serve nearly 90% of its customers, are each investing in high capacity wireless networks, and their market share of NBN is higher in the likely wireless access footprint.

The Productivity Commission advised the Howard Government in 2005, prior to the sale of Telstra 3, that there was little if any benefit to competition to be had from structural separation of Telstra but that it would likely incur substantial cost. And so it has turned out, but far more so than the Productivity Commission may have imagined in 2005. Rather than promoting competition and the LTIE, the NBN and associated regulation has become a very expensive form of industry policy with an outcome that will benefit few but cost much.

Ian Martin
Senior Telecommunications Analyst
New Street Research

New Street Research LLP. 11 Austin Friars, London, EC2N 2HG
Ian Martin UK FCA FRN 225092; AR 1236170 of Peak Investment Partners Pty Ltd, AR of Peak
Investment Holdings Pty Ltd AFSL 304008

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