

Gilbert & Tobin NBN Report Summary

NBN Strategic Review: No Easy Way Out

This is a summary of the Strategic Review provided to Minister Turnbull by NBN Co, with the assistance of Deloitte, Boston Consulting and KordaMentha.¹

The bad news for the current model and the current NBN Co organisation

We all knew construction was way behind, but the Strategic Review lays it out in grim detail. As at 30 September 2013:

- The NBN has passed only 3% of the total premises to be passed by the end of the rollout.² The brownfields FTTP rollout has passed only 227,483 premises – 48% behind the Corporate Plan. Of those premises, 73,506 were not NBN serviceable (called Service Class 0) or 32% of the total passed. The Report found a *“relentless focus on the metric of Premises Passed as the single most important determinant of corporate success, rather than a balanced view including Premises Serviceable and Premises Activated”*.³
- it takes NBN Co on average 529 days from build to customer activation, of which 341 are taken up in the field from commencement of build to activation of a customer.⁴ Remarkably, if NBN fibre is running past the front gate and all is needed is a lead in and termination device, it can still take 5 to 7 months for NBN Co to connect a customer;⁵ and
- the number of premises with an activated NBN service is 98,282, 35% behind the Corporate Plan and a take up rate of 43% of premises passed and 64% of NBN serviceable premises.

Mandatory disconnection from Telstra’s copper network has not started yet (which should drive take up), but the Report notes this is still only 1% of the total premises to be connected on completion.

It gets worse: the Report concludes that, on the current trajectory, NBN Co will pass only 32% of the planned premises by 30 June 2014.⁷

While the report notes NBN Co has talented and dedicated people, it’s not a happy ship. NBN Co is characterised by:

- a deep lack of internal experience in complex infrastructure, construction projects and project management; and
- immature end to end operational performance management metrics to manage significant queues in design and construction;
- a fear of being blamed for mistakes, which has generated a lack of willingness to accept responsibility in some functional groups and to document decisions for fear of potential consequences.

Things are not much happier out in the field amongst contractors. Productivity losses are estimated

at over 50%, due mainly to waste in design and overhead functions.⁸ Contractors appear to be beset by continual changes in designs and priorities by NBN Co, by NBN Co being too intrusive and interfering in their work, and by unpredictable and changing workflow.

Recut of the current model

In order to compare the current FTTP model against alternatives, the Report recuts the NBN Co financial model. The headlines are:⁹

- the rollout will take until 2024 to complete – three years later than the Corporate Plan;
- the delayed deployment and a view that ARPU's will be lower results in a \$13-14 billion fall in revenue to FY21;
- capital expenditure will increase from \$37.4 billion to \$55.9 billion;
- peak funding will be \$28.5 billion higher, at \$72.6 billion – an increase of 64%. The Report notes that large projects like this are subject to overruns, but these are usually in the range of 20-30%;¹⁰ and
- if the Coalition sticks to its maximum capital contribution of \$29.5 billion private financiers are unlikely to lend NBN Co the money to fill the gap.

While a lot of the difference in the revised outlook is driven by the slower build, the Report also sees higher costs and lower revenue on an FTTP model.

On the costs side, the Report estimates:¹¹

- a 78% increase in the average costs (on a per Premises basis) of the local access network – from \$1,123 to \$1,997; and
- a 50% increase in the per Premises connection costs – from \$1,398 to 2,100.

This would take the NBN costs way above the range of \$1,100-1,300 per premises cited for overseas FTTP deployments.¹² The Report gives a list of reasons for the upwards revision (some of which are redacted), including:¹³

- lower mix of aerial deployment because, it would appear, the power utility companies are proving difficult;
- greater use of boring and trenching, including because of problems with Telstra lead in conduits and variability between contractors in using Telstra conduits;
- the costs associated with the frequent revisions NBN Co has been making to the network designs – anywhere between 3 to 16 times;
- although not described in these terms, the costs of fixing the 'broken' model between NBN Co and its contractors; and
- doubling the contingency buffer from 10 to 20%.

OSS and IT costs also will climb from \$0.9 billion to \$1.6 billion, including because vendors underestimated costs. The Report notes that the "current combination of IT capability and the people who will have to use these systems cannot sustain rollout volumes [at the levels in the NBN Current Plan]."¹⁴

On the revenue side, the delay in rollout reduces the cumulative revenue to FY21 by a hefty \$11.6 billion, but the Report also thinks that:¹⁵

- the decline in wholesale prices will be greater than the 0.3 ARPU decline in real terms forecast by NBN Co – potentially up to 2.5% based on the experience in the copper world (this is where the ACCC comes in under the NBN SAU);
- higher levels of mobile substitution for fixed services – a loss of up to 0.3 billion, which may still be on modest side if spruikers of mobile broadband prove to be right;¹⁶
- lower corporate revenue – because NBN Co over-estimated the market size;
- lower Government revenue, because NBN Co double counted with corporate revenue; and
- lower multicast revenue (by up to \$0.6 million) because we are not going to be watching as much IPTV (at least on fixed devices) as NBN Co assumed.

The ‘real kicker’ is that is that wholesale prices (and therefore retail prices) will have to go up to make NBN Co viable – and importantly to keep NBN Co off the federal Budget (i.e. not requiring an ongoing subsidy).¹⁷

The Corporate Plan envisages a rate of return of 7.1 %. To achieve that return on the revised outlook, the Report estimates that wholesale prices would have to increase by 50% on a favourable revenue case and 80% on a lower revenue case. The Report says this means that retail prices would have to increase by \$27-43 per month for a 50/20 Mbits (on top of the current prices of \$75-95 per month).

Even if the rate of return was reduced to the long term government bond rate (e.g. 4.5%), the Report says prices would have to increase by 20-45%.

Without a price increase, the Report estimates Joe Hockey would have to reach into his pocket for an annual subsidy of \$1.9 to \$2.5 billion if a 7.1% IRR is to be achieved and maintained.

So what are the alternatives?

After the ‘shock and awe’ of revising the estimate for the current model, the Report turns to consider alternatives. The Report makes three points in passing which foreshadow where its heading:

- the ‘popularity’ of FTTP as the ‘technology of choice’ for new broadband networks is falling away – FTTP premises fell from 67% to 52% of premises globally which are connected to high speed needs;¹⁸
- the attitude of the consumers to the high speed broadband can be best described as “pay the same for more” rather than to “pay more for more”;¹⁹
- bandwidth demand will be relatively modest over the medium – on one study found that by 2023 most households will need no more than 40 Mbps for all but 4 minutes of intense use per month and upchannel demand will only grow from 1.1 to 2.4 Mbps, 9Mbps for the few bandwidth hungry users.²⁰

The report models 5 alternative scenarios (in addition to the revised outlook of the current model).²¹

- **Scenario 2:** Radically Redesigned FTTP - the current model but with a radically redesigned FTTP architecture and deployment model to save costs;
- **Scenario 3:** FTTN short loop/FTTB large MDUs - NBN Co builds an fibre to the basement network to connect 1 million premises within large blocks of flats etc (more than 30-40 units). Elsewhere, it takes a 'donut' approach of using FTTN on short loop areas (90% of premises are within 400ms of a pillar) and FTTP to replace long copper loops;
- **Scenario 4:** HFC in HFC footprint - NBN Co uses HFC to connect premises within the HFC footprints not already passed or committed to be passed by FTTP. Outside the HFC footprint, FTTN and FTTP as per scenario 3;
- **Scenario 5:** FTTN and HFC (no demobilisation) - NBN Co will deliver some form of technology to all homes as fast as possible. This seems to be similar to scenario 4, but with HFC infill and more FTTN outside the HFC footprint; and
- **Scenario 6:** Optimised Multi-Technology Mix - NBN Co chooses on an area by area basis what is the most effective solution between HFC, FTTP and FTTN so that it delivers on a goal of 50Mbps to 90% of premises by 2019. NBN Co would use vectoring in long loop areas to increase speeds from late 2016. The wireless/satellite footprint might shrink as more premises could be connected to FTTN (up to 1% of the 7%). As an example, the report estimates that by end of the build, 24% of premises would be FTTP, 31% FTTN, 28% HFC and 11% FTTdb/B (or vectoring to a distribution point near the premises).

The report illustrates the approaches as follows: ²²

Please [click here](#) to see table.

The Report compares the models in the following table:²³

Please [click here](#) to see table.

The Report prefers the Optimised Multi-Technology Mix because:

- it delivers high speed broadband the fastest by allowing the rollout to be accelerated – by 2020, only 57% of premises have 50Mbps under the FTTP variants but 91% have under the mixed technology scenario;
- it is the first to reach positive cashflow – 3 years ahead of the revised outlook for FTTP;
- it has the lowest total funding costs - \$41 billion, or \$31 billion less than the revised outlook for FTTP;
- it provides a substantially faster revenue uptake than the revised outlook for FTTP - \$7.8 billion more;
- it provides the highest IIR – at 5.3%; and
- it stands the best chance of avoiding a price increase to keep the NBN solvent and off the Budget. However, the Report only says that “price increases may not be required” under this model compared to the near certainty under the FTTP models. ²⁴ If the current 7.1% IRR is retained, prices would have to go up 20-40%. But if the IRR was dropped to 4.5% and the optimistic revenue trajectory applied, it could be possible to have small price reductions (\$3 per month) or on the lower revenue trajectory, a CPI increase.

Although the mixed technology approach representing the best case from the Commonwealth's view point, it delivers high speed broadband slower than the Opposition proposed (rollout complete by 2019) and at a higher cost than it has capped the Commonwealth's contribution at \$29.5 billion. Hence, the Opposition's loud calls about another broken promise.

Like the Coalition Policy did, the Report does not assume that the mixed technology solution would be the end point. Rather, it notes that if FTTN is deployed initially that there is still a pathway to FTTP if the end user demand warrants the upgrade. In fact, it would be cheaper to go through FTTN to FTTP than go straight to FTTP, but only if the upgrade to FTTP is within 5 years.

Other interesting tidbits

The Report says that the requirement for NBN Co to build out estates with over a 100 lots ahead of its area rollout is "distracting".²⁵ It suggests a 'wait until we get there approach' under which end users would be provided with voice services by Telstra under its USO. However, that would require either more copper to be built or more use of wireless. Alternatively, the Report suggests a fixed subsidy payable by NBN Co to developers to fund them building FTTP. It is not clear then how other service providers would connect with these 'islands of third party fibre' around Australia.

The Report hints that NBN Co should consider dropping the analogue voice ports in its termination devices: noting that only 12-15% of current NBN end users use the voice port and that over 4.4 million Australians already use VoIP instead of PSTN.²⁷ The Report has not factored PSTN costs into its modelling.

The FTTN model has been criticised on the basis that it will rely on the copper network which is in a poor state of repair. The Report has factored in remediation costs (although redacted as NBN Co has to negotiate with Telstra). However, the Report notes that the overseas experience of FTTN suggests that remediation of copper is not a major issue – if analog voice works then VDSL, including vectoring, will work in most cases.²⁸ But the Report does note that bridge taps would need to be removed.

The Report does not address whether NBN Co would stick by the previous Government's commitment on uniform nationally averaged prices. Having made that commitment, the previous Government then realised that NBN Co could only provide nationally averaged prices if it was a monopoly in urban and other profitable areas, so that it could internalise the cross subsidy to less profitable rural areas. Hence the superfast broadband prohibitions. The report coyly notes that it assumes the SNOs will remain in place.

The Report also does not refer to the threat of competing FTTB build, such as from TPG (which may be possible despite the USO). However, one of the reasons it revises downwards NBN Co revenue is because of alternative build.²⁶

Where to from here?

The Government, of course, needs to consider which model to adopt.

However, the report cautions that if a mixed technology option is to be adopted, the extent of transformation in NBN Co should not be underestimated. It notes that strong leadership will be needed and a change in the difficult culture. Changes in the product mix and pricing may be needed – which is likely to flow into the wholesale broadband agreement and possibly the special access undertaking. NBN Co OSS will need to be changed. Migration models will need to be revised – and could be quite different between different technologies.

Footnotes:

- [1](http://www.nbnco.com.au/about-us/media/news/strategic-review.html) <http://www.nbnco.com.au/about-us/media/news/strategic-review.html>. You can find a copy of the full report on G+T's telco navigator app available through the Apple store.
- [2](#) Page 40
- [3](#) Page 12
- [4](#) Page 41

5	Page 43
6	Page 41
7	Page 35
8	Page 85
9	Pages 37 and 38
10	Page 73
11	Page 60
12	Page 13
13	Pages 62 and 63
14	Page 83
15	Page 58 and 59
16	This also includes cannibalisation by TPG's FTTP build
17	Page 68
18	Page 76
19	Page 79
20	Page 79
21	Page 94
22	Page 93
23	Page 17
24	Page 106
25	Page 81
26	Page 58
27	Page 82
28	Page 86

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