Senate Standing Committee on Environment and Communications

Answers to Senate Estimates Questions on Notice

Supplementary Budget Estimates Hearings November 2016

Communications Portfolio

NBN Co Limited

Question No: 185

NBN Co Limited

Hansard Ref: Written, 05/12/2016

Topic: FTTP and FTTDp

Senator Chisholm, Anthony asked:

1. Do Cost Per Premises for FTTP brownfields in the 2017 Corporate Plan reflect expenses from negotiated contracts for brownfield? If yes, in what year were those contracts negotiated?

2. Do those contract reflect efficiencies that would be achieved in brownfield FTTP rollouts through the use of skinny fibre?

3. On average, how many homes are serviced from each FTTdp distribution point?

4. What are the reverse power energy requirements per port for FTTdp?

5. Please confirm if any renegotiation of agreements with Telstra required to rollout FTTdp?

6. The following webpage was first published on 21 March 2016:

   http://www.nbnco.com.au/blog/the-nbn-project/fttdp-could-provide-a-vital-new-tool-for-building-the-nbn-network.html

   The page was later updated on 31 May 2016.

   Please supply a copy of the 21 March 2016 version of the page.

Answer:

1. The Cost Per Premise for FTTP Brownfields in the 2017 Corporate Plan reflects the actual or expected costs for the relevant premises that have been completed (or issued for construction) since inception of nbn, and those costs are underpinned by the relevant contracts which have been negotiated over these years.

2. The contracts reflect the negotiated costs based on the architecture of the actual build for those FTTP Brownfield premises. They do not reflect any cost outcome or efficiency that may have been achieved if alternate architecture was hypothetically applied.

3. Each Distribution Point Unit (DPU) is capable of serving four homes. nbn's deployment will aim to maximise the utilisation of each DPU. The design target is to achieve an average of more than three premises per DPU.

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4. The nbn FTTC solution ensures the following behaviour:
   a) No user can obtain service without providing reverse power to the DPU.
   b) Each user only provides power for their own port plus a roughly equal share of the power for shared resources, based on the total number of active users at any point in time.

   nbn expects that, on average, end-users will be supplying approximately 6W to power their FTTC service. In the unusual case where there is only a single end-user connected, they will be supplying up to 14W.

5. Yes, Telstra agreements will need to be varied to rollout FTTC.

6. Please see copy attached.

FTTdP could provide a vital new tool for building the nbn™ network

Australia is a huge country and nbn needs to ensure every single Australian premise can connect to fast broadband – from city apartment blocks to suburban streets and farms in the country. So it's important for us to have as many tools in our kit bag as possible….

<image>

The **nbn™** network is a unique project in the global broadband market.

Whilst there are plenty of operators building upgraded broadband networks, nobody else in a country our size has to deliver better broadband to every single premise in the country – it's an awesome challenge.

In other markets when other operators come across a premise that is too expensive and complicated to connect, they may simply be able to bypass that premise and move on to easier pickings - that is something that we at nbn are unwilling to do.

Learning along the way

If there is one thing we have learnt in building the network these last six years, it is that attempting a 'one size fits all' approach to network design can cause significant problems.

For example, we started off by trying to serve every single apartment in an apartment building with the same Fibre-to-the-Premises (FTTP) we were using elsewhere, but over time realised that this was going to be a very complicated task.

We decided that that we could save time and money by moving to a Fibre-to-the-Building (FTTB) approach where we used the existing in-building copper to connect individual apartments.

We are now one year into our successful FTTB deployment.

<image>

We have had a very similar experience with our Fibre-to-the-Premises (FTTP) deployment where we have found that whilst FTTP is a great technology, there are some significant drawbacks.

The biggest of these remains the fact that getting from the street to the end-user premise can be an extremely expensive, time consuming and often very complicated exercise.

This is particularly the case in established Brownfield areas.

This is why the introduction of Fibre-to-the-Node (FTTN) has been so good for us because we are now able to connect up to 384 end-user premises to the **nbn™** network once we have activated a single FTTN Cabinet.

This enables a significant increase in the speed of our network rollout.

We know that our FTTN Cabinets can provide 'wholesale' (layer 2) speeds of up to 50Mbps to around 90 per cent of end-user premises served by the Cabinet – with the majority of end-users on a Cabinet typically able to get speeds up to 100Mbps.

These Cabinets will provide a great framework for us going forward.

In the future we expect that we will be able to upgrade the electronics inside the Cabinet from VDSL to G.Fast and deliver substantially faster speeds to RSPs for many end-user premises.

However, as with FTTP we realise that FTTN also has limitations.

It really works best in more densely populated areas such as suburban housing estates, and is less effective in more sparsely populated areas where fewer people can be served by the Cabinet and where the costs of getting electrical power to Cabinets can be higher.

Right now, as we demonstrated to the country's technology media at Mount Cotton in QLD last week, nbn faces a significant problem in these semi-rural or outer suburban areas where neither FTTN nor FTTP offer a cost effective solution to connecting end-users.

It is worth remembering that we cannot always simply put these more complicated end-user premises into either our satellite or fixed-wireless networks, so we need to find a fixed-broadband solution.

<image>

Say hello to FTTdP

The answer to this problem might lie with a new technology called Fibre-to-the-Distribution Point (FTTdP) which **nbn** plans to launch the first trials of in Melbourne and Sydney in April.

FTTdP works by **nbn** driving fibre very deep into the network – often all the way to the driveway of every end-user premise –at which point it is connected by a small Distribution Point Unit (DPU) device to the existing copper lines serving the premises.

What FTTdP may help **nbn** do is to make sure that those end-users on longer copper lengths – those that are located furthest from our FTTN Cabinets – can also be served by upgraded broadband in a cost effective manner.

FTTdP allows us to do this by removing a key cost in each of FTTP and FTTN.

Firstly, by using the existing copper lead-ins into the end-user premise, we remove the need to build a new lead-in that is present for an FTTP connection – these connections can cost as much as $20,000 or more on longer driveways.

Secondly, because the DPUs are ‘reverse powered’ from the end-user premises, we don’t have to pay for mains power to be supplied as we do with FTTN – again removing a major cost to **nbn**.

This is really another example of **nbn** finding a technology solution that fits best with the challenges that we are facing in the real world of deploying the network – and gives us extra crucial flexibility in bringing very fast broadband to all Australians.

Tony Cross is Principal Technology Officer at nbn