



**BRIEFING**

# Implications of NBN's proposed building block model

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## Summary

In its proposed variation to the SAU, NBN has developed a Building Block Model (BBM) that is used to estimate allowable revenue from providing regulated services. Based on the projections developed by NBN, the allowable revenue from the BBM does not impact on prices within the period 2024 to 2040. This is because the expected revenue that NBN can collect, which appears to reflect its application of price constraints, is lower than allowable revenue. Over the period from 2024 to 2040, expected revenue is 12 per cent or \$12 billion lower than allowable revenue.

The lack of an apparent binding constraint from the BBM within the SAU period means that the BBM does not act as a major part of the proposed regulatory system, under NBN projections.

There could be some circumstances where the allowable revenue from the BBM does become a binding constraint on NBN's prices. This could occur where:

- the WACC was substantially lower than sought by NBN
- the opex allowed was substantially lower than sought by NBN
- customer numbers and demand for higher priced products were much higher than projected by NBN.

However, there are also factors that could lead to the gap being wider than expected. This includes the large reduction in depreciation, which suggests an inconsistency between the economic lives adopted for assets and the future capital expenditure projections.

The key issue then is the extent to which the regulatory arrangements proposed by NBN set up the potential for future customers to bear higher costs and prices. NBN has proposed a number of mechanisms that limit the amount of costs passed through to future customers:

- the ICRA would not be indexed by the WACC, but by inflation
- 50 per cent (instead of 100 per cent currently) of unrecovered revenue would be able to be recovered in the next period.

Based on the modelling inputs from NBN, with these changes, revenue able to be recovered post 2040 is \$24.8 billion (real 2014\$). If existing arrangements continued, such as continued accumulation of the ICRA and roll-forward of the ICRA using the WACC, we estimate that this would be \$99 billion by 2040 (real 2014\$).

Further changes could be sought to reduce costs able to be passed on to later customers. However, given the projections, a focus on the pricing arrangements would be likely to have more impact in the short to medium term.

## 1 *NBN's building block model*

NBN has proposed a variation to its Special Access Undertaking (SAU) that would begin in July 2023. The SAU itself runs until 2040. The proposed variation has two key components:

- a cost based component — this is a build up of allowable revenue based on the costs of building and operating the NBN. This uses a Building Block Model (BBM) to add together different types of costs
- a price cap component — this sets prices for products and price increases allowed over time.

The actual revenue that NBN receives may be below the allowable revenue.

The focus of this briefing is on the BBM.

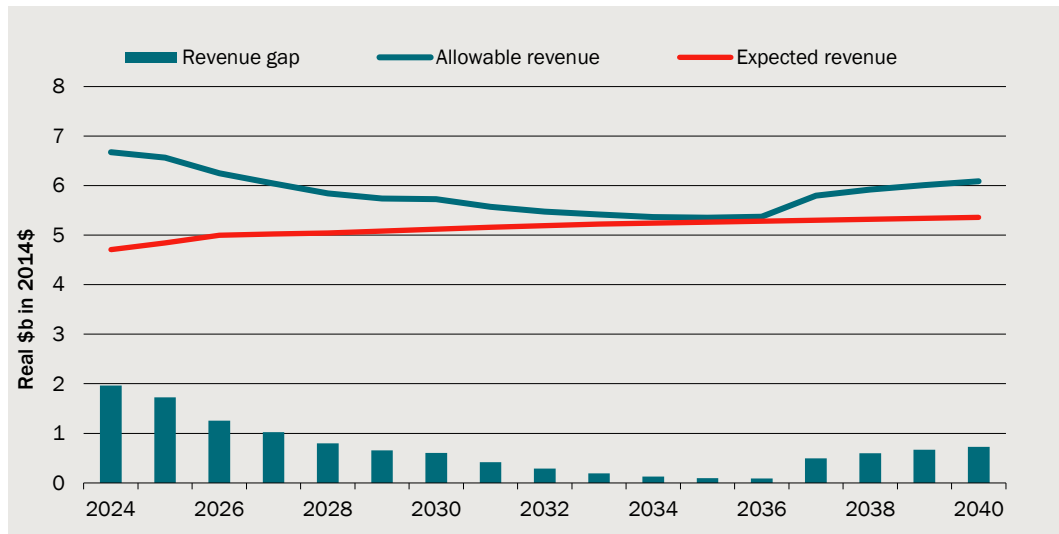
The BBM is a standard aspect of the regulation of natural monopolies in Australia. There are two important aspects of the NBN BBM that are significant and different to a standard BBM.

- 1 NBN has an Initial Cost Recovery Amount (ICRA) — this reflects the difference between its allowable revenue and actual revenue from its inception to July 2023 (under NBN's proposal). Historically, the ICRA has been increased at the weighted average cost of capital (WACC). The purpose of the ICRA was to ensure that NBN was able to recoup its expected initial losses as the network build-out occurred and customer numbers grew.
  - NBN has proposed that the ICRA would grow in line with inflation rather than WACC in the future
  - NBN has proposed that the ICRA would be set for each year, but only a part would be recovered over the proposed period
- 2 From July 2023, NBN has proposed an unders-overs mechanism that allows for 50 per cent of the revenue differences to be carried forward into the next regulatory period. This means that if current customers do not provide sufficient revenue to recover the costs allocated to them, then this can be passed on to future customers.

The public model made available with NBN's projections of costs and revenues indicates that expected revenue is below allowable revenue (chart 1.1). Across the period from 2024 to 2040, the gap is \$11.7 billion (real 2014\$), or 12 per cent.

- **The modelling available from NBN indicates that allowable revenue is substantially higher than actual revenue. This means that the BBM will have no impact on prices for the SAU period, under these projections.**

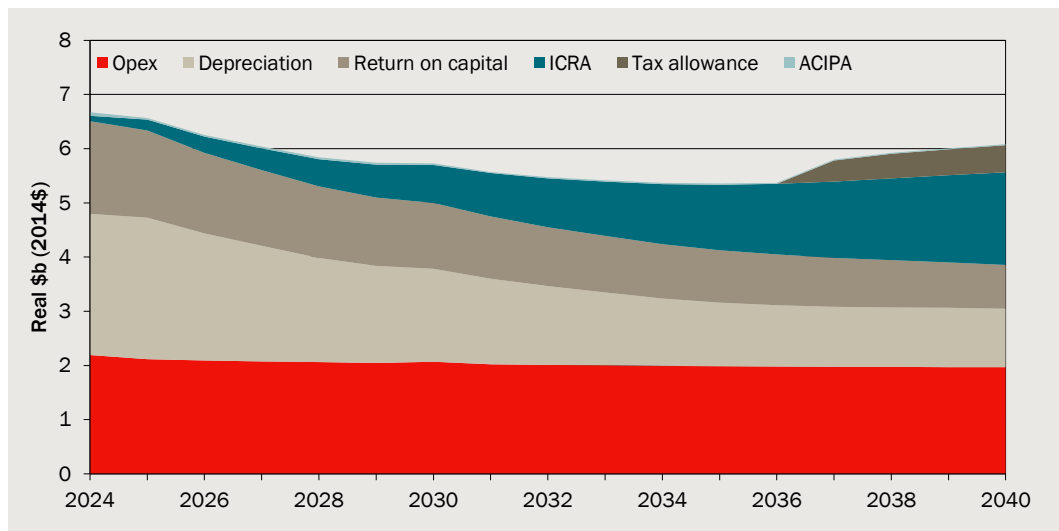
### 1.1 NBN's modelled expected and allowable revenue, before unders and overs



Data source: NBN Co Building Block Model, Public version, available at <https://www.accc.gov.au/regulated-infrastructure/communications/national-broadband-network-nbn/nbn-co-sau-variation-2022/sau-variation-2022-documents>.

Chart 1.2 shows the components of allowable revenue as projected by NBN. Allowable revenue declines in real terms because of a large decline in depreciation in particular. This suggests that some of NBN’s assets must be reaching end of economic life (as straight line real depreciation is used in the SAU) and the capex required for replacement of these assets is not as high as original expenditure<sup>1</sup>. The decline in allowable depreciation is offset by a larger amount of ICRA being allocated to later years and tax allowance being included in later years, because of reduced tax depreciation allowances that can be offset against revenue.

### 1.2 Components of allowable revenue



Data source: NBN Co Building Block Model, Public version, available at <https://www.accc.gov.au/regulated-infrastructure/communications/national-broadband-network-nbn/nbn-co-sau-variation-2022/sau-variation-2022-documents>.

<sup>1</sup> This suggests that asset lives being used may be too short, or insufficient replacement capex may be allowed for in the modelling.

## 2 *Implications of the BBM for customers*

### *Is the BBM likely to impact on prices?*

The public modelling available indicates that the BBM is not expected to provide a constraint on prices within the SAU period to 2040 (see chart 1.1). Commentary from the ACCC aligns to this view. The ACCC notes:

In a continuation of existing arrangements, the SAU variation does not appear to provide for an explicit link between the overall annual pricing yield and the annual costs that are derived from the building block model. Accordingly, it appears unclear whether the pricing yield reflects NBN Co's costs/cost allocations, or whether it is expected to do so over time. As discussed in section 4.2, we consider there would be no direct link between prices and underlying costs under the SAU variation and hence no basis for determining whether proposed prices reflect efficient costs unless NBN Co's revenues increase substantially.<sup>2</sup>

However, NBN itself offers different views within its submission, stating that

This means that over time, nbn expects that its Core Services Revenue Cap and actual revenues will be relatively aligned, thus establishing a meaningful revenue cap that will need to be reflected into nbn's overall price levels.<sup>3</sup>

But also that:

nbn has given this concession in circumstances in which there is a significantly greater likelihood that, until at least 2028, nbn is likely to under-recover beneath the revenue cap than over-recover above it, meaning the 50% risk sharing arrangement is likely to be skewed against nbn until that time.<sup>4</sup>

These statements suggests that it is more likely than not that the BBM will have no impact on prices, particularly in the short term and with carry over mechanisms in place.

We note that the expected revenue is based on NBN projections and we have not reviewed whether these are based on prices at the level of the proposed price constraints, with the maximum allowable escalation over time.

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<sup>2</sup> ACCC 2022, Proposed variation to the NBN Co Special Access Undertaking Consultation paper, May, p. 23,  
<https://www.accc.gov.au/system/files/ACCC%20consultation%20paper%20on%20NBN%20Co%202022%20SAU%20variation.pdf>.

<sup>3</sup> nbn 2022, Special Access Undertaking Variation 2022 - Supporting submission March 2022 Public Version, p 122,  
[https://www.accc.gov.au/system/files/NBN%20Co%20supporting%20submission\\_2.pdf](https://www.accc.gov.au/system/files/NBN%20Co%20supporting%20submission_2.pdf).

<sup>4</sup> nbn 2022, Special Access Undertaking Variation 2022 - Supporting submission March 2022 Public Version, p 123,  
[https://www.accc.gov.au/system/files/NBN%20Co%20supporting%20submission\\_2.pdf](https://www.accc.gov.au/system/files/NBN%20Co%20supporting%20submission_2.pdf).



### *When might the BBM impact on prices?*

The conclusion that the BBM is not a binding constraint on NBN will depend on what actually happens to a range of key inputs such as the WACC, inflation, future capex, demand and operating costs. Much harder regulatory oversight that drives cost efficiencies for NBN may lead to the BBM becoming more relevant than it is on central case projections.

The gap between allowed revenue and expected revenue from 2024 to 2040 under a range of sensitivities is shown in table 2.1. It would take reasonably substantial changes compared to NBN's projections to lead to the BBM becoming binding across the entire period. For example, if a substantially lower WACC was used, opex efficiencies were found and demand growth was achieved above NBN's expectations then the BBM could be a binding revenue constraint.

There are also a range of variations that could increase the gap between allowable and expected revenue.

- Inflation in particular in the short to medium term can have unusual implications for the BBM and actual revenue:
  - high inflation would automatically increase the nominal BBM allowance through the RAB and ICRA
  - it is not clear when inflation impacts on prices and expected revenue, as it is not clear what year the prices specified in NBN's variation apply to (in Table 3 of NBN's supporting submission and section 1C.4.1 of the SAU)
    - ... if these are for the first year of the variation — i.e. 2023/24 — which seems logical, then they would not be increased if there is high inflation before then. This would mean inflation increases the allowable revenue but not expected revenue
    - ... note that the ACCC models these prices as being 2022/23 prices in its model of projected access costs<sup>5</sup>. In this case inflation applied from 2022/23 to 2023/24 would enter prices, but inflation that occurs before then would not
- Reductions in the proposed escalation approaches to price caps would also reduce the revenue that NBN was expected to earn.

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<sup>5</sup> For example, in Cell K35, \$60 per month for Home Fast is inflated by 5.6% to give the 2023/24 price,  
<https://www.accc.gov.au/system/files/ACCC%20model%20of%20NBN%20SAU%20projected%20access%20costs.xlsx>.

## 2.1 Allowable revenue and expected revenue

Scenario	Allowable revenue	Expected revenue	Gap
	\$B	\$B	\$B
NBN projections	99.2	87.5	-11.7
WACC reduced from 7.1% to 6%	95.5	87.5	-8.0
Real opex flat (instead of falling)	100.7	87.5	-13.2
Real opex declines by 1%/ year	98.4	87.5	-10.9
7% Inflation in 2022/23 in RAB and ICRA but not prices, capex and opex	96.3	83.6	-12.6
Demand increasing 1% more per year than expected	99.2	97.9	-1.3

Note: Note that the public model provided by NBN is not fully specified in terms of issues such as tax, so results may differ from those calculated above.

Source: The CIE, based on NBN model.

### *The longer term situation*

Post-2040, the likelihood of the BBM providing a binding constraint on prices is not clear and will depend on a large range of factors and whether the price constraint system continues. The BBM will allow for some historic losses to be *potentially* passed forward onto customers post 2040.

- Most of the ICRA allocated to core services (\$22.6 billion in 2014\$ or 60 per cent) is expected by NBN's modelling to be borne by customers post 2040 (if recovered at all)
- Some of any under-recovery from 2024 to 2040 can be passed through the unders-overs mechanism. Based on regulatory periods of 4 years after the initial 2 years, there would be a further \$2.2 billion (real 2014\$) in the unders-overs account to be passed on post 2040.<sup>6</sup>

In total then, under the proposed variation, we estimate that there could be \$24.8 billion in unrecovered revenue to be (potentially) allocated to customers post 2040. Note that a continuation of existing arrangements of rolling forward the ICRA by WACC and continuing to increase the ICRA for future revenue gaps would lead to an estimate of \$99 billion (real 2014\$) in unrecovered revenue to be (potentially) allocated to customers post 2040.

### *Key inputs into the BBM*

It is beyond the scope of this briefing to do an in-depth review of the inputs that feed into the public version of the NBN Building Block Model. However, there are several issues we have noted in considering the implications of the BBM, as follows.

- The sharp decrease in real depreciation over the SAU period suggests that aspects of the economic life of assets or future capex requirements are out of alignment. The

<sup>6</sup> CIE calculation based on rolling forward the unders and overs account with 50% applied at the end of each period and a real WACC of 4.5 per cent. This is higher if a 5 year regulatory period occurs and lower if a 3 year regulatory period occurs.

model is stated to use real straight line depreciation. This means that, in real term, depreciation should only decrease when an asset reaches the end of its economic life. Typically, this would then mean that new capex was required. To give an example:

- suppose there was a satellite with a capex cost of \$1.5B and an economic life of 15 years
  - the allowed depreciation would be \$150m (real per year)
  - after 15 years the asset value of this satellite in the RAB would be zero and depreciation would become zero
  - however, there would be an expectation of a large capex spend, because the satellite had reached the end of its life. When this occurs depreciation of the new asset should lead to depreciation remaining similar to the original level
- we have not undertaken a detailed review of the WACC approach put forward by NBN. However, we do have reservations about maintaining an approach for the SAU period without some level of review, as WACC approaches can be invalidated by changes in financial markets
  - it would be useful for the ACCC to test how short to medium term higher inflation and inflation volatility impacts on the outcomes for customers and the proposed regulatory model. It appears that the inflation clauses will generally be more favourable to NBN when there is volatility in inflation, as any period of deflation would be set to 0. As noted above, it is not clear for which year initial prices are proposed and hence how inflation in the next two years will impact on prices and cost allowances in the BBM.

### 3 *Alternative approaches to the BBM that would result in lower prices for customers*

NBN's proposed approach to the BBM offers a relatively stable overall real revenue cap. While this is not expected to be binding on prices it does offer a level of safety net or protection for customers should there be substantial changes to some factors, such as inflation<sup>7</sup>.

While the NBN revenue allowance is stable, more favourable outcomes for customers in terms of the BBM are possible. More favourable outcomes for prices can occur through implicitly writing off a larger amount of NBN's historical and future revenue under-recovery. This could be achieved by:

- pushing a larger amount of the ICRA within the SAU period and particularly early in the SAU period. This would tend to lead to a larger write off of this historical under-recovery
- limiting the ability of carryovers to keep getting passed along — for example, the current approach allows for 50 per cent of an under-recovery to be passed on to the next period. If it is then also not recovered it is passed on to the period after, but again only 50 per cent, which means 25 per cent of the initial under-recovery. A rule that allows for losses to only be recovered one period forward would restrict the ability to use the unders and overs to accumulate long term revenue gaps
- shorter regulatory periods implicitly lead to a greater reduction in the accumulation of overs and unders, because the 50 per cent reduction is applied more frequently.

Whether any of these changes would make any difference to future prices would reflect whether a BBM that included under-recovered amounts becomes binding post the SAU period.

We also note that it is not clear that the current NBN proposal leads to future customers bearing excessive costs related to the under-recovery from current customers. While there is a substantial amount of potential recovery allocated to future customers after 2040, particularly through the ICRA, other aspects of regulatory allowances have decreased. The overall revenue allowance calculated through the BBM in 2040 is below that in 2024, as seen in chart 1.2.

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<sup>7</sup> Inflation may impact on prices, costs and the WACC differently. The WACC will reflect inflation expectations, which can differ from actual inflation. Prices will inflate by CPI, but costs may be impacted differently, such as in relation to wage inflation.