AUSTRALIAN COMPETITION
& CONSUMER COMMISSION

Report on modelling of the Regional Broadband Scheme levy initial base component

October 2020

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Australian Competition and Consumer Commission
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Executive summary

The ACCC is required by the *Telecommunications Legislation Amendment (Competition and Consumer) Act 2020* to report on certain aspects of the Regional Broadband Scheme (RBS) levy publicly and to the Minister for Communications by 21 October 2020.

The RBS levy is being introduced to fund the financial losses of NBN Co's fixed wireless and satellite networks. The ACCC's report must include estimates of these losses, the initial base component of the levy required to cover those losses and the number of chargeable premises that will be subject to the levy. The levy will be borne by telecommunications carriers providing fixed line superfast broadband services to chargeable premises.

In providing this report, the ACCC is required to use the financial model and methodology used by the former Department of Communications and the Arts' then Bureau of Communications Research (BCR)[1] for its 2016 report on the proposed levy. We were also required to update the inputs and assumptions adopted by the BCR for its model to reflect changes that have occurred since the publication of that report. The key inputs and assumptions updated by the ACCC were:

- expenditure and revenue data for NBN Co's fixed wireless and satellite networks, including expenditure to date and forecasts of future expenditure
- estimates of the number of chargeable premises subject to the levy incorporating RBS levy concessions and exemptions
- the start date for collection of the levy
- the discount rate applied to calculate the net present value (NPV) of financial losses.

The ACCC adopted the BCR's methodology for estimating the indirect costs of NBN Co's fixed wireless and satellite networks, being an avoidable cost methodology. Appendix 1 lists the inputs and assumptions adopted by the ACCC for this report compared to the BCR approach in 2016.

The table below sets out the ACCC's estimates in 2020 dollars of past, total and future losses, and the number of chargeable premises, as required by the legislation.

The ACCC is also required to estimate two levy amounts, also set out below: one offsetting past and future (i.e. total) losses of NBN Co's fixed wireless and satellite services, and the other amount offsetting only future losses. These estimates are in 2020 dollars, including the ACCC's estimated monthly levy base component to offset total losses of $7.03. If adjusted for six months' inflation, the 2021 figure would be $7.11.

The ACCC's estimates have the status of advice. The legislated levy, which is capped at $7.10 in the first eligible financial year and then indexed annually by CPI, can only be changed to an amount below the cap by the Minister for Communications under the *Telecommunications (Regional Broadband Scheme) Charge Act 2020*.

1 Now the Bureau of Communications, Arts and Regional Research.

ACCC estimates

Estimated net present value (NPV) of ***past losses*** of NBN Co's fixed wireless and satellite networks (i.e. losses between 1 July 2009 and 30 June 2020)	$7.526 billion
Estimated NPV of ***total expected losses*** of NBN Co's fixed wireless and satellite networks (i.e. losses between 1 July 2009 and 30 June 2040)	$12.949 billion
Estimated NPV of ***total expected forward facing losses*** of NBN Co's fixed wireless and satellite networks (i.e. losses between 1 July 2020 and 30 June 2040)	$5.424 billion
Estimated initial base component of RBS levy required ***to offset total expected net losses***	$7.03 per chargeable premises, per month
Estimated initial base component of RBS levy required ***to offset total expected forward facing net losses***	$2.94 per chargeable premises, per month
Estimated ***chargeable premises*** for the financial year beginning 1 July 2025 (first year with no concessions)	9,080,256

1. Introduction

The ACCC is required by legislation to review, both initially and on an ongoing basis, the base component of the RBS levy.[2] The Department of Infrastructure, Transport, Regional Development and Communications (the Department) describes the RBS as follows:

> 'The Regional Broadband Scheme applies to all NBN-comparable networks. Under the Scheme, carriers will be required to pay $7.10 per month for each premises on their network with an active high speed superfast broadband service provided over a local access line. It is intended that carriers would pay a charge for all premises serviced by fibre-to-the-premises (FTTP), fibre-to-the-node (FTTN), fibre-to-the-basement (FTTB), fibre-to-the-curb (FTTC) and hybrid fibre-coaxial (HFC) networks.
>
> The Scheme also includes a concession period that exempts the first 25,000 residential and small business premises on each carrier's network, or the first 55,000 'recently connected greenfield premises' for carriers operating greenfield networks, for the first five financial years. This will support market competition and will help smaller carriers and operators of greenfield networks transition to paying the charge. Carriers with fewer than 2,000 premises are exempt from paying the charge.'[3]

All carriers, including NBN Co, will be required under the RBS legislation to pay a levy of a specified rate per month, per chargeable premises. Broadly, chargeable premises are premises supplied with a designated broadband service by fixed line infrastructure capable of providing 25Mbps or more.

These chargeable premises provide the total funding base; however, NBN Co is likely to receive charge offset certificates so that it does not pay the levy only to subsequently receive the same funding back from the collection agency. This also reflects that NBN Co's wholesale customers are already contributing to the financial losses of fixed wireless and satellite services through an internal NBN Co cross-subsidy from its fixed line services.

The RBS was enacted through the *Telecommunications Legislation Amendment (Competition and Consumer) Act 2020* (the Amending Act) (which amends the *Telecommunications (Consumer Protection and Service Standards) Act 1999* (the TCPSS Act)) and the *Telecommunications (Regional Broadband Scheme) Charge Act 2020* (the Charge Act). These Acts received the Royal Assent on 25 May 2020.

This report is the first ACCC report on the RBS since its enactment.

1.1 The ACCC's role

The ACCC's role comprises a one-off initial report (this report) and similar, ongoing reports at least once in every five-year period after the amended laws commenced.

The ACCC does not have a role in collection of the RBS levy, which is undertaken by the Australian Communications and Media Authority (ACMA) and the Department. The ACMA's guidance regarding levy charge assessment arrangements is available at: https://www.acma.gov.au/regional-broadband-scheme.

Under the legislation, carriers with fixed line infrastructure were required to report certain data, including chargeable premises, to the ACCC by 27 July 2020. Importantly, not all carriers that were required to report their premises data to the ACCC will be required to report to the ACMA. Carriers should refer to the ACMA guidance for their future responsibilities and liability under the RBS scheme.

2 The initial review cannot consider the administrative component of the levy, but future reviews can.

3 https://www.communications.gov.au/documents/regional-broadband-scheme.

1.2 Legislative requirements

1.2.1 Initial report

The requirement for the ACCC to prepare this initial report is set out in section 5 of the Amending Act.

The report must be published and provided to the Minister within 150 days of section 5 commencing—i.e. by 21 October 2020. The Minister must table the report within five sitting days of receiving it.[4]

Subsection 5(2) provides that the purpose of the report is to:

> '...provide updated costings in relation to the amount of the base component specified in paragraph 12(1)(a) of the Regional Broadband Scheme Charge Act, using the same model and methodology that was previously used to determine that amount but taking into account changes to inputs and assumptions that have occurred since that amount was first determined.'

The ACCC report must include the following estimates, as well as such other matters as the ACCC considers relevant:[5]

a. the total losses that have been incurred by NBN Co in relation to fixed wireless broadband and satellite broadband matters[6] during the period beginning on 1 July 2009 and ending on 30 June 2020

b. the total of the reasonable losses likely to be incurred by NBN Co in relation to fixed wireless broadband and satellite broadband matters during the period beginning on 1 July 2009 and ending on 30 June 2040 (the total expected net losses)

c. the amount that the base component for a month (within the meaning of the Charge Act) would be required to be in order for the Commonwealth to receive a total amount by way of charge imposed by that Act that would offset the total expected net losses, if it were assumed that paragraph 9(1)(b) of that Act had not been enacted

d. the total of the reasonable losses likely to be incurred by NBN Co in relation to fixed wireless broadband and satellite broadband matters during the period beginning on 1 July 2020 and ending on 30 June 2040 (the total expected net forward facing losses)

e. the amount that the base component for a month (within the meaning of the Charge Act) would be required to be in order for the Commonwealth to receive a total amount by way of charge imposed by that Act that would offset the total expected net forward facing losses, if it were assumed that paragraph 9(1)(b) of that Act had not been enacted

f. the total expected number of chargeable premises by reference to which the charge is to be calculated under the Charge Act during the financial year beginning on 1 July 2025

g. such other matters (if any) as the ACCC considers relevant.

As such, there are three required estimates regarding financial losses of NBN Co's fixed wireless and satellite networks, two estimates regarding the base component of the levy, and an estimate of the number of chargeable premises. The ACCC must also specify the 'aggregated data inputs and the modelling assumptions' upon which the estimates were determined.[7]

4 Amending Act subsection 5(8) provides for the timing of the report's publication and provision to the Minister and subsection 5(9) contains the requirement for its tabling.

5 Amending Act subsections 5(1) and 5(3). Subsection 5(7) also notes that the ACCC's report must assume that charge offset certificates under Division 6 of Part 3 of the TCPSS Act are not relevant.

6 Defined by reference to paragraphs 13(3)(a) to (d) of the Charge Act.

7 Amending Act subsection 5(4).

The legislation also specifies that the ACCC must:

- use the 'methodology and model that was used by the Department of Communications and the Arts' Bureau of Communications Research for the report entitled NBN non-commercial services funding options—Final report March 2016'
- 'update the inputs and assumptions of the methodology and model to reflect changes that have occurred since the publication of that report.'[8]

The legislation further specifies that in updating the inputs and assumptions, the ACCC must (without limiting other updates we might make) take the following into account:

- 'changes in the inputs for estimating the total number of chargeable premises by reference to which a charge is imposed by the Regional Broadband Scheme Charge Act
- changes in the inputs for build costs in relation to fixed wireless broadband and satellite broadband matters
- changes in the inputs for estimating future capital expenditure requirements in relation to fixed wireless broadband and satellite broadband matters.'[9]

1.2.2 Five-yearly reports

The ACCC's ongoing reporting requirements are contained in sections 13 and 17 of the Charge Act. These periodic reports are to occur at least once in each five-year period after commencement of the provisions.

This initial report is limited to an analysis of the base component, whereas the ongoing reporting covers both the base and administrative components of the RBS levy.

For this initial report, the ACCC is required to use the financial model and methodology previously used by the BCR and update the inputs and assumptions adopted by the BCR where we considered it necessary.[10]

There are a number of threshold issues regarding the financial model and methodology previously used by the BCR that the ACCC will have an opportunity to consider as part of its five yearly review of the RBS levy. The non-exhaustive list of threshold issues identified include whether:

- a discounted cash flow model or an alternative approach (e.g. building block model) should be used
- historical losses, calculated on the basis of economic costs during the period, are relevant for calculation of the levy
- taxation liabilities – positive or negative—should be considered in an avoidable cost framework for the calculation of losses.

Also, whether the period over which expenditure, revenue and the financial position of NBN Co's fixed wireless and satellite networks is forecast should align more closely with the five year review period (i.e. instead of a 20 year forecasting period as required for this report).

Appendix 1 lists the inputs and assumptions adopted by the ACCC for this report.

8 Amending Act subsection 5(5).

9 Amending Act subsection 5(6).

10 The Department provided a copy of the discounted cash flow model used by the BCR to the ACCC in June 2020.

2. Carrier reporting and collection of data

The TCPSS Act required all carriers with 'reportable premises' to provide a report to the ACCC within 60 days after the commencement of the applicable provisions—i.e. by 27 July 2020.

Those carriers were required to report, for the month of April 2020, the number of:

- reportable premises[11]
- potentially chargeable premises
- chargeable premises
- exempt lines
- exempt premises
- potentially concessional premises
- recently connected greenfields premises.

Further information about those one-off reporting requirements is available on the ACCC's website here.[12]

2.1 Categories of information

The seven data items required to be reported are defined in the legislation. Shorthand descriptions of the four categories that have an impact on our estimates of chargeable premises are set out below.

Term	Short-hand description
Chargeable premises (TCPSS Act s. 93)	Excludes exempt lines and exempt premises.
Exempt lines (TCPSS Act s. 96)	Lines under contract to be transferred to NBN Co. Excluded from the levy until they are transferred.
Potentially concessional premises (TCPSS Act s. 96A)	Lines to residential and small business premises. Up to the first 25,000 such premises are exempt from payment of the levy for the first five financial years. But only if the carrier has no potentially concessional greenfields premises.
Potentially concessional greenfields premises (TCPSS Act s. 96B)	Lines to certain new builds installed up until 30 June 2019. Up to the first 55,000 such premises are exempt from payment of the levy for the first five financial years.

11 TCPSS Act subsections 102ZF(2) and (7). A premise was reportable if it met the relevant definitions at any time in the applicable reporting period (April 2020)—it did not have to meet the definitions for the entire month.

12 https://www.accc.gov.au/regulated-infrastructure/communications/accc-role-in-communications/regional-broadband-scheme-rbs-levy-reporting-requirements-for-carriers.

2.2 Reports by carriers

The ACCC received 35 reports from carriers with fixed line infrastructure. A number of other carriers advised the ACCC of having no ‘reportable premises’.

2.3 Updating NBN Co data and the BCR’s modelling assumptions

To update the estimates of expenditure and revenue for NBN Co’s fixed wireless and satellite networks, and the number of premises that will be connected to NBN services, the ACCC engaged directly with NBN Co.

NBN Co provided forecasting assumptions and updated data relating to:

- past capital and operational expenditure, and revenue for fixed wireless and satellite networks over the 2010–20 period
- forecast capital and operational expenditure, and revenue for fixed wireless and satellite services over the 2020–40 period
- the number of premises connected to fixed wireless, satellite and NBN fixed line services over the 2014–20 period, the forecast number of premises connected to fixed wireless and satellite networks over the 2020–40 period, and growth forecasts for premises connected to NBN fixed line networks over this period.

NBN Co advised the ACCC this data was obtained from: 2010–20 NBN Co audited accounts; NBN Co Corporate Plan 2021–24 forecasts; and indicative forecasts for the 2025–40 period.

NBN Co also advised that data provided from indicative forecasts for the 2025–40 period had not been reviewed or approved by the NBN Co Executive Committee or the NBN Co Board.

2.3.1 Cost allocation methodology

The ACCC adopted the BCR’s avoidable cost methodology for estimating the cost of NBN Co’s fixed wireless and satellite networks. This contrasted with the methodology adopted by NBN Co for the updated cost data it provided to the ACCC regarding past and forecast expenditure on the fixed wireless and satellite networks. NBN Co’s updated cost data was based on a fully distributed cost (FDC) methodology.

The legislation requires that the ACCC adopt the BCR’s methodology. However, the ACCC also considers the avoidable cost methodology is more consistent with economic efficiency and competitive neutrality than the FDC methodology implied in NBN Co’s updated cost data.

When costs are fully distributed for a multiproduct firm, each service is assigned its attributable costs plus an arbitrary allocation of the firm’s shared costs required for the provision of all services. The FDC is an accounting estimate of costs and results in the multiproduct firm’s total costs being divided up entirely: the sum of FDC of each service across all services corresponds to the total cost of supplying all services.

In contrast, the avoidable cost of supplying a particular service is the change in multiproduct firm’s total cost of producing all services if the firm were to cease production of that particular service.

Avoidable cost is an estimate of the resource cost incurred in the supply of non-commercial services and therefore is consistent with an economically efficient estimate of the costs of those services. In contrast, because FDC includes costs that are arbitrarily allocated to non-commercial services, it is not consistent with an economically efficient estimate of the costs of those services.

Competitive neutrality considerations are also important in informing the choice of avoidable cost. In its principles for designing funding arrangements, the BCR stated the funding arrangements should not provide government-owned entities with any advantages (or disadvantages) over private sector participants. An interpretation of this requirement is that the imposition of the levy should not increase the likelihood of NBN Co earning greater (or lower) profits which may provide NBN Co with advantages (or disadvantages) relative to private sector participants.

An FDC-based levy imposed on private sector participants raises their costs by their share of NBN Co's losses and would allow NBN Co to recover both the losses that are causally related to the supply of non-commercial services and also recover an arbitrary proportion of NBN Co's shared costs. Such an outcome is not competitively neutral since an FDC-based levy is not likely to increase the profitability of private sector participants, but is likely to increase the profitability of NBN Co.

In contrast, a levy amount consistent with the shortfall of revenues relative to the avoidable costs of supplying non-commercial services will allow NBN Co to recover no more than the resource cost of those services and is not likely to increase NBN Co's profits. Therefore, a levy calculated on the basis of avoidable costs is more consistent with the principle of competitive neutrality.

2.3.2 Updating the BCR's avoidable indirect expenditures

The avoidable cost methodology excludes the arbitrary allocation of a firm's shared costs to the cost of providing a service but includes indirect expenditure that can be causally attributed to providing that service.

While the ACCC adopted the BCR's avoidable cost methodology, not all the necessary information was available to update the avoidable cost parameters. NBN Co advised the ACCC that as it does not utilise an avoidable cost methodology the information sought by the ACCC was not readily accessible and in some cases not available. Given the information constraints, the ACCC adopted a proportional mark-up approach that maintained consistency with the BCR's avoidable cost methodology. The proportional mark-up is the NPV of avoidable indirect expenditures as a percentage of the NPV of direct expenditures for each expenditure and service category in the BCR's model. The proportional mark-up was then applied to the updated annual direct expenditure for an estimate of the corresponding annual indirect avoidable expenditure. The mark-up implies the demand for, and consumption of, avoidable indirect resources depend on the magnitude of the direct activities and direct projects undertaken during and after the rollout of services.

The ACCC found considerable evidence in the BCR model and report that direct and avoidable indirect expenditures are largely caused by the same cost driver of 'premises activated'. This finding supports the proportional mark-up approach because when both direct and indirect expenditures share the same cost driver, there exists the same proportional and directional change in both expenditures required for the supply of the service.

Therefore, based on the above considerations, the ACCC is satisfied the update to the BCR's model through a proportional mark-up for indirect expenditures preserves the BCR's avoidable cost model and methodology. The ACCC also considers the proportional mark-up on updated direct expenditures provides a best estimate of the indirect expenditures necessary to support the direct activities and projects during and beyond the rollout of non-commercial services.

2.3.3 Updating the BCR's discount factor for historical losses

For the NPV calculation of historical losses, the BCR assumes that the losses are not adjusted for the time value of money. Instead, historical losses were multiplied by a discount factor of '1'. For the ACCC's updated NPV calculation of losses, we consider the BCR's assumption does not give consideration to the time value of money and requires updating to approximate reasonable losses over the period 2009–10 to 2039–40. The update is also required to achieve consistency with both the BCR's discounted cash flow (DCF) model and the BCR's statement on discounting that 'where a project is loss making at the beginning and profit making at the end, discounting will place more weight on the losses because they arise earlier.'[13]

The adjustment for the time value of money is required for all losses over the period 2009–10 to 2039–40, where only losses in the year nominated as the 'present' in an NPV calculation is multiplied by a discount factor of 1. If 2019–20 is the year nominated as the present for the NPV calculation, losses that occur before the nominated year should be multiplied by a discount factor greater than 1 and losses that occur after the nominated year should be multiplied by a discount factor less than 1. The discount factor greater than 1 ensures that NBN Co is correctly compensated for the opportunity cost of capital in incurring and carrying forward historical losses. By updating the BCR's historical discount factor assumptions, the value of the losses over the 30 year period is correctly and consistently expressed in the dollars of the year that is nominated as the present: 2019–20.

The BCR noted in its 2016 report that the Weighted Average Cost of Capital (WACC) contemplated in the NBN Special Access Undertaking (SAU) is consistent with the Government's competitive neutrality guidelines for determining a target rate of return,[14] and adopted a WACC consistent with the NBN SAU methodology as the discount rate to calculate the NPV of losses. To construct the discount factors for 2010–20 for this report, the ACCC used the WACC values from the NBN SAU Long Term Revenue Constraint Methodology (LTRCM) determinations.[15] For 2021–22 to 2039–40, the ACCC estimated the WACC value according to the NBN SAU methodology.

13 Bureau of Communications Research (2016), *NBN non-commercial services funding options Final Report*, March, p. 37.

14 Ibid.

15 https://www.accc.gov.au/regulated-infrastructure/communications/national-broadband-network-nbn/nbn-co-special-access-undertaking.

3. Levy charging base

All carriers, including NBN Co, will be required under the RBS legislation to pay a levy of a specified rate per month, per chargeable premises. Broadly, chargeable premises are premises supplied with a designated broadband service by fixed line infrastructure capable of providing 25Mbps or more.

These chargeable premises provide the total funding base; however, NBN Co is likely to receive charge offset certificates so that it does not pay the levy only to subsequently receive the same funding back from the collection agency. This also reflects that NBN Co's wholesale customers are already contributing to the financial losses of fixed wireless and satellite services through an internal NBN Co cross-subsidy from its fixed line services.[16]

3.1 Commencement date for the levy

When the BCR modelled the levy in 2016, the scheme was assumed to start at the beginning of the 2017–18 financial year (1 July 2017). The legislation's delayed passage has meant that collection of the RBS levy will commence on 1 January 2021. Consequently, the levy calculated by the ACCC allows for the recovery of losses already incurred and the estimated future losses over the 2020–2040 period, as required under the legislation.

The ACCC has assumed the same period (2010–40) as the BCR for modelling the NPV of losses incurred by NBN Co's fixed wireless and satellite services; however, the ACCC's assumed start date for collection of the levy is 1 January 2021 instead of 1 July 2017.

3.2 Inputs—premises data

The number of chargeable premises is a key metric for calculating the RBS levy, as losses incurred and forecast for fixed wireless and satellite services are recovered through the levy based on the number of chargeable premises over the 2021–40 period.

The ACCC has updated the model to include the data reported by carriers on the number of chargeable premises in 2020. As the BCR's model did not assume any RBS levy exemptions or concessions, the ACCC has incorporated these factors so as to provide an up-to-date estimate of the number of chargeable premises during and beyond the exemption and concession period. This is discussed further below.

3.2.1 Totals reported by carriers

The following is premises data reported by NBN Co and other carriers for the month of April 2020, in accordance with the legislative reporting requirement.

Category	Total
Chargeable premises	7,080,249
Potentially concessional premises*	6,000,978
Potentially concessional greenfields premises*	93,530

* Concessions are subject to a cap for each carrier, see discussion below.

16 The Explanatory Memorandum to the Telecommunications (Regional Broadband Scheme) Charge Bill 2019. p. 35.

3.3 Concessions

The RBS includes concessions for certain premises for the first five eligible financial years. Section 20 of the Charge Act provides for the number of chargeable premises to be reduced depending on the number of premises that meet certain conditions.

The ACCC has incorporated concessional premises into its estimates of chargeable premises during the first four and a half years[17] of the levy being collected.

The two categories of concessions are: lines for supplying residential or small business premises (up to the first 25,000 such premises); and recently connected greenfields premises (up to the first 55,000 such premises).

Notably, it is not necessarily the higher of the two. Section 20 of the Charge Act provides that if a carrier has recently connected greenfields premises that is the concession that applies. The concession for residential and small business customers can only apply to carriers without any recently connected greenfields premises. Our estimates for the number of chargeable premises take this into account.

When adjusted for *maximum* concessional premises under the legislation, by category, for each carrier (see also discussion below), the concessional premises data totals are estimated for the 2021–22 year[18] as follows:

Category	Total
Concessional premises (adjusted for max. per carrier)	105,079
Concessional greenfields premises (adjusted for max. per carrier)	90,318

3.4 Assumptions for premises data

3.4.1 Estimating growth in premises over time

Our approach has been to accept NBN Co's estimates of chargeable premises up to 2023–24 based on its Corporate Plan forecasts, as well as its longer term projections over the period to 2040 based on indicative forecasts.

For the number of premises connected to non-NBN networks, we have used the April 2020 premises data reported recently by carriers to establish a baseline for the 2019–20 year. We have then assumed long term growth in non-NBN carrier premises broadly in line with NBN premises growth to project the total number of chargeable premises (i.e. NBN and non-NBN) over the period to 2040.

The concessional premises numbers for residential and small business premises have also been estimated over the relevant five years, consistent with assumed growth in non-NBN premises. Recently connected greenfields premises concessions are static consistent with the legislative definitions.[19]

Our estimate of the total number of chargeable premises over the period to 2040 is shown in figure 3.1 below. The ratio of NBN Co to non-NBN Co chargeable premises is estimated to be around 20 to 1 on average over the modelling period.

17 CPSS Act section 78A specifies that 1 January 2021 to 30 June 2021 is taken to be the first eligible financial year. This means the concessional period for these premises is four and a half years.

18 The 2021–22 year includes a growth estimate for [residential and small business] concessional premises (see discussion below table).

19 Most notably, these only apply to a certain category of premises connected on or before 30 June 2019.

3.4.2 Transfer of exempt lines

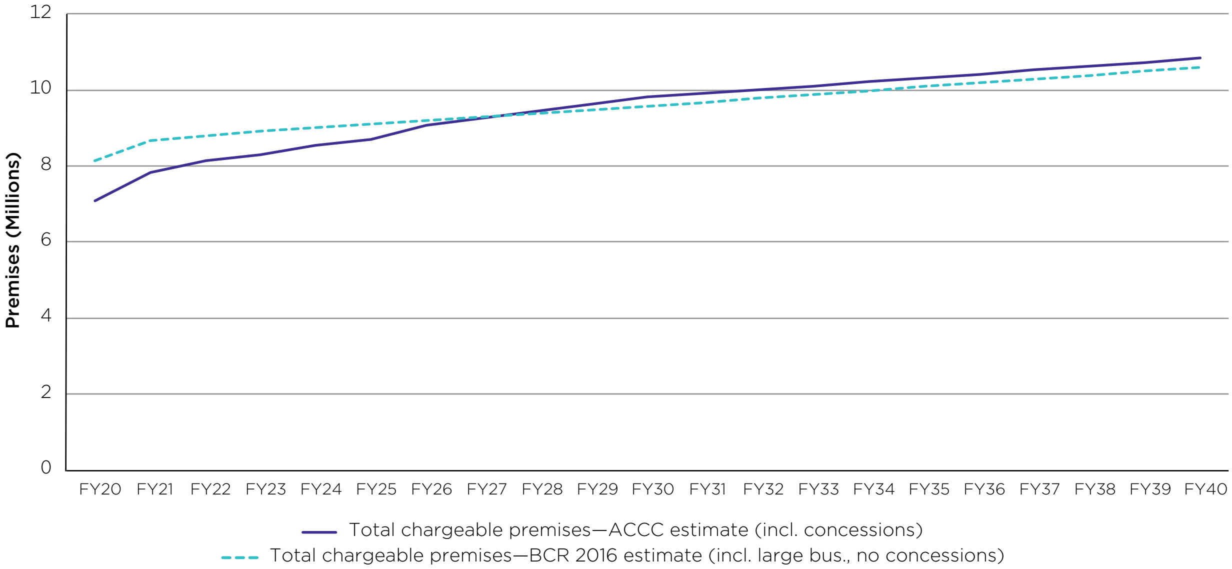
Exempt lines broadly refers to lines that are under contract to be transferred to NBN Co. These lines are not considered potentially chargeable premises and are outside the scope of the levy.

Once exempt lines are transferred to NBN Co, the premises associated with those lines become chargeable premises. NBN Co has advised the ACCC that exempt lines are included in its premises estimates.

3.5 Chargeable premises over the modelling period

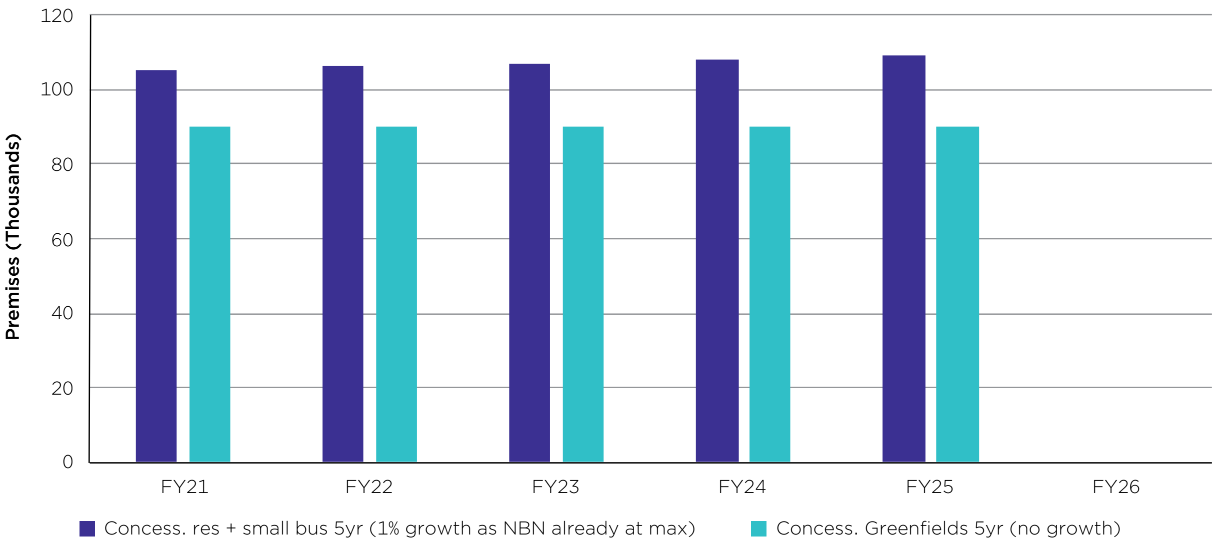
Incorporating the inputs and assumptions discussed above, the ACCC has estimated the total number of chargeable premises over the 2021–40 period as shown below.

Figure 3.1: Total chargeable premises



As discussed above, the first four and a half years of the levy include adjustments for concessions and exemptions. The profile of the concessions is shown in the chart below. However, details of exempt lines under contract to be transferred to NBN Co are not included for confidentiality reasons. There are no concessions from FY26 onward.

Figure 3.2 Transitional concessions and exemptions



4. Updating NBN Co's fixed wireless and satellite network expenditure and revenues

The ACCC has updated the BCR's estimates of expenditure and revenue for NBN Co's fixed wireless and satellite networks, engaging directly with NBN Co to obtain data on:

- past capital and operational expenditure, as well as revenue received for fixed wireless and satellite services over the 2010–20 period
- forecast capital and operational expenditure, as well as forecast revenue for fixed wireless and satellite services over the 2020–40 period.

NBN Co advised the ACCC that this data was obtained from: 2010–20 NBN Co audited accounts; NBN Co Corporate Plan 2021–24 forecasts; and indicative forecasts for the 2025–40 period.[20]

The ACCC adopted the BCR's avoidable cost methodology for estimating the indirect costs of NBN Co's fixed wireless and satellite networks and applied this methodology to estimate the indirect costs of NBN Co's past and forecast expenditure. As discussed in chapter 2, this contrasted with NBN Co's updated cost data, which was based on a fully distributed cost methodology.

The following charts show the BCR's estimates of expenditure and revenue for NBN Co's fixed wireless and satellite networks, compared to the ACCC's updated estimates for this report using the data provided by NBN Co with indirect costs adjusted to reflect an avoidable cost methodology.

Values (in real terms) in the charts have been converted to an index to show the relative differences between the BCR's 2016 estimates and the ACCC's estimates for this report using the data provided by NBN Co[21] (i.e. adjusted to reflect an avoidable cost methodology).

As shown in the charts, the ACCC's estimates of both expenditure and revenue have changed compared to the BCR's 2016 report estimates. This is due primarily to the ACCC's estimates being based on more recent forecasts of revenue and expenditure provided by NBN Co. Some of the factors affecting the divergence between the two estimates include revised forecasts of the take up of fixed wireless and satellite services, as well as the level and timing of expenditure on upgrades and maintenance. Both the BCR's and the ACCC's estimates of expenditure are based on an avoidable cost methodology.

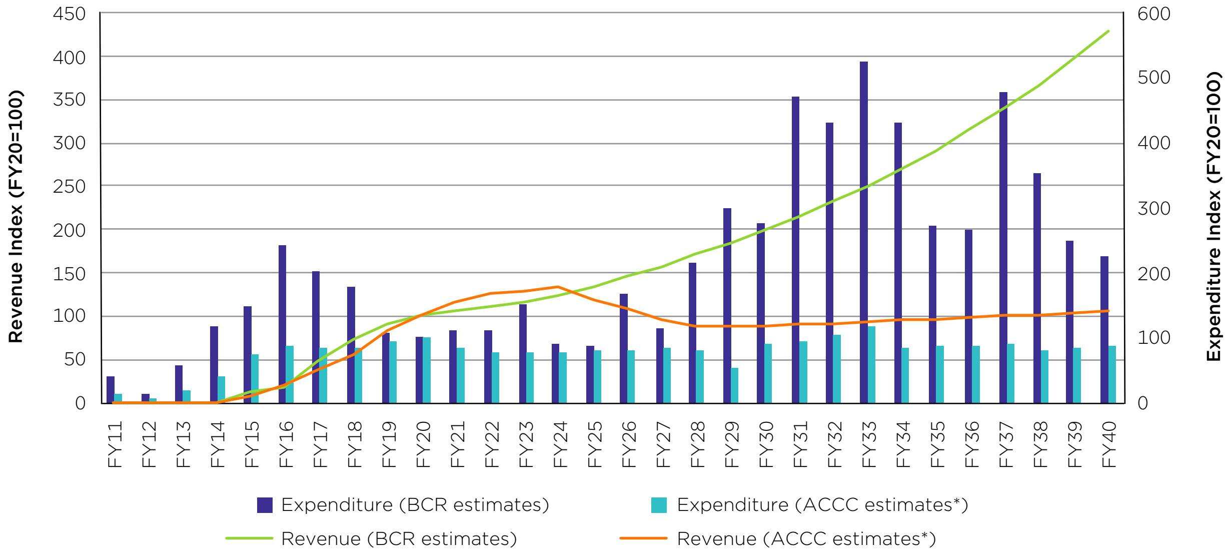
Figure 4.1 shows the fixed wireless revenue estimated by the ACCC and the BCR are very similar up until 2023–24 (FY24). After this, the estimates diverge with the BCR having estimated higher revenue over the period to 2040. The BCR's estimate of expenditure on the fixed wireless network is also much higher than the ACCC's throughout most of the modelling period.

Figure 4.2 shows that satellite revenue estimated by the ACCC and the BCR is very similar up to 2019–20 (FY20). After 2021–22 (FY21) the estimates diverge with the ACCC having estimated higher revenue over the period to 2040. The ACCC's and the BCR's estimates of expenditure on the satellite network are similar throughout most of the modelling period.

20 NBN Co also advised that data obtained from indicative forecasts for the 2025-40 period had not been reviewed or approved by the NBN Co Executive Committee or the NBN Co Board.

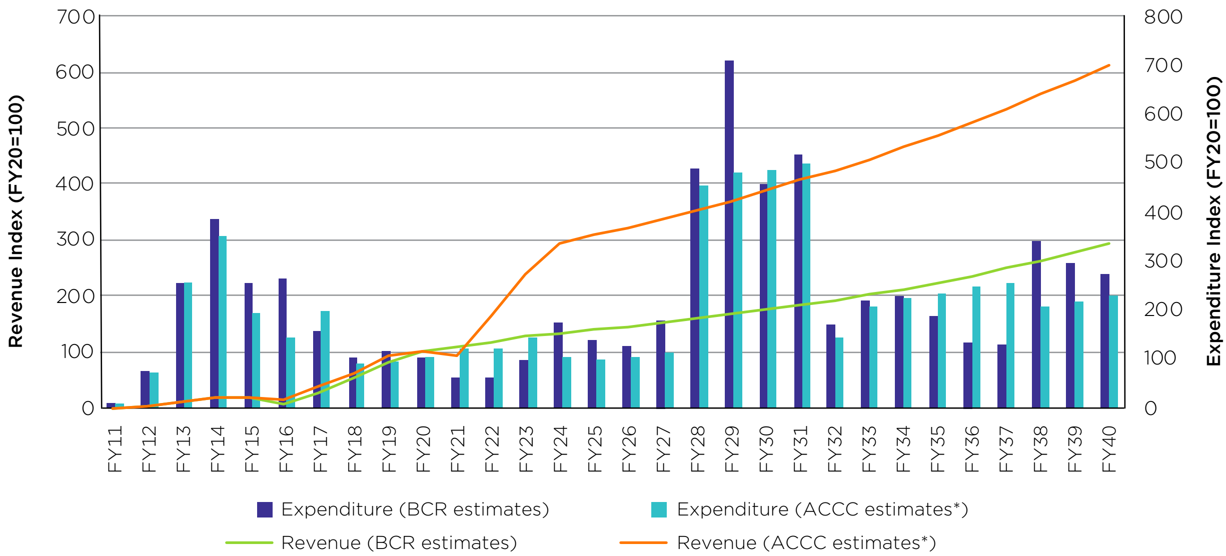
21 Values were converted to an index having regard also for the commercial-in-confidence financial data provided by NBN Co.

Figure 4.1: Fixed Wireless Real Revenue and Expenditure Index



*Note: ACCC estimates are based on cost and revenue data provided by NBN Co with updated cost allocation based on the avoidable cost methodology.

Figure 4.2: Satellite Real Revenue and Expenditure Index



*Note: ACCC estimates are based on cost and revenue data provided by NBN Co with updated cost allocation based on the avoidable cost methodology.

5. Estimates of NBN Co losses and levy base component

The Amending Act requires the ACCC to estimate the past and future losses incurred by NBN Co in providing fixed wireless and satellite services as well as estimates of the base component of the levy required to offset past and future losses.

As discussed previously, the ACCC is required to use the financial model and methodology used by the BCR for its 2016 report (incorporating a discounted cash flow model), and to update the inputs and assumptions to reflect changes that have occurred since the publication of that report.

Appendix 1 lists the inputs and assumptions adopted by the ACCC for this report.

5.1 Estimates of losses

Subsection 5(3) of the Amending Act requires the ACCC to calculate three estimates relating to the losses of NBN Co's fixed wireless and satellite networks. Specifically, past, total and future losses.

The legislation requires that we estimate:

- 'the total losses that have been incurred by NBN Co in relation to fixed wireless broadband and satellite broadband matters during the period beginning on 1 July 2009 and ending on 30 June 2020' (*past losses*)
- 'the total of the reasonable losses likely to be incurred by NBN Co in relation to fixed wireless broadband and satellite broadband matters during the period beginning on 1 July 2009 and ending on 30 June 2040 (the *total expected net losses*)'
- 'the total of the reasonable losses likely to be incurred by NBN Co in relation to fixed wireless broadband and satellite broadband matters during the period beginning on 1 July 2020 and ending on 30 June 2040 (the *total expected net forward facing losses*)'.[22]

The following table sets out the ACCC's estimates of past, total and future losses (in 2020 dollars) in accordance with those legislative requirements.

Estimated NPV of ***past losses*** of NBN Co's fixed wireless and satellite networks (i.e. losses between 1 July 2009 and 30 June 2020)	$7.526 billion
Estimated NPV of ***total expected losses*** of NBN Co's fixed wireless and satellite networks (i.e. losses between 1 July 2009 and 30 June 2040)	$12.949 billion
Estimated NPV of ***total expected forward facing losses*** of NBN Co's fixed wireless and satellite networks (i.e. losses between 1 July 2020 and 30 June 2040)	$5.424 billion

22 Paragraphs 5(3)(a), (b) and (c) of the Amending Act.

5.2 Estimates of levy base components

The ACCC is also required to calculate two levy amounts: one offsetting past and future losses of NBN Co's fixed wireless and satellite services, and a second amount offsetting only future losses.

The RBS legislation provides that the initial monthly levy for the first eligible financial year of 2020–21 (deemed as the six months 1 January 2021 to 30 June 2021)[23] is $7.10 per premises.[24] This comprises a base component of $7.09 and an administrative component of $0.01. The ACCC is not required to consider the administrative component in this report.

It is noted that the ACCC's estimates have the status of advice. The levy, which is capped by legislation at $7.10 per month in the first eligible financial year and then indexed annually by CPI, can only be changed by the Minister under the Charge Act.

While the Minister can adjust the base and administrative levy components by legislative instrument, the Charge Act provides that the Minister may not set a total monthly levy amount higher than the indexed cap for the relevant financial year.[25]

The ACCC's calculation of the initial base component of the levy assumes the levy will be collected from 1 January 2021 to 30 June 2040.[26]

5.2.1 Updated initial levy amount that would offset total expected net losses

The legislation (Amending Act paragraph 5(3)(c)) requires that we calculate:

> 'the amount that the base component for a month (within the meaning of the Regional Broadband Scheme Charge Act) would be required to be in order for the Commonwealth to receive a total amount by way of charge imposed by that Act that would offset the total expected net losses, if it were assumed that paragraph 9(1)(b) of that Act had not been enacted'.

Based on the **total expected net losses** of NBN Co (i.e. past and future losses to 2040) providing fixed wireless and satellite services, the ACCC's estimate (in 2020 dollars) of the base component of the levy required to offset these losses is:

Estimated initial base component of RBS levy required ***to offset total expected net losses***	$7.03 per chargeable premises, per month[27]

23 TCPSS Act sections 76, 78A and 79.

24 Charge Act sections 12 & 16.

25 Charge Act section 17A.

26 The legislation also provides that the ACCC is to assume that charge offset certificates do not exist, explaining the references to 'paragraph 9(1)(b)' in the excerpts below. Charge offset certificates relate to the arrangements that provide that NBN Co, although subject to the charging framework, does not have to pay the levy only to have it repaid to it.

27 If adjusted for inflation to compare to the legislated initial base component, the levy estimate would be $7.11 when the levy commences in 2021.

5.2.2 Initial levy base component that would offset total expected net forward-facing losses only

The legislation (Amending Act paragraph 5(3)(e)) requires that we calculate:

> ‘the amount that the base component for a month (within the meaning of the Regional Broadband Scheme Charge Act) would be required to be in order for the Commonwealth to receive a total amount by way of charge imposed by that Act that would offset the total expected net forward facing losses, if it were assumed that paragraph 9(1)(b) of that Act had not been enacted’.

Based on the **total expected net forward-facing losses** of NBN Co (i.e. losses between 2020 and 2040) providing fixed wireless and satellite services, the ACCC’s estimate (in 2020 dollars) of the initial base component of the levy required to offset these losses is:

Estimated initial base component of RBS levy required ***to offset total expected net forward facing losses***	$2.94 per chargeable premises, per month

5.3 Legislative requirement—estimated chargeable premises for the year beginning 1 July 2025

The legislation (Amending Act paragraph 5(3)(f)) also requires that we calculate:

> ‘the total expected number of chargeable premises by reference to which charge is to be calculated under the Regional Broadband Scheme Charge Act during the financial year beginning on 1 July 2025’.

Based on data provided to the ACCC by carriers in July 2020 under section 102ZF of the TCPSS Act, and having regard for RBS levy exemptions and concessions arrangements, the ACCC has calculated the total expected number of chargeable premises for the 2025-26 financial year as:

Estimated ***chargeable premises*** at 1 July 2025	9,080,256

Appendix 1

The following table sets out the inputs and assumptions adopted by the BCR that were updated by the ACCC to derive the estimates in this report. Other key inputs and assumptions adopted by the ACCC for this report are also listed.

BCR approach	ACCC approach
Discounted cash flow model.	Discounted cash flow model.
Modelling period 2009–10 to 2039–40.	Modelling period 2009–10 to 2039–40.
NPV of losses modelled as at the beginning of FY2015-16.	NPV of losses modelled as at the beginning of FY2019–20**.**
Discount rate of 6.46 per cent based on the WACC calculated using the method similar to that approved by the ACCC for NBN's SAU—that is, the risk-free rate plus 350 basis points. The risk free rate was based on 10 year Australian bond yield as at 16 July 2015.	Discount rate of 4.43 per cent based on the WACC calculated by the method approved by the ACCC for NBN's SAU—that is, the risk-free rate (the mean annualised yield on Commonwealth Government securities with a maturity of 10 years, averaged over the final 20 business days of the FY2019–2020) plus 350 basis points.
Inflation rate of 2.5 per cent.	Inflation rate of 2.5 per cent based on the Reserve Bank of Australia inflation target range.
Cost allocation for estimating the indirect costs of NBN Co's fixed wireless and satellite networks based on avoidable cost methodology.	Cost allocation for estimating the indirect costs of NBN Co's fixed wireless and satellite networks based on avoidable cost methodology.
Revenue and expenditure inputs from BCR estimates based on NBN Co financial data (actuals) and Corporate Plan forecasts.	Revenue and expenditure inputs from NBN Co financial data (actuals), Corporate Plan forecasts and indicative estimates**.**
Number of chargeable premises over modelling period from BCR estimates.	Number of chargeable premises over modelling period estimated from July 2020 carrier reporting and NBN Co Corporate Plan forecasts and indicative estimates (and incorporating RBS levy exemptions and concessions).
RBS levy assumed to commence on 1 July 2017.	RBS levy assumed to commence on 1 January 2021**.**
Working capital was allocated to each network by their share of operating income (revenue minus opex).	The ACCC removed the working capital allowance. The BCR's calculation of working capital appears incompatible with the BCR's model and methodology, since a forecast increase in the recovery of expenditures through revenue growth increases rather than decreases the shortfall on which the levy is calculated. There were also other issues regarding the potential double counting of losses when a working capital allowance is included in the calculation.[28]
10 per cent of capex contingency allowance from FY2023 onwards.	NBN Co advised that its expenditure forecasts did not include a capex contingency allowance. The ACCC did not include a capex contingency allowance in its estimates.
Historical losses not adjusted for the time value of money.	Historical losses are adjusted for the time value money to ensure that NBN Co is compensated for the opportunity cost of capital of carrying forward losses incurred in the past. As discussed in chapter 2 of this report, an adjustment for the time value of money is also required to achieve consistency with the BCR's DCF model.

28 The BCR made an adjustment to present value calculations to allow for mid-year cash-flow timing—which arguably serves the same purpose as providing a working capital allowance. Bureau of Communications Research (2016), NBN non-commercial services funding options Final Report, March, p. 89.

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