nbn FY09-FY23 Building Block Model handbook

December 2022

Disclaimer

This document is provided for information purposes only. This document is subject to the information classification set out on this page. If no information classification has been included, this document must be treated as '**nbn**-Confidential: Commercial' and must not be disclosed other than with the consent of **NBN** Co. The recipient (including third parties) must make and rely on their own inquiries as to the currency, accuracy and completeness of the information contained herein and must not use this document other than with the consent of **NBN** Co.

Contents

1 Introduction

1.1 The role of the BBM

The LTRCM model currently set out in the SAU was developed to ensure that details of **nbn**'s ABBRR, RAB and ICRA were transparent during the Initial Regulatory Period when **nbn** was focused on building out its networks and migrating users to its network. The operation of the LTRCM means that expenditures on all **nbn** networks (including MTM networks) have been included in the LTRCM model, and the RAB and ICRA values determined annually by the ACCC include the totality of **nbn**'s prudently incurred costs.

The Initial Regulatory Period has effect until 30 June 2023. **nbn** now proposes to replace the LTRCM BBM in the Subsequent Regulatory Period with a revised BBM. The revised BBM will reflect our efficient costs – including the RAB as calculated under the Module 1 LTRCM provisions. The BBM implements the building block economic regulation approach to determine an ABBRR and also undertakes calculations regarding **nbn**'s recovery of ICRA.

To make **nbn**'s allocation of costs between Core Regulated Services and Competitive Services transparent and provide greater confidence that **nbn** does not cross-subsidise services supplied in competitive markets with revenue from Core Regulated Services, the BBM also contains cost allocations between Core Regulated and Competitive Services. The public BBM consists of only the Core Regulated components of the BBM.

The revised BBM has been split into two models:

- A backward-looking model that captures calculations with historical data from FY09 to FY22 and one year of forecasts – FY23.
- A forward-looking model from the First Regulatory Period which captures calculations using forecast data.

This handbook refers to the former– the backward-looking model. The backward-looking model will be replaced by a roll forward model from the beginning of the Subsequent Regulatory Period.

1.2 How this manual fits with other documents, including the SAU and the Cost Allocation Manual

The BBM reflects the calculations in the SAU (as per the variation to the SAU lodged by **nbn** on 29 November 2022) and the principles in the Cost Allocation Manual (CAM). This handbook documents, at a high level for instructive purposes only, how the BBM implements the calculations in the SAU and the principles in the CAM. To the extent the SAU, BBM and CAM are inconsistent with this handbook, the former documents take precedence.

nbn has prepared an updated BBM to support its SAU variation. The current SAU does not require cost allocation between services or product components. The LTRCM BBM has been revised to include cost allocation.

The revised BBM calculates a Core Services RAB Portion, Core Services ABBRR, and Core Services ICRA, as well as a competitive RAB portion, a competitive ABBRR and a competitive ICRA allocation. This allocation between Core Regulated Services and Competitive Services includes further breakdowns of ABBRR elements including Core Regulated and Competitive capex, depreciation, opex and asset disposals, and a revised tax calculation.[1]

The CAM documents how **nbn** has allocated costs to Core Regulated and Competitive Services (using the Cost Allocation Principles proposed in the SAU Variation).

1.3 Updating this document and process for revision

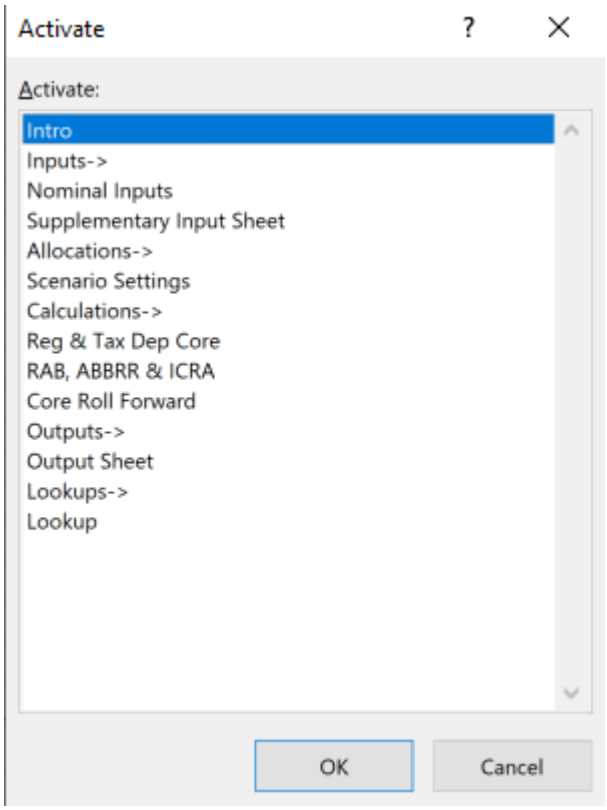
This document is for users of the revised FY09-FY23 BBM which models the period prior to the Subsequent Regulatory Period. Following the end of the First Regulatory Cycle this handbook will be redundant.

2 Model overview

2.1 Structure

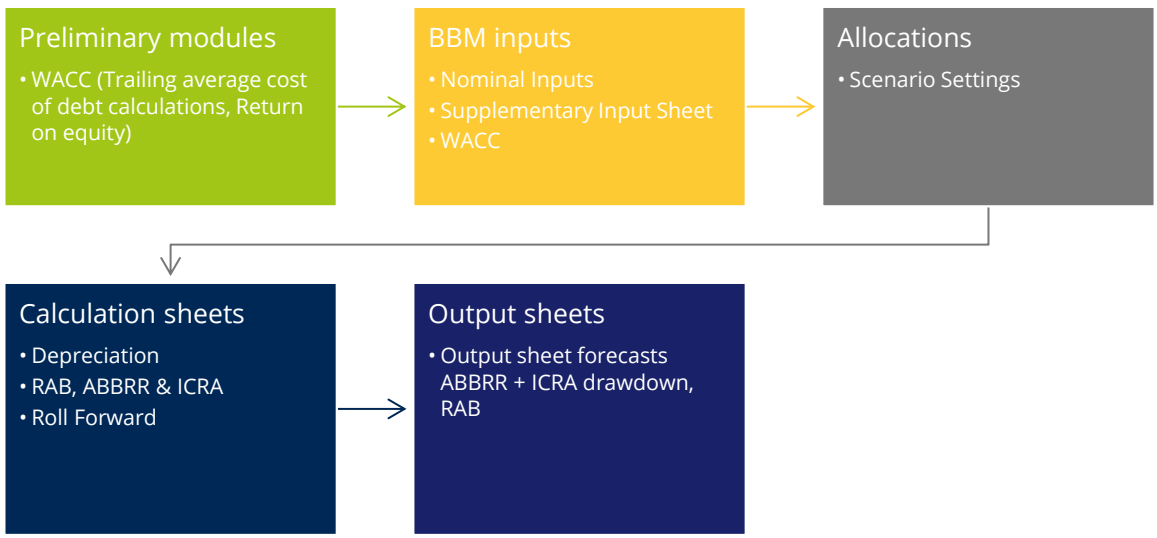
The BBM has been set up with a separation between the inputs, allocations, calculations and outputs of the model. The sheets included in the model and the structure of the model can be seen in **Figure 1** and **Figure 2**.

Figure 1: **Sheets in the BBM**



Source: ***nbn***

Figure 2: **BBM structure**



Source: ***nbn***

The WACC is calculated outside of the BBM in a separate model.

2.2 Model conventions

nbn has developed a revised BBM which is based on the model currently used for the purposes of the LTRCM provisions in Module 1 of the SAU. **nbn** has retained the simplified RAB and ICRA build-up sheets from the LTRCM Spreadsheet 2013-14 for transparency. However, where the greatest differences between the revised BBM and current LTRCM model exist is that the BBM allocates the RAB and ICRA to Competitive and Core Regulated Services. In the public BBM, only Core Regulated Services are visibly modelled with the allocation to Competitive Services occurring outside the public BBM. The revised BBM also provides the mechanism for modelling the ABBRR and ICRA recovery amounts going forward and more detail at an asset class level basis.

Given the split of the revised BBM into a backward and forward-looking model, the backward looking model calculates the roll forward RAB and remaining lives for each asset class. This is based on the 600+ assets that are depreciated in the model.

The forward-looking revised BBM model uses forecast capex and opex to determine the forecast ABBRR. The forecast ABBRR is used to calculate the tax allowance on a forward-looking basis.

The revised BBM has been used to calculate the inputs to the Core Services ABBRR for the First Regulatory Cycle, and will inform **nbn**'s pricing decisions both in terms of structure and price levels.

3 Input sheets

3.1 Nominal inputs

The purpose of the 'Nominal Inputs' sheet is to create a single place to consolidate the main inputs into the BBM. This sheet contains a mix of actuals up to 2021-22, and forecasts covering 2022-23.

3.1.1.1 CPI calculations

The CPI calculations in the 'Nominal Inputs' sheet are used throughout the model to adjust data for inflation. The calculations and inputs required for the cumulative inflation factor are found in the 'Nominal Inputs' sheet.

Inflation is applied using the ABS June Quarter CPI (All groups, Weighted Average of Eight Capital Cities) until 2021-22 following the SAU and applies the RBA Economic Outlook of inflation for 2022-23. The inflation factor and the cumulative inflation factor are calculated based on these inputs.

Note that the first financial year in the model is 2013-14 (all real data is reported in 2013-14 dollars) as per the SAU. This aligns with the financial year in which the SAU was first accepted.

Figure 3**: CPI calculations**

Year	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13
June Quarter CPI (annual percentage change) - as per Dictionary		1.419%	3.122%	3.549%	1.210%	2.390%
Cumulative Inflation Factor		0.877	0.905	0.937	0.948	0.971
Inflation factor (1+June Quarter CPI)		1.01419	1.03122	1.03549	1.01210	1.02390

Source: ***nbn***

Figure 4**: June Quarter CPI input data**

June Quarter CPI, index number (Source: ABS)						
All Groups, Weighted Average of Eight Capital Cities		91.6	92.9	95.8	99.2	100.4

Source: ***nbn***

3.1.1.2 Asset lives

The asset lives are used in the depreciation calculations (as assets are depreciated over their asset life). Each asset has an asset life reported for each modelling year.

Asset lives are also reported for tax purposes which is used in the nominal tax depreciation calculations. These asset lives are sourced from the asset lives in **nbn**'s financial accounts.

Figure 5**: Asset lives example**

Asset lifetimes by Asset Type				
Code	**Description**			
201100	*Land*	n/a	n/a	n/a
201101	*Land - Aggregation Node*	n/a	n/a	n/a
201200	*Buildings*	40	40	40
201201	*TAND Air-Conditioning Assets - Packaged Units*	5	5	5
201202	*TAND Boom Gates*	5	5	5
201203	*TAND Building Management System*	10	10	10
201204	*TAND Computers - Free Access Floors in Computer Rooms*	50	50	50

Source: ***nbn***

3.1.1.3 Asset additions and subtractions

Capex is recorded at an asset level using actuals up to 2021-22, and forecasts are used for 2022-23. Disposals are reported by asset up to 2022-23. Capex is later allocated between Core Regulated and Competitive Services as per Section 4 . This allocated data is ultimately used in the depreciation calculations and the RAB.

3.1.1.4 Opex

The model uses a high-level forecast of opex, rather than at an individual asset level. Opex is only reported for Core Regulated Services in the public BBM.

3.1.1.5 Interest expense

Actual interest expense is reported to 2022-23 as part of the LTRCM and is used in the tax calculations up to this point.

3.1.1.6 Construction in progress

Construction in progress (CIP) includes a yearly actual and forecast CIP for a start and end of the period. This data is used in the calculation of the ABBRR.

3.1.1.7 Revenue

Revenue is reported using actuals up to 2020-21, and forecasts for 2021-22 and 2022-23. Core Services actual revenues (historic) are used in calculations for the past Core Services ABBRR (calculation of tax) and ICRA. cross-subsidy

Figure 6: **Revenue inputs example**

Revenue ($'000 NOMINAL)					
Core Revenue	-	-	-	1,910	16,721
Competitive Revenue	-	-	-	-	-
Total	-	-	-	1,910	16,721

Source: ***nbn***

3.2 WACC

The WACC module is provided separately, and outputs are pasted into the BBM (note the WACC inputs are not linked to the WACC module to maintain usability of the BBM). The WACC is an input to the ABBRR and Annual Construction in Progress Allowance (ACIPA). Moving forward, this sheet will be required to be updated as necessary.

3.3 Risk free rate supplement

The 'Supplementary Input Sheet' is a historic sheet where RBA data has been input to calculate the risk-free rate of interest on a yearly basis. This is ultimately used in the model to determine the nominal rate of return used in Module 1 of the SAU (using the risk-free rate + 3.5%).

The historic risk-free rate is not used in forward looking WACC calculations beyond Module 1.

4 Allocations

Allocations of costs between Core Regulated and Competitive Services are confidential and visible in the confidential model only. The following information in Sections 4.1 and 4.2 is provided for information purposes only, and relates to the methodology used in the confidential version of the BBM.

Competitive Services were introduced at scale in 2019-20 which is when the allocations commence.

4.1 Allocators

The allocators for individual asset classes are defined on the 'Scenario Settings' sheet.

Different allocators are selectable for capex type (e.g., whether it is direct to a cost category, or shared) and allocation methodology (e.g., premises passed). This feeds into the Allocations sheet which determines the allocation between Core Regulated and Competitive Services. Where the asset is reported along with a cost category, 100% of the cost is allocated/attributed to that cost category (e.g., 'Network Assets – FTTP – Local Joint' is fully allocated to FTTP (a Core Regulated service)).

The public BBM provides transparency on whether assets are Core or Shared assets, but does not share the percentage allocation that is applied to competitive and shared assets.

The allocation sheet also allocates assets to Asset Classes. There are 15 asset classes in the model. They are used at the end of the model to calculate a remaining life and remaining value for each asset class.

Figure 7: **Allocations snapshot**

RAB Code	Description	Allocation Methodology	Capex Type	Asset Class
201100	Land	Premise_Passed	Overhead	Land
201101	Land - Aggregation Node	Premise_Passed	Overhead	Land
201200	Buildings	Premise_Passed	Overhead	Buildings
201201	TAND Air-Conditioning Assets - Packaged Units	Premise_Passed	Shared	IT Long
201202	TAND Boom Gates	Premise_Passed	Shared	IT Long
201203	TAND Building Management System	Premise_Passed	Shared	Fitout
201204	TAND Computers - Free Access Floors in Computer Rooms	Premise_Passed	Shared	Buildings
201205	TAND Data Module	Premise_Passed	Shared	Fitout
201206	TAND Fire Control - Detection & Alarm Systems	Premise_Passed	Shared	Fitout
201207	TAND Fire Control - EWIS	Premise_Passed	Shared	Fitout
201208	TAND Fire Control - Fire Extinguishers	Premise_Passed	Shared	Fitout
201209	TAND Fire Control - Gas Suppression	Premise_Passed	Shared	Buildings

*Source: **nbn***

4.2 Allocations

The Allocations sheet uses a combination of inputs and calculations to determine appropriate allocations to attribute costs.

The Cost Allocation Manual (CAM) refers to the reasons and methodology behind the allocations in the BBM.

The allocation uses a specific coding of each asset class into different Capex types – cost category specific (e.g., FTTP), shared across fixed line, shared across all networks, or overhead (see 'Allocators' below). Costs identifiable to specific cost categories are allocated directly. The BBM allocates costs that cannot be attributed to each cost category – i.e., assets that have shared elements across all cost categories (e.g., transit network, transit and distribution fibre). The allocation of costs to cost categories is based on the fixed asset register. Where the asset is not reported against a specific cost category, the residual is allocated based on whether it is shared across all cost categories (where traffic flow through gets aggregated) or shared within fixed line cost categories (mainly distribution fibre). This allocation is used along with one of the allocators (as appropriate) shown in **Table 1**.

Table 1: **Allocators**

Category	Asset Examples	Rationale
Premises Passed (Share of network footprint)	TAND, FAN Site Physical Plants. Office equipment and corporate software licenses.	Shared physical and non-network assets costs are not directly driven by number of customers and bandwidth consumed, therefore allocated based on total intended footprint
Premises Connected (Share of active services)	Exchange and transit equipment	Shared network assets sensitive to number of customers connected (i.e., constrained by number of ports)
Provisioned Bandwidth (Share of bandwidth demand)	Distribution Fibre and supporting ducts and pits	Shared network assets sensitive to the total bandwidth demand on the network (i.e., constrained by total throughput)

Source: ***nbn***

The Allocations sheet calculates a percentage of competitive capex for each cost category under each of these allocators to be applied to the raw capex data depending on the selected allocation. This percentage is based on actuals and forecasts from the IOP. The IOP raw data is merged to achieve a share across the cost categories.

5 Calculation sheets

5.1 Depreciation

Depreciation is calculated for both Competitive and Core Regulated Services. These calculations are made in separate sheets. The public BBM presents the depreciation for Core Regulated Services.

Each sheet calculates the real straight-line depreciation and the nominal tax depreciation for each asset.

5.2 RAB, ABBRR & ICRA

The Core Services RAB, ABBRR & ICRA is calculated on the 'RAB, ABBRR & ICRA' sheet. This sheet contains the primary calculations in the model. It calculates the RAB roll forward and ABBRR/ ICRA calculations on total (see **Figure 8**).

Figure 8: **RAB, ABBRR & ICRA**

2. Regulatory Asset Base ($'000 REAL)

Original - Total
Real RAB (start period)
Core
Competitive
Real Capex
Core
Competitive
Real Disposals
Core
Competitive
Real Straight Line Depreciation
Core
Competitive
Real RAB (end period)
Core
Competitive

3. Regulatory Asset Base ($'000 NOMINAL)

Original - Total
Nominal RAB (start period)
Core
Competitive
Nominal Straight Line Depreciation
Core
Competitive
Nominal RAB (end period)
Core
Competitive

4. ABBRR ($'000 NOMINAL)

Original - Total
Return on capital
Core
Competitive

Nominal Regulatory Depreciation
Core
Competitive

Nominal Opex
Core
Competitive

Net Tax Allowance (as calculated in Table 5 below)
Core
Competitive

ACIPA
Core
Competitive

ABBRR
Core
Competitive

*Source: **nbn***

5.3 Roll forward

As the model stops at the end of Module 1, inputs are required for the model beginning in Module 2. These inputs are calculated on the Roll Forward sheet, and calculates/reports:

- Opening asset value
- Remaining life
- Standard life
- Opening tax value
- Tax remaining life
- Tax standard life

The opening RAB is calculated in accordance with the SAU, and is a function of the opening RAB, the capex incurred, and the disposal and depreciation in the previous period.

The standard asset life does not change. The weighted average remaining life is calculated for both the regulatory and tax inputs using the same methodology and respective tax/ regulatory inputs The weighted average remaining life for each asset class in a financial year is a function of the remaining value (or RAB) and annual asset class depreciation in that financial year.

6 Output sheets

6.1 Outputs

This sheet summarises the outputs of the main calculation sheets. This sheet is used to create an outputs table in the SAU. The public BBM presents the outputs for Core Regulated Services (**Figure 9**).

Figure 9**: Outputs**

Core Regulated Services
Nominal Forecast Core Services RAB Portion (start period)
Nominal Forecast Core Services RAB Portion (end period)
Forecast Real Core Services RAB Portion (start period)
Forecast Real Core Services RAB Portion (end period)
Nominal Forecast Core Services Capital Expenditure
Real Forecast Core Services Capital Expenditure
Nominal Forecast Core Services Disposals
Real Forecast Core Services Disposals
Real Forecast Core Services Depreciation
Forecast Nominal Tax Depreciation in connection with the forecast Nominal Core Services RAB Porti
Forecast nominal regulatory depreciation in connection with the forecast Nominal Core Services RAB
Nominal Forecast Core Services Operating Expenditure
Nominal Forecast Construction in Progress in connection with Core Regulated Services (start period)
Forecast Annual Construction in Progress Allowance (nominal) in connection with Core Regulated Se
Forecast Core Services Tax Allowance (nominal)
Forecast Nominal Core Services ABBRR
Forecast Real Core Services ABBRR
Nominal Annual Drawdown of ICRA
Forecast Annual Core Revenue Allowance
Forecast Core Services Revenue Cap
Annual Core Services Forecast Revenue

Source: ***nbn***