

nbn FY24-FY40 Building Block Model handbook

December 2022



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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 beginning of the Subsequent Regulatory Period (FY2024) which captures calculations using forecast data.

This handbook refers to the latter – the forward-looking model from the beginning of FY2024.

The backward-looking model will be replaced by a roll forward model from the start 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.

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

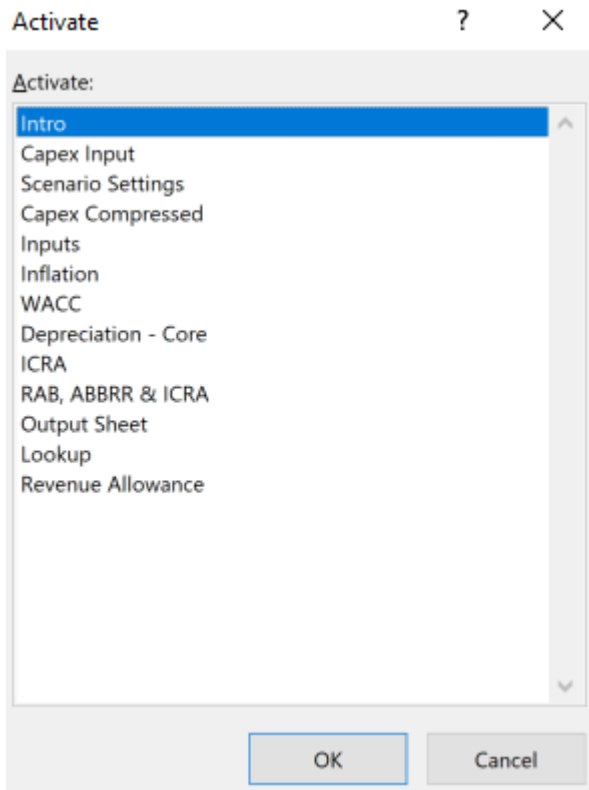
This document will be updated as necessary by **nbn**, so it aligns with the latest version of the BBM and CAM. This document is for users of the initial FY24-FY40 BBM.

2 Model overview

2.1 Structure

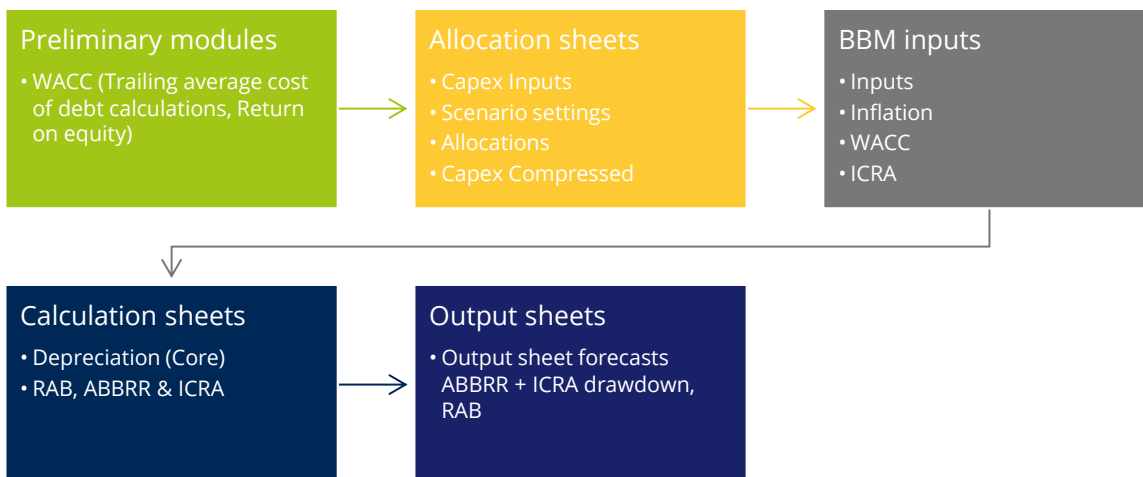
The BBM has been set up with a separation between the inputs, allocations, calculations and outputs of the model. The sheets included in the model and the structure of the model can be seen in **Figure 1** and **Figure 2**.

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. In the public facing model, 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.

We have developed a model that ends in FY2023 to capture and calculate the historical ABBRR and RAB. The model calculates inputs into the revised BBM, including the RAB and remaining lives for each asset class. This model has a separate handbook which documents these calculations.

The revised BBM is forward-looking model. Forecast capex and opex are used 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 Allocation sheets

Allocations of costs between Core Regulated and Competitive Services were introduced at scale in 2019-20, which is when the allocations commence, and are subject to confidentiality and visible in the confidential model only. The information in Sections 3.1 , 3.2 ,3.3 is provided for information only, relating to the methodology applied in the non-public BBM.

3.1 Inputs

3.1.1 Capex Input

To maintain transparency of capital expenditure information, the revised BBM has been built to accommodate the allocation of capex to Core Regulated and Competitive Services, and aggregates post allocated capex into asset classes.

The Capex Input sheet captures the first step of this process. The purpose of this sheet is to capture the capital expenditure on the 600+ assets nbn records in the current LTRCM. This sheet includes inputs for:

- Capital expenditure
- .Assets received for nil consideration
- Asset additions and subtractions – disposals are reported by asset up to 2022-23 and are currently 0.

3.1.2 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 wholly part of Core Services 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. These asset classes are carried through the model to simplify calculations and depreciation modules. There are 15 asset classes in the model.

Figure 3: 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

3.2 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.

3.3 Allocating capex to asset classes

The post allocated capex is summed into asset classes. There are 15 asset classes in the model.

4 Input sheets

4.1 Inputs

The purpose of the 'Inputs' sheet is to create a single place to consolidate the main inputs into the BBM.

This sheet contains a mix of rolled forward RAB and remaining asset lives, forecasts for the First Regulatory Cycle 2023-24 and projections out to 2040. The 'Inputs' sheet also consolidates the post allocated capex so all BBM inputs are on the same sheet.

4.1.1 Opening RAB

The opening Core Services RAB Portion are considered inputs into the BBM (**Figure 4**). They are calculated off model in the revised FY09-23 BBM model, or in the Subsequent Regulatory Period will be calculated in the roll forward model. The Opening Asset Value, or opening RAB is calculated in accordance with the SAU, and is a function of the opening RAB, the capex incurred, and the disposals and depreciation in the previous period.

Figure 4: Opening Core Services RAB Portion

Opening Regulatory Asset Base and Opening Tax Base - Core		As at beginning of 2023-24	Opening Asset Value	Assets Under Construction	Remaining Life	Standard Life	Opening Tax Value	Tax Remaining Life	Tax Standard Life
Code	Description								
201100	Land		17,070.58		n/a	n/a	12,791.59	n/a	n/a
201101	Buildings		107,667.96		34.95	45.00	85,311.59	35.24	45.00
201200	Fitout		131,815.62		8.68	15.00	107,530.52	8.82	15.00
201201	Indirect Capital Assets		1,524,546.12		6.20	10.00	1,286,787.95	6.12	10.00
201202	Inventory		70,429.76	n/a			56,260.30	n/a	n/a
201203	Distribution Local		2,244,258.96		16.01	25.00	1,997,395.74	20.66	25.00
201204	Passive Infrastructure		4,321,429.55		36.08	40.00	4,784,976.20	36.82	40.00
201205	NTD		4,366,061.09		4.40	8.00	3,684,788.95	3.83	8.00
201206	Transit		-	n/a		25.00	-	n/a	25.00
201207	Active Plant		4,557,957.79		6.38	7.00	3,998,336.49	6.06	7.00
201208	IT Long		1,939,617.56		4.30	7.00	1,739,475.49	4.41	7.00
201209	Remediation		30,826.43		1.00	1.00	30,826.43	1.00	1.00
201210	IT Short		222,164.81		1.64	4.00	199,799.79	1.70	4.00
201211	Distribution Long		9,092,081.55		33.71	40.00	7,815,466.19	35.59	40.00
201212	Access Network		1,818,967.40		8.41	12.00	1,540,333.69	8.87	12.00
201213	Grants		-	n/a		10.00	-	n/a	10.00
201214	Spare 4		-	n/a		n/a	-	n/a	n/a
201215	Spare 5		-	n/a		n/a	-	n/a	n/a
201216	Spare 6		-	n/a		n/a	-	n/a	n/a
201217	Spare 7		-	n/a		n/a	-	n/a	n/a
Total			30,444,895.08	-			27,340,080.92		

Source: nbn

4.1.1.1 Asset lives

The asset lives are used in the depreciation calculations (as assets are depreciated over their asset life). Each asset class has a standard asset life representing the asset life when the capex is incurred, and a remaining life calculated based on the remaining value and annual depreciation for each asset. The standard asset life does not change. The weighted average remaining life will be recalculated at the beginning of each Regulatory Cycle off-model in the roll forward model (or revised FY09-23 BBM model in the Initial Regulatory Period). The weighted average remaining life is calculated for both the regulatory and tax inputs using the same methodology but with respective 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.

4.1.2 Other inputs

4.1.2.1 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.

4.1.2.2 Opex

The model uses a high-level forecast of opex, rather than at an individual asset level. Opex is allocated between Core Regulated Services and Competitive Services to provide transparency that there is no cross-subsidy. These allocations occur off model. The public BBM does not include the Competitive Services opex.

4.1.2.3 Revenue

The model uses forecast revenue. Revenue is allocated between Core Regulated Services and Competitive Services to provide transparency that there is no cross-subsidy. These allocations occur off model. The public BBM does not include the Competitive Services revenue.

4.2 CPI calculations

The CPI calculations in the 'Inflation' 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 'Inflation' 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 and 2023-24. Inflation in 2024-25 and 2025-26 are outputs of the WACC model (see Section 3.2 for further information). As shown in **Figure 5** inflation is forecasted with a long-term outlook of 2.5% to align with the RBA's long-term forecast / mid-point of target inflation band. 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 5: CPI input data and calculations

Financial year	Unit	Index Numbers	June Quarter CPI (annual percentage change) - as per Dictionary	Inflation factor (1+June Quarter CPI)	Cumulative Inflation Factor - as per Clauses 1E.9.4(b) and (c)
2007-08	Jun-2008	91.60			
2008-09	Jun-2009	92.90	1.42%	1.01	0.88
2009-10	Jun-2010	95.80	3.12%	1.03	0.90
2010-11	Jun-2011	99.20	3.55%	1.04	0.94
2011-12	Jun-2012	100.40	1.21%	1.01	0.95
2012-13	Jun-2013	102.80	2.39%	1.02	0.97
2013-14	Jun-2014	105.90	3.02%	1.03	1.00
2014-15	Jun-2015	107.50	1.51%	1.02	1.02
2015-16	Jun-2016	108.60	1.02%	1.01	1.03
2016-17	Jun-2017	110.70	1.93%	1.02	1.05
2017-18	Jun-2018	113.00	2.08%	1.02	1.07
2018-19	Jun-2019	114.80	1.59%	1.02	1.08
2019-20	Jun-2020	114.40	-0.35%	1.00	1.08
2020-21	Jun-2021	118.80	3.85%	1.04	1.12
2021-22	Jun-2022	126.10	6.14%	1.06	1.19
2022-23	Jun-2023		6.25%	1.06	1.27
2023-24	Jun-2024		3.69%	1.04	1.31
2024-25	Jun-2025		3.69%	1.04	1.36
2025-26	Jun-2026		3.69%	1.04	1.41
2026-27	Jun-2027		2.50%	1.03	1.45
2027-28	Jun-2028		2.50%	1.03	1.48
2028-29	Jun-2029		2.50%	1.03	1.52
2029-30	Jun-2030		2.50%	1.03	1.56
2030-31	Jun-2031		2.50%	1.03	1.60
2031-32	Jun-2032		2.50%	1.03	1.64
2032-33	Jun-2033		2.50%	1.03	1.68
2033-34	Jun-2034		2.50%	1.03	1.72
2034-35	Jun-2035		2.50%	1.03	1.76
2035-36	Jun-2036		2.50%	1.03	1.81
2036-37	Jun-2037		2.50%	1.03	1.85
2037-38	Jun-2038		2.50%	1.03	1.90
2038-39	Jun-2039		2.50%	1.03	1.94
2039-40	Jun-2040		2.50%	1.03	1.99

Source: *nbn*

4.3 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.

4.4 ICRA

The ICRA sheet contains the calculated ICRA drawdown for input into the RAB, ABBRR and ICRA sheet. **nbn** does not forecast to start recovering the ICRA until approximately 2030-31.

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 roll forward real straight-line depreciation and nominal tax depreciation for the past capex (based on the opening value and remaining life for each asset class) (Figure 6), and
- the real straight-line depreciation and nominal tax depreciation for each asset class on forecast capex from the beginning of the Subsequent Regulatory Period (Figure 7).

Figure 6: Roll forward depreciation

Roll forward Real Straight Line Depreciation (\$'000 REAL)		Remaining value	Remaining life			
201100	Land	13,492.75	n/a	n/a	n/a	n/a
201101	Buildings	85,101.74	34.95	2,434.66	2,434.66	2,434.66
201200	Fitout	104,188.18	8.68	12,006.14	12,006.14	12,006.14
201201	Indirect Capital Assets	1,205,015.14	6.20	194,459.77	194,459.77	194,459.77
201202	Inventory	55,668.33	n/a	n/a	n/a	n/a
201203	Distribution Local	1,773,882.72	16.01	110,823.22	110,823.22	110,823.22
201204	Passive Infrastructure	3,415,697.27	36.08	94,668.73	94,668.73	94,668.73
201205	NTD	3,450,974.44	4.40	784,403.59	784,403.59	784,403.59
201206	Transit	-	n/a	n/a	n/a	n/a
201207	Active Plant	3,602,651.34	6.38	564,253.75	564,253.75	564,253.75
201208	IT Long	1,533,091.38	4.30	356,838.96	356,838.96	356,838.96
201209	Remediation	24,365.49	1.00	24,365.49	0.00	-
201210	IT Short	175,601.09	1.64	107,011.35	68,589.74	-
201211	Distribution Long	7,186,464.04	33.71	213,190.73	213,190.73	213,190.73
201212	Access Network	1,437,728.40	8.41	171,045.17	171,045.17	171,045.17
201213	Grants	-	n/a	n/a	n/a	n/a
201214	Spare 4	-	n/a	n/a	n/a	n/a
201215	Spare 5	-	n/a	n/a	n/a	n/a
201216	Spare 6	-	n/a	n/a	n/a	n/a
201217	Spare 7	-	n/a	n/a	n/a	n/a
Total				2,635,501.56	2,572,714.46	2,504,124.72

Source: nbn

Figure 7: Depreciation on forecast capex

201207 Active Plant		Net Real Capex	638,792	589,384	561,003	711,135
		Asset lifetime	7.00			
1	638,792			91,256	91,256	91,256
2	589,384				84,198	84,198
3	561,003					80,143
4	711,135					
5	880,575					
6	911,543					
7	819,895					
8	533,652					
9	337,596					
10	337,232					
11	316,899					
12	270,745					
13	230,990					
14	222,626					
15	213,587					
16	207,486					
17	198,195					
18	#N/A					
201207	Active Plant	Asset Real Straight Line Depreciation	-	91,256	175,454	255,597

Source: nbn

5.2 RAB, ABBRR & ICRA

The 'RAB, ABBRR & ICRA' sheet contains the primary calculations in the model. It calculates:

- RAB – real and nominal
- ABBRR
- Taxation calculations
- ICRA

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*

The proposed changes to Module 2 in **nbn**'s SAU variation mean there are some formula changes from 2023-24 which means the revised BBM differs from the LTRCM. This includes:

- Source of nominal revenue changes in 2023 from actuals (as per the inputs in nominal inputs) to the calculated ABBRR, which feeds through into the tax calculations.
- The interest expense input is no longer used from 2023 in the tax calculations. Instead, interest expense in a year $t > 2023$ is calculated as $Interest\ expense_t = RAB_t \times Gearing \times Cost\ of\ debt_t$.
- The ICRA will no longer continue to accrue from FY2023.
- The nominal rate of return is calculated as 1.7% + 3.5% for 2021-22 and 2022-23, and the 1.7% is a placeholder value and will be replaced with actuals when known. From FY2024, the forecast WACC calculated using the new methodology is used.

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. It meets the SAU requirements to calculate the items shown in **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 RA
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
Annual Core Services RBS

Source: *nbn*