nbn Supporting Submission: Proposed Cost Allocation Manual

November 2023

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Contents

Abbreviations

Unless the context provides otherwise, capitalised terms in this Submission have the same meaning as in the Dictionary set out in Attachment C to the SAU.

Shortened form	Longer form
ACCC	Australian Competition and Consumer Commission
AER	Australian Energy Regulator
BBM	Building Block Model
CAG	Cost Allocation Guidelines
CAM	Cost Allocation Manual
Capex	Capital Expenditure
EE	Enterprise Ethernet
ERP	Enterprise Reporting System
FTTB	Fibre-to-the-Building
FTTC	Fibre-to-the-Curb
FTTN	Fibre-to-the-Node
FTTP	Fibre-to-the-Premises
HFC	Hybrid Fibre Coaxial
ICRA	Initial Cost Recovery Account
LTD	Life to Date
NBN	National Broadband Network
NBN Co	National Broadband Network Company Pty Ltd
NER	National Electricity Rules
Opex	Operating Expenditure
RSP	Retail Service Provider
SAU	Special Access Undertaking
TAND	Transit Aggregation Nodes and Depots
TC	Traffic Class
TIL	Telecommunications Industry Levy
TOW	Ticket of Work
YTD	Year to Date

1 Introduction

On 16 November 2023, **nbn** lodged a Proposed CAM with the ACCC for the purposes of **nbn**'s Special Access Undertaking (**SAU**). Under the provisions set out in clause 2G.6.3 of the SAU, the ACCC may approve a Cost Allocation Manual in either: the form of the Proposed CAM submitted by **nbn**[1]; or a form which incorporates reasonable changes made by the ACCC to the Proposed CAM submitted by **nbn**.

nbn submits that the ACCC should approve a Cost Allocation Manual in the form of the Proposed CAM submitted by **nbn**.

The Proposed CAM submitted by **nbn** addresses the feedback summarised by the ACCC in its 17 October 2023 Final Decision on **nbn**'s SAU variation of August 2023 and is supported by an expert report from Farrier Swier Consulting Ltd (**farrierswier**).

This submission is organised to provide:

- a summary of the relevant SAU provisions – section 2;
- a description of **nbn**'s approach to developing the Proposed CAM – section 3;
- an explanation of how the Proposed CAM addresses previous feedback – section 4; and
- the findings from farrierswier's expert assessment of the Proposed CAM – section 5.

[1] This may also result if the ACCC does not notify **nbn** of its decision to approve a Cost Allocation Manual under clause 2G.6.3(b) within 3 months (or a longer period if extended) of **nbn** submitting the Proposed CAM.

2 Relevant SAU provisions

Clause 2G.6 of the SAU (and associated Dictionary definitions) sets out the relevant SAU provisions regarding the categorisation and re-categorisation of products and services between Core Regulated Services and Competitive Services, the allocation of costs and the proposing and approving of a Cost Allocation Manual during the Subsequent Regulatory Period (FY24 to FY32).

Core Regulated Services and Competitive Services

The SAU Dictionary sets out the definitions of service categories between which costs need to be allocated.

> ***Core Regulated Services*** *means all products and services supplied by NBN Co other than the Competitive Services.*
>
> ***Competitive Services*** *means:*
>
> *(a) unless and until re-categorised as a Core Regulated Service in an ACCC Replacement Module Determination in accordance with clause 2G.6.4, each of the following:*
>
> *(i) NBN Co Enterprise Ethernet;*
>
> *(ii) NBN Co Satellite Mobility for Large Commercial Passenger Aircrafts; and*
>
> *(iii) NBN Co Business Satellite Service; and*
>
> *(b) any other product or service categorised as a "Competitive Service" in accordance with clause 2G.6.4.*

Cost allocation principles

The Proposed CAM sets out the detailed methodology pursuant to which **nbn** allocates costs between Core Regulated Services and Competitive Services in accordance with the Cost Allocation Principles. The Cost Allocation Principles are set out in clause 2G.6.2 of the SAU, as follows:

> *(a) costs that are directly attributable to a Core Regulated Service will be allocated to that Core Regulated Service;*
>
> *(b) costs that are directly attributable to a Competitive Service will be allocated to that Competitive Service;*
>
> *(c) shared costs (i.e. costs that are not directly attributable to a Core Regulated Service or Competitive Service) will be allocated to reflect causal relationships between supplying services and incurring costs, unless establishing a causal relationship would require undue cost or effort in which case an alternative suitable allocator will be used;*
>
> *(d) all costs will be allocated; and*
>
> (e) *no cost should be allocated more than once to any service.*

Cost Allocation Manual

Clause 2G.6.3 of the SAU set outs provisions in relation to **nbn** proposing and the ACCC approving a Cost Allocation Manual:

> *a) NBN Co:*
>
> *(i) must, within 30 days of the Second SAU Variation Date, submit to the ACCC a proposed cost allocation manual which describes the detailed methodology pursuant to which NBN Co allocates costs in accordance with the Cost Allocation Principles (Proposed CAM); and*
>
> *(ii) may otherwise submit a Proposed CAM to the ACCC at any time.*
>
> *(b) The ACCC may, by notifying NBN Co, approve a Cost Allocation Manual in either:*
>
> *(i) the form of the Proposed CAM submitted by NBN Co; or*
>
> *(ii) a form which incorporates reasonable changes made by the ACCC to the Proposed CAM submitted by NBN Co.*

(c) If the ACCC does not notify NBN Co of its decision to approve a Cost Allocation Manual under clause 2G.6.3(b) within 3 months of NBN Co submitting the Proposed CAM, the applicable Cost Allocation Manual will be the Proposed CAM submitted by NBN Co.

(d) Once the ACCC has approved a Cost Allocation Manual in accordance with clause 2G.6.3(b) or a Proposed CAM submitted by NBN Co becomes the applicable Cost Allocation Manual in accordance with clause 2G.6.3(c), any prior Cost Allocation Manual will have no effect.

(e) The ACCC may, by notifying NBN Co, extend the period referred to in clause 2G.6.3(c) (regardless of whether that period has already been extended under this clause 2G.6.3(e)) by up to two months per notice of extension.

(f) The ACCC may, at any time, issue a notice to NBN Co that:

(i) directs NBN Co to submit a Proposed CAM to the ACCC; and

(ii) describes the changes to the Cost Allocation Manual that the ACCC considers should be included in the Proposed CAM to be submitted by NBN Co.

(g) NBN Co must, within 3 months of receiving a notice under clause 2G.6.3(f), submit a Proposed CAM to the ACCC, in respect of which, clauses 2G.6.3(b) to 2G.6.3(e) will apply.

(h) This Special Access Undertaking provides for costs to be allocated in accordance with the Cost Allocation Principles in particular circumstances. When allocating costs in accordance with the Cost Allocation Principles in those circumstances, NBN Co will apply, and the ACCC may have regard to, the Cost Allocation Manual.

Categorisation of new or varied products and services and re-categorisation of existing products and services

Clause 2G.6.4 of the SAU sets out how new or varied products and services are to be categorised (as Core Regulated Services or Competitive Services) – see below.

(a) If, at any time, a product or service is categorised pursuant to this clause 2G.6.4 as a Competitive Service, clauses 2B.1.5(b) and 2H.1.3(b)(v) will apply to that Competitive Service.

(b) If NBN Co proposes to introduce a new product or service or vary an existing product or service, and that product or service would, if so introduced or varied, fall within the scope of a product or service that is already categorised as a Competitive Service (or Core Regulated Service, as applicable), then, for the purposes of clause 2G.6.4(a), the relevant product or service will be a Competitive Service (or Core Regulated Service, as applicable).

The clause goes on to set out the process for re-categorising existing products and services, but this is not immediately relevant because a re-categorisation can only occur at the start of each subsequent Regulatory Cycle (refer clause 2G.6.4(c) to (f) in the SAU).

3 nbn's approach to the Proposed CAM

nbn's detailed methodology for cost allocation is set out in section 4 of the Proposed CAM. This section of the Submission provides further context and elaborates on **nbn**'s detailed cost allocation methodology.

3.1 Form and content

The SAU provides that a Cost Allocation Manual will describe the detailed methodology pursuant to which NBN Co allocates costs in accordance with the Cost Allocation Principles: clause 2G.6.3(a)(i).

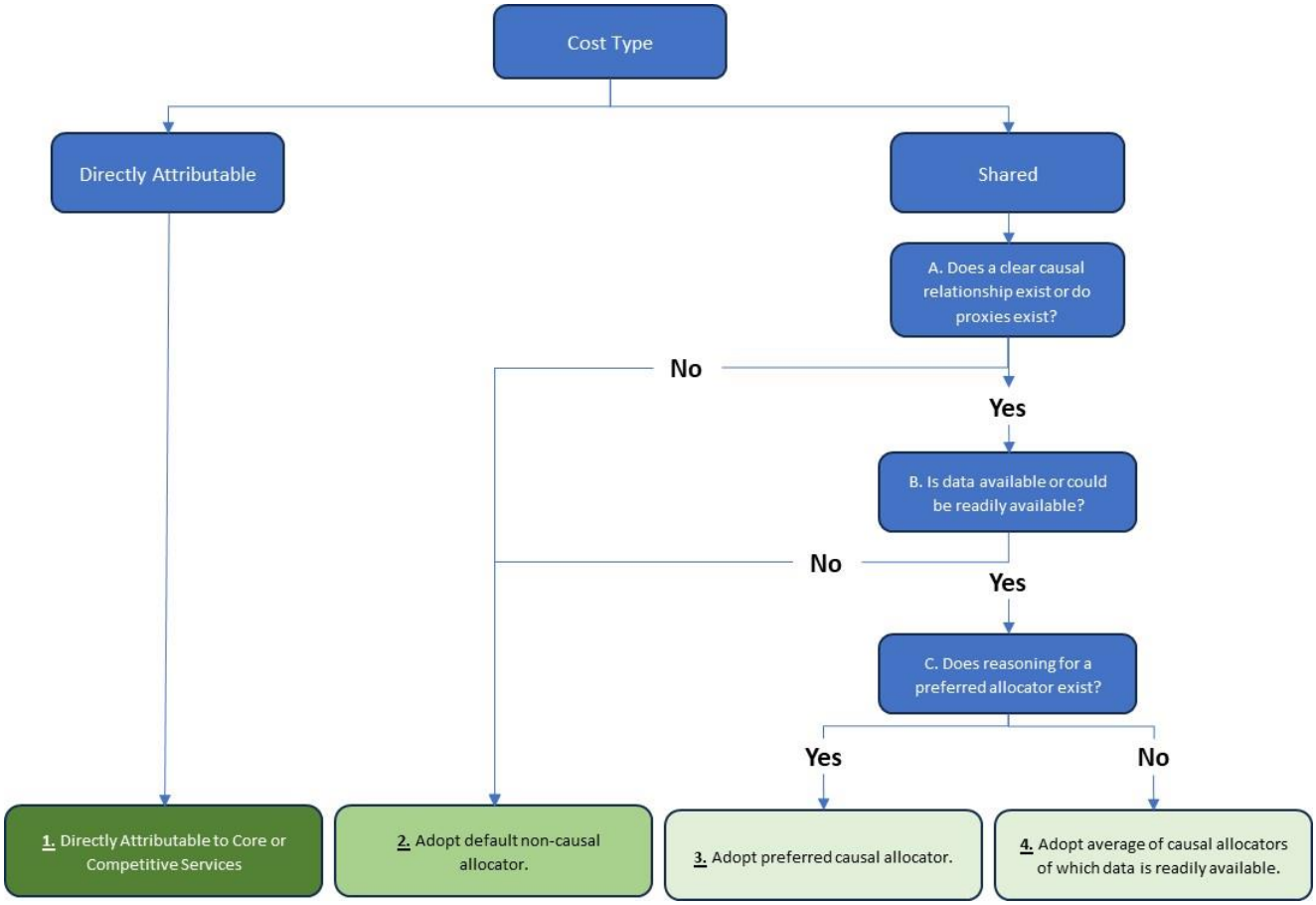
nbn has developed the form and content of the Proposed CAM to align with the Australian Energy Regulator's (**AER**) *Cost allocation guideline (distribution) 2008* as an appropriate and relevant precedent. Appendix A sets out the alignment of **nbn**'s Proposed CAM with the AER guideline (where appropriate).

3.2 Detailed Methodology

nbn's detailed methodology for cost allocation is set out in section 4 of the Proposed CAM. The categorisation of costs between directly attributable and shared, and the choice of allocator(s) for shared costs was achieved by following the decision tree process depicted in Figure 1 below.

Appendix B includes shared cost tables based on applying the decision tree process. These tables (for shared capex and shared opex) are more detailed versions of those included in the CAM, in that they provide additional columns related to the consideration of alternative allocators.

Figure 1: Attribution and allocation decision tree



The decision tree was applied as follows.

- The identification of costs as either directly attributable or shared followed the process described in section 4.2 of the Proposed CAM for capital expenditure and 4.3 for operating expenditure.
- For directly attributable costs, the process is straightforward, and the relevant categories of such costs are set out in the Proposed CAM.
- For shared costs, a number of steps were followed to determine the appropriate method of allocation:
    - Step A involved two parts:
        - Step A1: discussions with relevant internal **nbn** staff (e.g., network engineers) to identify the primary causal relationship for the relevant cost category. The output of this step is set out in the 'causal relationship' column of our allocator decision tables.
        - Step A2: discussions with relevant internal **nbn** staff to identify candidate allocators, including by reference to accounting practices and regulatory precedent. The output of this step is set out in the 'potential allocators' column of the tables in Appendix B.
    - Step B involved assessing if data for the potential allocator exists. The output of this step is set out in the 'Data Availability' column of the tables in Appendix B.
    - Step C involved applying **nbn**'s Proposed CAM design principles and recording the reasoning for the chosen allocator(s) – see the "Comments" column of the tables in Appendix B.

Where the decision leads to the use of a default non-causal allocator or where no reasoning for a preferred allocator exists, the allocator used is the average of the percentage of Active Premises and the percentage of Telecommunications Revenue, which are both commonly used non-causal allocators.

nbn's Proposed CAM design principles are described in Box 1 below. These principles reflect good practice in cost allocation – complement, but are secondary to, the SAU Cost Allocation Principles.

Box 1: nbn Proposed CAM design principles

- **Cost reflective** — allocators should reflect a cause-and-effect relationship whenever practicable.
- **Robust** — cost allocation methodologies are based on sound logic.
- **Materiality & Practicality** — consideration is given to materiality and practicality of implementation - trading off precision in the causal relationship, with the cost and effort to suitably implement it.
- **Mutually consistent (where practical)** — allocation of costs within a cost category should be on a mutually consistent basis i.e., a single allocator is applied to all costs.
- **Stable** — variance of an allocator should be minimal and allocator choices should be reasonably stable over time.

4 Addressing previous feedback

nbn submitted an initial cost allocation manual (**Initial CAM**) with its SAU variation proposal in November 2022. The Initial CAM set out **nbn**'s initial thinking and proposed approach on what should be included in a cost allocation manual. In response to **nbn**'s November 2022 and August 2023 variation proposals, the ACCC and stakeholders provided feedback on **nbn**'s proposed approach to cost allocation and the Initial CAM. **nbn** has considered all of this feedback during the development of its Proposed CAM.

4.1 Summary of stakeholder feedback

During consultations on **nbn**'s recent proposal to vary its SAU, the ACCC and industry provided feedback on **nbn**'s proposed approach to cost allocation under the SAU. In its Final Decision on **nbn**'s SAU variation, the ACCC summarised the key stakeholder feedback on the Initial CAM as follows:

> *As noted in the ACCC's April 2023 draft decision, stakeholders questioned whether the proposed arrangements would mitigate the potential risk of NBN Co inappropriately cross subsidising its non-core (i.e., competitive) services from its core services.*
>
> *In this regard, submitters:*
>
> - *emphasised the importance of a cost allocation framework in appropriately safeguarding against the potential for NBN Co developing inefficient or anti-competitive pricing practices*
> - *expressed the view that the indicative draft of the cost allocation manual that NBN Co provided with the November 2022 SAU variation proposal had insufficient detail to provide suitable transparency over how costs would be allocated in practice*
> - *indicated support for the use of causal allocators rather than the use of revenue shares which had been proposed by NBN Co in respect of various operating cost categories*
> - *queried whether the ICRA balance would be allocated across core and no-core services.*[2]

The ACCC also commissioned an expert, Grex Consulting, to assess the prudency and efficiency of **nbn**'s forecast expenditure for the first Regulatory Cycle (FY24-FY26). Grex Consulting raised an additional question about **nbn**'s proposed approach to cost allocation – namely, that the Initial CAM does not consider other service parameters that differentiate competitive services (e.g. enhanced service support levels and agreements, enhanced network quality of service parameters for the provisioned bandwidth, shared systems infrastructure for assurance, and IT platforms). On this basis, Grex Consulting noted that the allocation does not reflect the different service levels of Competitive Services.[3]

4.2 nbn response to stakeholder feedback

Table 1 below responds to each of the above points and summarises the specific feedback provided and how the Proposed CAM addresses this feedback.

[2] ACCC, Proposed SAU Variation to the **nbn** co Special Access Undertaking – Final Decision, pages 62-63.

[3] Grex Consulting, Independent Expert Report **nbn** SAU Variation Expenditure – Final, pages 31-32.

Table 1: Response to ACCC and industry feedback on Initial CAM

No.	ACCC and industry feedback on Initial CAM (submitted November 22)	Proposed CAM submitted November 2023
1.	**Safeguard against inefficient or anti-competitive pricing** Stakeholders raised the importance of a cost allocation framework in appropriately safeguarding against the potential for **nbn** developing inefficient or anti-competitive pricing practices.	In its Final Decision to accept the SAU variation, the ACCC stated that it was satisfied that the 2023 SAU variation proposal included cost allocation principles and a cost allocation framework that was reasonable and would promote the LTIE.[4] The Proposed CAM is consistent with the approved Cost Allocation Principles and cost allocation framework in the SAU.

2.	**Insufficiently detailed**
	
	Stakeholders have suggested that any approved CAM should follow a style and level of information disclosure to that of Chorus.
		The Proposed CAM has the following:
		
		• Capex - 11 directly attributable and 7 shared categories cost categories.
		• Opex – 11 directly attributable and 27 shared cost categories.
		• 14 unique cost allocators.
		• Detail of **nbn**'s:
		  ○ cost capture system, and description of how directly attributable costs are determined.
		  ○ 56 unique descriptions of cost categories
		• Network diagram for each technology/services mapping to cost categories – direct and shared.
		
		The Proposed CAM includes significantly more details than the Initial CAM. For instance, there is now greater detail on **nbn**'s cost capture systems and documentation of cost allocators and cost categories.
		
		The approach to documentation is now similar in style to Chorus, noting that Chorus' circumstances are different to **nbn**'s, as outlined in Appendix B of the farrierswier Report, costs/assets must be categorised by one Product groups, Geographic coverage, and Level of fibre network functionality, all designed to capture the unique characteristics on which fibre has been rolled-out (and existing copper overlays). Further, **nbn** notes that its Proposed CAM is in line with the approach typically taken in the electricity sector by the AER (refer to Appendix A below).

3.	**Revenue allocator for opex** Stakeholders have raised that revenue is a poor allocator as it does not represent any clear cost-volume relationship as per other cost allocators.[5]	The majority of forecast opex costs for the current regulatory cycle are captured as directly attributable within the Proposed CAM. This is achieved with the development of 13 directly attributable and 23 shared opex categories, and 9 unique allocators applied. This is an improvement in the Proposed CAM in response to stakeholder feedback. **nbn** notes that the use of revenue as an allocator is not without precedent or principle for particular cost categories such as corporate wide costs, see for example Ausgrid's cost allocation methodology[6]. In this context **nbn,** although having responded to stakeholder feedback regarding the allocation of the entirety of its opex costs via a revenue allocator, has not dismissed the assessment of revenue as a legitimate allocator. For example, for the allocation of **nbn's** TIL opex costs, for which there is a clear cost-volume relationship.

[4] ACCC Final Decision, NBN Co SAU Variation, 17 October 2023, p. 60.

[5] ACCC Draft Decision, NBN Co SAU Variation, 2 May 2023, p.65.

[6] Ausgrid, Cost Allocation Methodology, October 2022.

No.	ACCC and industry feedback on Initial CAM (submitted November 22)	Proposed CAM submitted November 2023
4.	**Allocation of the ICRA** Stakeholders submitted that the ICRA should be allocated to both Core and Competitive Services using an appropriate cost allocator.	The approved SAU Variation sets out the amount of and application of a Core ICRA and the BBM calculates a Core Services ICRA and a competitive ICRA allocation, as described in NBN Co's FY09-FY23 Building Block Model handbook. Clause 2G.3.1(d) of the SAU specifies that the nominal value, measured in Financial Year 2022/23 dollar terms, of: (i) the ICRA is $12,500,000,000.00; (ii) the Real Module 2 ICRA is $1,266,613,643.77; (iii) the Real Module 2 Core Services ICRA is $1,266,613,643.77; and (iv) the Real Module 3 ICRA is $11,233,386,356.23.
5.	**Service parameters** Without considering service and usage parameters, Grex Consulting notes that the allocation of Shared Costs does not reflect the different service levels of Competitive Services.	Enterprise Ethernet (**EE**) services are delivered over FTTP technology and any network assurance costs are therefore recorded against FTTP alongside Core Regulated Services delivered over FTTP. Ticket of work data is not available just for EE so **nbn** is unable to directly account for different service parameters for EE services. However, it is worth noting that there is likewise no accounting for enhanced service levels provided on Core Regulated Services so the outcome in terms of the split of costs between Core Regulated Services and Competitive Services may be reasonably balanced.
6.	**Lacking justification of cost allocators** ACCC has discussed that although the existing cost allocators may be appropriate, the ACCC (and the ACCC's consultants) would like to see **nbn** outline the logic and test the use of proposed allocators.[7]	The Attribution and Allocation Decision Tree discussed in section 3 above provides transparency on the logic **nbn** has applied. Documentation of cost allocators and cost categories has significantly increased in detail – further information on choice of allocators for shared costs is in Appendix B.

[7] ACCC Draft Decision, NBN Co SAU Variation, 2 May 2023, p.65.

5 Findings from farrierswier assessment

nbn engaged farrierswier[8] to assesses the appropriateness of the Proposed CAM having regard to **nbn**'s context and obligations, good regulatory practice, and stakeholder feedback received during the ACCC's consultation on **nbn**'s SAU variations.

As set out in their report, drawing on experience advising regulators and regulated firms across Australia and overseas, farrierswier approached this task by:

- reviewing the context and regulatory requirements relevant to **nbn**'s Proposed CAM;
- examining other regulated cost allocation methods and manuals ('CAMs') to understand their objectives, scope, and extent of regulatory prescription and to identify insights for what constitutes good regulatory practice;
- preparing a fit for purpose CAM assessment framework that brings together the benchmarking and **nbn** contextual requirements; and,
- assessing **nbn**'s Proposed CAM against the assessment framework and forming their opinion of its appropriateness.

The findings from farrierswier's report are set out in Box 2 below.

[8] The Terms of Reference provided by **nbn** are included by farrierswier in their report.

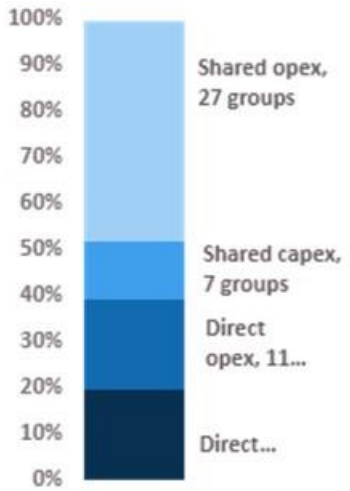
Box 2: Findings from farrierswier report

Having identified the assessment criteria in this report by reference to good regulatory practice and nbn's SAU CAM requirements, and applied these to its proposed CAM and nbn's response to our information request, we consider that nbn's CAM is appropriate.

We also consider that the proposed CAM addresses stakeholder feedback on nbn's Initial CAM as follows:

- the level of detail and the transparency of the proposed allocation methodology has improved markedly and, in our opinion, now:
  - meets the CAM scope requirements prescribed by the AER in its guidance for Australian electricity networks (see section 5.2.1)
  - disaggregates separately allocated cost groups to 56 groups and adopts 11 unique causal allocators as shown in Figure 5.1 which benchmarks favourably compared to the level of cost disaggregation seen in our case studies in Appendix B
- the proposed method for allocating operating expenditure has been revised to accord with good regulatory practice, changing from treating all operating expenditure as a shared cost allocated based on revenue in the Initial CAM to identifying:
  - 11 directly attributable operating expenditure cost groups
  - 27 shared operating expenditure cost groups
  - 11 unique causal allocators showing a diversity in fit for purpose causal allocator selections
- it provides the rationale for its proposed cost allocators in the shared cost group allocations in Table 2 and Table 4, and the decision framework and alternative allocator options it explored when arriving at its proposed CAM in its response to our information request and in its supporting submission.

Figure 5.1: Disaggregation of NBN's cost groups in the proposed CAM



Source: farrierswier analysis using nbn data

We provide this opinion based on our experience as regulatory economists and practitioners. We are not providing an accounting, legal or other opinion. We also have not undertaken a detailed review of the data available to nbn when identifying directly attributable costs and causal allocators. We have relied on information and representations provided to us by nbn that the process it has followed is sufficient to ensure that these were identified appropriately.

Appendix A Alignment with AER requirements

An important consideration in the development of **nbn**'s Proposed CAM was alignment and consistency with other industry precedents, where appropriate. The Australian electricity sector was identified as being particularly relevant given the AER's mature approach to cost allocation and the sector's regular use of CAMs.

Table A1 sets out **nbn**'s alignment with AER requirements (where appropriate), which helps illustrate the robustness of **nbn**'s Proposed CAM – even though it is not a formal requirement for **nbn** to comply with the AER requirements.

Table A1. Alignment with CAG requirements – Contents of Cost Allocation Manual

Guidelines	Requirements	Adopted in nbn CAM
3.2(a)(1)	Version number	Page 2
3.2(a)(2)	Distribution Network Service Provider's (**DNSP**) commitment to history and date of issue	Page 2
3.2(a)(3)	Statement of nature, scope and purpose of document and way it is to be used	Section 1.1
3.2(a)(3)A	Accountabilities for implementation	Section 1.4
3.2(a)(3)B	Responsibilities for updating, maintaining and applying document and for internally monitoring and reporting its application	Section 1.4
3.2(a)(4)	Description of corporate and operational structure	Section 1.2
3.2(a)(5)	Specification of service categories and types of persons to whom services provided	Section 2
3.2(a)(6)	Principles and policies for attributing costs to, and allocating costs between, categories of distribution services in accordance with clause 2.2 of CAG	Sections 3 & 4
3.2(a)(7)	Description of how will maintain records of attribution and allocation	Section 5.1
3.2(a)(8)	Description of how will monitor compliance with CAM and Guidelines	Section 5.2
3.2(a)(9)	Commencement date	Section 1.3

Appendix B Shared cost allocation tables

Table B1: Shared capex expenditure categories and allocators

Cost Group	Description	Cost Type	Causal relationship	Potential Allocators	Data availability	Comments	Allocator
Fibre network assets (excluding customer connections)	Capital expenditure related to construction of fibre optic cable network. All Fixed Line technologies utilise at least part of the fibre network to provide data transmission to the POIs.	Shared	Fibre network asset costs are driven by growing capacity demand and upgrade activity across the network.	• Average estimated network data traffic - YTD • Active Premises – LTD • Ready to Connect – LTD	All data available	Average estimated network data traffic - YTD is the most closely correlated with fibre network assets capital expenditure. **Design principles** - Cost reflective, Robust, Mutually consistent & Stable.	Average estimated network data traffic - YTD (all Fixed Line services)
Civil infrastructure assets (excluding customer connections)	This expenditure consists of supporting civil infrastructure assets, such as ducts and pits, that are used to transport Fixed Line broadband data between the transit network and the technology specific local networks.	Shared	Construction of civil infrastructure network assets is driven by growing capacity demand and upgrade activity across the network.	• Average estimated network data traffic - YTD • Active Premises – LTD • Ready to Connect – LTD	All data available	Average estimated network data traffic - YTD is the most closely correlated with civil infrastructure assets capital expenditure. **Design principles** - Cost reflective, Robust, Mutually consistent & Stable.	Average estimated network data traffic - YTD (all Fixed Line services)
Satellite (Shared)	Capital expenditure on satellite specific equipment that is used to support both core and competitive satellite services, including radio frequency (RF) management, disaster response equipment, baseband and RF Gateway assets.	Shared	Expenditure on satellite infrastructure is driven by growing capacity demand on the Satellite network.	• Average estimated network data traffic - YTD • Active Premises – LTD • Ready to Connect – LTD	All data available	Average estimated network data traffic - YTD is the most closely correlated with shared transit capital expenditure. **Design principles** - Cost reflective, Robust, Mutually consistent & Stable.	Average estimated network data traffic - YTD (all Satellite services)
Transit (Shared)	This cost group contains transit equipment that is used to support all network technologies, such as Ethernet Aggregation, switches at POIs, Dense Wavelength Division Multiplexing (DWDM) transmission over transit fibre cables, Optical Distribution Frames and network management assets.	Shared	An increase in demand for bandwidth capacity by active services would require additional expenditure on shared transit assets.	• Average estimated network data traffic - YTD • Active Premises – LTD • Ready to Connect – LTD	All data available	Adopt average of Active Premises and Revenue. **Design principles** - Robust, Materiality & Materiality & Practicality, Mutually consistent & Stable.	Average estimated network data traffic - YTD (all services)
Network facilities	Capitalised building improvements at **nbn**'s Transit Aggregation Nodes and Depots (TAND's), e.g.., boom gates, office equipment etc	Shared	No causal allocator.	• Average estimated network data traffic - YTD • Active Premises – LTD	All data available	Adopt average of Active Premises and Revenue.	Average of Active Premises – LTD (all services) and Telecommunications

Cost Group	Description	Cost Type	Causal relationship	Potential Allocators	Data availability	Comments	Allocator
				• Ready to Connect – LTD		**Design principles** - Robust, Materiality & Materiality & Practicality, Mutually consistent & Stable.	Revenue (all services) – YTD
Non-network assets	Assets used to run the administrative side of nbn – e.g. Office buildings and leasehold improvements, furniture and equipment, IT equipment and licensed software.	Shared	No causal allocator.	• Average estimated network data traffic - YTD • Active Premises – LTD • Ready to Connect – LTD	All data available	Adopt average of Active Premises and Revenue. **Design principles** - Robust, Materiality & Materiality & Practicality, Mutually consistent & Stable.	Average of Active Premises – LTD (all services) and Telecommunications Revenue – YTD (all services)
Transit (Access Aggregation Switch)	Capital expenditure to increase the number of AAS racks in the network is required to support the aggregation of FTTN, FTTB and EE services.	Shared	Expenditure is correlated with the number of required ports, which is linked to the number of EE services and volume of FTTN/B data.	• Average estimated network data traffic - YTD • Active Premises – LTD • Ready to Connect – LTD	All data available	Average estimated network data traffic - YTD is the most closely correlated with capital expenditure required racks. **Design principles** - Cost reflective, Robust, Mutually consistent & Stable.	Average estimated network data traffic - YTD (FTTN, FTTB and EE services)

Table B2: Shared operating expenditure categories and allocators

Cost Category	Description	Cost Type	Causality Relationship	Potential Allocators	Data Availability	Comments	Allocator
Network Costs							
Telstra Infrastructure Leases – racks	This category of costs is for leasing rack space within Telstra exchanges. **nbn** locates transit equipment in these racks which perform aggregation or DWDM transmission roles in the network.	Shared	Telstra rack space costs are correlated with the number of racks required by **nbn**. The number of racks is driven by the level of transmission capacity required to service the active users in a SAM/area.	• Average estimated network data traffic - YTD • Active Premises – LTD • Ready to Connect – LTD	All data available	Average estimated network data is considered as the most closely linked potential allocator. However, Satellite data traffic does not aggregate into the transit network at the Telstra exchange sites and is therefore excluded from the causal allocator. **Design principles** - Cost reflective, Robust, Mutually consistent & Stable	Average estimated network data traffic – YTD (Fixed Line and Fixed Wireless)
Telstra Infrastructure Leases – ducts	This category of costs is for leasing Telstra duct and pit infrastructure through which **nbn** cabling and equipment can be routed. This occurs across the Fixed Line network.	Shared	The scale of the leasing payments is linked to the original Telstra brownfield network that has been declared Ready for Service. The volume of ducts and pits grew during the rollout but is now stable.	• Physical measure of network size eg geographic coverage, network length etc • Ready to Connect – LTD • Active Services - LTD	Physical measure of network size (by technology) not readily or easily available.	The duct and pits are located in the Fixed Line network and the cost is determined via reference to brownfield rollout completion. Ready to Connect (Fixed Line only) is considered the most closely correlated allocator for splitting this cost. **Design principles** - Cost reflective, Robust, Materiality & Practicality, Mutually consistent & Stable	Ready to Connect (Fixed Line) – LTD (all services)
Telstra Infrastructure Leases – Dark fibre	This category of costs is for leasing Telstra dark fibre that is used to provide connectivity between **nbn** POIs and Aggregation nodes with point-to-point fibre. These leased dark fibres form part of **nbn**'s transit network.	Shared	The volume of dark fibre assets leased remains stable and is linked to the size and scale of the network required to facilitate the demanded volume of data.	• Average estimated network data traffic - YTD • Active Premises – LTD • Ready to Connect – LTD	All data available	Average estimated network data is the best correlation of the use of the dark fibre leased assets. **Design principles** - Cost reflective, Robust, Mutually consistent & Stable	Average estimated network data traffic – YTD (Fixed Line and Fixed Wireless)

Cost Category	Description	Cost Type	Causality Relationship	Potential Allocators	Data Availability	Comments	Allocator
Pole Rental	In certain areas, nbn connects its local fixed line networks and lead ins via aerial equipment utilising telecommunications poles. Most of these poles are not nbn-owned and nbn has entered into Pole Rental agreements with the infrastructure owners. Although pole lead-ins and local connections are not used to deliver EE or Satellite products, poles may be used in the distribution fibre network and therefore the cost has been treated as a shared cost.	Shared.	These costs are driven by the volume of poles rented at agreed rates (I.e. not related to individual services), and is linked to the size and scale of the network required to facilitate the demanded volume of data.	• No. of poles rented per service. • Average estimated network data traffic - YTD • Active Premises – LTD • Ready to Connect – LTD	Physical counts of poles per service not available and poles within the transit network are shared.	Poles are used to facilitate capacity of the network therefore Average estimated network data traffic is a direct measure of capacity and a proxy for the shared pole costs. **Design principles** - Cost reflective, Robust, Materiality & Practicality, Mutually consistent & Stable	Average estimated network data traffic – YTD (all Fixed Line services).
Managed Service Backhaul	Costs of leasing backhaul links from third-party providers that are used as part of nbn's distribution and transit network.	Shared.	The distribution fibre network and transit network provide the core site transport and network capability required to deliver all networks. An increase in bandwidth capacity of active services would require additional backhaul capacity.	• Average estimated network data traffic - YTD • Active Premises – LTD • Ready to Connect – LTD	All data available.	Average estimated network data is correlated with increasing backhaul costs and requirements of the network. **Design principles** - Cost reflective, Robust, Materiality & Practicality, Mutually consistent & Stable.	Average estimated network data traffic - YTD (all services).
Rack Power - transit	Electricity costs to power **nbn** equipment in Telstra exchanges under the Telstra Arrangements. This is the equipment operated in the rack space leased from Telstra above. Rather than procure separate power to these exchanges – **nbn** has agreed to pay a proportion of	Shared	The transit network provides the core site transport and network capability required to deliver all networks. It delivers the sites, racks and power within sites, capacity between sites, and the aggregation of all access types for the access seekers (i.e., RSP's). An increase in bandwidth capacity of active services would	• Average 'Rack Power' per rack x no. of racks per service. • Average estimated network data traffic - YTD • Active Premises – LTD • Ready to Connect – LTD	No. of racks per service is not forecast or tracked. Therefore, rack power specific to EE services cannot be measured in isolation.	Average estimated network data is considered as the most closely linked potential allocator. Average estimated network data is a proxy for total power usage per service. However, Satellite data traffic does not aggregate into the transit network at the Telstra exchange sites and is therefore	Average estimated network data traffic – YTD (all services).

Cost Category	Description	Cost Type	Causality Relationship	Potential Allocators	Data Availability	Comments	Allocator
	Telstra's energy costs at these locations.		require additional racks to accommodate the additional active equipment required, which would lead to higher power consumption.			excluded from the causal allocator. **Design principles** - Cost reflective, Robust, Materiality & Practicality, Mutually consistent & Stable	
Spectrum / Apparatus Licences – Satellite, BSS, Mobility	Costs of acquiring access to radio spectrum for the Satellite, BSS & Mobility networks.	Shared	The cost of each spectrum licence is a fixed amount per annum. Each of the Satellite, BSS & Mobility services are provisioned an allocation of spectrum within the Mhz band the licence applies to, matching the capacity needs of the services. The proportion of the total fixed cost that each service – Satellite, BSS and Mobility – consume increases with bandwidth.	• Average estimated network data traffic - YTD • Active Premises – LTD • Ready to Connect – LTD	All data available	Average estimated network data is a direct measure of spectrum consumed per service and therefore of the total Spectrum and Apparatus licence cost. **Design principles** - Cost reflective, Robust, Mutually consistent & Stable.	Average estimated network data traffic – YTD (Satellite, BSS and Mobility - LTD
Site and network access – Satellite	Costs incurred to access and operate Satellite earth stations, which includes rental payments and outgoings, electricity (excluding network power costs) and facility maintenance.	Shared	Site and network access costs for Satellite services increase with the size and scale of the Satellite network.	• Average estimated network data traffic - YTD • Active Premises – LTD • Ready to Connect – LTD	All data available.	Average estimated network data is a direct measure of the usage of the network and therefore costs. **Design principles** - Cost reflective, Robust, Mutually consistent & Stable.	Average estimated network data traffic – YTD (Satellite, BSS and Mobility)
Site and network access – Transit	Costs for Transit Aggregation Nodes and Depots (TAND), which includes rental payments and outgoings, electricity (excluding network power costs) and facility maintenance.	Shared	Site and network access costs for **nbn**'s 10 TAND sites are linked to the delivery of transit services and are therefore correlated to the scale of data traffic carried via the transit network.	• Average estimated network data traffic - YTD • Active Premises – LTD • Ready to Connect – LTD	All data available.	Average estimated network data is a direct measure of the usage of the network and therefore costs. **Design principles** - Cost reflective, Robust, Mutually consistent & Stable.	Average estimated network data traffic – YTD (all services)
Assurance and Maintenance Costs							

Cost Category	Description	Cost Type	Causality Relationship	Potential Allocators	Data Availability	Comments	Allocator
Service Assurance - FTTP	EE services are delivered over FTTP technology, and any service assurance costs are therefore recorded against FTTP alongside core FTTP services.	Shared	Third Party provider costs charged to **nbn** are driven by the "Tickets of Work" (TOW) for active services (hours / action) multiplied by relevant cost as agreed in a Schedule of Rates (SOR). TOW data not available by FTTP and EE split	• Share of faults by service – Tickets of Work • Average fault rate *FTTP or EE) x Active Premises by services • Active Premises – LTD	Share of faults by service/product and average fault rates by service/product not available.	In the absence of data on the share of faults by services, nbn considers that the level of Active Premises for services delivered over FTTP by service is most closely correlated to the number of faults and is considered an appropriate allocator. **Design principles** - Cost reflective, Robust, Materiality & Practicality, Mutually consistent & Stable.	Active Premises – LTD (FTTP and EE)
Network Assurance - FTTP	Costs to meet the required level of network assurance within the shared parts of the FTTP network. EE services are delivered over FTTP technology, and any network assurance costs are therefore recorded against FTTP alongside core FTTP services.	Shared	Costs are driven by "Tickets of Work" (TOW) raised in respect of FTTP network elements shared by EE and FTTP services. Costs increase with network degradation and usage of the network. TOW data not available by FTTP and EE split	• Average estimated network data traffic - YTD • Active Premises – LTD	Number of faults and TOW not readily available by services / product	In the absence of data for faults and TOW, Average estimated network data traffic - YTD (FTTP and EE) is a proxy of Network Assurance. **Design principles** - Cost reflective, Robust, Materiality & Practicality, Mutually consistent & Stable.	Average estimated network data traffic - YTD (FTTP and EE)
Network Assurance - Satellite	Costs to meet the required level of network assurance within the shared parts of the Satellite network. BSS and mobility services are delivered over nbn's satellite network.	Shared.	Costs are driven by contractual managed service agreements with outsourced suppliers, which increase with network degradation / age etc and usage of the network. No data available for number of externally managed faults.	• Average estimated network data traffic - YTD • Active Premises – LTD	Number of faults and TOW not readily available by services / product.	In the absence of data for faults and TOW, Average estimated network data traffic - YTD (all Satellite services) is a proxy of Network Assurance. **Design principles** - Cost reflective, Robust, Materiality & Practicality, Mutually consistent & Stable.	Average estimated network data traffic - YTD (all Satellite services).
Network Assurance - Transit	**nbn** network wide faults, that are not related to network usage, impacting all services.	Shared	These costs are driven by network wide "Tickets of Work" (TOW) (i.e., not related to individual services, and increase as a function of increasing	• Average estimated network data traffic - YTD • Active Premises – LTD	Number of faults and TOW not readily available by services / product	In the absence of data for faults and TOW, Average estimated network data traffic - YTD (all services) is a proxy of Network Assurance.	Average estimated network data traffic – YTD (all services).

Cost Category	Description	Cost Type	Causality Relationship	Potential Allocators	Data Availability	Comments	Allocator
			network degradation / age etc and usage of the. TOW data not available for Competitive Services split	• Average age of Activations		**Design principles** - Cost reflective, Robust, Materiality & Practicality, Mutually consistent & Stable.	
Network Maintenance - FTTP	Costs attributable to both proactive and reactive maintenance for degradation of the FTTP network, which are forecast on a similar basis to Network Assurance.	Shared	Costs are driven by maintenance "Tickets of Work" (TOW) raised in respect of elements shared by EE and FTTP services over the FTTP network. Costs increase with network degradation / age etc and usage of the network. . TOW data not available by FTTP and EE split	• Average estimated network data traffic - YTD • Ready to Connect – LTD	TOW and average age data not available.	In the absence of data for faults and TOW, Average estimated network data traffic - YTD (FTTP and EE) is a proxy of Network Maintenance. **Design principles** - Cost reflective, Robust, Materiality & Practicality, Mutually consistent & Stable.	Average estimated network data traffic - YTD (FTTP and EE)
Network Maintenance - Transit	Transit costs attributable to both proactive and reactive maintenance for degradation of networks, which are forecast on a similar basis to Network Assurance.	Shared	These costs are driven by network wide maintenance "Tickets of Work" (TOW) (i.e., not related to individual services), and increase as a function of increasing network degradation / age etc and usage of the. TOW data not available by FTTP and EE split	• Average estimated network data traffic - YTD • Active Premises – LTD	TOW and average age data not available.	In the absence of data for faults and TOW, Average estimated network data traffic - YTD (FTTP and EE) is a proxy of Network Maintenance. **Design principles** - Cost reflective, Robust, Materiality & Practicality, Mutually consistent & Stable.	Average estimated network data traffic - YTD
Network Maintenance - Poles	Costs incurred to inspect and maintain telecommunication poles. In certain areas, nbn connects its local fixed line networks and lead ins via aerial equipment utilising poles. Although pole lead-ins and local connections are not used to deliver EE or Satellite products, poles may be used in the distribution fibre network and therefore the	Shared.	These costs are driven by the volume of poles serviced at agreed rates (i.e. not related to individual services), and is linked to the size and scale of the network required to facilitate the demanded volume of data.	• No. of poles maintenance performed on service. • Average estimated network data traffic - YTD	Physical counts of poles maintained not available and poles within the transit network are shared.	Poles are used to facilitate capacity of the network therefore Average estimated network data traffic is a direct measure of capacity and a proxy for the shared maintenance costs of poles. **Design principles** - Cost reflective, Robust, Materiality & Practicality, Mutually consistent & Stable	Average estimated network data traffic - YTD (all Fixed Line services)

Cost Category	Description	Cost Type	Causality Relationship	Potential Allocators	Data Availability	Comments	Allocator
	maintenance cost has been treated as a shared cost.						
Other Network Costs							
Freight Distribution and Supply Chain	Costs for delivery of inventory, warehouse operations and freight, related to the management of inventory used to build and maintain the network, based on contracted rates with vendors.	Shared	Total costs of freight and supply are driven by increasing capacity of the network i.e., supporting the capex costs of network capacity upgrades and maintenance.	• Directly Attributable Capex - YTD • Ready to Connect – LTD	All data available	Freight costs are considered closely correlated to capital expenditure activity executed in the period ie Direct Capex **Design principles** - Cost reflective, Robust, Mutually consistent & Stable.	Directly Attributable Capex – YTD (all services)
Vendor Support Contract Costs	Costs related to warranty support payments and other services to third parties related to equipment that forms part of the **nbn** network. Consists of contracts with multiple vendors, independent of volume of support or equipment faults.	Shared	Costs are driven by increasing physical size/number of active network connections.	• Physical measure of network size eg geographic coverage, network length, asset counts etc • Average estimated network data traffic - YTD • Active Premises – LTD • Ready to Connect – LTD	Physical measures of network size/complexity not readily available.	Used to support provision of current services – Active Premises are a proxy of the increasing size/complexity of network. **Design principles** - Cost reflective, Robust, Materiality & Practicality, Mutually consistent & Stable.	Active Premises – LTD (all services)
Other costs (including fleet vehicles)	Costs include fleet vehicles, security, damages and recoverable works that are based on contracted rates with vendors.	Shared	Costs are driven by increasing physical size of the **nbn** network or number of active network connections.	• Physical measure of network size / complexity eg geographic coverage, network length, asset counts etc • Average estimated network data traffic - YTD • Active Premises – LTD • Ready to Connect – LTD	Physical measures of network size/complexity not readily available.	Costs used to support provision of current services – Active Premises are considered to be a good proxy for the increasing size/complexity of network. **Design principles** - Cost reflective, Robust, Materiality & Practicality, Mutually consistent & Stable.	Active Premises – LTD (all services)

Cost Category	Description	Cost Type	Causality Relationship	Potential Allocators	Data Availability	Comments	Allocator
Employee benefits expense	Labour costs for **nbn's** internal workforce (including internal field technicians) required for the day-to-day operating of **nbn,** comprising Full Time Equivalents (FTEs) and Temporary Staff Arrangements (TSAs).	Shared	**nbn**'s workforce does not utilise timesheets to capture time spent on operating tasks by service. Any labour effort expended directly towards the completion of capital expenditure items is already capitalised and recorded within the associated projects. Remaining labour costs (Employee benefits expenses) do not have a clear causal allocator	• Active Premises – LTD • Telecommunications Revenue - YTD	All data available	Adopt average of Active Premises and Revenue. Noting: • Labour costs are used to support active services on a day-to-day basis, making Active Premises a relevant allocator. • Telecommunications Revenue – YTD represents the relative value active services place on the support of each service provided by the **nbn** labour force. **Design principles** - Robust, Materiality & Practicality, Mutually consistent & Stable.	Average of Active Premises – LTD (all services) and Telecommunications Revenue – YTD (all services).
Other Operating Costs							
Outsourced and corporate services	This relates to work associated with outsourced accounts payable functions, IT helpdesk functions and extended workforce arrangements, and costs associated with external legal and consulting services.	Shared	Different cost items are influenced by a range of factors including levels of ongoing transformation and the level of required support for capital works. No clear causal allocator.	• Active Premises – LTD • Telecommunications Revenue - YTD	All data available	Adopt average of Active Premises and Revenue. **Design principles** - Robust, Materiality & Practicality, Mutually consistent & Stable.	Average of Active Premises – LTD (all services) and Telecommunications Revenue – YTD (all services).
IT and Software Costs	IT and Software requirements for network build and operation for employees and network assets.	Shared	IT and Software costs are a function of **nbn**'s operating environment to build, maintain and operate the network and are linked to factors such as network scale and labour force size (number of software licences required). No clear causal allocator.	• Active Premises – LTD • Telecommunications Revenue - YTD	All data available	Adopt average of Active Premises and Revenue. **Design principles** - Robust, Materiality & Practicality, Mutually consistent & Stable.	Average of Active Premises – LTD (all services) and Telecommunications Revenue – YTD (all services).

Cost Category	Description	Cost Type	Causality Relationship	Potential Allocators	Data Availability	Comments	Allocator
Marketing and Product Costs	Costs for Advertising & Media, Customer Marketing Programs, Direct Marketing & Partnerships, and Other Marketing and Product Costs.	Shared	Marketing and product costs are a function of the unique volume of marketing campaigns per Core and Competitive services x average cost by marketing channel, which drive increased activations and/or revenue.	• Count of marketing & product campaigns per service. • Active Premises – LTD • Telecommunications Revenue - YTD	Count of unique marketing & product campaigns designed to drive activations and/or revenues not readily available.	Active Premises and Telecommunications Revenue – YTD are correlated outcomes in response to market & product campaigns. No preferred allocator exists, therefore adopt average of Active Premises and Telecommunications Revenue – YTD. **Design principles** – Cost Reflective, Robust, Materiality & Practicality, Mutually consistent & Stable.	Average of Active Premises – LTD (all services) and Telecommunications Revenue – YTD (all services).
Occupancy Costs	Costs of office accommodation, rental, and non-network facilities.	Shared	Facilities costs are a function of **nbn**'s operating environment i.e., building vs running **nbn** and other associated factors such as labour force size. No clear causal allocator.	• Active Premises – LTD • Telecommunications Revenue - YTD	All data available	Adopt average of Active Premises and Revenue. **Design principles** - Robust, Materiality & Practicality, Mutually consistent & Stable.	Average of Active Premises – LTD (all services) and Telecommunications Revenue – YTD (all services).
Telecommunications Revenue Industry Levy (TIL)	**nbn**'s share of Telecommunications Revenue Universal Service Management Levy applying to all services.	Shared	The TIL Levy share is a function of **nbn**'s eligible industry revenues i.e., net sales revenue	Telecommunications Revenue	Telecommunications Revenue	**Design principles** – Cost Reflective, Robust, Materiality & Practicality, Mutually consistent & Stable.	Telecommunications Revenue
Insurance	Insurance costs to protect **nbn** and its assets, including professional indemnity, directors' and officers' insurance, general and public liability, and cyber liability.	Shared	Costs driven by increasing premiums and perceived risk for areas such as cyber and property insurance, the exposure of which to **nbn** increases as a function of **nbn**'s company size (corporate systems, asset coverage etc) and other external, uncontrollable, events. Cost items influenced by a several factors concurrently, with no delineation between	• Measure of insurance risk (likelihood and financial consequence) between Core & Competitive Fixed Line and fixed wireless Services. • Active Premises – LTD	Measure of insurance risk not readily available.	Adopt average of Active Premises and Revenue. **Design principles** – Robust, Materiality & Practicality, Mutually consistent & Stable.	Average of Active Premises – LTD (all services) and Telecommunications Revenue – YTD (all services).

Cost Category	Description	Cost Type	Causality Relationship	Potential Allocators	Data Availability	Comments	Allocator
			Core and Competitive Service insurance risks. No clear causal allocator.	• Telecommunications Revenue - YTD			
Other Internal Expenses	Costs associated with corporate wide accounting, tax and audit fees, recruitment costs, training and development, corporate communications, office supplies and subscriptions, travel and entertainment and other.	Shared	No clear causal allocator.	• Active Premises – LTD • Telecommunications Revenue - YTD	All data available	Adopt average of Active Premises and Revenue. **Design principles** – Robust, Materiality & Practicality, Mutually consistent & Stable.	Average of Active Premises – LTD (all services) and Telecommunications Revenue – YTD (all services).