NBN CAM

Cost allocation manual (CAM) assessment

16 November 2023

farrierswier

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Glossary

Term	Definition
ABBRR	Annual building block revenue requirement
AER	Australian Energy Regulator
ACCC	Australian Competition and Consumer Commission
ARTC	Australian Rail Track Corporation
BT	British Telecom
CAM	Cost allocation manual, used when referring to nbn's proposed CAM
CAMs	Cost allocation manuals or methodologies, used when referring to benchmarking case studies
capex	Capital expenditure
DNSP	Distribution Network Service Provider
FFLAS	Fibre Fixed Line Access Service (Chorus)
Initial CAM	nbn initial Cost Allocation Manual (Dec 2022), withdrawn
IPART	Independent Pricing and Regulatory Tribunal
nbn	NBN Co Limited
NER	National Electricity Rules
NSW	New South Wales
opex	Operating expenditure
PoM	Port of Melbourne
SAU	Special Access Undertaking
totex	Total expenditure, comprising capital expenditure and operating expenditure

Executive summary

OUR TASK AND APPROACH

NBN Co Limited (nbn) has engaged Farrier Swier Consulting Ltd (farrierswier, us) to assesses the appropriateness of its proposed cost allocation manual (CAM) having regard to its context and obligations, good regulatory practice, and stakeholder feedback received during the Australian Competition and Consumer Commission's (ACCC's) consultation on nbn's Special Access Undertaking (SAU) variations.

Drawing on our experience advising regulators and regulated firms across Australia and overseas, we have approached this task by:

- reviewing the context and regulatory requirements relevant to nbn's CAM in section 2
- examining other regulated cost allocation methods and manuals (hereafter 'CAMs') to understand their objectives, scope, and extent of regulatory prescription and to identify insights for what constitutes good regulatory practice in section 3
- preparing a fit for purpose CAM assessment framework that brings together the benchmarking and nbn contextual requirements in section 4
- assessing nbn's proposed CAM against our assessment framework and forming our opinion of its appropriateness in section 5.

OUR OPINION

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**.[1]

We also consider that the proposed CAM addresses stakeholder feedback on nbn's Initial CAM as discussed in section 2.4 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 ES.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

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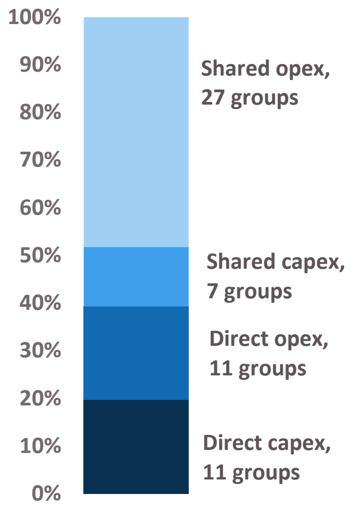
1 We refer here and throughout our report to the version of the proposed CAM provided to us by nbn on 15 November 2023 and identified as 'Final Draft CAM 151123'.

- **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 ES.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.

1. Introduction

1.1 OUR TASK

NBN Co Limited (nbn) has engaged Farrier Swier Consulting Ltd (farrierswier, us) to prepare an assessment report of its proposed cost allocation manual in which we were requested to:

a) *Review and summarise existing CAM's and frameworks used (current and historic) by regulators in Australia and overseas, summarise their approaches and objectives and highlight lessons nbn can learn.*

b) *Based on findings from a) develop a framework against which to assess the appropriateness of nbn's Proposed CAM.*

c) *Summarises nbn's existing context and the requirements as set out in the SAU*

d) *Assess nbn's Proposed CAM against the framework developed in b) and provide an opinion as to whether the Proposed CAM is appropriate.*

For the purpose of this assessment, nbn has advised us that the requirements in the Amended SAU Variation are as set out in Appendix A.

1.2 HOW WE HAVE APPROACHED OUR TASK

Drawing on our experience as regulatory economists and practitioners advising regulators and regulated firms across the regulated electricity, gas, water and port sectors of Australia and overseas, we have approached this task by:

- reviewing the context and regulatory requirements relevant to nbn's CAM in section 2
- examining other regulated cost allocation methods and manuals (hereafter 'CAMs') to understand their objectives, scope, and extent of regulatory prescription to identify insights for what constitutes good regulatory practice in section 3
- preparing a fit for purpose CAM assessment framework that brings together the benchmarking and nbn contextual requirements in section 4
- assessing nbn's proposed CAM against our assessment framework and forming our opinion of its appropriateness in section 5.

To inform our assessment we issued an information request to nbn on 26 September 2023. nbn's response is provided in Appendix C.

2. NBN's context

2.1 ROLE OF REGULATED CAMS

The role of a CAM in economic regulation is generally to ensure three high level purposes:

1. *Cost reflectivity* | where regulated services are regulated based on a cost of service model – such as the building block model with a regulated asset base – costs that are input to that cost of service model appropriately reflect the costs involved in providing those regulated services
2. *Competitiveness* | where a service provider also provides services that are not regulated or are subject to other forms of regulation – e.g., because they are provided in contestable markets – costs involved in providing those services are appropriately attributed to those services, and
3. *Transparency* | where costs relate to activities or assets that are shared in the provision of multiple service categories – e.g., regulated and unregulated service categories – CAMs provide transparency and a principle-based approach to how these costs are shared.

2.2 ROLE OF NBN'S CAM

Under nbn's Special Access Undertaking as varied by the ACCC's 17 October 2023 final decision to accept NBN Co's 14 August 2023 proposed variation (the SAU), nbn's CAM enables nbn to establish and administer separate cost bases for core regulated services and competitive services using cost attribution and allocation.

The CAM describes the methodology that nbn will use to allocate costs between core regulated and competitive services. This determines the cost base for core regulated services for the purpose of administering the SAU requirement for maximum regulated prices, price controls, benchmark service standards and product withdrawal restrictions.

2.3 SAU REQUIREMENTS

Through application of the SAU cost allocation principles and the SAU CAM uses discussed below, nbn's CAM serves the 3 regulatory purposes described in section 2.1.

2.3.1 Requirements for nbn's CAM

SAU clause 2G.6 establishes:

- cost allocation principles, as shown below
- requirement for nbn to submit a CAM demonstrating compliance with the cost allocation principles within 1 month of the 17 October 2023 SAU variation approval
- arrangements for ACCC approval or variation of a proposed CAM
- provision for subsequent CAM proposals initiated by nbn or directed by the ACCC
- arrangements for administering changes in categorisation and cost allocation for products and services.

2.3.2 SAU cost allocation principles

The SAU clause 2C.6.2 cost allocation principles are:

(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,

2.3.3 Uses of nbn's CAM

Several SAU clauses set out how the approved CAM is to be used.

The SAU sets out a range of instances in which nbn must apply the CAM. Each of those instances (except one, in relation to accounting separation) are instances where nbn must apply the CAM for regulatory building block purposes. In these instances, nbn must allocate costs between the two categories of services, namely core regulated services and competitive services.

The SAU also requires nbn to establish an accounting separation record keeping, reporting and assurance framework for particular groupings of products and services associated with core regulated services and competitive services. These proposed accounting procedures must be submitted to the ACCC by 31 March 2024. We have not considered this requirement directly as part of our review.

2.4 STAKEHOLDER FEEDBACK

In November 2022, nbn submitted and subsequently withdrew a prior SAU variation. That variation was supported by the December 2022 nbn initial Cost Allocation Manual (Initial CAM). The ACCC consulted on this Initial CAM.

The ACCC, in its April 2023 Draft Decision on the November 2022 variation, summarised the stakeholder feedback on the Initial CAM, stating:

Although submitters did not claim that NBN Co was currently (or previously) cross subsidising the cost of supplying its non-core services from its core services, submitters emphasised the need for appropriate safeguards to address this potential risk through a cost allocation framework. This would encompass accepted cost allocation principles and a transparent cost allocation manual supported by ongoing assurance and monitoring arrangements to ensure costs are being allocated appropriately.[2]

The ACCC observed that:

Submitters did not raise concerns about the cost allocation principles proposed in the SAU variation or its obligations for NBN Co to establish and maintain consolidated and

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2 ACCC, Draft Decision on the NBN Co SAU Variation, 2 May 2023, p.64.

separate core and non-core services accounts and to develop associated reporting to the ACCC and external assurance arrangements. [3]

Stakeholder concerns were cited[4] as:

- *Transparency* | the manual's level of detail and the transparency of the proposed approach. Stakeholders claimed there was insufficient detail to achieve transparency. Retail service providers suggested that any approved CAM should follow a style and level of information disclosure equivalent to that of Chorus in New Zealand.[5]
- *Revenue allocator* | the proposed method to allocate operating expenditure. Adopting a revenue allocator for all operating expenditure was questioned as being inconsistent with the causal relationship principle.[6]
- *Allocator rationale* | the rationale for proposed cost allocators. While the Initial CAM explained the basis of allocation for each separately allocated cost, it did not explain how this had been chosen, or what alternatives were considered but not adopted.[7]

While submitters to nbn's August 2023 SAU variation did not comment on the proposed CAM arrangements, the ACCC's final decision cited the above earlier concerns.[8]

2.5 IMPLICATIONS FOR OUR ASSESSMENT

The role and requirements of nbn's CAM under the SAU are equivalent to those generally sought in regulated CAMs as identified in section 2.1. This means that in opining on the appropriateness of nbn's proposed CAM it may therefore be useful to examine the CAMs of other equivalently regulated firms, which we do in section 3 and Appendix B.

The ACCC observed[9] that stakeholders have not questioned the SAU CAM principles or its uses under the SAU, and those were approved in the ACCC's SAU variation final decision. We have adopted these as set out in the varied SAU and explained in our instructions.

Stakeholders remaining concerns focus on the CAM methodology, centring on transparency and causality. Stakeholders expect nbn's proposed CAM to:

- be more detailed and afford sufficient transparency for the regulatory role that it plays
- reconsider the use of revenue as a single allocator of operating expenditure, and
- further justify the basis upon which nbn has chosen its proposed allocators.

We have considered these expectations in developing and applying our assessment criteria.

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3 ACCC, Draft Decision on the NBN Co SAU Variation, 2 May 2023, p.64.

4 ACCC Draft Decision, NBN Co SAU Variation, 2 May 2023, p.65.

5 See Telstra Submission in relation to NBN's proposed SAU variation, Public Version, 17 February 2023, p.28 & p.47 and Optus Submission in response to ACCC Consultation Paper NBN Co Special Access Undertaking Variation Public Version February 2023 pp 24-25.

6 ACCC, Draft Decision on NBN Co SAU Variation, 2 May 2023, p.65.

7 nbn, nbn initial Cost Allocation Methodology, December 2022, sections 5.4 and 5.5, pp.11-14.

8 ACCC, Final Decision on NBN Co SAU Variation, 17 October 2023, p.62-63.

9 ACCC, Draft Decision on the NBN Co SAU Variation, 2 May 2023, p.64.

3. CAM benchmarking

3.1 APPROACH TO BENCHMARKING

Our approach to benchmarking sought to test a diversity of regulated services and regulatory contexts. In doing so we examined:

- *Industry context* | identifying the industry and whether there is provision of regulated and contestable services. This was important to enabling suitable comparison to nbn's service context.
- *Regulatory context* | recording the existence and extent of regulatory prescription versus discretion, whether guidance is published by the relevant regulator, and the nature of the CAM obligation (e.g. being to either maintain a CAM, disclose a CAM or seek regulator approval a CAM).
- *CAM scope* | summarising the content form and service granularity of CAMs to enable testing of nbn's CAM scope, length, and content.
- *CAM approach* | listing cost allocator selections and selection approaches to enable peer comparison on NBN's chosen allocators, noting that nbn may have unique allocators not relevant to other peers, and vice versa given the physical nature of their assets and services.

3.2 WHO WE ASSESSED

Our benchmarking covered a sample of 7 regulated service providers across various utilities and jurisdictions chosen for the reasons explained in Table 3.1.

All chosen case studies involve service providers who provide a mixture of contestable and regulated services to ensure they are directly relevant to the primary concern of nbn's stakeholders.

Table 3.1: Selection of benchmarking case studies

Case study	Industry	Reason for choice
Chorus	Telecommunications fibre networks, NZ	Similar service sector to nbn Example cited in stakeholder submissions to the ACCC on nbn's SAU variation proposal Example of similar service CAM regulation in a different jurisdiction
Telstra	Telecommunications fixed line services, Australia	Similar service sector to nbn CAM regulation also administered by the ACCC
British Telecom (BT)	Telecommunications, United Kingdom	Similar service sector to nbn Example of similar service CAM regulation in a different jurisdiction
Jemena Electricity Networks	Electricity distribution network services, Australia	Example of equivalent regulatory obligations Example where Australian national regulator (and limb of the ACCC) has published guideline requirements

Case study	Industry	Reason for choice
Port of Melbourne (PoM)	Port services, Victoria, Australia	Example of equivalent regulatory obligations Example that also faces a prolonged period of recovering less than its building block cost to serve whilst still providing both contestable and non-contestable services Example where Australian state regulator has published guidance
Water NSW	Water services, NSW, Australia	Example where Australian state regulator has published guidance
Australian Rail Track Corporation (ARTC) – Hunter Valley Coal Network	Rail services, NSW, Australia	CAM regulation also administered by the ACCC

3.3 INSIGHTS FOR OUR ASSESSMENT

Appendix B sets out the 7 CAM cast studies. From these case studies we observe the following insights:

- *Allocation principles* | The case studies are reasonably consistent in their application of cost allocation principles, including that that the allocation should be directly attributed where possible, otherwise reflect causal relationships as much as possible, be mutually exclusive, be transparent, be consistent, be updated regularly. Few case studies explicitly mention objectives of simplicity/practicality and cost effectiveness up front, but these are often implied. This high degree of commonality in the substance of cost allocation principles across the 7 case studies is something we consider further in section 4.1.
- *Regulatory undertakings* | Obligations vary from requirements to disclose periodically, from time to time when changes are required (e.g. Jemena like nbn only updates its approved CAM when changes are required, Water NSW updates its CAM every few years, similarly for ARTC's Hunter Valley Coal Network) versus submit annually as part of information reporting (e.g. British Telecom as part of its Accounting Methodology Document). CAMs that do not have automatic update cycles tend to include less details that can cause a CAM to become out of date or trigger a CAM reapproval process for minor administrative changes (e.g. as opposed to more substantive changes like new services or change service classifications).
- *Prescription of regulations* | Regulatory instruments vary significantly in their prescription, from setting out high level principles (e.g. ACCC in its Final Access Determinations for Telstra; Commerce Commission in its Input Methodologies for Chorus), to providing detailed guidelines (e.g. IPART for Water NSW, and the AER for Jemena Electricity Networks), and through to defining specific cost allocation drivers in the regulatory instrument (e.g. ACCC for ARTC's Hunter Valley Coal Network, and the Pricing Order for PoM).
- *Granularity of costs and allocators* | There is wide variety in the number of cost categories and allocators applied. For example, Chorus and British Telecom both apply around 50 drivers to around more than 100 cost categories, Water NSW only applies two different allocators – one for shared opex and one for shared capex. Those businesses that allocate on an activity basis in their ERP systems tend to apply greater granularity when allocating shared costs.

  Relevantly for earlier stakeholder criticism on nbn's Initial CAM, it is not uncommon to apply a single allocator to shared expenditure. Examples of where this occurs include:

  - Jemena Electricity Networks uses the ratio of direct costs to allocate shared cost categories all proportionally to directly attributable costs
  - Port of Melbourne uses revenue as its allocator for shared costs which is prescribed in the regulatory instrument
  - Water NSW allocates all shared opex using the proportion of totex and a single allocation approach for shared capex using proportional salary costings.
- *Justification for choice of allocators* | Some cost allocation documentation goes to great length to detail different possible allocators / drivers and justify the choice of the selected allocator (e.g. Chorus details both the different allocator considered and the reason for its choice, Jemena Electricity Networks does so as required in the regulations), while others give limited justification (e.g. British Telecom and Telstra both give lengthy details of their allocation approaches but give limited explicit justification for their choice of allocators).
- *Allocation between services* | Some regulators require that costs are allocated between specific services (e.g. Telstra's 6 regulated, 6 non-regulated fixed line services, and other services; Port of Melbourne's 5 regulated services and single grouping of non-regulated services), rather than just between regulated and non-regulated service categories (e.g. Jemena Electricity Networks' 4 different service categories and nbn's 2 service categories). In the former case, cost allocation methodology documents tend to be more detailed, because the allocation by necessity must be more granular and requires more steps.
- *Size and scope of submission documents* | Cost allocation practices are often described as part of broader regulatory reporting practices. This sometimes leads to lengthy and detailed descriptions of cost categorisations and modelling (e.g., British Telecom's Accounting Methodology Document is around 500 pages long, while Chorus's is buried in its opex and building block model documentation, which are together several hundreds of pages long), but does not necessarily correlate to a more detailed or robust cost allocation methodology.

These insights have informed our assessment framework as explained in section 4.1 and our application of that framework.

4. Our assessment framework

4.1 FEATURES OF GOOD REGULATORY PRACTICE

Our observations of good regulatory practice from our experience and the suite of CAM case studies listed in Table 3.1 has identified 4 key criteria that are common to most regulatory frameworks that govern cost allocation by infrastructure that:

- is subject to regulated third party access
- also provides contestable services.

Table 4.1: CAM criteria observed in good regulatory practice

Criteria	Considerations	Precedents
A CAM should support **cost reflective** reporting	Direct costs should be directly attributed and allocated costs should have a causal allocator where practicable. CAM inputs are periodically reassessed.	**NBN** | SAU clause 2C.6.2(a), (b) and (c) **Chorus** | Input Methodologies 3.2.1(1) **Telstra** | FAD 6.14(a) and (b) **BT** | WFTMR Vol 7, Annex 1 (5) **Electricity networks** | NER clause 6.15.2(3), **Port of Melb** | PO clause 5.2.1 **Water NSW** | Cost allocation guide 1.3 **ARTC** | HVAU clause (a)(i)
A CAM should be **cost effective** to apply	Causal allocators for shared costs should not be at the expense of cost effective application. This also supports *practicable administration*.	**NBN** | SAU clause 2C.6.2(c) **Electricity networks** | NER 6.15.2(3)(ii) **Telstra** | FAD 6.14(d) **Water NSW** | Cost allocation guide 3.3
Cost allocation should be **exhaustive and mutually exclusive**	All costs should be allocated, but not allocated more than once.	**NBN** | SAU clause 2C.6.2(d) and (e) **Chorus** | Input Methodologies 3.2.1 **Telstra** | FAD 6.14(c) **BT** | WFTMR Vol 7, Annex 1 (2) **Electricity networks** | NER 6.15.2(5) **Water NSW** | Cost allocation guide 3.5

Criteria	Considerations	Precedents
A CAM should support **replicable and understandable** cost allocation outcomes	The CAM is sufficiently detailed to enable replication of results. This also supports *transparency and consistency*, as well as audit or assurance requirements. These were key stakeholder concerns cited in the ACCC's May 2023 draft decision on nbn's November 2022 SAU variation.[10]	**Chorus** | Input Methodologies 3.2.1(5) **BT** | WFTMR Vol 7, Annex 1 (7) **Electricity networks** | NER 6.15.2(1), **Port of Melb** | PO clause 5.1.1 **Water NSW** | Cost allocation guide 1.3

4.2 OUR ASSESSMENT CRITERIA

We have adopted the assessment criteria in Table 4.2 when assessing the appropriateness of nbn's proposed CAM.

As the precedents column in Table 4.1 shows, all of the SAU cost allocation principles sit within our overarching CAM criteria observed in good regulatory practice. We have therefore started with the binding SAU cost allocation principles and have not sought to replicate these in our additional principles derived from good regulatory practice. We have had regard to that practice when applying these criteria.

The additional principle we have added from our assessment of good regulatory practice relates to the scope of information provided in the CAM. This was also a key theme in ACCC and stakeholder feedback on nbn's Initial CAM.[11]

We found that a common feature of many of the case studies was a rule requirement or regulator guidance objective to ensure the CAM:

- is sufficiently detailed to enable replication of results, and
- supports transparency and consistency.

We have therefore added the criteria that:

> *The CAM is sufficiently detailed to enable replication of results to support transparency and consistency.*

Table 4.2: CAM assessment criteria

Criteria
SAU clause 2C.6.2 cost allocation principles
1. Costs that are directly attributable to a Core Regulated Service will be allocated to that Core Regulated Service
2. Costs that are directly attributable to a Competitive Service will be allocated to that Competitive Service

[10] ACCC, Draft Decision on NBN Co SAU Variation, 2 May 2023, pp.64-65.

[11] ACCC, Draft Decision on NBN Co SAU Variation, 2 May 2023, pp.64-65. ACCC, Final Decision on NBN Co SAU Variation, 17 October 2023, p.63-64.

Criteria
3. 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
4. All costs will be allocated
5. No cost should be allocated more than once to any service.
CAM scope
6. The CAM is sufficiently detailed to enable replication of results to support transparency and consistency.

5. Our assessment

5.1 SAU CLAUSE 2C.6.2 COST ALLOCATION PRINCIPLES

5.1.1 Direct attribution

Criterion 1: Clause 2C.6.2(a) Costs that are directly attributable to a Core Regulated Service will be allocated to that Core Regulated Service

Criterion 2: Clause 2C.6.2(b) Costs that are directly attributable to a Competitive Service will be allocated to that Competitive Service

Compliance with these two direct attribution principles is evidenced in sections 4.2.1 and 4.3.1 of nbn's proposed CAM for capital and operating expenditure respectively. These sections explain how capital and operating costs are identified as being directly attributable, including by reference to nbn's financial systems.

Table 1 of the proposed CAM shows that of 11 directly attributable capital expenditure cost groups, 8 are directly attributed to core regulated services and 3 are directly attributed to competitive services. Table 3 of the proposed CAM shows that of 11 directly attributable operating expenditure cost groups, 10 are directly attributed to core regulated services and 1 is directly attributed to competitive services.

Although we have reviewed nbn's proposed CAM and various supporting material, we have not investigated whether it has accurately identified all cost groups or categories that could be considered directly attributable. However, we can observe, based on our benchmarking, that the scope and number of such groups and categories identified by nbn is consistent and in several cases is more granular than that used by other regulated utilities.

5.1.2 Causal allocation

Criterion 3: Clause 2C.6.2(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

Compliance with this causal allocation principle is evidenced in sections 4.2.2 and 4.3.2 of nbn's proposed CAM for capital and operating expenditure respectively. These sections explain how shared capital and operating costs are identified as the residual cost groups after other cost groups have been directly attributed.

Table 2 of the proposed CAM shows 7 shared capital expenditure cost groups, explains the causal relationship and the causal allocator applied for that relationship. Table 3 of the proposed CAM shows 27 shared operating expenditure cost groups, explains the causal relationship and the causal allocator applied for that relationship.

Across these 27 cost groups, 11 unique causal allocators have been adopted showing a diversity in fit for purpose causal allocator selections. In some instances, nbn has identified cost categories for which there are no clear causal allocators (e.g., insurance, occupancy costs). Consistent with the principle (or criterion) above, nbn appears to have adopted an alternative allocator for those cost categories because establishing a causal relationship would require undue cost or effort.

The basis for nbn's choice of causal allocators is set out in its supporting submission with its decision framework provided in response to our information request and set out in Appendix C. The scope and number of allocators adopted by nbn in its proposed CAM appear consistent with and in several cases is more granular than those adopted by other regulated utilities in our case study sample. Although we have not undertaken a detailed review of the data available to nbn, the causal allocators adopted by nbn in its proposed CAM appear to align appropriately with the causal relationship that it has identified.

5.1.3 Exhaustive and mutually exclusive allocation

Criterion 4: Clause 2C.6.2(d) All costs will be allocated

Criterion 5: Clause 2C.6.2(e) No cost should be allocated more than once to any service

We would expect these principles to be evidenced in the administrations of the CAM. Section 5.2 of the proposed CAM provides for this to occur. It identifies that:

- expenditures reported in accordance with the CAM will be reviewed and endorsed by nbn's management, and
- this will include a certification stating that the reports are prepared in accordance with the CAM and that all costs have been allocated, and that no cost has been allocated more than once to any service category.

We consider this to be sufficient evidence of compliance with these principles for the purposes of assessing the manual itself.

5.2 CAM SCOPE

5.2.1 Transparent, replicable and consistent allocation

Criterion 6: The CAM is sufficiently detailed to enable replication of results to support transparency

This criterion seeks to ensure that the CAM:

- is sufficiently detailed to enable replication of results
- supports transparency and consistency, and
- enables administration of audit or assurance requirements placed on financial reporting that relies on the CAM.

In assessing these criteria we have considered whether:

1. the CAM and supporting financial systems processes cited in it are capable of enabling replication of results, and
2. the scope of information in the CAM is equivalent to that required in other regulated CAMs that prescribe the CAM scope for the purposes of addressing this criterion.

Enabling replication of results

Section 5.2 of the CAM notes that financial information in nbn's expenditure reports may be subject to an external audit in accordance with Australian Auditing Standards, which will include assessment of the attribution and allocation of costs in accordance with the approved CAM.

While this CAM has not yet commenced, and therefore not been applied or audited, the fact that it has been designed to enable audit suggests to us that it has been designed to be replicable for audit purposes. We are not aware of any reason why a third party could not use nbn's proposed CAM, along with access to nbn's financial systems and information, to replicate future cost allocations.

Scope of CAM information

As we note in section 3, some regulatory regimes prescribe the scope of a CAM for this transparency and replicability purpose. For example, the NER 6.15.2(1) requires that:

> *the detailed principles and policies used by a Distribution Network Service Provider (DNSP) to allocate costs between different categories of distribution services must be described in sufficient detail to enable the regulator (the AER) to replicate reported outcomes through the application of those principles and policies.*

To implement this rule the AER's Cost Allocation Guidelines for DNSPs prescribes the content that must be included in a DNSP's CAM.[12] We have compared nbn's proposed CAM against these requirements in Table 5.1 below and find that it meets them.

Table 5.1: Format and contents of cost allocation manual

AER guideline requirements for DNSPs	nbn CAM scope
(1) A version number	Yes – document history p.2
(2) The DNSP's commitment to history and date of issue for the document	Yes – section 1.3
(3) A statement of the nature, scope and purpose of the document and the way in which it is to be used by the DNSP; A. Details of the accountabilities within the DNSP for implementing the Cost Allocation Method; and B. Responsibilities within the DNSP for updating, maintaining and applying the Cost Allocation Method and for internally monitoring and reporting on its application.	Yes – section 1.4 A. Yes B. Yes
(4) A description of the DNSP's corporate and operational structure in order to enable the AER to understand how the DNSP is organised to provide its distribution services;	Yes – section 1.2 Corporate, nbn is a single trading entity Organisational, Figure 1
(5) A specification of the categories of distribution services that the DNSP provides to which costs are to be attributed or allocated and the types of persons to whom those services are provided;	Yes – section 2.1

[12] AER, *Electricity distribution network service providers, Cost allocation guidelines*, June 2008.

AER guideline requirements for DNSPs	nbn CAM scope
(6) The DNSP's detailed principles and policies to be used for attributing costs directly to, or allocating costs between, categories of distribution services that meet the requirements of clause 2.2 of these Guidelines. For the avoidance of doubt, this includes the attribution or allocation of costs relating to any related party transactions;	Yes – section 3
(7) A description of how the DNSP will maintain records of the attribution or allocation of costs to, or between, categories of distribution services in order to enable any such attribution or allocation to be: A. Demonstrated to the AER, in accordance with clause 5.2 of these Guidelines; and B. Audited or otherwise verified by a third party, including the AER, as required.	Yes – section 5.1 A. Yes B. Yes
(8) A description of how the DNSP will monitor its compliance with the Cost Allocation Method and these Guidelines;	Yes – section 5.2
(9) Details of the proposed date on which the Cost Allocation Method will commence, having regard for clause 4.1(d) of these Guidelines	Yes – section 1.3

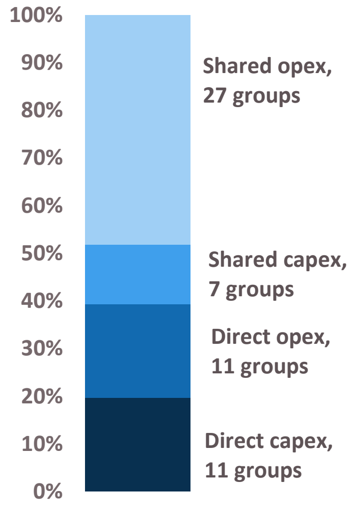
5.3 OUR OPINION

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 Terms of reference

A.1 OUR TERMS OF REFERENCE

To prepare a consultant report – to be submitted to the ACCC – in which we should:

1. review and summarise existing CAM's and frameworks used (current and historic) by regulators in Australia and overseas, summarise their approaches and objectives and highlight lessons nbn can learn
2. based on findings from a) develop a framework against which to assess the appropriateness of nbn's Proposed CAM
3. summarises nbn's existing context and the requirements as set out in the SAU
4. assess nbn's Proposed CAM against the framework developed in b) and provide an opinion as to whether the Proposed CAM is appropriate.

A.2 OUR INSTRUCTIONS

nbn requests that, for the purposes of its report, farrierswier assume that:

- the cost allocation methodology in nbn's proposed CAM will be in accordance with the first two Cost Allocation Principles if it provides for costs that are directly attributable to Core Regulated Services to be allocated to Core Regulated Services, and for costs that are directly attributable to Competitive Services to be allocated to Competitive Services; and
- the cost allocation methodology in nbn's proposed CAM will not be in accordance with the first two Cost Allocation Principles if it provides for costs that are directly attributable to Core Regulated Services to be allocated to Competitive Services, or for costs that are directly attributable to Competitive Services to be allocated to Core Regulated Services.

In that context, nbn understands that the SAU obligation to propose a CAM which sets out a cost allocation methodology in accordance with the Cost Allocation Principles does not require the CAM to set out a methodology for allocating costs to individual services, but rather, requires the CAM to set out a methodology for allocating costs between Core Regulated Services and Competitive Services.

Appendix B CAM case studies

B.1 CHORUS

Context	
Regulated business	Chorus
Industry	Fibre networks, New Zealand
Overview and key insights	
• The Input Methodologies require Chorus to allocate costs and assets between regulated and non-regulated services, of which there are several different classes of regulated services • The choice of cost allocators every must be updated every 18 months • Cost and asset allocations are described by Chorus as part of its information reporting requirements, rather than as a standalone CAM • Chorus allocates around 100 opex categories, using around 50 allocation drivers. It’s capex allocations rely on 5 allocation drivers • For each category, justification for the selected driver is provided, including identifying alternatives	
Regulatory requirements	
Regulatory instrument requiring cost allocation	Commerce Commission Fibre Input Methodologies
Summary of requirement	Required to allocate costs/assets between Fibre Fixed Line Access Service (FFLAS) and non-FFLAS. And between FFLAS classes (Ultra Fast Broadband, price quality regulated, information disclosure regulated, or additional classes specified by the regulator). Cost allocation requirements are specified across 6 pages of the Commerce Commission's fibre regulations (the 'Fibre Input Methodologies 2020').
Cost allocation principles	Although not set out clearly as a set of principles, the various provisions relating to cost allocation can be summarised as the following: • Costs/assets shall be separated into directly attributable and not directly attributable • Where a proxy allocator is used, explain why a causal relationship cannot be established and the rationale used for the proxy cost allocator or proxy asset allocator • When a cost/asset is being allocated to multiple service classes, then the same cost/asset allocator should be used • If allocating part of a shared cost to services that are not regulated (non-FFLAS), then the amount that is allocated to regulated FFLAS cannot exceed the avoided cost of ending the non-FFLAS service altogether

	• Allocator values must be updated no less than every 12 months. The choice of cost allocators (for non-directly attributable costs) must be updated no less than every 18 months. • Costs/assets must be categorised by one of the following: (1) Product groups (2) Geographic coverage (3) Level of fibre network functionality
Cost allocation	
Cost allocation document(s)	Documentation of Opex Allocation Building Block Model Documentation
Length and detail of document	The documentation related to opex allocation is over 200 pages long. Around 10 pages of the Building Block Model Documentation is dedicated to asset allocation. For each opex expense category, the documentation identifies the selected allocation driver, alternative allocators considered, and provides a rationale for the choice of allocator (including demonstrating the causal relationship and providing evidence that it is objectively justifiable). It also documents the process for identifying/creating allocation drivers.
Services that costs are allocated between	Allocates between FFLAS classes and non-FFLAS
Cost allocation principles identified	References the provisions in the regulations (summarised above)
Summary of how costs are allocated	• General ledger items are aggregated into categories, which are then allocated. The 'mixed' categories are not directly attributable and therefore allocation drivers are used to allocate between services. • Opex is divided up into four main types: (1) Customer network operations (of which there are 68 cost categories) (2) CTO (of which there are 11 cost categories) (3) Marketing & sales (of which there are 6 cost categories) (4) Corporate (of which there are 14 cost categories) • For each opex category there are the following number of allocation drivers: (1) Customer network operations: 29 (2) CTO: 2 (3) Marketing & Sales: 2 (4) Corporate: 11

	• For capex / asset categories, there are the following allocation drivers: (1) Connections ratio (the most common) (2) Revenue ratio (3) Traffic ratio (4) Assets exclusively used by FFLAS (5) Various domain-specific allocation factors

B.2 TELSTRA

Context	
Regulated business	Telstra
Industry	Telecommunications (Fixed Line Services), Australia
Overview and key insights	
• The Final Access Determinations and associated ACCC Fixed Line Services Model require allocation between 6 regulated and 6 non-regulated fixed line services, based on asset classes. • Costs are allocated based on 22 different asset classes. 17 of these classes use one of four causal allocators, and 5 of these classes use a general allocator.	
Regulatory requirements	
Regulatory instrument requiring cost allocation	Inquiry into final access determinations (FAD) for fixed line services, 6.4
Summary of requirement	Requires allocation between different regulated and non-regulated fixed line services, as part of the determination of their revenue requirements. The only other requirement is to adhere to the cost allocation principles.
Cost allocation principles	1. The allocation of the costs of operating the Public switched telephone network (PSTN) should reflect the relative usage of the network by various services. 2. Direct costs should be attributed to the service to which they relate. The cost allocation factors for shared costs should reflect causal relationships between supplying services and incurring costs. 3. No cost should be allocated more than once to any service. 4. The determination of cost allocation factors should reflect the principles except where reliable information is not available to support the application of the principles.
Cost allocation	
Cost allocation document(s)	Cost Allocation Framework

Length and detail of document	The Cost Allocation Framework is 68 pages, of which 13 describe the overall framework and the rest describe the allocators applied to each asset class.
Services that costs are allocated between	Allocates costs between the following regulated fixed line services: (1) PSTN Originating Access and Terminating Access (PSTN OA/TA) (2) Wholesale Line Rental (WLR) (3) Local Carriage Service (LCS) (4) Unconditioned Local Loop Service (ULLS) (5) Line Sharing Service (LSS) (6) Wholesale ADSL (WDSL) And a further 6 fixed line services that are not regulated. Also allocates out various other non-fixed line services, which are grouped in a single 'other services' category
Cost allocation principles identified	(1) The allocation of costs across all services is equal to 1 (2) Specific allocators are used where possible and ideally no general allocators would be used (unless no causal relationship can be identified (3) Different cost allocators are used to reflect different drivers of costs (4) Cost allocators are updated every year (5) The allocation is simplified by grouping non fixed line services into 'other services'
Summary of how costs are allocated	• The ACCC's Fixed Line Services Model is used to allocate costs for 22 asset classes. Allocation factors are an input to this. • First, costs associated with 'other services' are estimated and allocated to determine the overall allocation for the Fixed Line Services • Second, individual allocations are calculated for the individual Fixed Line Services using: – Specific (causal) allocators for 17 asset classes. These allocators include: (1) Number of users of services using a type of equipment (2) Volume of throughput (3) Volume or capacity that is provisioned (4) Amount of physical space – General allocators for 5 asset classes (for which causal relationships could not be identified).

B.3 BRITISH TELECOM (BT)

Context	
Regulated business	British Telecom (BT)
Industry	Telecoms, United Kingdom
Overview and key insights	
• BT is required to detail cost allocations as part of its regulatory accounting requirements, reported annually. No separate CAM is produced. • BT allocates all costs on an activity basis, either directly or using one of over 50 identified attribution rules. • The attribution rule applied to each individual cost item is detailed, including describing data sources and providing worked examples, across hundreds of pages. No explicit	
Regulatory requirements	
Regulatory instrument requiring cost allocation	[Wholesale Fixed Telecoms Market Review 2021-2026, Volume 7: Legal instruments](), clause 11.22
Summary of requirement	Cost allocations ('attribution methods') must be described as part of the annual Accounting Methodology documents. And they must align with the regulatory accounting principles. The requirement and principles make up approximately 3 pages.
Cost allocation principles	Regulatory accounting principles, with which the Accounting Methodology Documents must align: (1) Consistency with regulatory decisions (2) Completeness (3) Accuracy (4) Objectivity (5) Causality (6) Compliance with statutory accounting standards (7) Consistency of the Regulatory Financial Statements as a whole and from one period to another
Cost allocation	
Cost allocation document(s)	[Accounting Methodology]()

Length and detail of document	Detailed as part of the ~500 page Accounting Methodology Document. Over 300 pages are dedicated to describing the allocation/attribution method for each journal item, including worked examples for each.
Services or service categories that costs are allocated between	Between regulated and non regulated services. And between 7 different individual regulated services (Physical infrastructure access; Wholesale local access; Leased line access; Inter-exchange connectivity; Shared ancillaries Wholesale Call Termination; Time division multiplex interconnection; IP Interconnection)
Cost allocation principles identified	References those in the regulations (summarised above)
Summary of how costs are allocated	• All general ledger items (including both capex and opex) are allocated on an activity basis in the ERP system, with various layers applied to distinguish between 'profit centres', 'class of work', 'activity groups', etc. • All items are categorised as either directly allocated or attributed using a % attribution rule. Attribution rules are sometimes applied at an individual cost level (based on their class of work) or at a profit centre level. • Over 50 different attribution rules are identified and grouped into the following categories (some of which are further split into organisational driven versus cost based drivers): (1) Asset metrics (2) Electricity (3) Labour (4) Network data (5) Other Miscellaneous (6) Property and Insurance (7) Revenue and volumes, (8) Service Level Guarantees (SLGs), (9) Activity Groups • A full 'dictionary' of allocation approaches is provided for each journal item, attribution base, and profit/activity grouping. These specify source data, categorisations, allocation methodologies, etc. and include worked examples. No explicit justification is provided for the choice of attribution base.

B.4 JEMENA ELECTRICITY NETWORKS

Context	
Regulated business	Jemena Electricity Networks
Industry	Electricity distribution network services, Australia
Overview and key insights	
• CAM allocates to the service categories not individual services, so is equivalent to nbn's SAU requirements • Regulator prescribes the scope of the CAM to meet rule requirement for replicability and transparency (see Table 5.1) which we have adopted when testing our equivalent criteria • Rules require that the reasons for the method and quantity of the chosen allocator must be clearly described • All shared costs are allocated based on direct costs and done at either a project level or aggregate cost category level • Cost allocations are updated and reported annually • CAM is only updated if a change is triggered (i.e. not as part of each regulatory period.	
Regulatory requirements	
Regulatory instrument requiring cost allocation	National Electricity Rules, Part F clause 6.15 Australian Energy Regulator CAM guideline
Summary of requirement	NER prescribes allocation principles in clause 6.15.2, summarised as follows: • the detailed principles and policies used to allocate costs between different categories of services must be described in sufficient detail to enable the AER to replicate reported outcomes through the application of those principles and policies • costs must be allocated between different categories of distribution services; • must be determined according to the substance of a transaction or event rather than its legal form; • only the directly attributable costs may be allocated and costs which are not directly attributable to the provision of those services but which are incurred in providing those services; and those must be allocated using an appropriate allocator that: (A) be causation based unless unduly costly or onerous and (B) if unduly costly or onerous, must use well accepted cost allocation method; • the reasons for the method and quantity of the chosen allocator must be clearly described; • the same cost must not be allocated more than once; • must be consistent with the Distribution Ring-Fencing Guidelines; • allocated costs cannot be reallocated to another service during the course of a regulatory control period. CAM obligation is to seek regulatory approval, disclose and report in accordance with approved CAM, and seek approval if CAM needs to change.

Cost allocation principles	As noted above, direct attribution or practicable causal allocation or well accepted allocation method.
Cost allocation	
Cost allocation document(s)	[Jemena Cost Allocation Methodology]()
Length and detail of document	The CAM methodology is described across 5 pages of the full 24 page CAM document. Briefly describes accountabilities and responsibilities, record maintenance, compliance and monitoring. Includes appendices for: Corp structure, Org structure and compliance check-list with rules and AER guideline.
Services that costs are allocated between	Applies to electricity distribution services in Victoria and differentiates between four types of distribution services based on the form of regulation that applies to those service categories: (1) standard control services (i.e.. core regulated services), (2) alternative control services (i.e.. user-requested and other irregular regulated services), (3) negotiated distribution services (i.e.. subject to a negotiation framework approved by regulator), (4) unregulated services (i.e. no involvement of regulator when setting terms or prices).
Cost allocation principles identified	Gives effect to those in the NER clause 6.15.2 cited above
Summary of how costs are allocated	• Most costs are directly attributed in the ERP system at a project level. This includes labour costs (through a timesheet module and standard labour rates), fleet operating costs (through written time and standard rates), subcontractor costs (by matching purchase orders), material costs (by matching purchase orders), and various other directly attributable costs (again, by matching purchase orders). • Shared costs which cannot be directly attributed are all allocated proportionally to directly attributable costs, although there is some variation whether this is done at the project level or aggregate service level. • Shared costs include (1) network overheads and (2) corporate overheads. When allocating network overheads, they are further broken down into (1a) network activity costs, which are converted to unit costs ('cost sheets') applied to each project, and (1b) network support activities, which are allocated to aggregate services. Corporate overheads (2) are also allocated to at the aggregate service level. • The unit costs relating to network activity costs (1a) are separated into four cost sub-categories and are mostly proportional to total directly attributable costs (the exception being stores costs, which are allocated proportionally to directly attributable material costs). • The allocators (based on directly attributable costs) are updated annually.

B.5 PORT OF MELBOURNE

Context	
Regulated business	Port of Melbourne (PoM)
Industry	Ports, Victoria
Overview and key insights	
• CAM covers allocation to individual regulated (prescribed) services and to unregulated (other) services as a collective service category • Pricing Order includes a high level of prescription. Direct costs must be directly attributed to the service and indirect costs allocated based on revenue.	
Regulatory requirements	
Regulatory instrument requiring cost allocation	Pricing Order clause 5 ESC Port of Melbourne statement of regulatory approach v3.0, section 4.6.2. Guidance on cost allocation
Summary of requirement	PoM must maintain a CAM that complies with the cost allocation principles and demonstrate compliance with this CAM in regulatory reporting.
Cost allocation principles	Pricing order clause 5. cost allocation principles 5.1 Cost Allocation Principles Objectives 5.1.1 The objective of the Cost Allocation Principles is to provide a transparent and consistent methodology for allocating and monitoring costs for the purpose of setting Prescribed Service Tariffs. 5.2 Principles for allocating costs for the purpose of setting Prescribed Service Tariffs 5.2.1 Costs of the Port Licence Holder must be allocated between Prescribed Services and all other services provided by the Port Licence Holder in a manner consistent with the following cost allocation principles: (a) costs that are directly attributable to the provision of the Prescribed Service must be attributed to that Prescribed Service; and (b) costs that are not directly attributable to the provision of the Prescribed Service but which are incurred in the course of providing both one or more Prescribed Services and other services must be allocated to the Prescribed Service on the basis of its share of total revenue from all services provided by the Port Licence Holder, (Cost Allocation Principles).
Cost allocation	
Cost allocation document(s)	CAM is not publicly disclosed but is referred to in confidential submission materials.
Length and detail of document	• The cost allocation principles require PoM to allocate capex and opex across prescribed and non-prescribed services

	• There is no requirement to publish or generate a CAM document per se • PoM has developed a non-public version of a regulatory CAM guideline
Services that costs are allocated between	Allocation to individual regulated (prescribed) services and to unregulated (other) services as a collective service category. The Port Management Act 1995 (Vic) defines Prescribed Services as follows: • the provision of channels (except anchorages) for use by shipping in port of Melbourne waters, including the Shared Channels used by vessels bound either for the port of Melbourne or for the port of Geelong and the Dedicated Channels used by vessels bound for the port of Melbourne; • the provision of berths, buoys or dolphins in connection with the berthing of vessels in the port of Melbourne; • the provision of short-term storage or cargo marshalling facilities in connection with the loading or unloading of vessels at berths, buoys or dolphins in the port of Melbourne; • the provision of access to, or allowing use of, places or infrastructure… on port of Melbourne land for the provision of services to port users; • any other service that is prescribed by the regulations.
Cost allocation principles identified	as prescribed in the pricing order above
Summary of how costs are allocated	• Costs specified in the Pricing Order as directly attributable to prescribed services are allocated accordingly (clause 4.5.1, clause 2.1.6). • Other operating costs are attributed to Prescribed Services, non-prescribed services or both (referred to as 'shared' costs) on a causal basis by Responsibility Centre. • Other capital costs are attributed to Prescribed Services, non-prescribed services or both on a causal basis by capital activity. • Where costs are identified as directly attributable to one or more Prescribed Services, they are assigned to a relevant Prescribed Services bucket and then allocated out to the prescribed services within that bucket based on the revenue shares of those individual Prescribed Services. • Where shared costs are identified, these are allocated to Prescribed Services and non-prescribed services based on the share of PoM's relevant revenues (using revenue from the relevant year).

B.6 WATER NSW

Context	
Regulated business	Water NSW
Industry	Water, New South Wales
Overview and key insights	
• IPART, the regulator, publishes a comprehensive cost allocation guide (which is only periodically updated) • Water NSW is required to submit a standalone Cost Allocation Manual, which details the allocation between 5 different core services and to supplementary (non-regulated) activities • Despite being a lengthy document, it applies a single allocation approach for shared opex (proportion of totex) and a single allocation approach for shared capex (proportional salary costings)	
Regulatory requirements	
Regulatory instrument requiring cost allocation	IPART Cost Allocation Guide, which elaborates on the Water Industry Competition (WIC) Act
Summary of requirement	WIC Act requires "that a CAM must set out the basis on which a service provider intends to establish and maintain separate cost accounts for each of its declared services" The IPART Cost Allocation Guide is 33 pages and in addition to elaborating on the key principles, it provides a lot of detail on the options for allocating different costs/assets and the requirements for justifying the chosen approach.
Cost allocation principles	Cost Allocation Guide requires that the CAM describe how it relates to overarching principles of: (1) Development of efficient entry and competition (2) Pricing principles defined in the Act, including: a. Prices should cover efficient costs b. Prices should be multi-part and discriminate where it aids efficiency c. Pricing should not allow favouring of downstream operations, d. Prices should incentivise cost reduction/productivity, (3) long-term interests of end-users, (4) any recent pricing determinations. That the CAM should feature the following: (1) Identify cost objects for which costs are separately measured (2) Classify costs as direct or indirect

	(3) Allocate costs based on causality (4) All costs should be allocated (thereby aligning allocated costs with the annual revenue requirement when forecasting) (5) Only allocate a cost once (6) Review the basis for cost allocation periodically
Cost allocation	
Cost allocation document(s)	[Water NSW Cost Allocation Manual]
Length and detail of document	20 pages, which describes principles, allocation methods, and governance arrangements for accountability, duration and review
Services that costs are allocated between	Allocates costs between its core business services (south water protection, bulk water supply, system operator, bulk water supply planning and operation, customer water transaction services) and supplementary (non-regulated) activities. Also allocates core business services into four geographic areas (although some are geographically separate anyway). And further allocates core business services into price regulated and non-price regulated services
Cost allocation principles identified	References the principles descried in the Cost Allocation Guide (above) and adds one additional principle: that the allocation can be practically implemented
Summary of how costs are allocated	• All costs are allocated at the project level in the ERP system, with some cost categories (such as materials and contractors) subject to certification by an officer to confirm correct project assignment. • Direct labour costs are attributed through a time sheeting system • Operating cost categories include: (1) Salaries and wages (2) Other employee related (3) Consultancies (4) Materials, plant and equipment (5) Contractors (6) Administration • Operating costs which cannot be directly attributed are assigned to the 'overheads' segment (which includes both operational overheads and corporate overheads, of which there are several sub components). These costs are allocated between services based on the proportion of totex (opex + capex) directly allocated to each service, which is updated throughout the regulatory period. • Shared capex (which is incurred by the corporate function as is mostly ICT related) is allocated based on proportional salary costings.

B.7 AUSTRALIAN RAIL TRACK CORPORATION

Context	
Regulated business	Australian Rail Track Corporation (ARTC) – Hunter Valley Coal Network
Industry	Rail, New South Wales
Overview and key insights	
• The Access Undertaking requires that the Hunter Valley rail corridor costs must be allocated to the specific coal 'network' and then between regulated segments • The Access Undertaking defines specific allocation drivers which are to be used to allocate shared costs to the Hunter Valley corridor. 6 different drivers are specified for 13 cost categories. • The regulated business must, from time to time, publish a Costing Manual that explains its allocation, including detailing how it allocates the corridor costs to the coal network and then to segments. • 2 allocation drivers are used to allocate between coal and non-coal, and then a further 2 are used to allocate between segments.	
Regulatory requirements	
Regulatory instrument requiring cost allocation	Hunter Valley Coal Network Access Undertaking, 4.6 and Schedule I
Summary of requirement	Requires the ARTC to allocate costs specific to the Hunter Valley Coal Network 'segment' from the rest of its business. Costs that are shared (i.e.. are not segment specific) must be allocated to the Hunter Valley Corridor based on allocation methods specified in the Access Undertaking. ARTC must, from time to time, publish a Costing Manual, that explains the application of the specified allocation methods.
Cost allocation principles	(1) Where possible, costs will be directly attributed to a Segment (2) Where direct attribution is not possible, costs and assets will be allocated in accordance with Schedule I (3) All costs will comprise ARTC's reasonably anticipated costs over a reasonable future timeframe Schedule 1 specifies a cost allocation method/driver for each of the 16 different cost categories. There are 6 unique cost allocation methods. It also requires that costs first be allocated to the Hunter Valley network, then to the specific corridor being regulated.
Cost allocation	
Cost allocation document(s)	Costing Manual

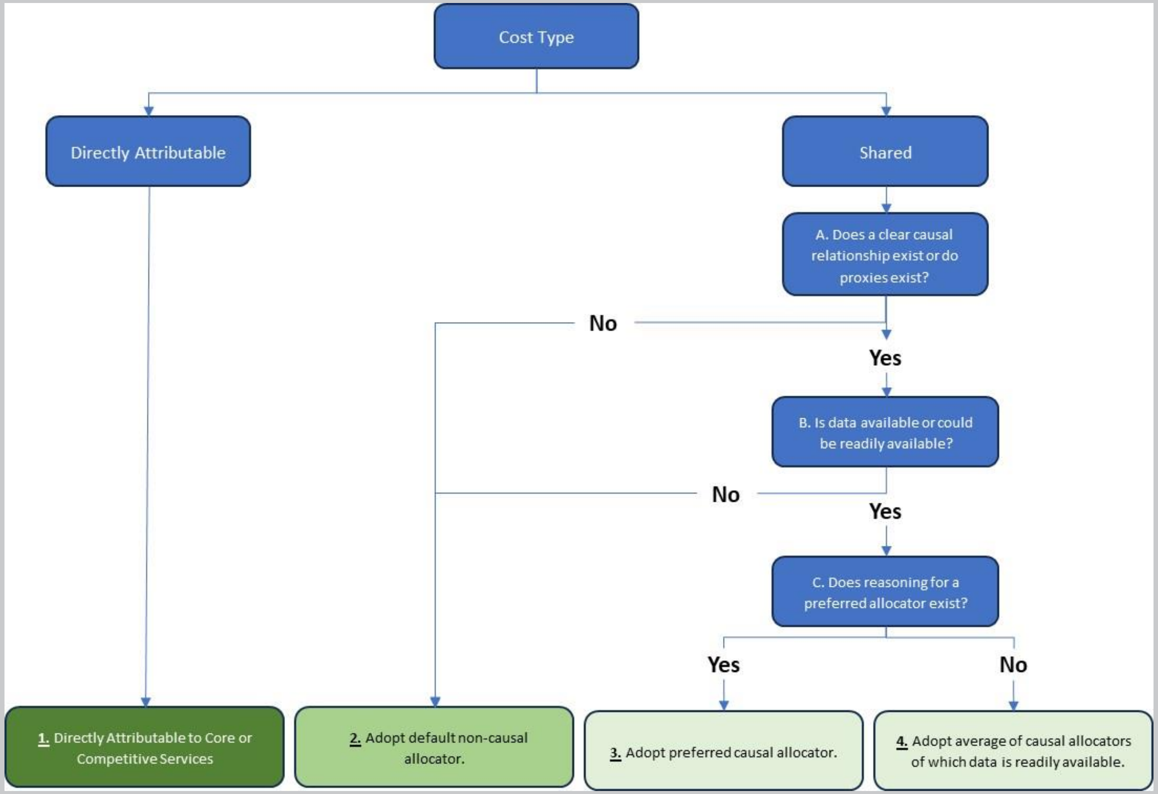
Length and detail of document	9 page Costing Manual which describes the costing framework (principles, pricing zones, accounting system etc) and the allocation of non-segment specific costs and assets
Services that costs are allocated between	Allocates between 3 pricing zones (i.e.. geographic areas of Hunter Valley Corridor, Inland Rail, Interstate Business Unit). Between network (coal) and non-coal parts of the Hunter Valley corridor. And then between segments.
Cost allocation principles identified	• In accordance with the HVAU, attribute costs to the lowest practical level and then allocate costs to segments to the extent that this remains necessary such that: (1) Costs and capital expenditure directly associated with a Segment are attributed to that Segment. (2) Costs and capital expenditure directly associated with a group of Segments are attributed to that group of Segments. (3) Costs and capital expenditure directly associated with a business unit or Corporate Function are attributed to that business unit or Corporate Function and allocated to Segments following Schedule I of the HVAU • Where, in the future, costs or assets are identified for which the methodology has not been explicitly defined within Schedule I, ARTC will, as far as reasonably practicable, attribute or allocate these costs and assets in a manner consistent with the methodology and allocators defined within Schedule I
Summary of how costs are allocated	• Overhead costs are broken into 3 categories: (1) Network control (2) Business unit management (3) Corporate overheads • Overhead costs that are directly attributable to non-segments are done so before shared amount is allocated • Non-directly attributable overhead costs are first allocated by pricing zone, then by network, then by segment • 6 different cost allocators, specified in the HVAU Schedule I, are identified for allocating between zones (i.e., to the Hunter Valley Corridor), with brief rationale provided for the choice of each allocator. These allocators are applied to 13 different cost categories. • Costs allocated to Hunter Valley Corridor are then allocated between coal and non-coal based, using two of the cost allocators (one for maintenance and one for non-maintained) • Costs allocated to the coal network, are then allocated to the segment using two of the cost allocators (one for maintenance and one for non-maintenance) • Cost allocators are updated for each HVAU period but applied annually

Appendix C nbn's response to our information request

Information request	nbn response
What binding requirements has your CAM sought to comply with?	The relevant SAU obligation is that nbn must propose a CAM *which 'describes the detailed methodology pursuant to which nbn allocates costs in accordance with the Cost Allocation Principles*': clause 2G.6.3(a). That obligation is stated in general terms and the SAU does not set out other requirements for the CAM or state that the CAM must go into a particular level of detail. Further, that obligation must be read in the context of the SAU provisions which establish the purpose of the Cost Allocation Principles and the CAM. In particular, the SAU sets out a range of instances in which nbn must apply the CAM. Each of those instances (except one, in relation to accounting separation) are instances where nbn must apply the CAM for regulatory building block purposes, in which nbn must allocate costs between two categories of services ('Core Regulated Services' and 'Competitive Services'), rather than to individual services within those categories.
What principles have guided the development of your CAM and what steps have you taken to apply these?	The primary principles are the SAU Cost Allocation Principles: clause 2G.6.3(a). Secondary CAM design principles for the selection of allocators, to the extent they are not captured by the SAU Cost Allocation Principles, include general regulatory best practice and precedent (where appropriate and necessary). – **Cost reflective —** allocators should reflect a cause-and-effect relationship whenever practicable. – **Robust —** cost allocation methodologies are based on sound logic.. – **Practicality and materiality —** 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. – **Stable —** variance of an allocator should be minimal and allocator choices should be reasonably stable over time. Other general secondary principles used to guide the development of the Proposed CAM more generally include transparency of data and allocators i.e. well documented in in line with regulatory best practice, and so that replicability of cost allocation is possible including for the purposes of audit. The steps taken to apply these principles involves the development of a decision tree, with the following explicit steps for each cost category of data. 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.

Information request	nbn response

	• 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).
	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.

Information request	nbn response
	
What cost capture capabilities do your financial reporting systems and processes have?	**nbn** utilises an Enterprise Resource Planning (**ERP**) financial management system to capture, control and report financial information at a General Ledger account level through the use of specific account numbers and cost centres. **nbn**'s accounting system is based on a modular suite structure, which utilises specific modules or sub-ledger systems to record and report underlying cost, revenue, asset and liability information. These modules and sub-ledgers interface into the General Ledger but typically contain more detailed financial information. The most significant modules/sub-ledgers utilised by **nbn** include: • Modules for Procurement, Inventory and Project Accounting

Information request	nbn response
	• Fixed Asset Register • Treasury Management System • Lease Management System • Billing and Revenue Management System **nbn**’s General Ledger Accounting String (or Chart of Accounts) is divided into 6 utilised segments[13] (Company, Cost Code, Account, Project, Technology, and inter-company) containing 30 digits that aid the classification and allocation of costs, revenues, assets and liabilities. **nbn** maintains its Chart of Accounts on a "By Nature" basis; that is, posting accounts reflect the nature of the cost or revenue incurred or the asset or liability recorded. Australian accounting standards are used to determine whether expenditure is categorised as capital expenditure or operating expenditure. All actual cost information utilised for the purposes of cost allocation is extracted from **nbn**’s core financial systems, which are subject to independent external audit procedures. **nbn**'s cost allocation approach is similar for all costs, with the General Ledger (GL) Strings and the Fixed Asset Register providing the information to categorise costs as either directly attributable or shared. **Capex** | nbn has structured its accounting systems such that items acquired as part of constructing the NBN Co network are recorded into the Project Accounting module by projects. Projects are classified by technology into delivery programs and capital expenditure is recorded at a project level, which categorises expenditure by the nature of the activity (e.g., Design and Build activities by technology). This allows nbn to directly attribute some capex costs to Competitive Services or Core Regulated Services. Segments of the Fixed Asset register that are relevant for capital costs are the project, technology and asset category codes. **Opex** | At a summary level, operating expenditure includes telecommunication and network costs, employee benefits expenses and other employee driven costs as well as other expenses, including, but not limited to: outsourced and corporate services; IT and software expenses; and communication and public information. Australian accounting standards are used to determine whether expenditure is operating or capital expenditure. **Records management** | nbn will maintain records of cost attributions and shared costs as follows: • financial records will be kept in nbn’s financial systems; • nbn’s annual audited financial statements and underlying accounting records will form the basis of the information to which the CAM will be applied; and

[13] Two spare General Ledger Accounting Strings exist, Spare 1 and Spare 2, to allow for future functionality.

Information request	nbn response
	• financial models applied to allocate costs to Core and Competitive Services will be retained by nbn in accordance with nbn's financial records retention policy. These records will be maintained by NBN Co to: • demonstrate the attribution of costs to, or allocation of costs between Core and Competitive Services in accordance with the CAM; and • allow attributions or allocations to be audited or otherwise reviewed by a third-party independent auditor, as required.
How many uniquely attributable categories of costs does your cost capture systems give rise to?	**Opex** | nbn manages and records its operating costs across several parameters. These include the nature of the expense (general ledger cost account), which business unit incurred the cost (cost centre/department) and which technology the expenditure relates to. Each expense is coded to a particular general ledger line item and cost centre. Where operating costs can be identified as belonging to a specific technology, these costs are also coded to a technology type. nbn's general ledger has over 400 operating cost accounts. These accounts are aggregated into smaller groups for external reporting purposes (refer to the Statutory Hierarchy – Profit and Loss for how accounts aggregate upwards). nbn utilises approximately 500 unique cost centres to manage its business. There is one cost centre for directly attributable BSS costs, once cost centre for directly attributable Mobility costs, but no separate cost centre for directly attributable Enterprise Ethernet costs, as these costs are not tracked separately from FTTP costs. Technology types include FTTB, FTTC, FTTN, FTTP, HFC, Fixed Wireless, Satellite, Transit and No Technology for costs that cannot be exclusively linked to a technology. **Capex** | NBN's Fixed Asset Register can classify capital expenditure into over 1,000 unique fixed asset categories. These are summarised in the BBM by capex type as below, noting EE is a subset of the FTTP Capex Type and BSS and Mobility are a subset of the Satellite Capex Type (*italicised* items).

Capex Type	Count	Capex Type	Count
Fixed Wireless	41	HFC	80
FTTB	32	Satellite	46
FTTC	47	*BSS & Mobility*	*11*
FTTN	49	Overhead (Corporate Assets)	54
FTTP	116	Shared	180
Ethernet	*90*	Shared - FL	24
EE	*26*	*EE*	*4*

Information request	nbn response
How do you identify directly attributed costs for capex?	Directly attributable capital costs are determined from the data stored within nbn's Fixed Asset Register, which classifies capitalised expenditure into fixed asset categories by asset type, project and technology — FTTP, FTTN, FTTB, FTTC, HFC, Fixed Wireless, Satellite or Transit. Capital expenditure that cannot be directly attributed to a specific technology (e.g. office equipment such as laptops which are technology agnostic) are classified as no technology or "overhead". Asset types associated with technologies used solely to provide Core Services i.e. FTTN, FTTB, FTTC, HFC and Fixed Wireless, are counted as being entirely directly attributable to capital costs for Core Services. Nested within the FTTP technology is the EE service and within the Satellite technology are the BSS and Mobility services, or the Competitive Services. Capital expenditure is managed and reported via delivery programs based on the work being performed. As capital expenditure is captured at a project level, nbn is able to identify directly attributable competitive capex via project codes that specifically relate to EE, BSS or Mobility services. The total capex cost is then allocated to fixed asset categories based on historical spend ratios for the relevant technology.
How do you identify directly attributed costs for opex?	As mentioned above, operating costs are coded to a general ledger account, cost centre, and where possible, a technology type. The allocation approach firstly considers if there are any GL operating codes or cost centres that are directly attributable to any of the competitive services. There are no operating cost codes which exclusively relate to a competitive product. However, there are discrete cost centres which capture operating costs that are incurred directly in relation to the provision of Aero Mobility and BSS products. Directly attributable EE operating costs are not separately identifiable by either cost centre or by GL code. These are considered to be a subset of FTTP operating costs as all EE services are delivered via fibre. This narrows the potential competitive cost pool when allocating costs that have been coded to FTTP technology.
For shared costs, please explain how you identified candidate causal allocators?	See response above to "What principles have guided the development of your CAM and what steps have you taken to apply these?"
For shared costs, please explain how you chose your preferred causal allocators?	See response above to "What principles have guided the development of your CAM and what steps have you taken to apply these?"

Information request	nbn response
For shared costs, please explain whether there are any shared cost categories for which establishing a causal relationship would require undue cost or effort such that you needed to find an alternative suitable allocator, and why?	See nbn Cost Allocator Assessment tables provided to FarrierSwier in our supporting submission at Appendix B for which cost groups and allocators were identified as 'data not available' or 'no clear causal allocator'. Note for categories listed as 'data not available', **nbn**'s ERP system has not been established to capture this information or disaggregation of information is not possible. Given the low volume of for example, 'tickets of work' for maintenance activities involving EE, the effort required to augment existing systems to capture this information outweighs the cost ie no material benefit relative to adopting a proxy. For cost groups for which there is 'no clear causal allocator', these groups tend to be corporate wide costs made up of heter ogenous categories, it would not be practical ie small material value of the cost group, to apply multiple allocators or further disaggregate the cost group. Further, one of **nbn**'s CAM design principles is "Mutually Consistent", in this manner if the cost group is a design feature of **nbn**'s ERP, this design principle would dictate that only a single allocator be applied.
What supporting policies and procedures accompany the CAM's administration?	nbn's audited financial data nbn's internal controls and review framework nbn's Chart of Accounts (Statutory Hierarchy – Profit and Loss) nbn's Cost Centre Hierarchy nbn's accounting policies and procedures
Please explain any adjustments that are needed to cost data when applying the CAM (e.g., capitalisation)?	Capitalisation & Operating expenses – all nbn data is capitalised or expensed in accordance with accounting standards. Lease cashflows are recognised as operating expenses.