EMCa
energy market consulting associates

Victorian electricity Distribution Network Service Providers (DNSPs) regulated revenue 2016 to 2020

Advice on allocation of advanced metering infrastructure (AMI) IT and communications expenditure

Report to

The Australian Energy Regulator

from

Energy Market Consulting associates

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This report has been prepared to assist the Australian Energy Regulator (AER) with its assessment of the allocation of AMI IT and communications expenditure for its determination of regulated revenue for the Victorian DNSPs.

To the extent that this report utilises quantitative data, it relies on information provided to EMCa by the AER and which includes information provided to the AER by the DNSPs. EMCa disclaims liability for any errors or omissions, for the validity of information provided to EMCa by other parties, for the use of any information in this report by any party other than the AER and for the use of this report for any purpose other than the intended purpose. In particular, this report is not intended to be used to support business cases or business investment decisions.

Energy Market Consulting associates
802 / 75 Miller St, North Sydney NSW 2060

and

Level 1, Suite 2 572 Hay St, Perth WA 6000
AUSTRALIA

Email: **contact@emca.com.au**
Web: **www.emca.com.au**

About EMCa

Energy Market Consulting associates (EMCa) is a niche firm, established in 2002 and specialising in the policy, strategy, implementation and operation of energy markets and related network management, access and regulatory arrangements. EMCa combines senior energy economic and regulatory management consulting experience with the experience of senior managers with engineering/technical backgrounds in the electricity and gas sectors.

Authorship

Prepared by:	Paul Sell, Elly Watson, with input from Martin Johnston
Quality approved by:	Paul Sell
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Executive Summary

1. We have been asked to advise on the allocation of AMI IT and communications costs, between metering Alternative Control Services (ACS) and distribution network Standard Control Services (SCS). In forming our views, we have considered the relevant parts of the NER including the National Electricity Objective (NEO) and Cost Allocation Principles (CAP) and AER's cost allocation framework including its Cost Allocation Guidelines (CAG) and DNSPs' Cost Allocation Methodologies (CAMs). We have reviewed DNSPs' initial Regulatory Proposals (RPs), the AER's preliminary Decisions on those RPs and the DNSPs' Revised Regulatory Proposals (RRPs).

2. Noting the significant differences between the allocation approaches adopted by the DNSPs, the AER has asked us to propose a consistent approach that could be applied by each DNSP.

Our findings based on arguments relating to cost allocation principles

3. We consider that AMI IT and communications costs in part contribute to the provision of distribution network services. This reflects the difference in scope between the AMI service, as regulated under the Victorian AMI Cost Recovery Order in Council (CROIC), and a metering ACS as regulated under the NER. From our examination of DNSP information, this will lead to some AMI-related IT opex being allocated to SCS. In section 4, we consider the basis for such allocation.

4. We consider that not all DNSPs' Regulatory Proposals[1] reflect a proper and reasonable interpretation of the NER requirements or the AER's CAG and

[1] Unless distinguished by context, we will use the term 'Regulatory Proposals' to encompass DNSPs' initial Regulatory Proposals and their Revised Regulatory Proposals, and including any supporting annexes and commissioned reports

that a proper and consistent approach will meet the NEO. In turn, this will provide a more reasonable platform for metering competition that is more likely to lead to the provision of efficient metering services, rather than outcomes that could otherwise be skewed by a distorted cost structure in the DNSPs' AMI-based metering businesses. A more consistent approach will also aid benchmarking of metering ACS costs.

5. While it is reasonable to suggest that the allocations should be consistent with each DNSP's CAM, for the most part these are not sufficiently prescriptive or granular as to provide a clear method for allocating AMI costs between metering ACS and distribution network SCS. We consider it more instructive to allocate such costs by reference to the NER CAPs and AER's CAG and, ultimately, to test the resulting allocations against the NEO.

6. As evidenced by its request for our advice, we understand that the AER has accepted that an allocation decision should not be deferred pending development of future ring fencing guidelines, and that allocation of Victorian AMI costs needs to be undertaken consistent with the NER in the Decision currently before it.

7. Several DNSPs have raised the point that a common allocation method would be challenging to apply because they were each at different stages in their IT lifecycles when AMI was introduced. We consider that this argument is not relevant if a causal allocation basis is properly applied because the AMI metering-related IT systems and communications infrastructure with current metering functionality did not exist in any of the five DNSPs prior to AMI and so was deployed afresh by all of them. The issue of different stages in system lifecycles largely relates to distribution-related systems, therefore this factor would mitigate against (for example) allocating fixed proportions of AMI costs between ACS and SCS across all DNSPs – though this is not something that we or any DNSP has proposed.

Proposed basis for consistent cost allocation across the DNSPs

8. In line with the AER's CAG and the NER CAP, we consider that costs should be directly attributed (to distribution network SCS or metering ACS) only where the relevant systems are solely used to provide that service or where use for the other service can be considered immaterial as defined by Australian accounting standards. Where costs are shared and material, they should be allocated on a causal basis.

9. On this basis we would expect DNSPs to propose an attribution / allocation of IT opex and communications opex broadly as follows:

   - **Communications infrastructure opex, including NMS, MMS and NOCC:** We consider that this is attributable to metering ACS as it was deployed to provide remote interval reading of meters within the performance parameters of the Victorian AMI. Three of the five DNSPs have attributed communications opex to ACS on this basis;
   - **Metering Data Management Systems** used for the collection, processing, storage and forwarding of meter data to other parties. We consider that this is wholly attributable to metering ACS as an integral part of the role of

meter data manager. One of the five DNSPs has attributed MDMS to metering ACS on this basis, two have proposed a shared allocation (weighted towards ACS) while two DNSPs have allocated these costs wholly to SCS on the grounds of 'materiality'.

10. We consider that the following systems (or their equivalents) are wholly attributable to SCS and should not be included in metering ACS:

- **Field force mobility systems** (to the extent that meter deployment is complete in a DNSP) and which we understand are used for management of distribution-related field tasks;
- **Network billing systems** which, while drawing on metering data, are required for the billing on distribution network services;
- **Customer Information Systems** (CIS), which are required by each DNSP in its role of registering each customer and connection point on its network, and providing such information to other market participants in accordance with relevant provisions of the NER;
- **Outage management systems** which, while utilising data from AMI, are used in the management of the distribution network.

11. We consider that the following systems or their equivalents are best considered to be shared between ACS and SCS and appropriate causal allocators should be applied:

- **B2B systems** for managing AMI-related transactions with other market participants. Whilst we understand that these systems are used to conduct meter data-related transactions, they are also used to conduct distribution-related transactions such as remote connection and disconnection;
- **Geospatial information systems**. We understand that such systems are likely to include both metering assets and distribution network assets;
- **Asset management systems**. We understand that such systems are likely to be used in managing both metering assets and distribution network assets;
- **Performance and regulatory reporting systems.** We understand that such systems are likely to be used for performance and management reporting across the range of functions and services of a DNSP, and are likely to include reporting and performance management in relation to its metering services and its distribution network service;
- **Middleware / integration bus technology.** We understand that such technology is likely to be used to manage information transactions and data access between various DNSP systems. This technology is likely to be used in part to manage metering data transactions, but also for transactions involving distribution network-related information;
- **Data analysis systems**. We understand that such systems are likely to be used for a range of purposes, such as for power quality analysis, meter data reconciliation and identification of non-technical losses such as meter bypass as well as for a range of purely distribution asset management-related analysis purposes;

- **New / upgraded IT infrastructure** to support the additional AMI functionality. The AMI programs included significant upgrades to IT infrastructure and, to the extent that it was allowed under the CROIC, we understand that this is likely included in AMI RAB values. This infrastructure in part supports the collection of metering data in accordance with the relatively onerous Victorian AMI performance requirements, however we understand that it also provides an upgraded platform for certain distribution-related IT applications.

12. The DNSPs have proposed that all metering related IT capex and communications capex is attributed to metering ACS. We concur.

1 Introduction

1.1 Purpose and scope of requested work

13. The AER is seeking advice on the allocation of IT and communications expenditure relating to advanced metering infrastructure (AMI) submitted by the five Victorian Distribution Network Service Providers (DNSPs)[2] as part of their Revised Regulatory Proposals covering a five year regulatory period from 2016 to 2020.

14. The AER is currently considering revenue that can be recovered by the Victorian DNSPs; preliminary decisions were published in October 2015 and the Victorian DNSPs submitted Revised Regulatory Proposals in January 2016. The DNSPs have not accepted all aspects of the AER's Preliminary Decisions and have (in some cases) proposed additional expenditure allowances. The AER will publish Final Decisions in May 2016.

15. As part of the regulatory review, the AER is currently in the process of making decisions for the next price control period on Standard Control Services (SCS, for the provision of network services) and Alternative Control Services (ACS) – which includes metering (AMI) services.

16. Each of the Victorian distributors has taken a different approach to how AMI costs, in particular IT and communications costs associated with AMI, should be allocated across standard control (SCS) and alternative control (metering) services (ACS). The AER considers that a common allocation approach across the Victorian DNPSs is preferable.

17. The AER has asked Energy Market Consulting associates (EMCa) to provide advice on whether the cost allocation approaches proposed by the businesses are reasonable and to propose a consistent approach that can be applied to each DNSP. This involves identification of the primary drivers

[2] AusNet Services, CitiPower, Jemena, Powercor, United Energy.

underlying the IT and communications infrastructure, systems and applications in the DNSPs' submitted AMI expenditure. The AER has sought specific and qualitative advice; the AER is not seeking advice on the quantified implications of any proposed changes to allocations nor is the AER seeking our advice on the extent to which the proposed expenditures meet the capex and opex criteria for its assessment under the NER.

18. We understand that the assessment and decisions on the allocation of AMI IT and communications expenditure (between SCS and ACS) will form part of the AERs Final Decisions on the Victorian regulatory proposals.

1.2 Our approach

19. We carried out a desktop review of the AMI information submitted by the Victorian DNSPs as part of their regulatory submissions. We also reviewed relevant AMI regulatory decision and guidance documents[3].

20. We compared the allocation approach for AMI-related IT and communications expenditure and collated evidence on the key drivers / rationale provided by each business to justify the allocation approaches taken.

21. We reviewed AMI opex, capex and RAB allocations and our review considered whether the AMI IT and communications expenditure forecasts, primarily supported either:

    1. Standard control services (SCS)[4];
    2. Metering services (alternative control service ACS[5]); or
    3. Both SCS and metering ACS.

22. As well as reviewing the relevant sections of the DNSP regulatory submissions, we also reviewed the allocations proposed by the businesses against the AER's cost allocation framework, which includes its Cost Allocation Guideline and its approved Cost Allocation Methodologies for each DNSP.

23. Based on our assessment of the information and evidence submitted by the DNSPs we established a set of high-level principles for the allocation of AMI-related IT and communications expenditure. The principles were developed taking account of the regulatory implications as well as economic arguments proposed by the DNSPs and are discussed further in section 3 of this report.

24. Based on the established allocation principles, we reviewed the DNSPs' proposed cost allocations for AMI IT and communications activity and provide

[3] see section 1.3 for a list of our information sources

[4] SCS is a direct control service (i.e. within the meaning of section 2B of the National Electricity Law) that is subject to control mechanisms based on a DNSP's total revenue requirement (i.e. revenue calculated for the whole of the regulatory control period), AEMC, NER, Glossary, Chapter 10. In the sense in which it is used in this report, it refers to the provision of distribution network services.

[5] ACS is a distribution service that is a direct control service but not a standard control service, AEMC, NER, Glossary, Chapter 10

recommendations on whether specific IT and communications metering-related costs should be allocated to metering Alternative Control Services (metering ACS) or distribution network Standard Control Services (SCS), or both.

25. The AER provided a draft of this report to the DNSPs and provided an opportunity for them to (a) provide feedback on our draft report, (b) map their IT and communications systems against the categories of systems defined in our draft report and (c) to submit a revised metering cost model reallocating costs in line with the framework in our draft report. We reviewed responses from DNSPs and we have incorporated material from these responses into this Final version.

26. Our recommendations for DNSPs' cost allocations can be found in section 4.

1.3 Information sources

27. We used the following sources of information as part of our desktop review to assess the allocation of AMI-related expenditure:

- Victorian DNSPs RRPs submitted in January 2016;
- AER's Preliminary Decisions issued in October 2015;
- Victorian DNSPs' initial RPs submitted in April 2015;
- Information submitted by two DNSPs (Jemena and United Energy) in response to a further information request raised by the AER;
- DNSP submissions to the AER for its decision made under the Victorian Government's Cost Recovery Order-in-Council (CROIC);
- AER approved Cost Allocation Methods (CAMs) for each DNSP;
- AER regulatory framework documents, specifically AER's Cost Allocation Guidelines (CAG); and
- DNSPs' responses to the AER's information request, and which were provided to the AER on 24th March 2016.

2 Background

2.1 Overview of AMI IT and communications systems

2.1.1 AMI systems - scope

29. The scope of our assessment comprises IT and communications infrastructure and its operations, that have been deemed as AMI and for which cost recovery has to date occurred under the AMI CROIC. The specific systems implemented under AMI varied between DNSPs, depending (for example) on their IT and communications strategies, the stage of existing systems in their lifecycle, the functionality of existing systems and infrastructure, DNSP-specific variations in the CROIC and the respective DNSPs' interpretations of what could be considered within scope of the AMI CROIC.

30. The following provides an overview of the types of IT and communications systems that have been considered part of AMI, and which are (to varying extents used by each DNSP) now being considered as providing a distribution network service (SCS), a metering service (ACS) or both.

2.1.2 AMI IT systems

31. While recognising the differences that exist between the DNSPs, IT systems which have been considered part of AMI[6] under the CROIC include:

- Meter Data Management Systems (MDMS);
- B2B systems for managing AMI-related transactions with other market participants;
- Field force mobility systems;

[6] This includes systems for which upgrade costs were claimed as part of AMI under the CROIC

- Network billing systems;
- Customer Information Systems (CIS);
- Outage management systems;
- Geospatial information systems;
- Asset management systems;
- Performance and regulatory reporting systems;
- Middleware / integration bus technology;
- Data analysis systems;
- New / upgraded IT infrastructure to support the additional AMI functionality;
- IT systems application integration and program management of the IT upgrades and deployments.

32. To the extent that these systems were considered to be within the scope of AMI for CROIC purposes, the DNSPs sought cost recovery under the AMI CROIC for the capital costs (through inclusion in the RAB) and ongoing operating costs of these systems, such as for IT support and IT operations including database management, ongoing vendor licence fees and processing.

2.1.3 AMI communications systems

33. Metering communications networks were built by each DNSP for the deployment of AMI. Key elements of the communications infrastructure and its operations include:
    - Metering communications networks. For four of the five DNSPs this comprises meshed radio networks based on technology built into each meter. AusNet Services initially chose a different technology and in its initial RP stated that it needed to migrate to a different technology, but now states that it will retain the existing communications technology throughout the next RCP[7].;
    - Connection point / Network communications management systems (sometimes referred to as NMS). This system manages the communications network and the communications with each meter on that communications network and is also used to deploy firmware upgrades to meters[8];
    - Ongoing costs include management of the Network Operations Control Centre (NOCC), which comprises operation of the NMS as above, and provision of backhaul by telecommunications service providers.

34. Since DNSPs did not have pre-existing mass-market metering communications networks, there was a clearer case for the DNSPs to seek recovery of the capital and operating costs of these new AMI communications

[7] AusNet Services RRP, page 11-9. AusNet Services also states that it will replace any of the existing technology which fails with a new technology, but that it intends to classify this as SCS capex.

[8] While this system may be classified by DNSPs as 'IT', from a functional perspective we will consider it under 'communications'

systems under the AMI CROIC[9]. CitiPower/Powercor and Jemena have allocated communications opex directly to metering ACS, while AusNet and United Energy have proposed allocating 87% and 40% of AMI comms opex respectively, to SCS.

2.2 Regulation of the AMI roll-out

35. In 2006 the Victorian Government mandated the roll out of AMI[10]. The Victorian distributors were appointed as the monopoly suppliers and were required to install advanced remotely read interval meters together with appropriate communications and information technology systems to 2.8 million[11] Victorian residential and small business customers using up to 160 MWh of electricity per annum.

36. Between 2009 and 2015 additional costs incurred by the Victorian DNSPs associated with AMI roll out were regulated under the Victorian Government's Cost Recovery Order-in-Council (CROIC). The AMI CROIC directed the AER to approve budgets and charges for the AMI rollout under a prescribed regime.

37. Following the AMI roll out, metering in Victoria is now entering a "business-as-usual" phase during the 2016–20 regulatory control period. To facilitate this transition, the derogation ended on 31st December 2015 and metering services will now be regulated under the National Electricity Law (NEL) and National Electricity Rules (NER).

2.3 NER cost allocation framework

2.3.1 NER Cost Allocation principles and AER Cost Allocation Guidelines

38. The NER sets out key Cost Allocation Principles (clause 6.15.2, see annex A) which the DNSPs must adhere to when allocating costs between different categories of distribution services. In order to support implementation of cost allocation principles, the NER requires the AER to establish Cost Allocation Guidelines (CAG) consistent with the NER. The CAG identifies two types of costs:

[9] We understand that some DNSPs may have used their existing communications networks in part for backhaul, and note that telco providers' networks are also used for backhaul. However this is a relatively small part of the communications infrastructure and its operations.

[10] The meter selected for the roll-out was a type 4 'smart meter' which the Victorian Government deemed under a derogation to be a type 5 or 6 meter.

[11] Victorian Government, Department of Economic Development, Jobs, Transport and Resources http://www.smartmeters.vic.gov.au/about-smart-meters/end-of-rollout, accessed 11 October 2015.

- *Directly attributable costs – costs that are directly attributable to a business segment of a DNSP, if it is wholly and exclusively associated with that segment*[12]*.*
- *Shared costs - costs that cannot be directly attributed to the provision of a particular category of distribution services but which are allocated between different categories of distribution services*[13]*.*

39. The CAG also states that shared costs:
    - must be allocated between those categories using an appropriate *causal allocator* except where the shared costs are immaterial or a causal relationship cannot be established without undue cost and effort[14]
    - must not be allocated using an avoided cost approach without prior approval from the AER[15].

40. The cost allocation principles set out in the CAG reflect the allocation principles in the NER.

41. In accordance with the NER, each DNSP prepared a Cost Assessment Method (CAM) which must be consistent to the CAG (full details can be found in Annex A). The CAMs were submitted to the AER for approval in 2014[16].

2.3.2 DNSPs' Cost Allocation Methods (CAMs)

42. The DNSPs expenditure forecasts must be prepared in accordance with their AER-approved CAM. A summary of the relevant AMI IT and communications sections of the DNSP CAMs can be found in Annex B Table 1. The DNSPs' CAMs were prepared in 2014 and the AER made decisions in respect of those CAMs in October 2014 (CitiPower and Powercor) and December 2014 (AusNet, Jemena and United Energy).

CitiPower and Powercor

43. CitiPower/Powercor identifies specific AMI categories as directly attributable to AMI pass-through services. For Opex this mainly relates to AMI project management including technology selection, forecasting, program management office, business transformation and asset management plan

[12] AER Cost Allocation Guidelines for Victorian Electricity Distribution Network Services Providers, 2008, Section 2.2.3 and Section 6

[13] AER Cost Allocation Guidelines for Victorian Electricity Distribution Network Services Providers, 2008, Section 2.2.4 and Section 6

[14] AER Cost Allocation Guidelines for Victorian Electricity Distribution Network Services Providers, 2008. Section 2.2.4 (c)

[15] AER Cost Allocation Guidelines for Victorian Electricity Distribution Network Services Providers, 2008. Section 2.2.4 (e)

[16] CitiPower/Powercor submitted their CAG to the AER for approval in April 2014, Jemena in July 2014, AusNet in September 2014 and United Energy in October 2014.

and information technology.[17] A more detailed breakdown of AMI IT and communications opex categories is also provided in the CAM :[18]

Opex

- AMI IT
- Meter data services

Capex

- Meter data services (IT) – the software and systems used to support metering data services
- Communications – the equipment used to transfer data from AMI meters to a central collection point; and

44. CitiPower / Powercor propose an avoided cost approach to directly attribute some costs to certain categories of distribution services. They state they will demonstrate *that the shared costs which are allocated on an avoided cost basis to distribution services other than Standard Control Services are immaterial*[19].

45. Both businesses have classified the following AMI categories as shared services[20]:
    - IT support - IT strategy, infrastructure, applications, user services and implementation
    - Meter data services – application maintenance and support services for the full retail competition system, the billing system and the meter data services systems
    - Meter replacement – the works required to replace meters and time switches on customer installations with accumulation meters and AMI meters

46. They identify direct expenditure as a cost allocator for IT support and FTEs as a cost allocator for meter data services[21].

AusNet Services

47. AusNet states that it would classify smart meter regulated services as a direct service allocated to ACS[22]. All costs not directly attributable are classified as shared costs. AusNet states that these costs would be initially pooled against an overhead / administration cost category then allocated between the relevant service categories using an Activity-Based Costing (ABC) approach[23].

[17] CitiPower/Powercor, Cost Allocation Method, April 2014, page 12

[18] CitiPower/Powercor, Cost Allocation Method, April 2014, table 1, pages 15-17

[19] CitiPower/Powercor, Cost Allocation Method, April 2014, page 26

[20] CitiPower/Powercor, Cost Allocation Method, April 2014, page 19

[21] CitiPower/Powercor, Cost Allocation Method, April 2014, Table 2, pages 21

[22] AusNet Services, Cost Allocation Method, November 2014, page 10

[23] AusNet Services, Cost Allocation Method, November 2014, page 15-16

48. AusNet identifies IT Strategy[24] as a shared service across the organisation and will use ABC to allocate these costs across ACS, SCS, negotiated and non-regulated services. In the case of IT, the time spent on IT functions provided to the business will be uses as the causal allocator.

49. AusNet states that it has developed its CAM in accordance with the Cost Allocation Principles in the NER and cites, as one of these principles, that an avoided cost approach will not be used to allocate shared costs. Later in its CAM AusNet states that it '*does not allocate shared operating costs to Alternate Control operating services but instead applies an incremental costing*[25] *approach which attributes only the direct costs incurred in performing these operating services*'[26].

Jemena

50. Jemena states that it would use a cascade of three approaches to allocate shared costs[27]:
    - Percentage allocation based on actual time writing results
    - Direct allocation based on FTE surveys
    - Allocate based on proportion of direct costs for each service classification to total direct costs (where time writing and survey data is not available).

51. For IT costs it proposes to allocate shared costs based on total direct costs. Its CAM does not directly address the sharing of AMI IT and communications costs although there is reference to metering services under residual asset management[28].

United Energy

52. United Energy states that costs that are not specifically job-costed generally relate to corporate or support activities and are charged directly to specific cost centres. Cost centre costs would then be allocated between standard control services, alternative control services, CROIC, or negotiated services based on the weighted average service revenue[29].

53. United Energy states that it would exclude from allocations those costs that are directly allocated to distribution services. For example, expenditure for the delivery of AMI services – Cost Recovery Order in Council (CROIC) is accounted for by specific invoices and by directly attributed employees and

[24] Includes IT architecture, portfolio, real time systems and IT Services, Source AusNet CAM, November 2014

[25] AusNet states that '*Incremental costs are the additional costs that AusNet Services will incur as a result of expanding the output of a service defined as an ACS',* AusNet Services, Cost Allocation Method, November 2014, page 16.

[26] AusNet Services, Cost Allocation Method, November 2014, page 16.

[27] Jemena, Cost Allocation Method, November 2014, page 13

[28] Jemena, Cost Allocation Method, November 2014, Table 5-2, pages 12-13

[29] United Energy Revised Cost Allocation Method, October 2014, page 17

the use of time allocations. This allows expenditure on these services to be directly attributed and hence is excluded from the above allocations[30].

2.4 AMI cost allocation approaches proposed by DNSPs and AER's Preliminary Decision

2.4.1 Classification of metering Alternative Control Service

54. As competition in metering is likely to be introduced during the 2016−20 regulatory control period, the AER classified two separate metering services in order to minimise barriers to developing competition and reduce confusion around the regulation of AMI during the transition to regulation under the NER:

    1 Metering services provided to residential and small business customers by the distributor under the AMI Order and which continue to be supplied by the distributor until replaced by a competitively supplied meter will be classified as ACS[31].

    2 To facilitate the transition to a fully competitive market, type 5 and 6 metering services supplied on a competitive basis by third parties will be unclassified. This unclassified service will only be offered once metering becomes fully competitive.

55. The Victorian DNSPs accepted the AER classification of metering services. However, each of the Victorian distributors has taken a different approach to how these costs should be allocated between SCS and metering ACS.

2.4.2 DNSPs' allocation of AMI IT and communications expenditure in their initial Regulatory Proposals

56. As part of their initial proposals submitted to the AER in April 2015, all of the DNSPs allocated some of their metering services costs to SCS. In the event that metering competition is introduced, this would have the effect of spreading part of the cost of those services across all customers, regardless of their metering service provider and would reduce the costs in their metering businesses.

Opex

57. In their initial RPs, CitiPower and Powercor identified the proportion of each IT system previously regulated under the AMI CROIC that is used for SCS. Their approach was to allocate all AMI IT system costs to SCS as they

[30] United Energy Revised Cost Allocation Method, October 2014, page 17

[31] AEMC, in its consultations on introducing metering competition in Victoria, stated that NER mandates that smart metering in Victoria be classified as an alternative control service in the 2016−20 regulatory control period.

considered the proportion of these systems used solely for metering was immaterial[32].

58. Jemena determined the amount of costs to be allocated between SCS and metering ACS at the disaggregated IT and communications system level. It allocated shared costs previously regulated under the AMI CROIC between SCS and ACS[33].

59. AusNet Services and United Energy identified AMI-related IT and communications costs that are shared between SCS and metering ACS and proposed to allocate all shared costs to SCS[34, 35].

Capex and RAB

60. In their initial RPs CitiPower and Powercor proposed modest amounts of IT and communications capex and allocated this to metering ACS[36].

61. AusNet Services, United Energy and Jemena all allocated proportions of their proposed metering related IT/communications capex for the next Regulatory Control Period (RCP), to SCS[37]. AusNet Services proposed to also allocate the RAB value of some existing AMI IT/communications assets into the SCS opening regulatory asset base (RAB) for the next RCP[38].

2.4.3 AER's Preliminary Decision on allocation of AMI IT and communications expenditure

62. In its preliminary decision published in October 2015[39], the AER allocated all AMI costs (opex and capex) to metering ACS. The rationale to support this decision can be summarised as follows:

- competitive metering is likely to begin in 2017;
- a consistent allocation approach across all DNSPs was preferred. The AER noted that inconsistent allocation of metering costs has the potential to affect metering competition in Victoria and that what the AER considered to be high metering costs re-allocated to SCS by some distributors highlighted the risk that inconsistent allocation could create barriers for new entrants and competition between Victorian DNSPs;
- an inconsistent approach to cost allocation has implications for transparency in opex benchmarking, in particular around trends in AMI and

[32] CitiPower, Regulatory Proposal, Appendix F – Base year adjustments, 30 April 2015, pages 10-13

[33] Jemena, Regulatory Proposal, Opex model, 30 April, 2015

[34] AusNet, Regulatory Proposal, 30 April 2015, page 204

[35] United Energy, Revenue Capped Metering Services – Supporting Paper, 30 April 2015

[36] CitiPower / Powercor, Regulatory Proposals, 30 April 2015

[37] AusNet Services Regulatory Proposal, 30 April 2015, United Energy, Regulatory Proposal, 30 April 2015, Jemena, Regulatory Proposal, 30 April 2015

[38] AusNet, Regulatory Proposal, 30 April 2015, page 378

[39] AER, Preliminary Decision, Attachment 16 ACS, October 2015, AER preliminary decision, Attachment 7 Opex, October 2015

SCS expenditure. The AER's view was that allocating costs formerly regulated under AMI CROIC to ACS is similar to the historical approach where AMI costs were recovered separately to distribution networks costs;

- allocation of AMI costs will be considered in detail as part of the AERs' Distribution Ring Fencing Guideline[40] which is due to be published in late 2016.

63. The AER also highlighted that the allocation of costs between SCS and metering ACS does not impact its assessment of efficiency of these costs and in its Preliminary Decision it adjusted the metering-related expenditures that the DNSPs had proposed. The AER also highlighted that as both ACS and SCS are regulated under a revenue cap, the ability of the Victorian businesses to recover their efficient costs is not affected[41].

64. The AER rejected AusNet's proposal to reallocate a component of AMI IT/communications assets to SCS RAB.

2.5 DNSPs' allocation of AMI IT and communications expenditure in their RRPs

2.5.1 Summary of DNSPs' arguments on the AER's Preliminary Decision

65. In their Revised Regulatory Proposals (RRPs) submitted in January 2016 the Victorian DNSPs disagree with the AER's decision to allocate AMI costs which they had proposed as SCS, to metering ACS. All the DNSPs maintain that certain AMI costs should be allocated to SCS, as originally proposed.

66. The DNSPs' arguments to support their proposals to allocate some of the AMI costs to SCS can be summarised as follows:

- a number of the IT systems rolled out as part of the AMI metering service are needed even if the DNPS did not provide a metering service e.g. for customer billing and providing data to the market, and should therefore be considered to contribute to the distribution network SCS[42];
- in the event of metering competition, they would be at a competitive disadvantage if all AMI costs are allocated to ACS[43];
- costs should be correctly allocated in line with the regulatory framework;[44]

[40] At the time of issuing the Preliminary Decision, current guidance from the AEMC required the AER to publish a Distribution Ring Fencing Guideline by 1 December 2016. AEMC, *Information: Extension of time for final rule on provision of metering services*, 2 July 2015.

[41] AER Preliminary Decision (example AusNet) determination Attachment 16 October 2005, page 16-40

[42] AusNet, Revised Regulatory Proposal, January 2016 2015, page 11-6

[43] AusNet, Revised Regulatory Proposal, January 2016, page 11-6/7, Powercor, Revised Regulatory Proposal, January 2016, page 151, United Energy, Revised Regulatory Proposal, January 2015, page 104, Jemena, RRP, Attachment 09-01 Alternate Control metering services, January 2016, pages 21-24

- different DNSPs adopted different approaches to the AMI roll out e.g. purpose built IT systems compared to upgrades / lifecycle replacement of existing systems and these differences limit the extent to which cost allocation between SCS and ACS will or can be consistent across all DNSPs[45].

67. In their revised submissions, the DNSPs have proposed to allocate AMI costs to different extents between SCS (paid for by all network customers) and ACS (only paid for by consumers with a metering service from this provider). Each business has proposed a different cost allocation approach, which is summarised below.

2.5.2 DNSPs' allocations of opex

68. In its revised submission CitiPower and Powercor claims to have allocated IT opex based on its assessment of the primary use of the systems[46] as follows:

- the 'UtilityIQ[47]' system (and infrastructure opex to support this system) which is allocated to metering ACS;
- opex for all other IT systems is allocated to SCS on the grounds of primary use (in the case of Data Management Systems) or materiality (all other systems);
- the net result is an allocation of 74% of AMI-related IT applications opex and 33% of IT infrastructure opex to distribution SCS. This is an amount of $10m for CitiPower and $16.9m for Powercor[48].
- communications opex (AMI network operations and metering communications strategy and planning) allocated directly to metering ACS.

69. While CitiPower / Powercor claims to have allocated its IT opex costs based on the primary use of each system where possible, further inspection of data provided shows (for example) that $2.47m of the $2.81m[49] applications-related opex allocated by CitiPower to SCS, has been allocated on the basis of 'materiality' [50]. For example, we note that for two minor systems (MTS and IEE) CitiPower's opex has been allocated to SCS on the grounds of materiality; however a further $1.1m of "Support and PMO" is then allocated to SCS on the basis of these two 'immaterial' amounts and the IEE costs are in turn allocated to SCS based on the allocation (based on immateriality) of the much smaller MTS opex.

[44] A number of DNSPs suggest that the decision is inconsistent with the regulatory framework, i.e. AER's Framework and Approach paper, AER's Cost Allocation Guideline and the DNSPs' approved Cost Allocation Methods.

[45] United Energy, RRP, January 2016, page 105

[46] Appendix F.3, CitiPower and Powercor; *Allocation of IT Systems Operating Expenditure*, Ernst and Young, April 2015, Table 1.

[47] UtilityIQ is a web-based network management system that provides services such as device management, device health monitoring, remote firmware upgrades and device outage detection, *Source: CitiPower metering capex and opex model.*

[48] Conversely $7.1m of CitiPower IT opex and $12m of Powercor IT opex is allocated to ACS, these figures are in $2015.

[49] $2014

[50] The same proportions apply to Powercor's allocation

70. Jemena has proposed to allocate Network system IT opex across metering ACS and SCS, using resource head count as a cost allocator between the service classifications, as shown in table 1. Jemena has allocated all communications[51] opex directly to metering ACS.

Table 1: Jemena IT opex weighted average service classification

NMS / AMI Functionality	FTE	FTE ACS	FTE SCS
Meter Data Management System (Itron)	6	4	2
Meter Network Management Systems (SSN)	3	1	2
Enterprise Service Bus / Business to Business Market Gateway (Web Methods)	3	1	2
Business Intelligence Data Warehouse / Reporting (Cognos)	3	1	2
Connection Point Management System (SAP-ISU)	8	3	5
Infrastructure Support	5	2	3
Total (includes weighting)	**100.0%**	**44.1%**	**55.9%**

Source: Jemena RRP, attachment 09-01 ACS, Table A1-6

71. AusNet has proposed that:

- Its IT and communications maintenance and support opex for UIQ and Meter Management Systems (MMS-PolicyNet)[52] is allocated directly to metering ACS.
- AusNet's RRP[53] shows an amount of $18.9m for MDM as being allocated to ACS, although in its response to our Draft Report AusNet states that it has '*classified MDMS wholly as SCS…*" Further inspection of spreadsheets provided by AusNet Services in response to AER's request indicate that while it has allocated $18.9m of MDM costs to ACS, as above, it has also attributed further MDM costs to SCS.
- Our reading of AusNet's RRP is that AusNet has allocated all remaining AMI IT and communications maintenance and support opex to distribution SCS.

72. United Energy identifies its IT and communications opex as shared costs and has allocated these costs between metering ACS and SCS. United Energy has proposed the following allocations:

- IT function 21% allocated to metering ACS, 79% allocated to SCS. This is on the basis that what it considers to be dedicated metering applications including UIQ, IEE/MTS, MVRS and MV90 are allocated to metering ACS;
- AMI NOCC[54] 60% allocated to metering ACS, 40% allocated to SCS; and

[51] We have interpreted Jemena's metering communications costs as those classified as 'metering communications, strategy and planning' in its regulatory submission.

[52] AusNet Metering Cost model revised, model issued to AER, January 2016

[53] In its RRP page 11-13 AusNet states: "*AusNet Services' revised metering alternative control services opex is shown in the table below*'. Table 11.2 then follows and the second line of this table is labelled '*Meter data management*' and shows an amount of $18.9m

[54] Network Operations and Communications Centre

- infrastructure applications such as webMethods and B2B are allocated to the metering ACS based on an estimate of usage[55].

73. United Energy states that its allocation percentages are based on a review of the CY2014 actual costs for support of AMI systems that were cost recovered under the CROIC[56]. These systems include metering and billing systems. By way of further information, United Energy states that:

- The application management costs comprise application support fees and annual application licence fees;
- The application support fees are for metering systems including ITRON (IEE/MTS and MVRS) and an allocation of the webMethods integration and gateway software support costs. This totals 19% of the CROIC application support fees (i.e. not total application support fees);
- The application licence fees include the annual licence fees for ITRON (IEE/MTS and MVRS), Silver Spring Networks (UIQ) and allocation of the webMethods integration and gateway software licence fees. This represents 42% of the CROIC licence fees (i.e. not total licence fees)[57].

2.5.3 DNSPs' allocations of capex

74. In their RRPs, all five DNSPs propose to allocate all disclosed metering-related IT and communications capex directly to metering ACS.

2.5.4 Key differences in DNSPs' cost allocation approaches

75. To the extent that we can identify expenditure allocations at a 'common' category level from the information provided, we summarise the key differences in AMI IT and communications opex allocation between the DNSPs as follows:

- Of the communications opex we have identified AusNet proposes to allocate nearly all AMI communications opex to SCS; CitiPower, Powercor and Jemena propose allocating all AMI communications opex to ACS, while United Energy proposes allocating between ACS and SCS at a ratio of 60:40;
- CitiPower, Powercor and AusNet propose allocating their opex for metering Network Management Systems (NMS) / Meter management Systems (MMS) / Network Operating Control Centres (NOCC) to ACS; Jemena and United Energy propose splitting the allocation of these systems and control facilities between SCS and ACS with Jemena proposing a 66% allocation to SCS[58] and United Energy proposing a 40% allocation to SCS;
- United Energy lists a number of 'dedicated' meter data-related IT applications for which it proposes allocating opex to ACS, and proposes allocating costs for connection point and standing data systems and network billing systems to SCS. The result is that it proposes that 79% of

[55] United Energy Revised Regulatory Proposal, January 2016, page 164

[56] AER United Energy info request #38, February 2016

[57] AER United Energy info request #38, February 2016

[58] 2 out of 3 FTEs, per table 1

its AMI IT opex is allocated to SCS[59]. Jemena proposes allocating 56% of IT opex to SCS and CitiPower/Powercor propose allocating 67% to SCS. Apart from its MMS, AusNet proposes allocating all other IT opex to SCS;

- The DNSPs allocation methods for shared costs involve allocations for specific systems each of which is designated either as wholly ACS or wholly SCS based on its primary use (CitiPower, Powercor and AusNet), allocated for each IT system based on FTEs (Jemena), and allocation based on a snapshot review of actual costs (United Energy).

[59] This and subsequent percentages include the NSMS / MMS systems allocated to ACS, as above

3 Assessment of arguments relating to cost allocation methods

3.1 Use of AMI IT and communications for provision of distribution network services

3.1.1 DNSPs' claims

76. The DNSPs have each claimed that, to varying extents, the AMI IT and communications infrastructure and its operations contribute not only to metering, but also to their provision of distribution network services (which are deemed standard control services)[60].

3.1.2 Our review

AMI as a platform to enhance distribution network services

77. As the AMI deployment occurred the Victorian government undertook a number of studies which assessed the benefits of AMI[61] and these studies indicated that a significant proportion of those benefits should arise from improvements to the provision of distribution network services. Some examples of the intended network benefits included:

[60] AusNet, Revised Regulatory Proposal, January 2016, page 11-6, CitiPower / Powercor, Revised Regulatory Proposal, January 2016, page 150, United Energy, Revised Regulatory Proposal, January 2016, pages 105-106, Jemena, RRP Attachment 09-01 Alternate Control metering services, January 2016, page 24.

[61] EMCa discloses that it provided assessments and advice on these matters to the Victorian Government's Department of Primary Industries during the deployment

- improvements in real-time outage information which could potentially reduce the duration of outages and the cost of restoring supply;
- more granular and more comprehensive information on supply quality that would assist in identifying and rectifying such issues independently from customer complaints;
- improved move-in and move-out processes assisted by remote connection and disconnection (as well as the ability to obtain real-time meter reads).

78. Some aspects of the implementation of AMI in Victoria were therefore geared towards AMI providing a platform for such benefits. Achieving network benefits from AMI requires certain performance requirements on the communications network (that would not be required if the network was solely required to deliver meter reads to a daily schedule) and real-time IT integration between AMI and certain network-related IT applications.

Some AMI IT systems support distribution network services

79. In its submission, AusNet highlights that the AMI CROIC recognises that the AMI '*roll-out requires distributors to either establish new or modify existing IT systems, applications and infrastructure used to provide SCS*'[62]. Examples of the Distribution IT Systems that might require modification are outage management systems, geospatial information systems, application-to-application interfaces and business-to-business interfaces[63].

80. AusNet also suggests that in theory a DNSP could cease to be a metering data provider. In this scenario, in order to meet its regulatory obligations, a DNSP would still require core distribution systems regardless of whether it continued to be the metering data provider. These systems should be allocated to SCS and would include:
    - A stand-alone billing system
    - A meter data management systems (MDMS)
    - A Customer Information System

Meter read data and compliance requirements

81. A number of DNSPs highlighted that IT transformation was necessary to manage the increase in the volume and speed of AMI interval metering data that needed to be processed, managed and stored in their IT systems. For example, CitiPower states that as a result of the AMI rollout the volume of meter reads per customer per annum has increased from 4 to around 17,000. The new and upgraded IT systems replaced some of the pre-existing IT systems that were also used for providing standard control services[64].

82. AusNet points out that as a registered participant they must comply with AEMO procedures determined in accordance with the Rules. In compliance with those AEMO procedures, as a local network service provider, they must

[62] AusNet Revised Regulatory Proposal, January 2016, page 11-4

[63] AMI CROIC clause S2.6(B)(2)(vii)(E) as referenced in AusNet RRP

[64] CitiPower Initial Regulatory Proposal, Appendix F Base-year adjustment, April 2015

be able to receive data, bill, store data, keep records and undertake various activities with respect to data (including aggregate, validate, reconcile, substitute and estimate data)[65]. They therefore require these IT systems in order to undertake those activities, that this would be a requirement regardless of whether or not they provided metering services.

3.1.3 Our conclusion on use of AMI for provision of distribution network services

83. Having implemented AMI, inclusive of the functional and performance requirements that make it a platform for potentially delivering network benefits, we consider that it is reasonable to consider it partly as a metering system and partly as an element of a 'smart grid' that can support improved network services. The question then lies in drawing an appropriate allocation of functions, drivers and therefore costs between the provision of metering services (ACS) and network services (SCS) for what is, in our view, a 'shared' system.

3.2 Consistency with DNSPs' cost allocation methods (CAMs)

3.2.1 DNSPs' claims

84. The DNSPs claim to have allocated costs in accordance with their CAMs, and that those CAMs are consistent with the AER's CAGs. They claim that allocating all AMI costs to metering ACS is inconsistent with the approaches set out in their CAMs and is inconsistent with the NER cost allocation framework[66].

3.2.2 Our review

Reference to AER's CAG

85. The CAMs proposed by the DNSPs are intended to reflect the cost allocation principles set out in the NER and CAG. However, the level of information provided across the DNSPs' CAMs varies, specifically in relation to the allocation of AMI costs.

Reference to direct and shared costs

86. All DNSPs identify in their CAMs that there are direct costs and shared costs and describe approaches to allocating shared costs using either a causal allocator, or where the cost is deemed to be immaterial. We discuss further below in this subsection the application of allocators for shared costs.

[65] CitiPower Revised Regulatory Proposal, January 2016, page 151

[66] AusNet, Revised Regulatory Proposal, January 2016, page 11-7, CitiPower / Powercor, RRP, Appendix F.3 Ernst and Young CitiPower /Powercor Allocation of IT System Opex, April 2015, United Energy, Revised Regulatory Proposal, January 2016, page 104-105, Jemena, RRP Attachment 09-01, ACS, pages 24-25

Reference to metering / AMI in CAMs

87. The CAMs vary in regards to their reference to metering. For example the Powercor and CitiPower CAMs refer to AMI services as a category separate to SCS and ACS[67], in effect reflecting the legacy CROIC arrangements that applied at that time. AusNet Services' CAM includes reference to metering as an ACS. The United Energy CAM refers to AMI Services under the CROIC applying to 31 December 2015 and also denotes metering services as ACS applicable from 1 January 2016.

88. We understand that these differences reflect timing issues as the AER proposed that AMI metering services will be classified as ACS after the AER-approved CAMs were published[68]. Nevertheless the result is that the CAMs tend not to specifically address allocation of costs to metering ACS, as opposed to AMI or as opposed to other ACS.

89. The CAMs provide varying levels of detail on the classification of AMI costs; in most cases AMI activity is identified as a direct cost, to be allocated directly to metering ACS. CitiPower / Powercor identify AMI costs as a shared service across SCS and AMI pass-through.

Reference to IT costs in CAMs

90. All DNSPs classify IT as a shared service to be allocated across all the categories of services provided by each DNSP. The CAMs provide limited detail specifically on AMI-related IT and communications costs. Only United Energy and to some extent CitiPower/Powercor identify these cost categories separately, they both propose to allocate the costs across ACS and SCS.

Cost allocators used for shared costs

91. Each DNSP has identified a set of cost allocators for shared costs and provided a rationale for the approach adopted. However, it is often unclear from the CAMs and Regulatory Proposals whether the DNSP considers the allocator is causal or non-causal. For example, AusNet's CAM refers to allocating costs between SCS, ACS and negotiated Distribution Services[69] and allocating shared costs on the basis of factors such as FTEs, asset values, debt balance or revenues[70]. However elsewhere in its CAM[71], and in its RRP, AusNet states that it has allocated only what it considers to be incremental direct costs to ACS and that on this basis it has allocated all of AMI communications and IT expenditure (except MMS) to SCS. It has therefore not referenced its CAM cost allocation drivers in proposing its allocation of AMI costs.

[67] For example CitiPower and Powercor, page 8

[68] Some DNSPs provided revised CAMs to the AER. For example United Energy submitted an amended CAM to the AER prior to submission of its regulatory proposal. Their CAM was amended to reflect changes to the United Energy's distribution services classification for the 2016-2020 regulatory period.

[69] Ibid, page 10

[70] Ibid page 16

[71] Ibid, page 16

92. All DNSPs have made reference to the cost allocation principle that non-causal allocators will be used where the costs are immaterial. However, it is not clear from any of their CAMs where they intend to use this principle i.e. where they would use a non-causal allocator as they expect costs to be immaterial. In principle this approach is in line with the CAG[72]. However where a non-causal allocator has been adopted we do not observe defined materiality thresholds considered in making these decisions.

93. DNSPs other than AusNet have acknowledged some IT and communications costs as being shared between SCS and ACS, and have allocated them on a causal basis. The cost allocators for IT vary and include for example direct expenditure and FTEs. More information on the DNSPs' cost allocators for metering-related shared costs can be found in Table 1. We note that the allocation methods stated in the CAMs are not always consistent with the allocation methods used. For example, CitiPower/Powercor CAMs state allocation of Meter Data Services would be done using FTEs. However the allocation method used appears to be wholly on a system basis.

Reference to an avoided cost allocation approach

94. CitiPower / Powercor propose an *avoided cost approach to directly attribute some costs to certain categories of distribution services*[73]. They have identified those costs which they intend to directly attribute using this approach and state that they have allocated on an avoided cost basis due to the immaterial nature of the costs[74]. Although the CAM identifies where the avoided cost approach will be used, it is not clear what the cost categories refer to.

95. There is lack of clarity in AusNet's CAM on the use of avoided costs to allocate shared costs. AusNet states as one of its cost allocation principles that it will not use an avoided cost approach to allocate shared costs[75]. However, it also states that it will allocate shared costs to Alternative Control operating services using incremental costing which it defines as costs that are '*the additional costs that AusNet Services will incur as a result of expanding the output of a service defined as an ACS'*.[76]

96. Here the definition of incremental costs is in line with the definition of avoided costs set out in the CAG where an avoided cost is defined as '*a cost that a DNSP would avoid incurring by virtue of taking an alternate course of action*[77].

[72] AER, *Victorian Distribution network service providers: Cost allocation guidelines*, 2008, section 2.2.4(a). States that Costs must be allocated using a causal allocator, except where the shared costs are immaterial or a causal relationship cannot be established undue cost and effort..

[73] CitiPower/Powercor, Cost Allocation Method, April 2014, page 14

[74] CitiPower/Powercor, Cost Allocation Method, April 2014, Table 1, page 17

[75] AusNet, Cost Allocation Method, November 2014, page 11

[76] AusNet state *Incremental costs are the additional costs that AusNet Services will incur as a result of expanding the output of a service defined as an ACS*.

[77] AER, Victorian Distribution network service providers: Cost allocation guidelines, 2008, page 15

3.2.3 Our conclusions on the DNSPs' CAMs and their application

97. Having reviewed the CAMs and the application of those CAMs by the DNSPs, we observe that information on allocation of AMI, specifically metering-related IT and communications costs, is limited and for the most part the methods described in the CAMs are open to interpretation[78].

98. While noting the AER's Decisions approving the CAMs, given the high-level nature of the documents it is not possible to assess from the CAMs alone, whether the DNSPs have adopted a cost allocation approach for metering-related IT and communications that is consistent with NER's CAG. Moreover the variety of methods used by the DNSPs in allocating costs between SCS and metering ACS directly demonstrates the latitude in interpretation that has been applied in the CAMs.

99. We consider that the AER should not accept DNSPs' contentions that their IT and communications metering cost allocations should be accepted on the basis that they are based on their CAMs, which have been approved by the AER. In forming this view, it is not necessary for us to find that the CAMs are inconsistent with the NER framework (including AER's CAG), only that the CAMs tend not to provide the level of detail on metering-related IT and communications that would be required to support such assertions. We consider that the AER's CAG is a more appropriate reference point in considering how DNSPs have defined metering-related IT and communications costs as direct or shared, and how they have allocated those that they consider to be shared. Moreover reference to the AER CAG provides a reference point to a consistent allocation across the five DNSPs.

3.3 NEO and economic efficiency

3.3.1 DNSPs' claims

100. All five DNSPs argued in their RRPs that the AER's Preliminary Decision to allocate metering costs to ACS does not contribute to the achievement of the National Electricity Objective (NEO). They suggest that the allocation proposed by the AER would not promote efficient investment in electricity services and would therefore not be in the long term interests of consumers[79].

101. The distributors tend to agree that the allowed revenue for SCS and metering ACS should reflect the costs of providing the relevant services without cross-subsidy between the two categories. This is in line with allocative and dynamic efficiency principles and is consistent with the NEO and revenue / pricing principles which promote economic efficiency.

[78] This is an observation also made by Ernst & Young in its report to CitiPower and Powercor: (page 13): *'The cost allocations set out in the CAMs are often relatively high level, providing some flexibility in how distributors allocate shared costs'*

[79] AusNet RRP, January 2016, page 11-6 & United Energy RRP, January 2016, page 104

102. Two of the DNSPs[80] point out that the allocation of AMI costs should provide cost-reflective price signals to consumers and producers and suggest that not allowing DNSPs to allocate costs between shared services is inconsistent with the regulatory framework[81].

3.3.2 Our review

103. The NEO and related economic efficiency objectives are a given, and cost reflectivity / lack of cross subsidy follows from these objectives. The AER CAG has been developed in support of these objectives, and DNSPs have not raised argument against the CAG. The issue therefore is the extent to which the DNSPs' proposed allocations of proportions of metering-related IT and communications costs to SCS meet these objectives.

3.3.3 Our conclusions on NEO and economic efficiency arguments

104. Given our view in Section 3.1 that the Victorian AMI to some extent contributes to the provision of distribution network services, and that this contribution is to some extent enabled by certain IT systems, we consider that some allocation of such costs to SCS would be consistent with the NEO and, to the extent that it is consistent with the Cost Allocation Principles, would facilitate economic efficiency.

3.4 Implications of metering competition

3.4.1 AER's Preliminary Decision and DNSPs' arguments in rebuttal

105. The AER in its Preliminary Decision highlighted that cost allocation approaches by incumbent metering services providers have the potential to affect competition from new entrants and also competition between existing providers in Victoria[82].

106. In their RRPs, the DNSPs have in effect agreed with this, but have claimed that allocating metering services solely to metering ACS would penalise the incumbent DNSP metering provider. For example, the DNSP metering provider would have to recover distribution costs in a competitive metering environment against metering competitors who do not face equivalent costs[83].

107. The DNSPs have not directly rebutted that part of the AER's argument that relates to competition between existing providers, and its implication for cost allocation consistency between them on these grounds.

[80] United Energy and AusNet

[81] United Energy RRP, January 2016, page 104

[82] AER, Various DNSPs Preliminary Decisions 2016-20, Attachment 16 – Alternative Control Services, October 2015

[83] AusNet Revised Regulatory Proposal, January 2016, page 11-7

3.4.2 Our review

108. The importance of allocating costs to the proper service will become increasingly important from 2017 when customers are likely to be able to choose their metering provider. Including SCS related system costs in the metering ACS operating expenditure is likely to create distortions and cross subsidies in what is intended to be a competitive market.

109. If costs that are not reasonably related to the provision of metering services are allocated to metering ACS, this will lead to distorted price signals following the introduction of metering contestability as the metering price tariffs will be overstated[84]. This would create a risk of artificial meter churn[85] as customers are likely to move away from the artificially higher cost of DNSP metering services to other parties who can provide pure metering services at a lower cost as a result of not being encumbered by the costs of unrelated distribution network services.

110. If some costs that should reasonably be allocated to distribution network services were to remain in metering ACS charges following the introduction of metering competition, then this would also lead to inequitable outcomes as customers who do not switch metering providers would be cross-subsidising those customers who do switch metering providers but who still receive distribution services from the DNSP[86].

3.4.3 Our conclusions on the impact and relevance of pending metering competition

111. Incorrect and inconsistent cost allocation has the potential to detrimentally affect future metering competition in Victoria. The arguments put forward in the AER's Preliminary Decision and by DNSPs both highlight the need to ensure shared AMI IT and communications are allocated based on key drivers of costs and that those costs allocated to metering ACS reasonably reflect the cost of the Victorian DNSPs providing a metering service.

3.5 Other principles based arguments

3.5.1 Pending distribution ring fencing guideline

DNSPs' claims

112. The DNSPs pointed out that waiting until a Distribution ring fencing guideline is developed to address metering cost allocation costs is unreasonable and a decision on cost allocation cannot be deferred[87].

[84] As claimed in CitiPower Revised Regulatory Proposal , January 2016, page 151

[85] Jemena RRP, January 2016, CitPower / Powercor Revised Regulatory Proposal, January 2016

[86] CitiPower Revised Regulatory Proposal, January 2016, page 152

[87] CitiPower Revised Regulatory Proposal, January 2016

Our conclusion

113. The AER has commissioned the current report and we understand that this is with the intention of making a Final Decision that reflects a reasonable and consistent application of the NER Cost Allocation Principles and its CAGs.

3.5.2 Change of scope between CROIC and regulated metering service

DNSPs' claims

114. References to the scope of services include the following:

> *'United Energy suggests that the scope of the revenue capped metering services is substantially narrower than the scope of the regulated metering services under the CROIC. The scope of cost recovery under CROIC included the requirement to change meters to those which complied with the Victorian AMI service level specification. This included the consequential impacts on systems and processes to support the changes to network billing to cater for the high volumes of interval data and moves to several time varying tariffs where required'* [88].

115. United Energy argues that this change of scope means that databases and systems that support all customers, regardless of who provides the meter, should be allocated to SCS.

116. United Energy asserts that the AER's Preliminary Decision adopts an inappropriate allocation by continuing to apply the CROIC scope of service to metering ACS even though the scope of metering ACS is narrower.

117. AusNet highlights that the cost recovery for AMI-related modifications to Distribution IT systems was regulated by the AMI OIC rather than the NER and does not alter the character of the systems i.e. that they are used to provide SCS.

Our view

118. The Victorian AMI as regulated under the CROIC had a broader scope than would be required purely for an NER-compliant metering service, and included enhancements to distribution network services. This is consistent with our conclusion in Section 3.1.

3.5.3 Different approaches adopted by DNSPs to comply with the AMI obligations

AER's Preliminary Decision and DNSPs' arguments in rebuttal

119. In its Preliminary Decision, the AER stated that a nationally consistent approach to allocating metering costs was preferable. A number of the DNSPs highlight that there is no requirement under the Rules for there to be

[88] United Energy Revised Regulatory Proposal, January 2016, page 105

consistency across distributors. They also point out that it is unlikely that consistency could be achieved, or is feasible under the AER's single allocation approach given different approaches adopted across the Victorian distributors to comply with their AMI obligations.

120. CitiPower, Powercor, United Energy and Jemena state that they were at different stages in their system lifecycles when they initiated the AMI rollout. This meant that some decided to install purpose built systems while others utilised existing IT systems by enhancing capacity to cater for the roll out. Given the practical differences between businesses and that alignment of costs to one service is not a rule requirement, the DNSPs argue that there is no rationale to align all of the business' cost allocations.

Our view

121. We consider that this argument would have relevance only if the AER was to consider a fixed allocation of costs.

122. We do not consider that this argument is relevant if a causal allocation approach is used as the default, as per the AER's CAG. To the extent that AMI IT enabled an enhancement to distribution network services, a causal allocator will allocate this to the distribution network SCS and therefore the stage of these systems in their lifecycle is not relevant to metering ACS costs.

123. The massive change in the meter data handling requirements resulting from the AMI requirement for near real time communication and processing of half-hourly interval was something that all DNSPs had to cater for, and none had that capability before the AMI deployment. Under a causal approach, this will be allocated to metering ACS and by definition each DNSP can be considered to be at the same stage in its lifecycle for this metering-related IT and communications capability.

3.5.4 Transparency of opex benchmarking and AMI trends

DNSPs' claims

124. The DNSPs disagree with the rationale in the AER's Preliminary Decision that allocating costs formerly regulated under the AMI CROIC to metering ACS would help promote transparency in trends of service expenditure. CitiPower / Powercor suggest that allocating any shared IT metering costs solely to metering ACS will mean that trends for either the AMI ACS or the SCS will not reflect the true cost of providing either service and therefore transparency and the assessment of trends will remain an issue.

Our view

125. On the basis of our view that AMI contributes in part to distribution network services, a causal allocator will allow more meaningful benchmarking of metering ACS costs between DNSPs since it will reflect the costs of providing a metering service to a common standard. The ability to do time trend comparisons will be impaired by changes in classification. However we do not consider this to be a valid reason in itself to not adopt the AER's CAG approach and, in principle, this change could be adjusted for in future benchmarking analysis.

3.5.5 Previous cost allocations in Victoria

Submission

126. In its submission to the AER, the Victorian Department of Economic Development Jobs, Transport and Resources (DEDJTR) recommends that the AER should apply the principle that was originally adopted in determining the first separate price control for metering services which covered the 2006-2010 regulatory control period[89].

> *… the costs of those IT systems that are required for all customers, regardless of whose meter is installed, should be recovered through the [Distribution Use of System] DUoS price control … The costs of those IT systems that are required only for customers who have the distributor's meter installed should be recovered through the metering price control.*
>
> *DEDJTR accepts that the appropriate application of this principle may result in the transfer of some expenditure from metering services to other distribution services.*

127. A number of the DNSPs agree with this principle and suggest that the AER decision is not consistent with how metering and distribution costs have been allocated in Victoria in previous regulatory determinations.

Our view

128. On the basis of our view that AMI contributes in part to the provision of distribution network services, and applying causal cost allocation as per the AER's CAG, it follows that IT costs that are required for the provision of distribution network services (i.e. to all distribution customers) should be recovered through the distribution network SCS.

3.6 Summary

129. We consider that AMI IT and communications costs in part contribute to the provision of distribution network services. This reflects the difference in scope between the AMI service, as regulated under the Victorian AMI Cost Recovery Order in Council (CROIC), and a metering ACS as regulated under the NER. From our examination of DNSP information, this will lead to some AMI-related IT opex being allocated to SCS. In section 4, we consider the basis for such allocation.

130. We consider that not all DNSPs' Regulatory Proposals[90] reflect a proper and reasonable interpretation of the NER requirements or the AER's CAG and that a proper and consistent approach will meet the NEO. In turn, this will provide a more reasonable platform for metering competition that is more likely to lead to the provision of efficient metering services, rather than outcomes that could

[89] CitiPower Revised Regulatory Proposal, January 2016, page 152

[90] In this context we use the term 'Regulatory Proposals' to encompass DNSPs' initial Regulatory Proposals and their Revised Regulatory Proposals, and including any supporting annexes and commissioned reports

otherwise be skewed by a distorted cost structure in the DNSPs' AMI-based metering businesses. A more consistent approach will also aid benchmarking of metering ACS costs.

131. While it is reasonable to suggest that the allocations should be consistent with each DNSP's CAM, for the most part these are not sufficiently prescriptive or granular as to provide a clear method for allocating AMI costs between metering ACS and distribution network SCS. We consider it more instructive to allocate such costs by reference to the NER CAPs and AER's CAG and, ultimately, to test the resulting allocations against the NEO.

132. As evidenced by its request for our advice, we understand that the AER has accepted that an allocation decision should not be deferred pending development of future ring fencing guidelines, and that allocation of Victorian AMI costs needs to be undertaken consistent with the NER in the Decision currently before it.

133. Several DNSPs have raised the point that a common allocation method would be challenging to apply because they were each at different stages in their IT lifecycles when AMI was introduced. We consider that this argument is not relevant if a causal allocation basis is properly applied because the AMI metering-related IT systems and communications infrastructure with current metering functionality did not exist in any of the five DNSPs prior to AMI and so was deployed afresh by all of them. The issue of different stages in system lifecycles largely relates to distribution-related systems, therefore this factor would mitigate against (for example) allocating fixed proportions of AMI costs between ACS and SCS across all DNSPs – though this is not something that we or any DNSP has proposed.

4 Indicative cost drivers for allocation of AMI IT and communications

4.1 Allocation basis

4.1.1 Direct and shared costs allocation

134. We refer to the NER's CAPs and the AER's CAG as the point of reference for allocating costs between distribution network SCS and metering ACS, noting that the DNSPs' CAMs are required to be consistent with the CAG[91].

135. We summarised the relevant aspects of the AER's CAG in section 3.2.1. In particular, the CAG states that costs are to be considered directly attributable only if they are ***wholly and exclusively*** attributable to the relevant business segment, and shared costs (which are all others) need to be ***causally allocated*** unless they are ***immaterial*** or unless a causal relationship cannot be established without ***undue cost and effort***[92].

136. Our interpretation of these requirements is that direct (meaning 100%) allocation is allowed only where a system or cost item is wholly or exclusively attributable, and that deeming a system to be 'primarily' attributable to a particular service category does not warrant a 100% allocation.

[91] We have not exhaustively examined the CAMs to identify if any aspects of the proposed allocation hereunder are inconsistent with a particular DNSP's CAM and commend this for review by the DNSPs.

[92] Emphasis added

4.1.2 Materiality

137. Careful attention needs to be paid to defining materiality. Where the allocation is between two services one of which is considerably larger than the other, then we consider that materiality needs to be defined in the context of the smaller of the two services. Such an approach will minimise distortion in the costs and therefore prices for that smaller service – in this case, metering ACS. This is particularly important in this instance, given the dominance of SCS costs over metering ACS costs, and the impact that distorted metering ACS charges could have on future metering competition.

138. We note that in its report to CitiPower and Powercor, Ernst & Young refers to definitions of materiality from the Australian Accounting Standards Board (AASB), namely that amounts greater than 10% of the base amount would be deemed material and amounts less than 5% would be deemed immaterial[93]. The 'base amounts' referred to are not directly defined, however we believe it is reasonable to consider base opex for metering ACS should be the 'base amount' referred to here. In other words, a judgment on the materiality of any given component of AMI opex should be made by reference to the amount of total metering ACS opex.

4.1.3 Causality

139. For the majority of costs at an IT system level, there is a need to identify the drivers for that expenditure in order to base an allocation on 'causality'. In the subsection which follows, we provide our views on such causal drivers and the allocations that would result.

4.2 Recommended allocation of IT costs

4.2.1 IT systems drivers

140. In section 2.1.2 we listed IT systems that (to differing extents) DNSPs have designated part of AMI. However not all of these systems are required for the provision of metering services.

Costs solely attributable to metering services ACS

141. We first identify systems for which the driver can be considered to be solely related to the provision of metering services[94]. We consider that only one of the systems listed in section 2.1.2, namely the MDMS, meets this criterion since this is the system that captures, processes, stores and makes available meter data.

[93] AASB, *Materiality*, AASB 1031, February 2010, as referenced in the Ernst & Young report

[94] We note that, for the purpose of considering functionality, we have included Network Management Systems (NMS) / Meter Management Systems (MMS), under Communications rather than under IT. See section 4.3

142. United Energy has attributed MDMS wholly to metering ACS[95]. Our reading of AusNet's RRP is that it also appears to allocate MDMS to ACS[96], however in its response to AER on our draft of this report AusNet has indicated that some MDMS opex additional to this amount has been allocated to SCS. Jemena has allocated this system between metering ACS and distribution network SCS on a 4:2 ratio, based on FTEs[97], while CitiPower and Powercor have allocated the costs of their Itron IEE MDMS wholly to SCS on the basis of using its allocation of a much lower-cost 'transaction' system (Itron MTS) as a proxy, with the allocation of the MTS deemed to be SCS on the basis of 'materiality'.[98]

143. Meter Data Management Systems provide core functionality to the provision of metering services. In its response to our Draft Report, CitiPower describes its MDMS as Itron Enterprise Edition (IEE)[99]. In its report for CitiPower and Powercor, Ernst & Young describes IEE as

> *"a platform for data collection, validation, storage and processing. It is a meter data repository and handles information from all meter types, including type 1-4, non-AMI type 5, and type 6 meters."*[100]

144. Despite this definition, CitiPower asserts that its distribution service requires such meter data functionality and therefore that the MDMS should be considered to be a shared cost[101]. Whereas in its RRP CitiPower proposed MDMS and related costs as 100% SCS (based on claimed immateriality), in its response to our Draft Report it still proposes that MDMS is predominantly an SCS system, but now proposes an allocation of 14.4% to ACS[102].

145. United Energy similarly describes its MDMS (also Itron IEE) as '*meter data collection, data processing and data forwarding systems that support our regulated metering types 5 and 6 and AMI meters*[103], however United Energy acknowledges in its RRP that these are 100% metering ACS costs and confirms this in its response to our Draft Report.

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[95] For example in Table 13-5 of United Energy's RRP it refers to the Itron IEE system and related processes and states that '*This is a metering activity, which is not a core distribution service function*'

[96] RRP Table 11.2

[97] Jemena RRP Appendix A, table A1-6

[98] Ernst & Young report to CitiPower and Powercor, page 8. The relative costs are shown in Table 1 on page 10 of this report and indicate a cost (for CitiPower, for example) of $15,707 for the MTS but then allocates $372,956 of IEE costs and $1,119,721 of support costs to SCS on the basis of its allocation of the MTS immaterial costs. (Powercor costs are higher, but in the same ratios)

[99] Ibid, page 2. Powercor, United Energy and Jemena also describe their MDMS as being Itron / Itron IEE/MTS

[100] Ibid page 8

[101] AusNet response to EMCa draft reports, reference AER IR044, page 1

[102] Powercor's arguments are the same with a proposed cost allocation to ACS of 9.5%.

[103] United Energy response to EMCa Draft Report, reference IR #054, page 2

146. Whereas in its RRP, Jemena allocated the costs of MDMS to ACS on a 4:2 ratio[104], in its response to our Draft Report it proposes a 50:50 allocation. The basis for moving from its RRP proposal is unclear.

147. In its response[105], AusNet Services describes the functions of its MDMS as

- Data distribution to retailers;
- Network billing;
- Data distribution to the market; and
- Validation, estimation and substitution of data.

148. It describes the first two of these as SCS functions and the last two as ACS functions and on this basis proposes to modify its MDMS cost allocation between SCS and ACS to 50:50.

149. We have a number of issues with AusNet's response. Firstly, the provision of meter data to retailers is a function of a metering service provider as prescribed in the NER[106]. Secondly, we note that AusNet identifies its Network Billing System as a different system: Kinetiq, not its MDMS (which it identifies as EnergyIP)[107]. Thirdly, its proposed revised allocation seems to depart from the method described in its CAM, without explanation.

150. The further information provided by DNSPs confirms the MDMS functionality as providing for the collection, validation, storage and processing of meter data for provision to retailers and to the market and assists with our conclusion that the MDMS should be considered to be 100% allocated to ACS. We do not consider that the fact that meter data is also used within the distribution business, renders the MDMS part of a distribution service. We point to other markets (including New Zealand, Singapore and the UK) where the metering service is not carried out by the distributor, and future metering service providers in the NEM, all of whom require an MDMS as central to the provision of their service.

Shared costs

151. We consider that the following systems can reasonably be considered to provide a role which is materially shared between distribution network service and metering service:

- B2B systems for managing AMI-related transactions with other market participants. Whilst we understand that these systems are used to conduct meter data-related transactions, they are also used to conduct distribution-related transactions such as remote connection and disconnection;
- Geospatial information systems. We understand that such systems are likely to include both metering assets and distribution network assets;

[104] Jemena Revised Regulatory Proposal, January 2016, Attachment 09-01 ACS Appendix A, Table A1-6

[105] AusNet Services response to AER information request #051, page 1 and page 2

[106] Annex B copies the relevant extract from the NER

[107] Ibid, page 4

- Asset management systems. We understand that such systems are likely to be used in managing both metering assets and distribution network assets;
- Performance and regulatory reporting systems. We understand that such systems are likely to be used for performance and management reporting across the range of functions and services of a DNSP, and are likely to include reporting and performance management in relation to its metering services and its distribution network service;
- Middleware / integration bus technology. We understand that such technology is likely to be used to manage information transactions and data access between various DNSP systems. This technology is likely to be used in part to manage metering data transactions, but also for transactions involving distribution network-related information;
- Data analysis systems. We understand that such systems are likely to be used for a range of purposes, such as for power quality analysis, meter data reconciliation and identification of non-technical losses such as meter bypass as well as for a range of purely distribution asset management-related analysis purposes;
- New / upgraded IT infrastructure to support the additional AMI functionality. The AMI programs included significant upgrades to IT infrastructure and, to the extent that it was allowed under the CROIC, we understand that this is likely included in AMI RAB values. This infrastructure in part supports the collection of metering data in accordance with the relatively onerous Victorian AMI performance requirements, however we understand that it also provides an upgraded platform for certain distribution-related IT applications.

152. For the most part these systems play an integral role in the provision of distribution network services and their role in the provision of metering services exists only to the extent that they support the management of the metering assets, metering-related transactions and/or metering-related reporting and analysis. Specific causal allocators for these systems could reasonably be proposed by the DNSPs.

153. In their responses to our Draft Report, DNSPs have essentially acknowledged these as shared costs and (in some cases) have provided further information to support their proposed allocation of those shared costs.

Costs allocated to SCS

154. We consider that the following systems are driven wholly by distribution network service requirements:

- Field force mobility systems (to the extent that meter deployment is complete in a DNSP) and which we understand are used for management of distribution-related field tasks;
- Network billing systems which, while drawing on metering data, are required for the billing on distribution network services;
- Customer Information Systems (CIS), which are required by each DNSP in its role of registering each customer and connection point on its network, and providing such information to other market participants in accordance with relevant provisions of the NER;

- Outage management systems which, while utilising data from AMI, are used in the management of the distribution network.

155. IT systems application integration and program management of the IT upgrades and deployments was essentially an AMI roll-out activity and is not a separable ongoing activity.

156. This allocation is consistent with DNSPs' RPs and RRPs and is further confirmed in their responses.

4.2.2 Allocation of IT opex

157. Based on the drivers above, we consider that:

- IT opex for MDMS should be allocated solely to metering ACS;
- IT opex for the shared systems described in section 4.2.1 should be allocated between metering ACS and SCS based on the AER's cost allocation guidelines; and
- IT opex for systems described in section 4.2.1 for which the drivers are essentially distribution network service provision, should be allocated to SCS.

158. IT opex for these systems is likely to include a combination of expenditures such as IT systems support and maintenance costs, IT licensing fees paid to vendors, database management costs and transaction and processing costs.

4.2.3 Allocation of IT capex

159. Relative to their AMI capex programs over the deployment years, and relative to their forecast metering-related opex, the DNSPs have proposed relatively modest amounts of metering-related IT capex and have proposed this solely as metering ACS; i.e. they have not proposed allocating part of this expenditure to SCS. Moreover the AER accepted these proposals in its Preliminary Decisions.

160. Attribution of IT capex should be consistent with the drivers in section 4.2.1 above.

4.2.4 Relevance for IT RAB

161. In its initial RP AusNet Services proposed to allocate some of its AMI IT RAB to SCS. The AER rejected this argument and AusNet Services has accepted the AER's Preliminary Decision. Therefore no DNSP has proposed to reallocate any portion of AMI IT RAB to SCS in their revised regulatory proposals.

4.3 Recommended allocation of communications costs

4.3.1 Communications drivers

162. The communications network has been put in place in order to obtain daily uploads of half-hourly meter data according with the AMI meter data service level requirements. The communications network is used to communicate with the meters in regards to other functionality, as described in section 3.1.

163. We consider that the provision of a communications network, either for meter data collection or for the provision of various distribution-related functions, provides the 'carrier' for the other services. The communications performance requirements for meter data collection and for distribution network information and control purposes, some of which need near real-time communications,[108] each influenced the design and operational requirements of the communications networks of the DNSPs. Different functions of the communications network will have different data volumes associated with them, however we are not aware of any information on relative volumes by service, or of a material causal relationship between such relative data volumes, and costs.

164. On balance, we consider it a reasonable view that the AMI communications network was put in place to provide for remote collection of interval metering data on a daily schedule. A high performance communications network was essential to meet this requirement and three of the five DNSPs allocated AMI communications opex wholly to metering ACS.

4.3.2 Allocation of communications opex

165. We consider that a reasonable and consistent allocation of AMI communications operational costs is for these to be allocated to metering ACS. These costs will comprise items such as operation of the Network Operations and Control centres (NOCC) or similar, Network Management Systems (NMS) or Metering Management Systems (MMS) or similar, including related IT support and licensing costs, and communications backhaul costs.

166. Powercor, CitiPower and Jemena have allocated all of their communications-related opex to metering ACS, while United Energy and AusNet have each proposed a shared allocation of such expenditure. United Energy has proposed allocating 60% of its communications costs to ACS, while AusNet Services proposed in its RRP to allocate only 16% of its metering communications opex to its metering ACS.

167. In their responses to our Draft Report, Powercor and CitiPower state that they '*agree that communications infrastructure opex be allocated to ACS metering*' and note that '*(this) position is consistent with our initial and revised*

[108] e.g. for remote connection and disconnection and outage management information

regulatory proposals….' Jemena does not address this matter in its response, and we therefore assume that its position to allocate metering communications costs solely to metering ACS, is unchanged.

168. United Energy has stated in its response that it disagrees with EMCa's Draft Report in regards to metering communications opex, which it considers a shared cost. However United has provided the AER with information that a 100% allocation to ACS, consistent with our recommendation, '*results in an increase of $2 per meter p.a. and therefore does not result in a material change in the meter charge*'.[109]

169. AusNet Services states that its AMI communications infrastructure also provides network management services. It asserts that the communications network is '*vital in the provision of SCS*'[110] and that, on this basis, the costs should at least be shared equally between SCS and ACS.

170. We do not consider that metering communications infrastructure is vital to the provision of distribution SCS. DNSPs outside of Victoria and which includes DNSPs servicing most consumers worldwide at present, operate without such communications networks. AMI communications infrastructure was installed in Victoria to support the deployment of Advanced Meters.

171. AusNet also asserts that classifying AMI communications as metering ACS will leave the cost of this infrastructure to be borne by a limited number of customers post metering contestability[111]. While the outcomes from contestability will be become apparent over time, it seems reasonable to assume that contestable metering service providers will utilise existing infrastructure where that infrastructure can be used to provide an appropriate service to them at a viable price[112]. Moreover we consider that metering contestability is not in itself a reason to allocate these metering infrastructure costs to SCS.

172. The DNSPs' responses to our Draft Report assist with confirming our recommendation that the reasonable position is to attribute AMI communications costs to metering ACS, as Jemena, CitiPower and Powercor have done.

4.3.3 Allocation of communications capex

173. DNSPs have proposed relatively small amounts of ongoing communications capex, such as to accommodate growth in connection points, infill and upgrades (e.g. security). All DNSPs have proposed this capex to be metering ACS and the AER has accepted this in its Preliminary Decision.

[109] United Energy response to EMCa Draft Report, reference IR #054. Although not stated in its response, we assume that such allocation should lead to a similar decrease in distribution network SCS charges.

[110] AusNet response to EMCa Draft Report, reference #051, page 3

[111] Ibid, page 2

[112] This is supported by experience in New Zealand, where all metering is contestable, and where competing metering service providers pay meter and infrastructure providers for use of that infrastructure

174. This is consistent with our views in section 4.3.1 of the primary driver for the communications networks. Moreover, it highlights an inconsistency of approach for those DNSPs that have proposed a shared cost allocation of communications opex.

4.3.4 Relevance for communications RAB

175. In its initial RP AusNet services proposed to allocate some of its AMI communications RAB to SCS. The AER rejected this argument and AusNet Services has accepted the AER's Preliminary Decision. Therefore no DNSP has proposed to reallocate any portion of AMI communications RAB to SCS in their revised regulatory proposals.

4.4 Summary

176. In line with the AER's CAG and the NER CAP, we consider that costs should be directly attributed (to distribution network SCS or metering ACS) only where the relevant systems are solely used to provide that service or where use for the other service can be considered immaterial as defined by Australian accounting standards. Where costs are shared and material, they should be allocated on a causal basis.

177. On this basis we would expect DNSPs to propose an attribution / allocation of IT opex and communications opex broadly as follows:

- **Communications infrastructure opex, including NMS, MMS and NOCC:** We consider that this is attributable to metering ACS as it was deployed to provide remote interval reading of meters within the performance parameters of the Victorian AMI. Three of the five DNSPs have attributed communications opex to ACS on this basis.
- **Metering Data Management Systems** used for the collection, processing, storage and forwarding of meter data to other parties: We consider that this is wholly attributable to metering ACS as an integral part of the role of meter data manager. One of the five DNSPs has attributed MDMS to metering ACS on this basis, two have proposed a shared allocation (weighted towards ACS) while two DNSPs have allocated these costs wholly to SCS on the grounds of 'materiality'.

178. We consider that the following systems (or their equivalents) are wholly attributable to SCS and should not be included in metering ACS:

- **Field force mobility systems** (to the extent that meter deployment is complete in a DNSP) and which we understand are used for management of distribution-related field tasks;
- **Network billing systems** which, while drawing on metering data, are required for the billing on distribution network services;
- **Customer Information Systems (**CIS), which are required by each DNSP in its role of registering each customer and connection point on its network, and providing such information to other market participants in accordance with relevant provisions of the NER;
- **Outage management systems** which, while utilising data from AMI, are used in the management of the distribution network.

179. We consider that the following systems or their equivalents are best considered to be shared between ACS and SCS and appropriate causal allocators should be applied:

- **B2B systems** for managing AMI-related transactions with other market participants. Whilst we understand that these systems are used to conduct meter data-related transactions, they are also used to conduct distribution-related transactions such as remote connection and disconnection;
- **Geospatial information systems**. We understand that such systems are likely to include both metering assets and distribution network assets;
- **Asset management systems**. We understand that such systems are likely to be used in managing both metering assets and distribution network assets;
- **Performance and regulatory reporting systems.** We understand that such systems are likely to be used for performance and management reporting across the range of functions and services of a DNSP, and are likely to include reporting and performance management in relation to its metering services and its distribution network service;
- **Middleware / integration bus technology.** We understand that such technology is likely to be used to manage information transactions and data access between various DNSP systems. This technology is likely to be used in part to manage metering data transactions, but also for transactions involving distribution network-related information;
- **Data analysis systems**. We understand that such systems are likely to be used for a range of purposes, such as for power quality analysis, meter data reconciliation and identification of non-technical losses such as meter bypass as well as for a range of purely distribution asset management-related analysis purposes;
- **New / upgraded IT infrastructure** to support the additional AMI functionality. The AMI programs included significant upgrades to IT infrastructure and, to the extent that it was allowed under the CROIC, we understand that this is likely included in AMI RAB values. This infrastructure in part supports the collection of metering data in accordance with the relatively onerous Victorian AMI performance requirements, however we understand that it also provides an upgraded platform for certain distribution-related IT applications.

180. The DNSPs have proposed that all metering related IT capex and communications capex is attributed to metering ACS. We concur.

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Annex A: Cost Allocation Framework

181. This annex provides relevant extracts from the NER and the AER's Cost Allocation Guideline.

National Electricity Rules

Clause 6.15.2 of the NER

(3) only the following costs may be allocated to a particular category of distribution services:

(i) costs which are directly attributable to the provision of those services;

(ii) costs which are not directly attributable to the provision of those services but which are incurred in providing those services, in which case such costs must be allocated to the provision of those services using an appropriate allocator which should:

(A) except to the extent the cost is immaterial or a causal based method of allocation cannot be established without undue cost and effort, be causation based; and

(B) to the extent the cost is immaterial or a causal based method of allocation cannot be established without undue cost and effort, be an allocator that accords with a well accepted cost allocation method;

(5) the same cost must not be allocated more than once;[113]

AER Cost Allocation Guidelines (CAG)

Section 2.2.1 of the CAG sets out the detailed cost allocation principles and policies.

(a) A DNSP's detailed principles and policies for attributing costs directly to, or allocating costs between categories of distribution services must be sufficiently detailed to enable:

(1) The AER to replicate the reported outcomes through the application of those principles and policies; and

(2) The DNSP to demonstrate that it is meeting the requirements of these Guidelines.

Section 2.2.1(b)(1) of the CAG[114] requires that for directly attributable costs:

[113] Clause 6.15.2 of the NER.

(b) Without limiting the generality of section 2.2.1(a), a DNSP's detailed principles and policies must specify:

(1) for directly attributable costs:

A. the nature of each cost item;

B. the category of distribution services to which the cost item is to be directly attributed;

C. the characteristics of the cost item that associate it uniquely with a particular category of distribution service in order to make it a directly attributable cost; and

D. how and where records will be maintained to enable the basis of attribution to be audited or otherwise verified by a third party, including the AER.

Section 2.2.1(b)(2) of the CAG requires that for shared costs:

(2) For shared costs:

A. the nature of each cost item;

B. the categories of distribution services between which each cost item is to be allocated;

C. the nature of the allocator, or allocators, to be used for allocating each cost item;

D. the reasons for selecting the allocator, or allocators, for each cost item and an explanation of why it is the most appropriate available allocator, or set of allocators, for the cost item;

E. whether the numeric quantity or percentage of the allocator, or allocators, to be applied for each cost item will:

i. Remain unchanged over the regulatory control period; or

ii. Change from time to time throughout the regulatory control

period.

F. if clause 2.2.1(b)(2)E(i) applies:

i. Details of the numeric quantity or percentage of the allocator, or allocators; and

ii. An explanation of how the numeric quantity or percentage has been calculated, including where the data for determining this numeric quantity or percentage have been sourced.

G. if clause 2.2.1(b)(2)(E)(ii) applies, an explanation of how the DNSP intends to calculate the numeric quantity or percentage throughout the regulatory control period, including where the data

[114] AER, Victorian Distribution network service providers: Cost allocation guidelines, 2008

for determining the changing numeric quantities or percentages are to be sourced; and

H. how and where records will be maintained to enable the allocation to be audited or otherwise verified by a third party, including the AER.

Section 2.2.4 details the specific guidelines for allocation of shared costs:

(a) In accordance with the requirements of clause 6.15.2(3)(ii), shared costs incurred in providing several categories of distribution services must be allocated between those categories using an appropriate causal allocator, except to the extent that:

(1) The shared costs are immaterial; or

(2) A causal relationship cannot be established without undue cost and effort.

(b) For the avoidance of doubt, a DNSP must allocate its shared costs:

(1) Between the categories of distribution services that it provides; and

(2) Within the different types of negotiated distribution services that it provides for the purposes of determining its prices for these services in accordance with clause 6.7.1(1).

(c) If a shared cost is immaterial or a causal relationship cannot be established without undue cost and effort then the DNSP may allocate the shared cost to a particular category of distribution services using a non-causal allocator provided that:

(1) The non-causal allocator accords with an AER approved Cost Allocation Method;

(2) The non-causal basis of allocation is approved in writing by the AER; and

(3) The DNSP provides a supporting work paper to the AER documenting for each such shared cost:

A. The basis of allocation;

B. The reason chosen for that basis;

C. A demonstration that the shared cost is immaterial or an explanation of why no causal relationship could be established without undue cost or effort; and

D. A numeric quantity or percentage of the non-causal allocator applied to each category of distribution service and in total.

(d) The bases of non-causal allocation will be subject to review by the AER. The AER expects only to accept a non-causal basis of allocation if the DNSP can demonstrate that there is likely to be a strong positive correlation between the non-causal basis of allocation and the actual cause of the resource or service consumption or utilisation that those shared costs represent.

(e) A DNSP is not permitted to allocate shared costs using an avoided cost approach without prior approval by the AER.

Section 2.2.5 No double-counting of shared cost:

(a) A DNSP must not allocate the same cost more than once.

(b) For the avoidance of doubt, clause 2.2.5(a) means that:

(1) The same cost may not be treated as both a direct cost and a shared cost;

(2) A direct cost may only be attributed once to a single category of distribution

services;

(3) A shared cost may only be allocated once between categories of distribution

services; and

(4) A DNSP may only recover the same cost once through the charges that it levies for its distribution services.

2.2.6 Consistency with distribution ring-fencing guidelines:

The detailed principles, policies and approach that a DNSP uses to attribute costs directly to, or to allocate costs between categories of distribution services must be consistent with clause 6.17 of the NER.

2.2.7 Reallocation of costs between categories of distribution services

Costs that have been attributed or allocated to distribution services must not be reattributed or reallocated to another service during the course of a regulatory control period.

2.2.8 Consistency with previous cost allocation methods

A DNSP's Cost Allocation Method must:

(a) Have regard to previous cost allocation methods in accordance with the ESC distribution pricing determination; and

(b) Allow for effective comparison of historical and forecast cost allocation between the period to which the ESC distribution pricing determination applies and later regulatory control periods.

Table 2: Summary of AMI-IT and communications sections of DNSP CAM

DNSP	Cost category	Share between	Allocator	Rationale / description
CitiPower / Powercor	CEO, company secretary, finance, human resources, regulation, IT support	SCS AMI pass-through services Negotiated services	Direct expenditure split[115]	Reflective of the costs incurred in providing different categories of distribution services
	Meter data services	SCS (37%) AMI pass-through services (63%)	FTEs	The majority of costs relate to labour and associated costs
	Meter replacement	ACS (1.8%) AMI pass-through services (98.2%)	Meter population	Reflective of the costs incurred in providing different categories of distribution services
AusNet Services	IT strategy	SCS ACS Negotiated services Non-regulated	Allocated on the basis of ABC Survey results[116]	The causal basis being time spend on the strategy and enterprise architecture functions provided to the business.
Jemena	Residential non-network IT support costs	SCS ACS Negotiated Other unregulated	Direct costs	Provision and management of IT infrastructure and services

[115] Direct expenditure is network capital and network maintenance expenditure, excluding large-scale meter rollout programs.

[116] ABC surveys are completed by cost centre managers who assess the split of the 'shared' or overhead costs. The survey is structured to list the key activities performed within the cost centre with a relevant driver to allocate the shared cost of each activity e.g. FTEs, asset values, revenues.

DNSP	Cost category	Share between	Allocator	Rationale / description
	Residual asset management costs	SCS ACS Negotiated Other unregulated	Time writing / FTE survey/ direct costs	Perform activities involving billing, management, customer service including complaints and enquiries, managing meter services and providing business requirements for information systems.
United Energy	AMI communications	ACS Non-regulated for non default Metering Coordinator activities	Costs are directly allocated in accordance with the description provide in CAM and the CROIC. Shared costs are allocated based on revenue.	Causal
	Meter data services (IT)	ACS Non-regulated for non default Metering Coordinator activities	Costs are directly allocated in accordance with the description provide in CAM and the CROIC. Shared costs are allocated based on revenue.	Causal
	Information Technology	SCS ACS Negotiated services	Weighted average service revenue for SCS and ACS (excluding CROIC)[117]	To the extent that costs are directly allocated to distribution services, these costs are excluded from the above allocations. For example, expenditure for the delivery of AMI services – Cost Recovery Order in Council (CROIC) is accounted for by specific invoices and by directly attributed employees and the use of time allocations. This allows expenditure on these services to be directly attributed and hence is excluded from the above allocations

Source: DNSP AER approved CAMs, 2014

[117] Costs are not allocated to CROIC based on an allocation rule, all costs charged to CROIC are directly charged via invoices and timesheets.

Annex B: Definition of Metering Data Services

182. This annex provides relevant extracts from the NER (chapter 7) which provides a general definition of Metering Data Services and the responsibilities of MDPs for the collection, processing and provision of meter data.

7.11.2 Metering Data Services

(a) *Metering Data Providers* must provide *metering data services* in accordance with the *Rules* and procedures authorised under the *Rules*, including:

(1) collecting *metering data* by manual reading or by *remote acquisition*;

(2) the validation and substitution of *metering data* for a type 1, 2, 3 and 4 *metering installation*;

(3) the validation, substitution and estimation of *metering data* for a type 5 and 6 *metering installation*;

(4) the calculation, estimation and substitution of *metering data* for a type 7 *metering installation*;

(5) establishing and maintaining a *metering data services database* associated with each *metering installation*;

(6) delivery of *metering data* and relevant *NMI Standing Data* for a *metering installation* to a person entitled to receive data in accordance with rule 7.7;

(7) the delivery of metering data and relevant NMI Standing Data to AEMO for settlements;

(8) ensuring the *metering data* and other data associated with the *metering installation* is protected from direct local or remote electronic access while being collected and while held in the *metering data services database* and that data is provided only in accordance with rule 7.7;

(9) maintaining the standard of accuracy of the time setting of the *metering data services database* and the *metering installation* in accordance with rule 7.12;

(10) notifying the responsible person of any metering installation malfunction of a metering installation within 1 business day; and

(11) management and storage of metering data in accordance with clause 7.11.3.

183. NER Clause 7.7 lists those entitled to receive metering data and which includes "Registered Participants with a financial interest in the metering installation or the energy measured by that metering installation'.(NER 7.7(a)(1)) and 'financially responsible Market Participants….(NER 7.7(a)(3))