



Explanatory Statement

Proposed

**Connection charge guidelines: under chapter 5A
of National Electricity Rules**

**For retail customers accessing the electricity
distribution network**

22 December 2011

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Request for submissions

Interested parties are invited to make written submissions to the Australian Energy Regulator (AER) regarding this paper by the close of business 17 February 2012.

Submissions can be sent electronically to: aer inquiry@ aer.gov.au

Alternatively, submissions can be sent to:

Mr Chris Pattas
General Manager
Australian Energy Regulator
GPO Box 520
Melbourne VIC 3001

The AER prefers that all submissions be publicly available to facilitate an informed and transparent consultative process. Submissions will be treated as public documents unless otherwise requested. Parties wishing to submit confidential information are requested to:

- clearly identify the information that is the subject of the confidentiality claim
- provide a non-confidential version of the submission in a form suitable for publication.

All non-confidential submissions will be placed on the AER's website at <http://www.aer.gov.au>. For further information regarding the AER's use and disclosure of information provided to it, see the *ACCC/AER Information Policy*, October 2008 available on the AER's website.

Enquires about this paper, or about lodging submissions, should be directed to the Network Operations and Development branch of the AER on (03) 9290 1444.

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Shortened forms

AER	Australian Energy Regulator
Capex	Capital expenditure
CPI	Consumer Price Index
Chapter 5A	Draft chapter 5A of the National Electricity Rules
DCCEE	Department of Climate Change and Energy Efficiency
DNSP	Electricity Distribution Network Service Provider
ESCoSA	Essential Services Commission of South Australia
ESCV	Essential Services Commission of Victoria
IPART	Independent Pricing and Regulatory Tribunal of NSW
JEN	Jemena
kVA	1000 volt-Ampere (VA): A unit for measuring apparent power in an electrical circuit. The real power (active power) in kilowatts (kW) equals kVA times the power factor of the circuit.
MEU	Major Energy Users
MVA	mega-Volt-Ampere = 1 000 000 VA, or 1000 kVA
NECF	National Electricity Customer Framework
NEL	National Electricity Law
NER	National Electricity Rules
QCA	Queensland Competition Authority
RAB	Regulatory asset base
SAC	Standard Asset Customer, a term used by Energex of Queensland
Seed	Seed Advisory
SWER	Single wire earth return line, high voltage distribution line mainly used in rural areas
WACC	Weighted average cost of capital

Introduction

The AER is required by the proposed chapter 5A under the National Electricity Rules (NER) to develop a national connection charge guideline. Chapter 5A will come into effect in conjunction with the implementation of the National Electricity Customer Framework on 1 July 2012. The guideline will set the method that must be followed by the Electricity Distribution Network Service Providers (DNSPs) in determining the capital contribution for new retail customers connecting to the distribution networks.

DNSPs are regulated monopolies with respect to the provision of distribution services. DNSPs' efficient expenditure and cost of capital are set by the AER under distribution price control determinations every five years. The connection charge guideline sets the principles for the recovery of costs by charges to individual customers for specific expenditure, separate to the charges for use of the network on an on-going basis.

As part of the guideline development process, the AER published, on 10 June 2011, a *Consultation Paper: Issues and AER's preliminary positions, Connection charge guidelines: for accessing the electricity distribution network* (issues paper). The issues paper identified a number of issues and alternative options for calculating the connection charge, on which the AER sought stakeholders' opinions. In conjunction with the issues paper, the AER also hosted a public forum on 11 July 2011 to explain the issues identified in the issues paper to facilitate stakeholders in preparing their submissions.

The issues paper and submissions are available from the AER's website:
<http://www.aer.gov.au/content/index.phtml/itemId/746777>.

After considering submissions, the AER has now developed a draft connection charge guideline which it is publishing with this explanatory statement.

This explanatory statement provides the background and reasons for the AER's proposed draft connection charge guideline. Section 5A.E.3(g) of the NER states that in developing the connection charge guidelines the AER must act in accordance with the distribution consultation procedures. This paper is published in accordance with the distribution consultation procedures set out in clause 6.16(b) of the NER for the purpose of consulting with stakeholders before the AER finalises the connection charge guideline.

Interested parties are invited to make written submissions to the AER, regarding the draft connection charge guideline, by the close of business 17 February 2012. Following consideration of all submissions received the AER will publish a final connection charge guideline.

Legislation

Two Bills, the *National Energy Retail Law (South Australia) Bill 2010* and the *Statutes Amendment (National Energy Retail Law) Bill 2010*, were introduced to the Parliament of South Australia on 27 October 2010. The *National Electricity (Retail Connection) Amendment Rules 2010* enables the introduction of a new chapter 5A—*Electricity connection for retail customers*—to the NER.

While the legislative process is not complete, the Ministerial Council on Energy (MCE) (now Standing Council on Energy and Resources) has announced that the AER may commence the development and consultation process in time for the target NECF implementation of 1 July 2012.¹ Activities carried out by the AER in accordance with NECF requirements prior to the NECF commencement (such as consultation, making instruments and decision-making) will be supported by appropriate transitional provisions enacted by participating jurisdictions to ensure instruments and decisions are validly made under the National Electricity Laws and Rules and take effect on commencement of the NECF.

In this guideline a reference to chapter 5A of the NER, refers to the draft chapter 5A, as it is set out in the *National Electricity (Retail Connection) Amendment Rules 2010*.

Under chapter 5A, the AER will be required to develop and publish connection charge guidelines which will govern how DNSPs develop connection policies. DNSPs will be required to develop their connection policies for approval by the AER based on the principles set out in clause 5A.E.1 together with the AER's guideline. The connection policies must set out the circumstances in which connection charges are payable and the basis for determining the amount of those charges.²

Purpose of the connection charge guideline

Chapter 5A provides that the purpose of the guideline is to ensure that connection charges:³

- are reasonable, taking into account the efficient costs of providing the connection services arising from the new connection or connection alteration and the revenue a prudent operator in the circumstances of the relevant DNSP would require to provide those connection services
- provide, without undue administrative cost, a user-pays signal to reflect the efficient cost of providing the connection services
- limit cross-subsidisation of connection costs between different classes (or subclasses) of retail customer
- are competitively neutral, if the connection services are contestable.

Scope of the connection charge guideline

Under chapter 5A, the guidelines must:

- describe the method for determining charges for premises connection assets⁴

¹ MCE Standing Committee of Officials Bulletin No. 190—Implementation of the National Energy Customer Framework, <http://www.ret.gov.au/Documents/mce/documents/2011bulletins/Bulletin-No-190-ImplementationoftheNationalEnergyCustomerFramework.pdf>

² See the definition of 'connection policy' in clause 5A.A.1 of chapter 5A.

³ Clause 5A.E.3(b) of chapter 5A.

⁴ Under chapter 5A, premises connection assets means the components of a distribution system used to provide connection services; and connection service means either or both of (a) a service

- describe the circumstances (or how to determine the circumstances) under which a DNSP may receive a capital contribution, prepayment or financial guarantee from a retail customer or real estate developer for the provision of a connection service
- describe how the amount of any such capital contribution, prepayment or financial guarantee is to be determined
- establish principles for fixing a threshold (based on capacity or any other measure the AER thinks fit) below which retail customers (not being a non-registered embedded generator or a real estate developer) are exempt from any requirement to pay connection charges (or to give consideration in the form of a capital contribution, prepayment or financial guarantee) for an augmentation (other than an extension) to the distribution network necessary to make the connection
- describe the methods for calculating the augmentation component for the connection assets and, if the augmentation consists of or includes an extension, the extension component of a connection charge
- describe the method for calculating:
 - the amount of a refund of connection charges for a connection asset when an extension asset originally installed to connect the premises of a single retail customer is used, within 7 years of its installation, to connect other premises and thus comes to be used for the benefit of 2 or more retail customers
 - the threshold below which the refund is not payable
- describe the treatment of augmentation assets.

In developing the guidelines, the AER must have regard to: historical and geographical differences between networks; inter-jurisdictional differences related to regulatory control mechanisms, classification of services and other relevant matters; and the circumstances in which connection services may be provided by persons other than DNSPs (and are therefore contestable).

Application of the connection charge guideline

Based on the connection charge principles set out in chapter 5A and the AER's connection charge guideline, each DNSP must submit, in accordance with the proposed Clause 6.7A of the NER, its proposed connection policy for approval by the AER. The connection policy must set out the circumstances under which the DNSP may require a retail customer or real estate developer to pay a connection charge for the provision of a connection service. A connection service may be either a service relating to a new connection or a connection alteration.⁵ DNSPs must charge customers in accordance with their policy which must comply with the principles in chapter 5A and the AER's guideline.

relating to a new connection for premises; (b) a service relating to a connection alteration for premises.

⁵ See the definition of connection service in clause 5A.A.1 of the NER

Connection charge principles

Chapter 5A sets out that a DNSPs' connection policies must be consistent with the connection charge principles. Under clause 5A.E.1 of the NER the connection charge principles are:

5A.E.1(b) *A retail customer (other than a non-registered embedded generator or a real estate developer) who applies for a connection service for which an augmentation is required cannot be required to make a capital contribution towards the cost of the augmentation (insofar as it involves more than an extension) if:*

- (1) the application is for a basic connection service; or
- (2) a relevant threshold set in the Distribution Network Service Provider's connection policy is not exceeded.

Note In general, the intention is to exclude deep system augmentation charges for retail customers.

5A.E.1(c) Subject to paragraph (b), in determining connection charges in accordance with its connection policy, a Distribution Network Service Provider must apply the following principles:

- (1) if an extension to the distribution network is necessary in order to provide a connection service, connection charges for the service may include a reasonable capital contribution towards the cost of the extension necessary to provide the service;
- (2) if augmentation of premises connection assets at the retail customer's connection point is necessary in order to provide a connection service, connection charges for the service may include a reasonable capital contribution towards the cost of the augmentation of premises connection assets at the connection point necessary to provide the service;
- (3) if augmentation of the distribution system is necessary in order to provide a standard connection service, connection charges for the service may include a reasonable capital contribution towards the cost of the augmentation necessary to provide the service;
- (4) if augmentation of the distribution system is necessary in order to provide a connection service under a negotiated connection contract, connection charges for the service may, subject to any agreement to the contrary, include a reasonable capital contribution towards the cost of augmentation of the distribution system to the extent necessary to provide the service and to any further extent that a prudent service provider would consider necessary to provide efficiently for forecast load growth;
- (5) despite subparagraphs (1) to (4) if augmentation of the distribution system is necessary in order to provide, on the application of a real estate developer, connection services for premises comprised in a real estate development, connection charges for the services may, subject to any agreement to the contrary, include a reasonable capital contribution towards the cost of augmentation of the distribution system to the extent necessary to provide the services and to any further extent that a prudent service

provider would consider necessary to provide efficiently for forecast load growth;

(6) however, a capital contribution may only be required in the circumstances described in subparagraphs (1) to (5) if provision for the costs has not already been made through existing distribution use of system charges or a tariff applicable to the connection.

5A.E.1(d) If:

(1) a connection asset ceases, within 7 years after its construction or installation, to be dedicated to the exclusive use of the retail customer occupying particular premises; and

(2) the retail customer is entitled, in accordance with the connection charge guidelines, to a refund of connection charges;

the Distribution Network Service Provider must make the refund, and may recover the amount of the refund, by way of a connection charge, from the new users of the asset.

5A.E.1(e) For the purposes of paragraph (d), a person is taken to be a new user of a connection asset if the asset comes to be used to provide a connection to that person's premises

5A.E.1(f) For the purposes of this clause capital contribution includes a prepayment or financial guarantee.

Overview of regulatory regime

This section provides an overview of the broader regulatory environment in which the connection guideline operates. It explains how the methods of calculating connection charges may need to differ for different customers, service classifications and locations.

Service classification

The AER has a role in the classification of distribution services which determines the appropriate form of economic regulation that is to be applied to the services offered by a monopoly service provider.

The AER may decide to classify a distribution service under clause 6.2 of the NER, or has the discretion not to classify the distribution service. Service classification occurs at two levels:

1. the AER may choose to classify a distribution service as:
 - i. a direct control service, or
 - ii. a negotiated distribution service.⁶
2. where the AER classifies a distribution service as a direct control service it must further classify it as either:
 - i. a standard control service, or
 - ii. an alternative control service.⁷

Additionally, in some jurisdictions, or for some DNSPs, portions of the work required for a connection are not a distribution service, because it is not offered by the DNSP. In these circumstances this connection service would not be subject to regulation under chapter 6 of the NER.⁸

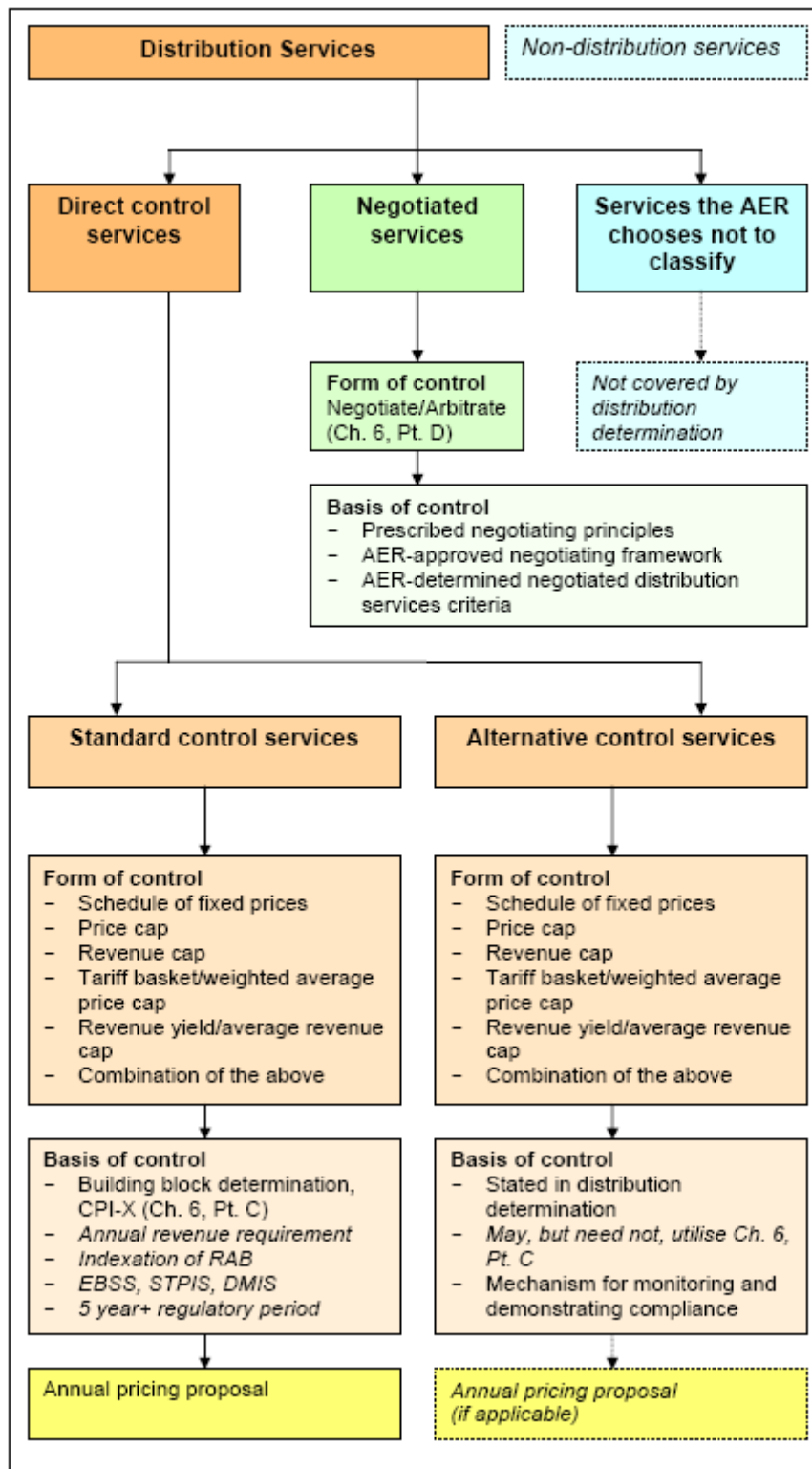
The classification of a service determines what form of control can be applied to that service, what the basis for the control mechanism will be, and this in turn will determine how the service and costs associated with providing the service are to be recovered from customers or treated in a distribution determination. This is illustrated in Figure 1 below.

⁶ Clause 6.2.1(a) of the NER.

⁷ Clause 6.2.2(a) of the NER.

⁸ Service offered by ASP's in NSW may fall under this category.

Figure 1 Service classification and control mechanisms



Connection services

In preparing and publishing each DNSP's next framework and approach paper, the AER will re-examine the way in which connection services are defined. The AER will be seeking to achieve as much consistency as practical in the definition of these connection services. However, the service classification and form of control applied to each connection service may vary, taking account of historical jurisdictional practices and the degree of competition, or likelihood of competition developing, for these services.

The AER considers that a typical connection can be separated into at least four separate connection services and the AER will be seeking to broadly define these connection services in the following manner:⁹

- Premises connection assets—the components of a distribution system used to provide connection services.¹⁰
- Extensions—an augmentation that requires the connection of a power line or facility outside the present boundaries of the transmission or distribution network owned, controlled or operated by a Network Service Provider.¹¹
- Shared network augmentation—augmentation of a transmission or distribution system to increase its capacity to transmit or distribute electricity (this is all augmentations other than extensions to the transmission or distribution system for the purposes of extending the area of coverage).¹²
- Incidental costs—including administration, design, certification and inspection.

DNSPs may propose disaggregating these services or propose further services as they consider appropriate.

Interaction between service classification and chapter 5A

The AER's connection charge guideline, published in accordance with chapter 5A of the NER, will complement the AER's role and responsibilities in classifying services. The draft connection charge guideline distinguishes between different classifications of connection services and forms of control decided upon by the AER in the relevant distribution determinations.

⁹ In the AER's issues paper it proposed that standard definitions be developed and applied to all DNSPs. The AER received submissions that indicated that due to differences in jurisdictional regulation, it is not practical to standardise these definitions at this time. The connection services listed here only serve as useful illustrations for the purpose of this paper.

¹⁰ Clause 5A.A.1 of the NER

¹¹ National Electricity Rules, glossary.

¹² Augmentation is defined in the NER. However, the definition provides that network extensions are a subset of an augmentation. The AER considers that extensions and shared network augmentation are sufficiently distinct that differing forms of regulation can be meaningfully applied. As such, the AER considers that augmentation of the shared network needs to be defined as a separate distribution service, and have a form of regulation applied accordingly.

The connection charge guideline will apply to different service classifications in the following manner:

- capital contributions for unclassified or negotiated services should be determined through good faith negotiation.
- capital contributions for alternative control services should meet the requirements in the specified form of control.
- Standard control services are generally recovered via Distribution Use of System Charges (DUoS charges). Clause 5A.E.1(c)(6) prevents a capital contribution being sought from a customer for a connection service to the extent that provision has been made for it in DUoS charges. However, to the extent that provision is not made in ongoing DUoS charges for a connection service, a capital contribution may be levied. The connection charge guideline specifies the circumstances in which a capital contribution can be required for standard control services.

Guidance regarding the classification of connection services

The AER's connection charge guideline does not pre-empt or bind the AER to apply any particular service classification as part of a distribution determination. However, the AER anticipates that connection services may be classified as follows:

- Where a service is offered by a competitive market, the AER may determine that no regulation of that market is required and so choose not to regulate this particular service. The accredited service provider scheme, in NSW, may be an example of where these classifications might apply.
- If the cost of a connection service can be readily attributed to a particular customer, and the service is not contestable (or there is not a competitive market), then an alternative control service classification may be appropriate. Augmentation of premises connection assets, extensions and incidental connection services, might generally fit into this category.
- If the cost of the connection cannot be easily attributed to an individual customer, then a standard control service classification might be appropriate. Augmentation of the shared network might generally fit into this category.
 - The AER considers that connection services should be undertaken at the least cost technically acceptable standard. If a DNSP is requested to perform a standard control service to a higher standard, then it should propose an additional connection service specifically related to works above the least cost technically acceptable standard. It might be appropriate that the provision of connection assets to a standard greater than the least cost technically acceptable standard be classified as either alternative control or negotiated services.

The AER will review the circumstances of each jurisdiction, in consultation with stakeholders, prior to deciding on the relevant service classification in a distribution determination.

Summary of the proposed connection charge guideline

Connection offers

Under chapter 5A, DNSPs must offer a basic connection offer and may offer standard connection offers. These basic and standard connection offers are ‘off the shelf’ offers to connect customers. The offers will group customers with similar connection characteristics together, and will most likely cover the majority of customers. To reduce the administrative cost of applying the cost-revenue-test (discussed below), which determines each customer’s upfront connection charge (capital contribution), the AER will allow DNSPs to pre-calculate capital contributions for any standard control services offered as part of basic and standard connection offers.

Customers who do not fit within a standard or basic connection offer, may negotiate a connection agreement with the DNSP under clause 5A.C.1. This negotiated connection agreement must comply with all relevant sections of the AER’s connection charge guideline, chapter 5A and any other relevant provisions of the NER.

Connection charges

The principles to determine when a DNSP may levy connection charges are set out in clause 5A.E.1 of the NER. Under clause 5A.E.3(c) of the NER, the guidelines must describe the method for determining charges for premise connection assets, extensions and for calculating the augmentation component for the connection assets.

Customers’ connection charges will be the total of the charges for each connection service required by the customer. This may be a directly negotiated amount between the parties in the case of negotiated or unclassified services.

Capital contributions for standard control services

All relevant connection services classified as standard control will be grouped together and subject to a cost-revenue-test. The cost-revenue-test will compare the incremental cost attributable to the customer against the incremental revenue attributable to the customer, for the relevant connection service. If the incremental cost is greater than the incremental revenue, then the customer will be required to meet the shortfall with a capital contribution payment.

Connection services that are classified as alternative control services will be subject to the terms of the relevant determination under which those services are classified as alternative control.

In all cases, a DNSPs’ connection policies must comply with the requirements of chapter 5A of the NER, and in particular, the connection charge principles set out in clause 5A.E.1.

Calculating incremental cost

Where a DNSP may seek a capital contribution derived from the application of the cost-revenue-test, the incremental cost of connection services should be calculated based on the efficient costs incurred by the DNSP, which are attributable to the customer.

Only customers whose peak demand is above the shared network augmentation threshold, will be directly charged for the costs they impose on the shared network. This charge should be based on the average cost incurred by the DNSP of adding a unit of capacity to the network and the expected demand of the customer.

Calculating incremental revenue

The incremental revenue received from a customer should be calculated based on the portion of DUoS charges, which are reasonably attributable to the standard control connection services the customer requires. The incremental revenue would be the net present value of the revenue stream taking into account matters such as:

- the expected connection life of the connection, having regard to whether the customer is a retail or business customer.
- increases in DUoS charges over time due to inflation.
- the DNSP's weighted average cost of capital.

Shared network augmentation threshold

Under clause 5A.E.1(b) of the NER, connection charges for augmentation can only be levied on customers who exceed a relevant threshold. The guidelines are required to establish principles for fixing those thresholds under clause 5A.E.3(c)(4) of the NER.

Under the guidelines, DNSPs will have discretion to set multiple thresholds, below which customers will not be charged for an augmentation (other than an extension). This will allow DNSPs to distinguish between areas of the network which have different characteristics or capacity. In each area, the threshold must be set so that a customer below the threshold would not be expected to increase the load on the distribution network beyond a level the DNSP could reasonably be expected to cope with in the ordinary course of managing the distribution network.

The threshold should also be set such that customers above and below the threshold have identifiably different characteristics.

The AER has proposed default thresholds to apply where a DNSP cannot demonstrate that alternative thresholds would satisfy the requirements of chapter 5A and the principles in this paper.

Pioneer scheme

In accordance with clause 5A.E.1(d) of the NER, the guidelines provide for customer refunds in connection with pioneer schemes. The guidelines must describe the method for calculating refunds and the threshold below which a refund is not payable in accordance with clause 5A.E.3(c)(6).

DNSPs must develop a pioneer scheme to apply to extension assets that are initially constructed for the dedicated use of a particular customer. If a customer funds connection assets, which subsequently become shared, they will be entitled to a refund from the DNSP. The DNSP may recover the refund, which it paid to the initial customer, from subsequent customers who connect to the extension asset within 7 years of the initial connection.

The pioneer scheme must consider subsequent customers' usage (for example line length) and capacity when calculating the amount of refund to the initial customer. The charge to the subsequent customers, and hence refund to the initial customer, must be based on the depreciated value of the assets used by the subsequent customers.

Real estate developers and embedded generators

In accordance with section 5A.E.1(c)(5) of the NER, a real estate developer's connection charge may include the incremental costs of the connection services required and, to any further extent that a prudent service provider would consider necessary, the cost of providing efficiently for forecast load growth.

Micro-embedded generators will be treated in the same manner as load customers.

Real estate developers will be treated as though they are a single customer.

Real estate developers and non-registered embedded generators will generally be treated in the same manner as other new connecting customers. However, there is no threshold below which they will not be required to pay for augmentation.

Where a non-registered embedded generator is also a load customer, then its shared network augmentation cost will be based on the greater of either its load or generation capacity.

Embedded generators will need to pay to remove constraints on the network unless there is a demonstrable net benefit of a shared network upgrade occurring.

Capital contributions, prepayments and financial guarantees

Under clause 5A.3.E(c)(2) and (3), the guidelines must describe the circumstances under which DNSPs may receive a capital contribution, prepayment or financial guarantee and how the amount is determined.

DNSPs may include provisions for the prepayment of the connection costs in their connection policies. Full prepayment of the connection charge at the time of accepting the connection application is permissible, unless the connection work is not expected to occur within three months of the payment being made.

If a DNSP considers there is a high risk that it will not recover the expected incremental revenue from a customer, the DNSP may seek a security fee in the form of a prepayment or financial guarantee. Where the security fee has been provided as an upfront payment, the DNSP must rebate the security fee over the period of the security fee scheme. A rebate must be allowed at least once each calendar year.

Treatment of augmentation assets

The net cost of the DNSP providing any connection service will be included by the DNSP in its regulatory asset base (RAB). This will be calculated as—the gross capital cost to the distributing network service provider of performing a connection service – the customer connection charge.

The value of any assets gifted to a DNSP by a customer, will not be included in the DNSP's RAB.

1 Method of determining total connection charges

The principles to determine when a DNSP may levy connection charges are set out in clause 5A.E.1 of the NER. Under clause 5A.E.3(c) of the NER, the guidelines must describe the method for determining charges for premise connection assets, extensions and for calculating the augmentation component for the connection assets.

A DNSP's connection policy may provide for connection charges to be made up of charges for multiple connection services and will be calculated in accordance with the following formula:

$$\text{Connection Charge} = \text{AS} + \text{CC} + \text{PS}$$

Where:

- AS is the charge payable to the DNSP for all alternative control connection services.
- CC is the capital contribution payable to the DNSP for standard control connection services.
- PS is the total amount payable to the DNSP to account for any existing pioneer scheme, applying to the assets to which the customer connects.

A connection policy may also require a customer to provide a security fee to the DNSP, which will be refunded if the DNSP receives the expected incremental revenue from the customer.

A connection policy may provide for connection costs associated with unclassified or negotiated connection services to be paid by the customer directly to the relevant service provider, as agreed by the parties in accordance with chapter 5A of the NER.

In addition to the charging principles set out in chapter 5A, alternative control service charges must also be charged in accordance with any requirements of the relevant distribution determination.

The method for determining connection charges for standard control services is described in more detail in the following sections.

2 Method of determining charges for alternative control, negotiated and unclassified services

In addition to complying with the connection charging principles of chapter 5A, the charges for alternative control services will be calculated in accordance with the approved form of control.

For negotiated or unclassified services, the charge will be agreed upon by the customer and the relevant service provider in accordance with the principles in Chapter 5A.

3 Method of determining capital contributions for standard control services (cost-revenue-test)

Under sub-clauses 1, 2, 3 and 5 of clause 5A.E.3 the AER's guideline must describe the circumstances (or how to determine the circumstances) under which a DNSP may receive a capital contribution, prepayment or financial guarantee from a retail customer or real estate developer for the provision of a connection service. The guideline must also set out how the amount is to be determined, the method for determining connection charges for premises connection assets, and the methods for calculating the augmentation component for the connection assets.

Where these connection services are classified as standard control services, a cost-revenue test will be applied to determine the circumstances and the amount of the connection charge.

3.1 Cost-revenue-test formulation

3.1.1 The AER's preliminary view

As presented in the AER's issues paper, the AER's preliminary view was that it is appropriate to implement a cost-revenue-test to determine a customer's upfront charge for an electricity connection. Under this approach a customer is only charged a capital contribution if the incremental cost of the connection services exceeds the incremental revenue that the DNSP would receive in respect of those connection services. The incremental cost is calculated as the cost of providing a connection to the electricity network. The incremental revenue is received as the DUoS payments that customers make to DNSPs over the life of the asset. This approach results in a new connecting customer contributing to its incremental costs as a combination of an upfront capital contribution and ongoing network (DUoS) charges.¹³

The AER considered that all costs incurred by the DNSP (including for premises connection assets, extension, shared network augmentation) and an allowance for the additional operating and maintenance costs, should be compared against the anticipated DUoS revenue from the customer. An upfront capital contribution would only be required to the extent that the net present value of the customer's future DUoS payments is less than the incremental cost of their connection services. For basic and some standard connection offers, the AER proposed the amount of a capital contribution could be pre-calculated for all customers within a class. This would be done using a cost-revenue-test based on an average or typical customer within the class.¹⁴

The AER's preliminary view was that the cost-revenue-test should only apply to the costs incurred, and revenue received, by the DNSP. Where the costs are borne by a third party, they would not be included in the cost-revenue-test. Otherwise, the AER

¹³ AER, Issues and AER's preliminary positions. Connection charge guidelines: for accessing the electricity distribution network, 10 June 2011, p. 14-16

¹⁴ AER, *Issues and AER's preliminary positions. Connection charge guidelines: for accessing the electricity distribution network*, 10 June 2011, p. 14-16

considered a customer would always seek the DNSP to perform the works, given the DUoS payment would offset the cost of the project, whereas if an accredited service provider undertook the works, the customer would pay the full cost to that provider in addition to DUoS payments to the DNSP.¹⁵

AER's preliminary view was that a cost-revenue-test would be applied in the form:

$$CC = ICCS + ICSN - IR(n=X)$$

Where:

CC = Capital Contribution

ICCS = Customer specific incremental costs incurred by the DNSP

ICSN = Incremental costs in the upstream (shared) network directly attributable to the new connection, where applicable

IR(n=X) = Present value of a X year revenue stream directly attributable to the new connection

$$CC \geq 0. \text{ }^{16}$$

3.1.2 Proposed alternatives to a cost-revenue-test

As discussed in section 3.1.3 below, the AER considers that many of the limitations raised in submissions of the AER's preliminary approach have been addressed by modifying the cost-revenue-test to:

- Only apply to services which have been classified as standard control.
- Ensure the costs included match the revenue included.
- Not include operational and maintenance costs.

Clause 5A.E.1(c)(6) prevents the imposition of connection costs to the extent that provision for those costs has already been made through existing DUoS charges or a tariff applicable to the connection. The AER considers to address this clause, a cost-revenue-test should be applied to services for which the costs are recovered through DUoS charges.

However, there were also submissions which proposed alternative approaches to the cost-revenue test. These are considered below.

¹⁵ AER, *Issues and AER's preliminary positions. Connection charge guidelines: for accessing the electricity distribution network*, 10 June 2011, p. 14-16

¹⁶ AER, *Issues and AER's preliminary positions. Connection charge guidelines: for accessing the electricity distribution network*, 10 June 2011, p. 16.

3.1.2.1 Charging customers who trigger augmentations

Energex considered augmentation charges could (under their interpretation of 5A.E.1) be levied on the customer who triggers an augmentation.¹⁷ Energex suggested the AER clarify its interpretation of the rules because it differs from its own.¹⁸

The AER considers that, to appropriately manage new connections to the network, augmentation must often occur before the connections are actually made. Otherwise connections could not be made routinely and conveniently. However, the AER considers that:

1. In a practical sense, each customer who connects to the network is contributing towards the necessity for a future network augmentation.
2. Clause 5A.E.1(c) requires that any capital contribution sought from a customer be no more than is necessary to provide for that particular customer's connection.

The AER considers that levying a charge on each (relevant) customer for augmentation and then subjecting the charge to the cost-revenue-test would be a reasonable basis on which to attribute the necessary augmentation to a customer. This method promotes the purposes of the guideline, as outlined in chapter 5A, which includes that the connection charge must be reasonable and provide a user pays signal.

The AER has reservations about allowing those customers who trigger an augmentation to be charged the full cost of the augmentation. Some of the issues related to charging the triggering customer the full cost of augmentation can be highlighted by a recent case study.

In a developed area of NSW, a new business moved into an existing premise. The new business required more capacity than the previous tenants, however, the DNSP advised there was less than 100 amps available in the street. Thus, the new business was asked by the DNSP to provide land to house the DNSP's equipment to upgrade the available capacity. The customer estimated the cost of the land to cost approximately \$300 000.

This example illustrates the problems of requiring new customers to bear the full cost of an augmentation, the benefits of which will be shared across many users. In built up area, new customers would use the capacity which was initially required for the first customer who triggered the need for an augmentation. If a single customer who triggers the augmentation is charged for the total costs of augmentation, there would be a significant barrier to entry to the electricity network. More importantly, this would not reflect the requirements in clause 5A.E.3(b) of the NER, that charges be reasonable and reflect an efficient user-pays signal. As the need for shared network augmentation is driven by all customers who connect to the network, an incremental cost-revenue-test ensures that the capital contribution required for a connection better provides a user-pays signal.

However, the AER also considers the charging methodology will be determined by the service classification applied in each jurisdiction. Thus, if shared network augmentation is classified as alternative control, negotiated or unclassified, then a DNSP would be able to implement a charging scheme where only those customers

¹⁷ The AER is proposing a per unit rate for shared network augmentation charging.

¹⁸ Energex, response to AER issues paper, August 2011. p. 11

who trigger augmentation are required to contribute towards the cost of the augmentation, which they trigger. However, if shared network augmentation is classified as standard control, then the AER considers that all customers who connect to the network should have shared network augmentation costs calculated on an average basis via a per unit rate and included in the cost-revenue-test.

One option, which may mitigate the AER's concerns would be for a DNSP to propose two connection services related to shared network augmentation:

1. Shared network augmentation for customers who do not trigger an identifiable augmentation. This service could be classified as standard control and be subject to the cost-revenue-test.
2. Shared network augmentation for customers who do trigger an identifiable augmentation. This service may be classified as an alternative control, negotiated or unclassified service and may have a customer specific charge applied.¹⁹ Under such an arrangement, the customer should only pay for its share of the augmentation triggered, based on its usage of the required assets.²⁰

The AER considers that the second service would generally relate to customers who are larger than those contemplated by the first service. Splitting augmentations into two connection services would allow the cost-revenue-test to be applied to most large customers. However, when a very large customer, who has a clearly identifiable impact on the network, triggers an augmentation, the customer should be charged on their share of the actual cost of the augmentation.

3.1.2.2 Charging only out-of-sequence customers for augmentation

SP AusNet and United Energy submitted that customers who are 'in-sequence' should not be required to pay for shared network augmentation. In-sequence customers are those whose level of connection, location, and size, a DNSP could reasonably be expected to cope with in the ordinary course of managing the network. They submitted that these customers' augmentation costs underpin the long run marginal cost estimates the DNSPs undertake in the distribution determinations, and are therefore paid via DUoS charges.

Similarly, the MEU also considered new customers should not pay augmentation costs other than through DUoS.

It appears that in-sequence customers would be those who connect where a specific network augmentation program has been identified in a DNSP's capex program. As the forecast capex is featured in a DNSP's distribution price proposal, this cost

¹⁹ It should be noted that very large customers are typically connected at high voltage or sub-transmission voltage level. As such the upstream augmentation relevant to such customers would be zone substation transformers or transmission connection assets. The dedicated connection for very large customers' connection may include a dedicated substation or high voltage network extension to the customer's location. These components would be included in the extension or premises connection component of the connection and provide locational signals to the customer.

²⁰ The Independent Pricing and Regulatory Tribunal of New South Wales, Determination on Capital Contributions and Repayments for Connections to Electricity Distribution Networks in New South Wales contains a definition of large load customers and Rural customers. Similar thresholds for this second augmentation service could be proposed by DNSPs.

impacts on all customers' DUoS. The AER has concerns with this approach, particularly that:

- The DNSP would forecast areas of expected growth and then does not charge customers for augmentation if they connect in these growth areas. The reason for not charging customers connecting in these areas appears to be that a forecast of the cost of connecting these customers is included in the DNSP's RAB and so the costs is being recovered through DUoS charges. The AER does not consider that this is an argument for not applying a cost-revenue-test to determine whether these customers should make a capital contribution.
- An assessment of a customer's connection characteristics would be required to determine whether a customer is in-sequence.

Although the AER is not proposing to charge only out-of-sequence customers, as submitted by United Energy and SP AusNet, the AER considers it is appropriate to provide for a locational price signal to customers. The AER's approach of allowing different thresholds in different areas of a network can result in a similar outcome, without incurring the problems associated with the SP AusNet's and United Energy's method outlined above.

The AER considers by setting a different augmentation charge threshold in different areas of its network, a DNSP can take account of different sizes of customers, which the DNSP would be expected to cope with (in each area) in the ordinary course of business. Customers below the shared network augmentation threshold will not be charged for augmentation and would be treated in the manner proposed for in-sequence customers. Conversely, customers above the shared network augmentation threshold will be charged for augmentation and would be treated in the manner as proposed for out-of-sequence customers. This will allow DNSPs more targeted charging for augmentation, reflective of the costs in specific areas.

According to the MEU, requiring customers to pay for spare capacity raises barriers to entry. To require customers to contribute to replacing spare capacity is inefficient because the assets are not otherwise used.²¹ The MEU submitted that it is in the interests of existing customers that spare capacity be utilised so that the costs for replacing assets are shared over a larger number of people.²²

Spare capacity results largely from the lumpy nature of network augmentation, such as the installation of a new zone substation transformer. The AER understands that spare capacity is also maintained to provide for growth as well as to provide adequate supply reliability.²³ As spare capacity is used up, new augmentation will be required at certain trigger points in order to maintain a suitable level of spare capacity (that is to maintain an appropriate level of network utilisation²⁴). As such, using the network's spare capacity has a cost to the network.

²¹ Major Energy Users Inc, Submission, August 2011, p. 11, 12.

²² Major Energy Users Inc, Submission, August 2011, p. 12.

²³ Darryl Somerville, Steve Blanch, Jack Camp, *Detailed Report of the Independent Panel for Electricity Distribution and Service Delivery for the 21st Century – July 2004*, p. 8.

²⁴ Darryl Somerville, Steve Blanch, Jack Camp, *Detailed Report of the Independent Panel for Electricity Distribution and Service Delivery for the 21st Century – July 2004*, p. 8.

The AER accepts that utilising spare capacity generally lowers the cost to all users. However, the AER considers that it is efficient for new customers to bear the costs they impose on the network. To ensure that a customer bears the cost of using the capacity it requires, the AER proposes to include these costs in a cost-revenue-test. If the cost of using this capacity is not included in the cost-revenue-test, then customers would not face an incentive to take account of their augmentation cost.

3.1.3 Implementing a cost-revenue-test

3.1.3.1 Ensuring the revenue is only offset against corresponding costs

In the issues paper, the AER outlined an approach which resulted in all the revenue derived from a new connection, being offset against the connection costs incurred by the DNSP. The customer should be charged the difference between the DNSP's relevant incremental costs and incremental revenue. Submissions indicated that if a customer was below the augmentation charge threshold, then the customer would not be required to pay for augmentation, but would have its full DUoS charges offset against only the premises connection assets and extension components of its connection work. JEN, SP AusNet and United Energy submitted that in such circumstances, a new customer could request a connection in excess of the most efficient connection because it would bear no additional cost of doing so.²⁵

The AER agrees that the proposal could have resulted in all of a customer's DUoS charges (which includes components for customer specific, shared and operational and maintenance costs) being offset against only some of the connection costs. For example, not all new customers would pay an explicit augmentation charge (those below the shared network augmentation charge threshold). As such, under the approach outlined in the issues paper, the DUoS charges would likely be larger than the costs included in the incremental cost component of the cost-revenue-test.²⁶

The AER considers this issue can be addressed by offsetting DUoS charges against only the costs recovered through DUoS—and then requiring a capital contribution for any shortfall (uneconomic connections). Proposals similar to this position were made by CitiPower and Powercor which supported the AER's preliminary views, on the condition that only the revenue, which has a corresponding cost is included in the cost-revenue-test. ETSA submitted that the incremental revenue should only include the parts of DUoS applicable to the components of the distribution system included in the calculation of incremental costs. Ergon supported the use of DUoS in the cost-revenue-test if only standard control services were included.²⁷ JEN did not support the cost-revenue-test applying to premises connection assets.

To ensure that the costs and revenues for corresponding services offset each other in the cost-revenue-test, the AER has modified its preliminary approach in three ways:

1. The cost-revenue-test will only be applied to standard control services.

²⁵ The AER notes such a customer would actually pay for an excess connection over its life, but it would pay the same amount regardless of whether it requested an extension in excess of what was required or not.

²⁶ This could occur if a connection was below an average connection.

²⁷ Ergon Energy Corporation Limited, Submission on the Connection Charge Guidelines, August 2011, p.5.

- This is appropriate because the costs of other services can be identified and are attributable to a given customer and therefore should be paid in full by that customer.
2. When a customer is not required to explicitly pay for shared network augmentation (and shared network augmentation is a standard control service), then only the DUoS charges attributable to extension and premises connection assets costs will be included in the cost-revenue-test.
 - DNSPs will be required to provide a method of determining what components of DUoS can be reasonably ascribed to the different connection services required by a connection
 3. Operational and maintenance costs will be removed from DUoS revenue and the connection costs included in the cost-revenue-test (this is discussed further in section 3.3.1).

The AER considers these modifications ensure the cost-revenue-test correctly offsets the costs of standard control services against the revenue received for them and hence is an appropriate method to determine whether an additional capital contribution from the new customer is required.

The AER considers that the modified cost-revenue-test should address the concerns of SP AusNet and United Energy and that this approach would provide an incentive for new customers to request efficient connections.

3.1.3.2 Customers requesting greater than least cost technically acceptable connections

SP AusNet and United Energy proposed that costs above the least cost technically acceptable level should be explicitly provided for in the cost-revenue-test as an additional parameter.

The AER considers that standard control services should relate to undertaking the connection service to the least cost technically acceptable standard, because this approach is an efficient manner to augment a network. This approach is appropriate because existing customers should not bear the cost of an inefficient augmentation.

In order to meet specific customers' individual needs for connections of a higher standard, a DNSP may propose additional connection services specifically related to providing network connections to a standard higher than the least cost technically acceptable standard. A different service classification may be applied to these connection services.

3.1.3.3 Application of cost-revenue-test

The AER proposes to apply the cost-revenue-test collectively to all standard control services rather than applying it to each standard control service separately.

While clause 5A.E.1(c)(1) to (3) can be interpreted as requiring the cost of each connection service and its associated revenue being considered individually, when calculating the amount of any capital contribution, the AER's guideline must ensure connection charges are:

- reasonable, taking account of the efficient cost of providing the connection services arising from the new connection.
- provide a user-pays signal without undue administrative cost.
- limit cross subsidisation between different classes of users; and
- if contestable, are competitively neutral.²⁸

It is the AER's view that the capital contribution for standard control connection services cannot be negative (that is, a payment made from the DNSP to the customer, for connecting to the network). As such, if the cost-revenue-test is applied individually to each standard control connection service, then a surplus of incremental revenue for one connection service would not be offset against a deficit for another. This would result in the connection charge being greater than required to ensure a customer contributed its incremental cost (through both DUoS charges and the capital contribution). Therefore, to ensure a reasonable capital contribution, all standard control services should be collectively included in the cost-revenue-test.

The AER concludes that the connection charge principles and the requirements for the AER's guidelines are satisfied by the proposed application of the cost-revenue-test to standard control services and by providing separate arrangements for connection services that are not classified as standard control services.

3.1.4 AER draft decision on the cost-revenue-test formulation

The AER's draft decision is that the incremental costs or incremental revenue received from any services classified as alternative control services, negotiated control services or unclassified services will not be included in the cost-revenue-test. The cost-revenue-test will be applied to all connection services classified as standard control, subject to the following conditions:

- Shared network augmentations will not be included in the cost-revenue-test, where the customer is not required to make a capital contribution towards the cost of augmentation because chapter 5A does not allow it, or the customer is below the shared network augmentation threshold.
 - in these cases neither the amount of ICSN nor IR(n=X) attributable to these connection services will be included in the cost-revenue-test.
- Operational and maintenance costs will not be included in the cost revenue test.

The cost-revenue-test will apply to all standard control connection services in a collective manner.

The cost-revenue-test will be applied in the form:

$$CC = ICCS + ICSN - IR(n=X)$$

Where:

²⁸ 5A.E.3(b)(1)

- $ICCS + ICSN - IR(n=X) \geq 0$
- CC = Capital Contribution for standard control services.
- ICCS = Incremental Cost Customer Specific – The incremental costs incurred by the DNSP for premises connection assets and extensions.
- ICSN = Incremental Cost Share Network – The costs incurred by the DNSP for the shared network augmentation attributable to the new connection.
- $IR(n=X)$ = Incremental revenue expected to be received from the new connection — This is the present value of a X year revenue stream directly attributable to the new connection.

3.2 Incremental cost

As noted in section 3.1, the cost-revenue-test applies to premises connection asset costs, extension costs, incidental costs and shared network augmentation costs when these services are standard control. The AER considers that three of these four costs—premises connection assets costs, extension costs and incidental costs—can be considered to be customer specific costs. The shared network augmentation cost is not necessarily triggered when a customer joins the network and can be more difficult to attribute to a specific customer (discussed in section 3.2.2).

3.2.1 Customer specific incremental cost (ICCS)

3.2.1.1 The AER's preliminary view

The AER considered that generally the costs associated with premises connection assets are easily identifiable and attributable to an individual customer. The AER considered that where these services are classified as standard control, charges for premises connection assets should be based on the efficient costs of providing the required service.

The AER considered that a competitive market price would be reflective of efficient costs. Hence, where suitable independent service providers (contractors) are available, a DNSP should either price its connection service at the market price, or engage independent service providers to provide the service to customers. The AER suggested it would require a DNSP to call for tenders, subject to customer agreement, before performing works over a certain dollar threshold. The AER proposed this threshold would be \$3000.

3.2.1.2 Submissions and AER considerations

JEN submitted that it currently offers three options for determining the price of connection services; customers can accept JEN's prices; customers can conduct their own tender; customers can request JEN to conduct a tender. The fee for conducting a tender ranges from \$4000 to \$8000 and so JEN considered the AER's \$3000 threshold was too low. JEN submitted the threshold could be set based on a contribution amount of \$5000, not on the cost of the required works. Alternatively, the AER could require DNSPs to publish their tendering policies. JEN supported the use of pre-established contract prices but considers the DNSPs should specify the threshold.

The MEU submitted that the thresholds seemed appropriate. It submitted that in a dispute, a customer should have the right to seek its own quotations, which the DNSP should be required to accept if the quote meets the technical requirements.

Ergon believed that the threshold was too low as the majority of its 4000 connections per year have costs above \$3000. It would be administratively burdensome and cause delays to connection works. This would also impact on the ability to provide offers within the timeframes required by the NER. Ergon submitted it may be difficult to find pre-established contract rates because not all contractors will give quotes for works they do not expect to receive. In addition, in some regional areas there are no contractors available.

CitiPower and Powercor did not support the preliminary position. They contended there should be no threshold value, rather, tendering should be limited to when it is requested by the customer.

ETSA did not support the AER's preliminary view and argued that tendering should only be considered when a customer is required to make a capital contribution. Also, ETSA submitted that either the customers or the DNSP should be able to undertake tenders (as specified by the DNSP's connection policy), and it should be done at the customer's expense.

The AER accepts that its preliminary position in relation to tenders may not have been workable. As such its preliminary position that all connection works greater than \$3000 must be tendered has been relaxed. However, the AER considers that DNSPs should offer to tender work for customers when requested, as this provides comfort to customers that the construction work is being performed at an efficient price. The AER also considers that—in line with JEN's current practice—where possible, DNSPs should offer the opportunity for customers to run their own tender. The AER considers it is appropriate for the customer to bear the cost of any tender which is run. As the customer bears the cost of the tender, this should limit tenders to cases where customers either dispute the cost estimate provided by the DNSP, or consider they can extract savings from a tender process. This should mitigate the concerns regarding the administrative burden of running tenders. Finally, the AER no longer considers that a threshold above which tenders must be called, should apply.

The AER has concluded that to determine the costs of standard control services DNSPs should:

- Determine the charge for each component in a fair and reasonable manner. The cost estimate should be reflective of the efficient costs.
- Calculate the charge for each component on the least cost technically acceptable standard necessary for the connection service, unless:
 - the customer requests a connection service or part thereof be performed to a higher standard. In which case the customer should contribute the additional cost of providing the service to the standard requested
 - the connection service involves augmentation to the shared network, in which case the customer should be charged no more for this service than the cost attributable to its electricity demand.

For negotiated connections under clause 5A.C.1 of the NER, a customer should be allowed to conduct a tender, whenever jurisdictional rules allow. Additionally, for these services DNSPs should offer to conduct a tender process on behalf of the customer to have the connection work provided by a qualified independent service provider. Thus the AER considers:

- A DNSP should notify a customer that it can seek tenders on behalf of the customer.

- A DNSP may charge the customer the reasonable costs of running a tender process.

3.2.2 Shared network augmentation cost (ICSN)

Under chapter 5A, only customers above the threshold levels set in accordance with these guidelines may be required to pay a capital contribution for connection services involving an augmentation other than an extension.²⁹

3.2.2.1 The AER's preliminary view

The AER's preliminary view was that a unit rate charge should be used to calculate shared network augmentation charges. The unit rate charge was to be calculated based in accordance with South Australia's Guideline No. 13, and only be applied to a customer's demand above the shared network augmentation threshold. This approach involved consideration of the augmentation costs associated with sub-transmission lines, substation, high voltage feeder exit and high voltage feeder. The AER also proposed to allow DNSPs to segment their network into areas where different shared network augmentation unit rates would apply—albeit still based on the approach outlined. The AER considered this would allow the charge to be reflective of the cost of augmentation in the area, and provide a locational signal.³⁰

Stakeholders' submissions on this topic are separately discussed below.

3.2.2.2 Brought forward cost

SP AusNet and United Energy submitted that the guideline should permit DNSPs to levy charges for the brought forward cost of connecting out-of-sequence customers. The brought forward cost concept involves estimating the cost that will be incurred by bringing a planned augmentation forward, relative to when it was originally planned. To reduce the administrative burden of the brought forward cost, SP AusNet contended that development maps, which would reflect the average timeframes until the requirement for a future augmentation, could be produced. Additionally, the augmentation charge threshold could be set to exclude in-sequence customers from shared network augmentation charges.

As discussed in the AER's issues paper, the AER considers the brought forward cost concept would be difficult for most customers to understand and the AER is therefore concerned that it would not meet the legislative requirements in chapter 5A because it would be difficult for customers to take advantage of any user pays signal. In the AER's experience, customers cannot easily determine their connection costs under this method and therefore this method is unlikely to be effective in limiting undue administrative costs.³¹

When the AER examined this issue for Victorian DNSPs, the AER found that if augmentation could occur in continuous steps, then the brought forward cost would be

²⁹ See clause 5A.E.1(b). Note that this restriction does not apply to non-registered embedded generators or real estate developers.

³⁰ AER, *Issues and AER's preliminary positions. Connection charge guidelines: for accessing the electricity distribution network*, 10 June 2011 p. 23-25.

³¹ The AER has received a number of queries or disputes relating to this methodology.

equivalent to the cost of adding the amount of capacity required by the customer.³² Therefore, the AER considered that charging customers the average cost of adding the required capacity to the network would result in similar charges to those using a brought forward cost approach. However, the AER considers its approach is easier to implement and achieves the goals of chapter 5A.

Charging based on a brought forward cost approach would result in customers' connection charges varying depending on when they connect to the network. For example, one customer which brings forward an augmentation from say year 10 to year 5, would pay less than the next customer (who may be a similar size) who brings augmentation from year 5 to the present. If a customer is unable to accurately identify the capacity requirements of other customers which will connect to the network before it, then it will not be able to accurately identify its connection costs in advance. The AER is therefore concerned that it would not meet the legislative requirements in chapter 5A, because it can lead to an inaccurate user pays signal that is not reasonable in all the circumstances.

Further, the AER is concerned the brought forward cost may significantly depend upon DNSP's network planning. For example, if a DNSP forecasts very little load growth for an area, a large new connection may be assumed to significantly bring forward an augmentation and thus give rise to a large shared network augmentation charges. Additionally, external factors may change, such as government infrastructure plans and changes in zoning, which may mean a DNSP's forecast load growth may no longer be appropriate. The AER would prefer to avoid an approach which is influenced by the vagaries of an individual DNSP's planning, as well as factors outside the DNSPs control. Therefore, the AER has concluded that a per unit rate should be adopted to charge new customers for shared network augmentation because of the limitations of the brought forward cost. Also, as discussed in the AER's issues paper, the approach provides a user pays signal in that a customer will pay for the shared network augmentation it requires.

Setting the shared network augmentation charge rates

JEN submitted that the South Australian approach to setting a per unit rate can be improved upon by basing the rate on the following five components—sub-transmission line, zone substation, high voltage feeder, distribution substation and low voltage mains³³—JEN considered that including low voltage mains for customers who connect to them would minimise cross subsidisation and provide a locational signal. On the other hand, United Energy that submitted customers should only pay for upstream components, for example, if a customer is connected to a high voltage feeder, the customer should only be liable for the costs to the sub transmission lines.

The AER agrees with JEN's view that DNSPs should be allowed to include low voltage mains because it is efficient for a customer to bear the costs it imposes on the network, to the extent allowed by chapter 5A. The AER recognises that including low voltage mains may increase the unit charge rate of augmentation, however, this cost will be offset by a customer's DUoS charge. As JEN submitted, this method would also minimise cross subsidisation and otherwise meet the purposes of chapter 5A.

³² Draft Decision, *Benchmark Upstream Augmentation Charge Rates for CitiPower's Network*, 19 February 2010, p. 20.

³³ JEN, *Submission*, 5 August 2011, p. 18, 19.

Therefore, it is reasonable that all the costs arising from a new customer connection, which are above the augmentation charge threshold, are paid for by that customer (so long as they are not recovered already as a different service).

Ergon submitted that a contribution to the shared network should be made by reducing a customer's incremental revenue by a certain percent—which would change depending on the location. It contended this approach is not as complex or administratively burdensome. The AER notes this approach results in a reduction of a customer's incremental revenue that is offset against costs. This means the shared network augmentation cost would be calculated based on a customer's consumption rather than peak demand as proposed by the AER. As discussed in section 4.2.2, the AER considers peak demand or peak coincident demand to be the appropriate measure on which to base shared network augmentation costs. Additionally, the basis for the amount of the percentage reduction (applied by Ergon) is unclear. The AER takes the view that a unit rate should be based on the actual average cost of augmenting the network.

Different shared network augmentation charge rates in nominated areas

As noted, in the issues paper the AER proposed to allow different unit rates to apply in some areas. There was general agreement to this approach from ActewAGL, Ergon, ETSA, CitiPower and Powercor.

The MEU submitted that all customers of the same class pay the same tariff and to segment the network moves away from the concept of equal standing for all customers of the same class.

The AER still considers it appropriate to allow DNSPs to apply different unit rates for shared network augmentation costs in different areas of a DNSP's network. Under this approach, shared network augmentation charges will be reflective of the actual shared network augmentation cost in each region, which will provide an efficient locational signal to new customers. DNSPs should only apply different unit rates in different areas when the cost of augmentation differs significantly between areas.

3.2.3 Determining the cost attributable to a customer

The AER considers that only the shared network augmentation cost which is attributable to the customer should be used in the cost-revenue-test. Further to adopt a per unit rate, in ascertaining the cost attributable to the customer, the DNSP should consider both the proportion of the assets used by the customer and the length of time that capacity will be used by the customer. Where a customer will use an asset for less than its expected useful life, and where a DNSP would reasonably be expected to reuse some of this capacity once that customer leaves the network, each customer should only be charged for the period for which it is using the asset.

The AER noted this issue in its review of the benchmark upstream augmentation charge rates for CitiPower's network:³⁴

As upstream assets can be used by multiple customers and the same asset could be used by future new customers once the earlier customers stop using

³⁴ Guidance Paper, *The AER's Conclusion on the Benchmark Upstream Augmentation Charge Rates for CitiPower's Network*, 25 June 2010, p. 11.

such assets at the end of their connection life, it is not equitable for the first new customer to fund the full cost of upstream augmentation...

The net present value of all connection charges received by CitiPower in respect to the augmentation of a particular asset should equal the MCR of that asset. A methodology that does not take this into account would result in CitiPower either over or under recovering its costs.

The charges paid (in respect of the augmentation of a given asset) by previous, current and future new customers should be equal in real terms. A methodology that does not take this into account would result in an inter-temporal transfer of wealth and would be inequitable for some customers.

To address this issue, the AER developed a calculation method under which, in total, the connection charges received by a DNSP would equal the marginal cost of reinforcement (MCR)—or the per unit rate charge.³⁵ The AER considers DNSPs will need to either adopt a method similar to this, or an alternative method that achieves a similar outcome.

3.2.4 Draft decision on incremental cost

The AER has concluded that to determine the costs of standard control services DNSPs should:

- Determine the charge for each component in a fair and reasonable manner. The cost estimate should be reflective of the efficient costs.
- Calculate the charge for each component on the least cost technically acceptable standard necessary for the connection service, unless:
 - the customer requests a connection service or part thereof be performed to a higher standard. In which case the customer should contribute the additional cost of providing the service to the standard requested
 - the connection service involves augmentation to the shared network, in which case the customer should be charged no more for this service than the cost attributable to its electricity demand.

For negotiated connections under clause 5A.C.1 of the NER, where possible, a customer may undertake a tender. Additionally, for these services DNSPs should offer to conduct a tender process on behalf of the customer to have the connection work provided by a qualified independent service provider. Thus the AER considers:

- A DNSP should notify a customer that it can seek tenders on behalf of the customer.
- A DNSP may charge the customer the reasonable costs of running a tender process.

To determine the incremental cost of shared network augmentations, DNSPs should apply a unit rate charge, rather than charge in accordance with one of the other

³⁵ Guidance Paper, *The AER's Conclusion on the Benchmark Upstream Augmentation Charge Rates for CitiPower's Network*, 25 June 2010, p. 11.

methods canvassed in the issues paper. The unit rate should be applied to a customer's total electricity peak demand, or peak coincident demand if the DNSP chooses, for customers above the relevant shared network augmentation charge threshold (discussed more in sections 4.2.2 and 4.2.4).

DNSPs may apply different unit rates for shared network augmentation costs, in different areas of a DNSP's network.

The unit rate for shared network augmentation must be reflective of the average cost of shared network augmentation for the local area. The rates may be based on the shared network augmentation costs of:

- sub-transmission line
- zone substation;
- high voltage feeder
- distribution substation
- low voltage mains.

The incremental cost should be adjusted to take into account the proportion of the assets used by a customer and the useful life of the network component compared with the period for which the customer will be using the network.

Operational and maintenance costs should be removed from the costs which are included in the cost-revenue-test (discussed in section 3.3.1).

3.3 Incremental revenue

The cost-revenue-test relies upon an estimation of the incremental revenue that a DNSP will receive from the connecting customer. The AER considers that the four primary issues to consider in determining the appropriate estimate of total revenue to use in the cost-revenue-test are: the appropriate measure of revenue; the appropriate time period over which to assume revenue for a particular connection is earned by the DNSP; the price path to assume beyond the current distribution determination; and the appropriate discount rate to use for calculating the net present value of the future revenue stream.

3.3.1 Appropriate measure of revenue

The AER's preliminary view was that DUoS charges are the appropriate measure of revenue to use in the cost-revenue-test because it compensates DNSPs for capital and operational and maintenance costs, and it is expressly required to be considered when ascertaining contribution charges in accordance with rule 5A.E.1(c)(6).

Several DNSPs noted DUoS charges are an appropriate measure of revenue if only standard control services are included in the cost-revenue-test. As discussed in section 3.1.3.3 the AER has decided to remove alternative control services from the cost-revenue-test. Thus, only standard control services will be in the test.

Additionally, the AER will not include DUoS charges which are attributable to operational and maintenance costs in the incremental revenue. The AER considers that if this revenue—from assets which were installed as alternative control services, but were then replaced (as a standard control service) and included in a DNSP's RAB— was included, then this could be used to offset the incremental costs of a connection. Given this, the AER also considers that operational and maintenance costs would need to be removed from the incremental cost component of the cost-revenue-test. This should ensure the costs included then match the source of the revenue used to offset it.

The AER now considers that for customers below the threshold, shared network augmentation costs must be removed from DUoS before applying the cost-revenue-test because these customers do not explicitly pay for shared network augmentation. Additionally, as noted, an estimate of operational and maintenance costs will need to be removed from the relevant DUoS before being used in the cost-revenue-test. Only DUoS attributable to the capital costs of standard control services should be included in the cost-revenue-test.

Ausgrid considered that the AER provided no guidance on what tariffs or customer profiles will be used to calculate the incremental revenue. Energex supported using DUoS as the appropriate measure of revenue, however, noted that for complex tariffs (for example, time of use) assumptions such as daily consumption patterns are required. Energex suggested using pre-determined customer profiles unless presented with clear and unequivocal evidence that a different profile is more appropriate. The AER considers predetermined load profiles would generally be an appropriate manner in which to estimate the revenue a DNSP will receive from a customer. However, DNSPs should also consider information provided by the customer regarding whether their load profile will vary from the predetermined load profile.

Ausgrid also considered that using DUoS results in incentives for customers to game their usage estimates.³⁶ The AER has discussed the method to reduce the opportunity for customers to game their electricity usage in section 3.4.

Ausgrid questioned what tariff to use or whether an average tariff is appropriate. The AER considers that in estimating the incremental revenue, the tariff which the customer is expected to be assigned to, will be used to calculate the incremental revenue.

ActewAGL supported the use of DUoS but questioned whether average revenue or the tariff revenue should be used for a given customer class. The AER considers DNSPs should use tariff revenue multiplied by consumption. As noted, for basic connections and other standard type connections average information could be used.

3.3.2 Appropriate time period

The AER's preliminary view was that the cost-revenue-test should include an assumption about future revenue that reasonably reflects the period over which a DNSP will receive revenue from the connection. The AER's preliminary view was that a default assumption for residential customers connecting for 30 years and business customers connecting for 15 years may be appropriate.

Ausgrid, Aurora, JEN, CitiPower and Powercor supported the AER's preliminary view. ActewAGL submitted DNSPs should have discretion for business customers. DCCEE also considered DNSPs should have flexibility in setting the connection life assumptions. It considered DNSPs should be required to disclose and justify the connection periods chosen.³⁷ Ergon supported flexibility to alter connection life assumptions but considered such requests must be reasonable in the circumstances.³⁸

ETSA contended the AER's preliminary position would increase the rebate to new customers from about three times DUoS to 10 times DUoS for residential customers (NPV of 30 years revenue) and eight times for business customer. This would result in existing customers funding approximately \$30 million more. Similarly, Energex and Ergon expected to contribute more towards connections under the AER's proposal. The DNSPs proposed a 20 year connection life for business and residential customers, which would reflect the average life of network assets. Ergon also contended that different time periods would raise equity concerns.

The cost-revenue-test seeks to ensure a customer provides at least its incremental cost to the DNSP, over the life of the connection asset. As such, the estimated incremental revenue used in the cost-revenue-test should be an estimate of the amount of revenue that a DNSP will derive from the premise over the life of the connection. The ownership of a premise may change but the revenue arising from it will likely remain and so it is the life of the connection assets rather than the period the initial customer will be present, which is of interest.

³⁶ Ausgrid, submission to AER Connection charge guidelines consultation paper, August 2011, p.13.

³⁷ Department of Climate Change and Energy Efficiency, Addressing Market and Regulatory Failures for New and Upgraded Connection Assets, September 2011.

³⁸ Ergon Energy Corporation Limited, Submission on the Connection Charge Guidelines, August 2011, p. 12.

The AER considers it would not be likely that a residential premise would be used for less than 30 years. Even if an existing house is rebuilt, the network asset can be reused. Therefore, the AER does not consider a 20 year connection life, as proposed by Energex and Ergon, or ETSA's proposal for a lower revenue estimate, to be appropriate. The AER considers its residential premise connection assumptions to be more accurate.

The life of a business connection is less certain, which is why the AER proposed flexibility for DNSPs and business customers to vary connection life assumptions in the issues paper. The AER still considers there should be flexibility in varying connection life assumptions for business customers, however, the AER also considers an assumed 15 year life is a reasonable default position that would fit with the principles and requirements in chapter 5A. This is supported by several DNSPs as noted above. The AER considers DNSPs should negotiate in good faith when varying connection life assumptions.

ETSA's submission stated the AER's preliminary view increases network prices for existing users. ETSA did not include the basis for its calculations, however, the AER considers that appropriate connection life assumptions will ensure the costs that new customers pay are reflective of the costs they place on the network.

The AER's draft guideline provides that DNSPs, when developing connection charges policies, should assume that residential customers connect for 30 years, and the default connection life for business customers should be 15 years. DNSPs and business customers should be able to vary the applicable assumed connection period if agreement is reached on a different connection period after negotiations in good faith. The relevant period should reflect the life of the connection to the premises rather than the period that a particular customer is connected to the network.

3.3.3 Discount rate

In the issues paper the AER sought comments on whether a pre or post tax WACC was the appropriate rate to discount DUoS for calculating incremental revenue.

DNSPs generally supported the use of the pre tax WACC as the relevant discount rate. The AER agrees that a pre-tax WACC is the appropriate discount rate.

3.3.4 Price path

The calculation of incremental revenue requires an assumption to be made regarding the price path of DUoS. The AER's preliminary view was that it was appropriate to assume prices will remain flat, in real terms, for the period of the connection.

SP AusNet, Ausgrid, ETSA, Aurora, CitiPower and Powercor supported a flat (in real terms) revenue path for current and future regulatory periods. Energex and Ergon contended that trending prices in line with CPI would be an appropriate price path (the AER notes that this is flat in real terms). United Energy supported a historic average growth rate and noted there is some merit in a flat price path.

The AER still considers that if a real pre tax WACC is used to discount DUoS payments then a flat (in real terms) price path is the most appropriate.³⁹ As noted in the issues paper, the AER's reasons are that continuing the current price path indefinitely is likely to be inappropriate because the price path can differ markedly from historical or anticipated future price growth rate. Additionally, it is inherently difficult to estimate the future price path. To ensure compliance with the requirements of chapter 5A, and in particular to ensure that charges are reasonable, and without undue administrative cost, the guideline provides for DNSPs to use a flat real price path in this aspect of the calculation of incremental revenue.

3.3.5 Draft decision on incremental revenue

- The relevant revenue to use in the cost-revenue-test is the DUoS attributable to the capital costs for standard control services. An estimate of operational and maintenance costs should be removed from this revenue.
- The revenue estimate will use a 30 year connection life for residential customers and a 15 year connection life for business customers unless:
 - a 15 year connection period does not reflect a reasonable estimate of the time that a business customer would be connected to the network, in which case the DNSP will set an appropriate connection life for that business customer. The DNSP should negotiate with the customers in good faith when determining an alternative connection life
- A DNSP's real pre tax WACC is the appropriate rate to discount the incremental revenue stream.
- DNSPs will use a flat real price path after the end of the relevant distribution determination, for the remaining life of the connection, when estimating the incremental revenue.

3.4 Estimating customers' consumption and demand

3.4.1 The AER's preliminary view

When applying a cost-revenue test, it will be necessary to estimate the customers' peak demand. When adopting an appropriate estimate, the AER's preliminary view was that the South Australian approach seemed to be a reasonable approach to estimating a customer's peak demand. In South Australia, it is the customer's responsibility to specify its maximum demand, however, the customer must satisfy ETSA that its estimate is reasonable. If the customer does not have the necessary data, ETSA will estimate the demand based on its experience of existing customers with similar characteristics. When agreement cannot be reached, a provisional value will be used. After three years the appropriate demand value would be reconsidered and there

³⁹ The AER is proposing to use a real WACC in the NPV calculation and as such it is not necessary to escalate the current price path in line with CPI. If a nominal WACC is adopted then it will be necessary to inflate DUoS revenue using CPI.

would be a corresponding refund or additional charge based on it and the actual DUoS charges.⁴⁰

3.4.2 AER considerations and submissions

JEN, Aurora and SP AusNet supported the AER's preliminary position to estimate peak demand based on the South Australian approach. Ergon supported the approach to estimating peak demand (assuming the threshold was not based on consumption) but did not support a true-up mechanism because it would be administratively burdensome, inefficient and costly. Also, it would be difficult to determine an appropriate demand value after three years if accumulation meters are installed.

The AER sought clarification from ESCoSA on how the approach is applied in South Australia. ESCoSA informed the AER that the provisional value was only applied to the revenue (DUoS) estimate if revenue was disputed.⁴¹ The AER considers ESCoSA's guideline 13 allows for the provisional value to also be applied in determining a customer's peak demand.

The AER considers that where possible (and only when agreement on the estimates cannot otherwise be reached), the approach could be applied to demand and consumption estimates. As noted by Ergon, it may not always be possible to apply the approach to the demand estimate because consumption meters may be installed.

Energex questioned how the scheme would operate if an original customer is no longer at the premises. The AER considers it is not practicable for the scheme to operate once the original customer has left the premises. First, it would not be possible to require a customer to make a payment to a DNSP under the scheme if that customer had not agreed to the scheme. Additionally, it would not be practicable to charge or make a refund to a customer based (at least in part) on a previous customer's consumption patterns and connection agreement. Thus, the AER considers the scheme should simply cease without any true up if the customer who is a party to the original connection agreement leaves the premises within three years. The AER now considers that it will be the DNSP's estimate of consumption or demand that will be used as the provisional value to mitigate the risk to the DNSP of customers leaving the premises.

ActewAGL submitted that the NECF has appropriate dispute resolution provisions to deal with circumstances where agreement on estimates cannot be reached. Also, ActewAGL contended the three year review would be likely to shift risk from a developer to its customers.

The AER anticipates that the scheme will reduce the need for formal dispute resolutions made by a third body. The AER notes the application of the approach to real estate developers is less clear. For example, a capital contribution could be made by a developer on a given demand or consumption estimate. If the approach was applied and the estimate was found to be inaccurate, it would not be equitable to levy an additional charge on the residents of the property—given the developer would have the benefit of the approach by paying a lower initial capital contribution. The AER considers that real estate developers and DNSPs may choose to enter into private

⁴⁰ ESCoSA, *Electricity Industry Guideline No. 13*, July 2005 GL 13, p. 5, 6.

⁴¹ ESCoSA, *email*, 26 August 2011.

agreements in such circumstances, so that additional costs or revenues could be settled between the DNSP and the developer directly.

The MEU submitted the drawback of the approach is that customers must outlay costs upfront and will then get restitution three years later. The AER recognises this possibility but considers that with the application of this approach, the customer will at least recover the additional outlay whereas this would not occur otherwise. Additionally, the converse is also possible, that is, the DNSP may initially charge a lower contribution than required.

The MEU also contended that an alternative solution could be for DNSPs to apply a limit on demand, with an automatic shut down if the customer's demand was exceeded. The AER considers customers and DNSPs are free to negotiate such arrangements if they suit. However, all parties should consider whether this is a practicable solution.

3.4.3 Draft decision on estimating customers' consumption and demand

- DNSPs' may provide an estimate of a customer's demand and consumption for use in the cost-revenue-test.
- When customers and DNSPs cannot agree on demand or consumption estimates:
 - the DNSP may make provisional demand and consumption estimates
 - after three years, the actual and forecast demand or consumption value should be reconciled and there would be a corresponding refund or additional charge based on the difference between actual and forecast costs and revenue.
 - no additional charge or refund will be made if the customer is no longer at the premise after three years.
- When a real estate developer and a DNSP cannot agree on demand or consumption estimates, the parties may choose to enter into a private agreement to use provisional estimates, so that additional costs or revenues could be settled between the DNSP and the developer directly.

4 Shared network augmentation charge threshold

Under clause 5A.E.3(c)(4), the AER's guideline must establish principles for fixing a threshold (based on capacity or any other measure the AER thinks fit) below which retail customers (not being a non-registered embedded generator or a real estate developer) are exempt from any requirement to pay connection charges (or to give consideration in the form of a capital contribution, prepayment or financial guarantee) for an augmentation (other than an extension) to the distribution network necessary to make the connection.

When setting a shared network augmentation threshold, clause 5A.E.3 stipulates that:

(d) The principles for establishing an exemption under paragraph (c)(4) must ensure that the exemption only operates in the following circumstances:

- (1) the connection is a low voltage connection; and
- (2) the connection would not normally require augmentation of the network beyond the extension to the distribution network necessary to make the connection; and
- (3) the connection is not expected to increase the load on the distribution network beyond a level the Distribution Network Service Provider could reasonably be expected to cope with in the ordinary course of managing the distribution network.

4.1 The AER's preliminary view

The AER proposed to set a fixed demand threshold rather than a threshold dependant on local capacity, at the higher of either:

- the level of customer demand in each DNSP's network that would result in approximately 10 per cent of new customers paying for specific shared network augmentation (based on existing customer demand information); or
- 70 kVA (equivalent to 100 Ampere 3-phase low voltage supply).

The AER's preliminary position was based on:

- the South Australian precedent (where only customers above 100 A 3-phase low voltage supply pay for augmentation);⁴²
- the average demand figures provided by the DNSPs; and
- the AER's understanding that in general, a 100 Ampere 3-phase supply connection is the largest connection possible without the need for current transformer metering—it is a requirement in the various jurisdictional service and

⁴² ESCoSA's amendments to Chapter 3 of the Electricity Code final decision noted that it considered a 100 Ampere 3-phase supply a practical augmentation charge boundary. In 2004, ETSA Utilities commented that over 95 per cent of its annual connections were less than 100 Ampere 3-phase supply. However, ESCOSA ultimately adopted 90kVA as the threshold.

installation rules that where a connection exceeds 100 Amperes 3-phase low voltage supply that a current transformer is required.⁴³ Hence, the AER considered that 100 Amperes 3-phase low voltage supply is a clear natural break point to define this threshold.

The AER also considered DNSPs could nominate less developed areas of the network where a different threshold would be more appropriate. Customers connected on SWER lines should pay for shared network augmentation on demand above 25kVA as the default level unless a different threshold is nominated by a DNSP and deemed appropriate by the AER.

The AER proposed new customers would pay for shared network augmentation on the amount of their peak demand above the shared network augmentation threshold.

4.2 Submissions and AER considerations

4.2.1 The AER's preliminary view to set a fixed demand threshold rather than a threshold dependant on local capacity

SP AusNet and United Energy submitted that there is merit in allowing an option to set a local spare capacity threshold.⁴⁴ This would provide a locational signal to connecting customers. The AER has partly discussed this issue in section 3.2.2.2 when discussing the merits of the brought forward costs—which to a degree bases the connection charge on the amount of local spare capacity available. The AER considers that it is more appropriate to set a fixed demand threshold in different areas of the network for the duration of the distribution determination.

The AER considers that DNSPs can propose different thresholds in different areas of their network, if they can demonstrate that the areas are sufficiently distinct. In demonstrating this, DNSPs may consider the networks ability to connect additional load in a region and the costs incurred in each region of adding this additional load. While DNSPs will not be permitted to set a threshold that is explicitly related to spare capacity, DNSPs will be able to incorporate some locational signals, where they can identify particular regions where different thresholds would ensure that DNSPs could be expected to cope with their load in the ordinary course of business. Additionally, DNSPs may be able to set locational signals by applying different augmentation charge rates in these different segments.

The AER considers that an approach based on spare capacity, in the absence of perfect information, may not be equitable. For example, a new customer may calculate its connection cost based on the development maps (discussed in section 3.2.2.2) displaying the amount of spare capacity at a location and then find that

⁴³ Except the Queensland Service and Installation Rules note; 9.3. Current Transformers - When required The customer shall make provision for the installation of current transformer metering where the calculated maximum demand of the load to be metered exceeds 120A per phase as determined in accordance with the guidelines given in AS/NZS 3000 (Wiring Rules). Current transformer metering shall be used for actual loads greater than 90A or motors larger than 50kW (65hp). Unless otherwise advised by the metering provider, direct connected meters rated up to 100A will be supplied for loads less than these values.

⁴⁴ Their first preference was that only out-of-sequence connections should pay for augmentation costs (as discussed later), and the amount paid would be based on a brought forward cost. The DNSPs submitted in-sequence connection's costs are covered by DUoS.

another customer has since joined (or is further through the process of joining) the network resulting in this customer incurring a higher cost. If a customer is unable to make use of spare capacity information then it is inappropriate to use this as a basis for the connection charges.

The MEU primarily considered new customers should not pay augmentation costs other than through DUoS. It also submitted that a fixed threshold does not recognise there are differences in connecting to different parts of the network. Nevertheless, the MEU considered a preferable approach is that customers in the same class should be treated equally regardless of their location.⁴⁵ To an extent the AER has adopted this position given its draft decision to apply a fixed demand threshold. At the same time, the AER recognises there is merit in allowing DNSPs to apply different thresholds in different areas to suit the specific circumstances of the network.

Some submissions, including from Aurora and Energex, supported the AER's preliminary position of setting a fixed demand threshold. The AER considers it appropriate that the augmentation charge threshold in each area should be fixed (rather than vary based on spare capacity) for the reasons discussed above.

4.2.2 A threshold set on consumption, peak demand or coincident peak demand?

Submissions, which were generally in support of a peak demand threshold were received from, JEN, Aurora, ETSA, CitiPower and Powercor. Ergon and ActewAGL primarily supported a consumption threshold.

ActewAGL considered that peak demand would be inappropriate because a customer may only operate its load at off-peak times. A Peak demand threshold could therefore negate economically sound behaviour.⁴⁶ However, ActewAGL noted that peak coincident demand would be costly to apply.⁴⁷ Thus, ActewAGL supported the use of a consumption threshold because it considered it impractical to apply coincident peak demand.

SP AusNet and United Energy submitted an average measure of coincident peak demand for similar customers could be used, but not customer specific coincident peak demand—because customers would then have an incentive to claim their demand is not coincident and the nature of the customer's demand would not be known until after connection.

The AER considers it would be possible to set a threshold on either a consumption or demand measure. The AER notes Ergon and ActewAGL's submissions in support of a threshold based on a customer's consumption. However, the AER considers the need to augment the shared network to be driven by demand rather than consumption. As such, setting a threshold based on demand more accurately identifies whether a connection would normally require augmentation, or would increase the load on the network beyond a level with which the DNSP could reasonably be expected to cope. Correspondingly, in order to provide efficient price signals as required by section

⁴⁵ Major Energy Users Inc, Submission, August 2011, p. 23.

⁴⁶ ActewAGL, *submission*, 10 August 2011, p. 9.

⁴⁷ ActewAGL, *submission*, 10 August 2011, p. 9.

5A.E.3(b)(2), a customer should pay the per unit augmentation rate on a measure of their demand.

Measuring a customer's demand

The AER agrees with ActewAGL's view that peak coincident demand may be too costly to apply. Additionally, as noted by SP AusNet and United Energy, customers would have an incentive to claim that their demand is not coincident, but the actual demand would not be known until after the connection.

To address these problems, SP AusNet and United Energy submitted that an average measure of coincident peak demand (derived from similar customers) could be used to determine the augmentation charge. However, the AER considers this approach removes the incentive for customers to design efficient installations or to invest in peak demand and consumption reducing technology, because an average of similar customer's demand would be applied. Thus, the AER does not consider that applying an average measure of coincident peak demand appropriately addresses the factors listed in clause 5A.E.3 that the guidelines are required to address.

To overcome the problems associated with customer specific peak coincided demand, the AER considers customer specific peak demand could be used. Customer specific peak demand would be a good proxy for peak coincident demand, without the administrative burden of peak coincident demand.

Thus, the AER concludes:

- The augmentation charge threshold will be based on demand rather than consumption, because customer demand is the driver of network augmentation.

And, DNSPs may either:

1. Apply an estimate of customer specific peak coincident demand, in determining whether a customer is above the threshold. or
2. Apply an estimate of customer specific peak demand in determining whether a customer is above the threshold.

To set the estimate of customer specific peak/peak coincident demand, the DNSP should have regard to the customers' specific circumstances, but may also use its experience with similar customers in arriving at the demand estimate.

4.2.3 The AER's view on the threshold levels

Stakeholders including Energex, JEN, CitiPower and Powercor supported the AER's preliminary views to set the shared network augmentation charge threshold at the higher of either:

- the level of customer demand in each DNSP's network that would result in approximately 10 per cent of new customers paying for specific shared network augmentation (based on existing customer demand information); or
- 70 kVA (equivalent to 100 Ampere 3-phase low voltage supply);

ETSA and Aurora supported a 70 kVA fixed threshold only.⁴⁸ United Energy accepted a 70 kVA threshold but proposed a 20kVA threshold on SWER lines.⁴⁹

Ausgrid considered that the AER has not correctly interpreted the requirements of chapter 5A. It submitted the AER should set principles and DNSPs apply these principles to set the threshold. Ausgrid strongly argued the AER was not required to set a predetermined threshold. It considered this would be at odds with the requirement to consider historical and geographical differences.⁵⁰

The AER considers its preliminary view on shared network augmentation thresholds would meet the requirements of chapter 5A to:

- have regard to historic and geographic differences (via different threshold on SWER lines and allowing DNSPs to propose alternative thresholds)
- ensure the exemption only operates where the connection is low voltage
- ensure the exemption only operates where the connection would not normally require augmentation to the network beyond extension
- ensure the exemption only operates where the connection is not expected to increase the load on the network beyond that which the DNSP could reasonably be expected to cope with in the ordinary course of managing the distribution network.

However, the AER agrees that its role is not to set thresholds but to provide guidelines establishing principles for setting them. The AER has modified its preliminary view for the draft decision to reflect this.

DNSPs should set augmentation thresholds that demonstrate a natural break point where customers can be naturally differentiated. This is considered appropriate because the threshold level results in different treatment of customers, and therefore customers above and below the threshold should have identifiably different characteristics. For example, a 100 Ampere threshold would be considered a natural break point because typically customers above the threshold require current transformer metering. Where there is no clear break point, in addition to meeting the principles in 5A.E.3(d), the proposed threshold must allow for historic and geographic differences, and limits cross subsidisation, in accordance with chapter 5A of the NER. When demonstrating consistency with this, a DNSP should have regard to:

- The average size of the customers connected to the network relative to the threshold
- The interconnectedness of the network

⁴⁸ ETSA Utilities, Submission: AER's Consultation Paper Issues and AER's preliminary positions Connection charge guidelines: for accessing the electricity distribution network, p. 4; and Aurora, submission p.5.

⁴⁹ United Energy, Response to AER's Consultation paper: Issues and AER's preliminary positions - connection charge guideline for accessing the electricity distribution network, p. 29.

⁵⁰ Ausgrid, Ausgrid submission to AER Connection charge guidelines consultation paper, August 2011, p.1.

- The network classification
- Any other factor it considers relevant.

In the absence of satisfactory thresholds that limit cross subsidisation, a default threshold of 100 Ampere 3 phase supply will apply, given this is a clear and natural breakpoint.

Applying the clear breakpoint principle more broadly, it would be appropriate to set a different threshold for customers on SWER lines, as the location of these customers and the network to which they connect make their characteristics substantially different from customers in more developed sections of the network. If the DNSP cannot satisfy the AER there is a clear natural breakpoint or that the DNSP's proposed threshold meets the purposes of the connection charge guideline then, the AER will adopt a 25kVA threshold. For these customers, a default threshold of 25kVA would appear to be satisfactory and would meet the requirements of chapter 5A.

Ausgrid submitted it historically used 200 amps to differentiate between customers who pay for low voltage augmentation and those who do not.⁵¹ According to Ausgrid, reducing the threshold would create connection delays. The AER would consider this threshold and any supporting or dissenting submissions on this threshold, if it is submitted by Ausgrid, in the process of approving the connection charge policy.

The MEU contended that the amount of spare capacity should also be a factor in setting augmentation thresholds.⁵² United Energy and SP AusNet primarily considered the threshold should only require out-of-sequence customers to pay for augmentation.⁵³ As noted in section 3.1.2.2, United Energy and SP AusNet stated customers' augmentation costs underpin the long run marginal cost estimates the DNSPs undertake in the distribution determinations, and are therefore recovered via DUoS charges. The AER agrees that on average, in-sequence customers' charges are recovered from DUoS. However, it is peak demand which triggers the need for augmentation whereas the amount of DUoS payable is based on consumption. Thus, for any given large customer or for large customers in general, it is not necessarily the case that they pay for the augmentation costs attributable to them via DUoS. The AER considers it important large customers, which significantly affect the need for shared network augmentation, pay for this augmentation regardless of whether the customer is in-sequence or the amount of spare capacity. Under the submitted approaches, many large customers, which significantly affect the need for augmentation, although in-sequence or connected in area with spare capacity, would not necessarily pay for the amount of augmentation attributable to them.

Ergon and ActewAGL submitted that in setting a threshold, the guideline should prevent a single customer artificially using multiple connection points to remain

⁵¹ Ausgrid, Ausgrid submission to AER Connection charge guidelines consultation paper, August 2011, p.18.

⁵² Major Energy Users Inc, Submission, August 2011, p. 24.

⁵³ United Energy, Submission, August 2011, p. 29; and SP AusNet, SP AusNet Response to AER's Consultation Paper – Connection Charge Guidelines, August 2011, p.18

below the threshold.⁵⁴ The AER considers the issue to be one concerning the relevant jurisdictional service and installation rules and cannot be altered by this guideline.

Different thresholds in different areas of the network

There was support from JEN, Ergon, ETSA, Aurora, SP AusNet and United Energy in allowing DNSPs to nominate less developed sections of their network where a different threshold would apply.⁵⁵ Section 5A.E.3(d)(3) of the NER states that the threshold must only apply where:

the connection would not normally require augmentation of the network beyond the extension to the distribution network necessary to make the connection; and

the connection is not expected to increase the load on the distribution network beyond a level the Distribution Network Service Provider could reasonably be expected to cope with in the ordinary course of managing the distribution network.

The AER considers that DNSPs can apply different thresholds in identifiably different areas of its network. In adopting different thresholds, DNSPs must consider the ability for each region to cope with additional demand. Additionally, all thresholds should satisfy section 5A.E.3(d)(3) including, that the threshold in each region must be set such that the connection would not ordinarily require augmentation of the network in that area.

4.2.4 The AER's preliminary view on paying shared network augmentation on demand above the threshold

Ausgrid, JEN, CitiPower, Powercor and DTEI supported the AER's preliminary position that customers would only pay augmentation charges on their peak demand above the threshold.⁵⁶ Ergon supported the AER's preliminary view assuming a peak demand threshold is adopted.

Although there was support for the AER's initial view, the AER now considers it efficient for customers to face the cost they place on the network, which would require customers to pay a per unit charge on all their peak demand. In the issues paper the AER did not adopt this approach because it considered it may result in a step change in costs between customers above the threshold and those below the threshold.⁵⁷ However, given the proposed changes to how the cost-revenue-test will apply, any step change would not be significant. An average customer's incremental cost should be offset by the amount of incremental revenue attributable to that customer—which for many customers will not result in a capital contribution charge. Only customers whose connections are more costly than average (relative to the additional revenue they provide) should be charged an additional capital contribution

⁵⁴ Ergon Energy Corporation Limited, Submission on the Connection Charge Guidelines, August 2011, p. 15; and ActewAGL, *submission*, 10 August 2011, p.3.

⁵⁵ JEN, *Submission*, 5 August 2011, p.20; Ergon, Submission, p.14; ETSA, Submission, p. 14. Aurora, Submission, p. 4; SP AusNet, Submission, p. 25; United Energy, Submission, p. 29.

⁵⁶ Ausgrid, Submission, p. 19; Jen, Submission, p. 21; CitiPower and Powercor, response to AER issues paper, August 2011, p.13; Department for Transport Energy and Infrastructure, Response to AER issues paper, August 2011, p. 2.

⁵⁷ AER, Issues and AER's preliminary positions. Connection charge guidelines: for accessing the electricity distribution network, 10 June 2011, p.35.

for standard control services. In a jurisdiction where customers are required to contribute to augmentations they trigger, it would not be possible to prevent a step change in the charge they receive.

If customers only pay augmentation on peak demand above the threshold then it is unlikely any customer would pay a capital contribution. For example a customer with peak demand of 140 kVA (approximately double 100 ampere 3 phase low voltage supply) would have all of its DUoS charges offset against only 70 kVA. Because the DUoS charges are based on consumption, which generally increases as peak demand increases, it is unlikely demand would ever be so much higher than consumption that a capital contribution would be required. Therefore, customers would not have an efficient connection signal or locational signal.

4.3 AER draft decision

DNSP policies should comply with the following guidelines:

- There should be a fixed shared network augmentation threshold.
- The shared network augmentation threshold will be set on a customer's demand.
- DNSPs can apply different threshold in identifiably different areas of its network. In adopting different thresholds, DNSPs must consider the ability for each region to cope with additional demand.
- Customers above and below the threshold should have identifiably different characteristics. Where there is no clear break point, the AER will have regard to the principles in chapter 5A, when approving a DNSP's connection policies.
- A default threshold of 100 Ampere 3 phase low voltage supply will generally apply. A default threshold of 25kVA will apply on SWER lines.
- A new customer will pay shared network augmentation on all of its demand if that customer is above the relevant shared network augmentation charge threshold.

5 Pre-calculated capital contributions

Under clauses 5A.E.3(2), the guidelines must describe the circumstances under which a DNSP may receive a capital contribution, prepayment or financial guarantee.

For applicable basic connection and some standard connection offers, in the issues paper the AER proposed that the amount of a capital contribution could be pre-calculated for all customers within a class. This would be done using a cost-revenue-test based on an average or typical customer within the class.

DTEI supported the AER's approach to pre-calculate the capital contributions of customers within a certain class.⁵⁸ CitiPower and Powercor supported the AER's preliminary view, however, they requested clarification on the basis on which pre-calculated charges will be developed and how to accommodate differences in charging arrangements for alternative control services.⁵⁹ SP AusNet and United Energy noted that energy consumption varies significantly by region. United Energy indicated that a large attributing factor is whether a connection is in a holiday region, where the usage patterns vary significantly. This would have implications for adopting a pre-calculated average capital contribution charge if the cost-revenue-test is adopted. United Energy submitted the class of customers may be more reflective of their location as opposed to, for example, residential and commercial classifications.⁶⁰ ETSA requested clarification on what basis the AER would approve the charges.

DNSPs must offer basic and standard connection offers. The AER proposes that where the group of customers receiving a particular basic or standard connection offer have substantially the same connection characteristics, the DNSP may choose to levy a pre-determined capital contribution. DNSPs do not have to levy a pre-calculated capital contribution if they do not consider it appropriate for a particular class or classes of customer.

A pre-calculated capital contribution should be based on the average or typical capital contribution for customers within the class. Under this draft decision the cost-revenue-test will only apply to standard control services.

As such, a DNSP's standard and basic connection offer could pre-calculate charges for standard control services, which would be subjected to a cost-revenue-test, and could then add customer specific charges relating to alternative control services, where applicable. The AER would accept a policy that includes a pre-calculated charge if satisfied the charge is reflective of the typical capital contribution that would be charged to each customer within the class if the cost-revenue-test was individually applied to customers within the class.

⁵⁸ DTEI, Submission, p. 1.

⁵⁹ CitiPower and Powercor, Submission p. 11.

⁶⁰ United Energy, Submission, p. 24.

6 Maintaining a contestable framework

6.1 The AER's preliminary view

The AER considered that not including competitive services in the cost-revenue-test would facilitate competitive neutrality of contestable services in accordance with the purposes of the guideline.

6.2 Submissions and AER considerations

JEN submitted that the AER's approach in the issues paper towards contestability would encourage customers and developers to nearly always obtain works from DNSPs because otherwise the customer would not receive a reduction in the costs of the works from their DUoS charges. JEN noted the contestability problem would be avoided if premises connection assets and extensions were removed from the cost-revenue-test.⁶¹

Essential Energy found the AER's issues paper ambiguous in its application to NSW—particularly regarding the contestability framework. Essential Energy contended the AER's cost-revenue-test may not achieve the outcome of protecting contestability, which is outlined in the legislation.⁶²

Ausgrid argued the AER's approach was not appropriate because the issues paper presumed DNSPs construct or have some control over the construction work, other than setting standards, certification and compliance.⁶³ Ausgrid indicated that this is not the case. Ausgrid also stated that calculating augmentation costs on an average augmentation cost is not appropriate in NSW because shallow augmentation is generally contestable.⁶⁴

DTEI sought clarification on how, by not including competitive services in the cost-revenue-test, competitive neutrality would be facilitated.⁶⁵

Submissions indicated the AER's issues paper was not clear on how contestability would be maintained. The AER has clarified its preliminary position to make it clear that different considerations apply when dealing with connection services depending on whether the connection services are classified as standard control services, alternative control services, negotiated services or are unclassified services. A cost-revenue-test should be applied to standard control services to meet the various requirements of chapter 5A. However, for other services, different considerations may apply in the development of DNSP connection charges policies. As JEN noted, a cost-revenue test may negatively impact a contestable framework. Classifying connection services as either negotiated or unclassified services would allow for a contestable environment.

The AER has outlined its role in service classification in the introduction to this paper as well as some of the factors it may consider when deciding upon the relevant service

⁶¹ JEN, *Submission*, 5 August 2011, p.14.

⁶² Essential Energy, response to AER issues paper, August 2011, p. 2.

⁶³ Ausgrid, *Submission*, p. 1.

⁶⁴ Ausgrid, *Submission*, p. 15.

⁶⁵ DTEI, *Submission*, p. 2.

classification. The AER considers that contestable frameworks can be maintained, or promoted, by applying an appropriate service classification in each jurisdiction. As noted in section 2, the AER's connection charge guideline will not determine the charge for negotiated services, alternative control services or unclassified services. If a connection service is classified in one of these ways, then competitive neutrality in contestable services can be maintained.

DNSPs and stakeholders should make sure that issues relating to contestability and service classification are raised with the AER when it is developing the framework and approach paper in each jurisdiction. The AER's classification of connection services will take into account the manner in which a connection service is performed in each jurisdiction and whether it is offered in a competitive manner.

Contestability of shared network augmentation

In NSW, shared network augmentation is contestable and customers can be charged for the augmentations they trigger. The AER considers a per unit charge to be a reasonable basis on which to attribute the cost of augmentation to a particular connection. However, the charging methodology will be determined by the service classification applied to these services in NSW and all stakeholders should comment on the appropriate manner to classify these services.

As stated in section 3.1.2.1, one option may be for a DNSP to propose two connection services related to shared network augmentation:

1. Shared network augmentation for customers who do not trigger an identifiable augmentation. This service could be classified as standard control and be subject to the cost-revenue-test.
2. Shared network augmentation for customers who do trigger an identifiable augmentation. This service may be classified as an alternative control service, negotiated service or unclassified and may have a customer specific charge applied. Under such an arrangement, the customer should only pay for its share of the augmentation triggered, based on its usage of the required assets.

This should allow NSW DNSPs to maintain its contestable market for very large customers, who trigger augmentation, while also implementing a per unit charge for other large customers.

6.3 AER conclusion

The AER concludes that contestable markets can be maintained, or promoted, by adopting a suitable service classification and form of control. The AER has sought to ensure its guideline complements the AER's role in service classification. Service classifications and forms of control are decided in the distribution price control determination process and the AER will consider issues related to contestability in deciding upon an appropriate form of control.

The AER invites comments regarding whether its proposed approach adequately addresses stakeholders' concerns regarding the manner in which chapter 5A will maintain current contestable frameworks.

7 Other issues

7.1 Prepayments

Under clause 5A.E.3(c)(2), the AER's guideline must describe the circumstances (or how to determine the circumstances) under which a DNSP may receive prepayment from a retail customer or real estate developer for the provision of a connection service.

7.1.1 The AER's preliminary view

The AER considered that prepayments are primarily a commercial matter for agreement between the two parties. The AER considered limiting the maximum amount that a DNSP could require upfront so that prepayments would not exceed the upfront costs incurred by DNSPs. The AER considered setting the maximum amount of any prepayment to a defined percentage of the capital contribution for administrative simplicity.

The AER preliminary view was to require DNSPs to include a policy regarding the calculation and charging of prepayments in their connections policies for transparency.

7.1.2 Submissions and AER considerations

The MEU submitted prepayments should not be levied in excess of the costs a DNSP directly incurs.⁶⁶ Otherwise, the DNSP would be provided with an unearned benefit.

CitiPower, Powercor, Ergon, Aurora, SP AusNet, United Energy and ActewAGL contended there should be no limits on the amount of prepayments. Limiting prepayments could result in additional costs to DNSPs and other customers.⁶⁷

JEN contended that when customers accept firm offers, DNSPs should be allowed to require full prepayment of the costs incurred for the project. However, large projects could be segmented into several construction stages with each one attracting a prepayment. This proposal is similar to those from CitiPower, Powercor and United Energy.

Energex proposed the prepayment amount could be limited to any sunk costs incurred by the DNSP. This proposal is reasonable because it reduces the risk to the DNSPs of not being able to recover sunk costs if a customer cancels its connection. This proposal is also reasonable because it does not require new customers to prepay amounts for costs, which have not yet been incurred by the DNSP. However, the AER notes that there would be greater administration costs in handling staged payments for connections.

JEN considers that by separating large connection projects into stages, its approach ensures that charges are received when the costs are incurred. The AER also considers large projects could be separated into different construction stages, at the beginning of

⁶⁶ Major Energy Users, Submission, pg. 26.

⁶⁷ CitiPower and Powercor, Submission, p. 14; Ergon, Submission, p. 16; Aurora, Submission, p. 6; SP AusNet, Submission, p. 26; United Energy, Submission, p. 31; ActewAGL, Submission, p. 10

which the DNSP could require a prepayment for the full sunk costs to be incurred, for each stage.

The AER considers it reasonable that DNSPs should recover their connection charge before a new customer's connection work is commenced. For administrative simplicity, this should in many cases occur upfront at the time the connection agreement is made.

However, where a connection agreement is reached substantially in advance of the connection work occurring, or when a large project that has reasonably distinct construction stages is planned, then charging the full amount as a prepayment is not appropriate. In these cases the time at which the customer is charged should be more closely tied to the time when the cost is incurred, or a business decision to incur a sunk cost is made.

7.1.3 Draft decision

A DNSP's connection policy can, in most circumstances, recover the full connection charge, upfront from the customer as a prepayment, however:

1. for small connections, if the construction work is scheduled to occur greater than 3 months after the connection offer is accepted, then a DNSP may only require a prepayment up to the value of the sunk costs the DNSP has incurred, or will incur immediately after accepting the connection offer. This may include:
 - a. Administration and design costs
 - b. Specialised, non-standard equipment or equipment purchased on demand by the DNSP, which is required for the connection and which cannot generally be used for another connection.

The balance of the connection charge can be required up to one month prior to the work commencing.

2. DNSPs' connections policies should allow for staged payment of large connections where construction work is expected to occur in multiple stages.

7.2 Treatment of augmentation assets

Under clause 5A.E.3(c)(7), the AER's guideline must describe the treatment of augmentation assets.

7.2.1 The AER's preliminary view

The AER's issues paper stated that consistent with the broader regulatory framework the AER considers augmentation assets should be treated in the manner for which they are funded. A DNSP funded augmentation asset will be included by the DNSP in its RAB and a customer's capital contribution should be netted off the RAB.

7.2.2 Submissions and AER considerations

Energex questioned how this can be applied when the AER's methodology de-links the charging of capital contributions from the actual construction of an asset. If a connection service is classified as alternative control or negotiated service then the charge is tied to the construction of the connection asset. If the connection service is

classified as standard control, then Energex is correct that the charge and construction of assets are no longer linked. The cost of the augmentation assets will be incorporated into the RAB. When a customer connects and makes a capital contribution, the amount of this capital contribution will be removed from the RAB. This can occur at an aggregate level and DNSPs do not need to allocate a customer's capital contribution to a particular asset. This cost allocation method is consistent with that currently in place, in some jurisdictions.

7.2.3 Draft decision

A DNSP funded augmentation asset will be included by the DNSP in its RAB and all customer capital contributions paid to the DNSPs should be netted off the RAB.

7.3 Refund of connection charges for extension assets

Under clause 5A.E.3(c)(6) of chapter 5A the AER's guideline must describe the method for calculating:

- The amount of a refund of connection charges for a connection asset when an extension asset originally installed to connect the premises of a single retail customer is used, within seven years of its installation, to connect other premises and thus comes to be used for the benefit of two or more retail customers; and
- The threshold below which the refund is not payable.

7.3.1 The AER's preliminary view

The AER's preliminary view was that DNSPs should have flexibility in developing their own pioneer schemes—for refunds to customers whose customer specific extensions assets are subsequently used for connecting other customers—having regard to equity, the extent (physical amount) of any extension required by subsequent customers and the capacity used by subsequent customers. The AER proposed the amount of a refund could be calculated on the depreciated value of the assets, assuming they were depreciated over 20 years.

The AER's preliminary view was that a \$500 threshold, beneath which the pioneer scheme would not operate, should apply.

The AER also sought comments and alternative approaches to deal with the cost allocation issues when a DNSP provides a network extension on the request of a single customer to a standard greater than that customer requires due to the DNSP's network planning process.

7.3.2 Submissions and AER considerations

Ergon, Aurora, Energex, Ausgrid, SP AusNet, United Energy and ActewAGL considered the 20 year depreciation term to be reasonable.

JEN submitted the AER should not prescribe the depreciating period for calculating the refund. ETSA did not agree to the depreciation method. It contended the refund should be based on the initial cost, proportioned based on the amount of the extension used to supply subsequent customers and the customers' demands.

The MEU proposed that assets should be depreciated in accordance with their economic life. Otherwise the value to the pioneer customer would be reduced when subsequent customers connect.

The AER notes that if the value of the assets was depreciated over a long period of time (for example, the asset life), there would be a significant step change between years 7 (when a substantial charge may be levied on a subsequent customer) and year 8 when there would be no charge. However, if the assets were depreciated over 7 years, then there would be no step change, but the value of the pioneer scheme to the original customer would be reduced. In order to balance these two effects, the AER proposed, in its issues paper, a depreciation period of 20 years.⁶⁸

The AER maintains its initial position that DNSPs should fully depreciate assets over 20 years (for the purposes of calculating a refund under the pioneer scheme). The AER also notes that a majority of submissions supported the AER's preliminary view on the use of this depreciation assumption in the pioneer scheme.

SP AusNet, JEN, United Energy, ETSA and Aurora supported the AER's preliminary view that a pioneer scheme should have regard to the length (extent) of an extension and capacity of the assets used by subsequent customers. Ausgrid considered the preliminary view a reasonable starting point, but required further guidance. The MEU supported refunds being cost reflective, which would require consideration of the extent and the demand of each customer connected. It also submitted there is an argument for the second new customer to pay the stand alone cost. EWON submitted that the refund should be made as specific as possible to help reduce the number of disputes.

The AER maintains its view that DNSPs should have flexibility in developing their pioneer schemes. Although EWON submitted the scheme should be specific to reduce disputes, the AER considers DNSPs will be required to publish their schemes on their websites. The AER will also require DNSPs to notify all customers requiring or connecting to an extension, of the scheme's existence and purpose. This would address EWON's concern while still allowing DNSPs flexibility in developing their own schemes.

While there may be merit in charging subsequent customers their stand alone costs, the AER considers this cost would be difficult to ascertain and would add significant costs to administering the scheme. Additionally, there is a risk of over recovery if common costs are significant.

As submissions did not raise any significant issues with its preliminary view, the AER maintains its position that a pioneer scheme should have regard to the length of an extension and the capacity of the assets used by subsequent customers, when calculating a refund.

Views on the threshold amount varied widely. Some submissions agreed with the AER's proposed threshold, some considering the threshold too low, and some considering there should be no threshold. EWON submitted that the AER's

⁶⁸ AER, *Issues and AER's preliminary positions. Connection charge guidelines: for accessing the electricity distribution network*, 10 June 2011, p. 40.

preliminary view unfairly penalises the pioneer customer. The AER considers it fair that pioneer customers should not receive payment under a threshold amount to reduce the administrative burden of the scheme. United Energy noted its pioneer scheme has not been applied often over the past 10 years and there are large costs of tracking details of thousands of connection assets.

The AER considers that one of the largest costs involved in the pioneer scheme would be to maintain a database of assets, and to check a new customer's connection against the information held in the database to determine whether the scheme is applicable. Regardless of whether the scheme is applicable to specific assets or not, a DNSP would need to undertake this process and incur these costs. Given that submissions have not substantiated why a different threshold amount should be adopted (for example, analysis of the cost of applying the scheme), the AER will maintain its preliminary position and set the threshold at \$500. The AER considers that this may reasonably reflect of the administration costs of running such a scheme.

CitiPower and Powercor proposed that pioneer schemes should not apply to developers to make the scheme simpler. Chapter 5A does not exclude developers from the refund scheme. Additionally, the AER considers DNSPs can treat developers as single customers and therefore do not consider the pioneer scheme would be more complex to administer.

The AER requested submissions on what approach should be adopted when the network is built for a customer or a group of customers to a standard greater than required by those customers—due to a DNSP's planning process. Most stakeholders considered the guideline should require customers to pay for the lowest cost technically efficient solution of the customer's share of the extension. However, SP AusNet and United Energy submitted that if the scheme covers the whole cost of the extension then the constructor of the extension will take on the development risk rather than the broader community. SP AusNet and United Energy considered this appropriate as without the first customer, the asset would not have been constructed.

The AER considers that for most retail customers, DNSPs should only be able to charge the lowest cost technically efficient extension to the extent needed to serve those customers.⁶⁹ However, if a retail customer requests an extension to a standard higher than the lowest cost technically efficient solution, DNSPs will be able to charge retail customers the difference, which will not be subject to a pioneer scheme. Only the value of the lowest cost technically efficient solution will be subject to a pioneer scheme.

Under clause 5A.E.1, DNSPs can charge real estate developers a reasonable capital contribution towards the cost of augmentation to the network to the extent necessary to provide the services and to any further extent that the DNSP considers necessary to provide efficiently for forecast load growth. The AER considers this cost should be borne by the developer and should be subject to a pioneer scheme. In these cases, DNSPs would be able to include the full cost of any extension work (not just the least cost technically acceptable) if this is reasonable and prudent.

⁶⁹ The rebate scheme is necessary because in some cases the minimum capacity of the assets which are required would serve more customers than the customer requesting the extension.

The AER notes that when extensions are contestable and undertaken by an ASP, the cost of the extension may not be known. Thus, it would not be possible to calculate the amount of refunds under the scheme. To address this problem, as in IPART's capital contributions guideline, when calculating a refund under the scheme the AER's guideline will provide that DNSPs will use the amount they would have charged a pioneer customer to perform the works, had an ASP not undertaken the works.

7.3.3 Draft decision

The AER's draft decision is that:

- For the purpose of calculating the refund under the pioneer scheme, the assets subjected to the pioneer scheme will be assumed to depreciate in a straight line manner over 20 years.⁷⁰
- DNSPs should develop a pioneer scheme that has regard to the length (extent) of an extension and capacity of the assets used by subsequent customers.
- DNSPs should notify all customers requiring, or connecting to an extension, of the scheme's existence and purpose.
- The pioneer scheme should not be applied for payments under \$500.
- If a retail customer requests an extension greater than the lowest cost technically efficient solution, DNSPs will be able to charge retail customers the difference, which will not be subject to a pioneer scheme.
- The pioneer scheme should apply to real estate developers.
- Developers should be entitled to a pioneer scheme for extensions built to a higher capacity than their requirements.
- When extensions are contestable and undertaken by an ASP, DNSPs should charge the amount they would have charged a pioneer customer to perform the works, had an ASP not undertaken the works.

⁷⁰ Note, this rate of depreciation only applies to the calculation of a refund under the pioneer scheme, it does not apply more broadly.

8 Security fee scheme

Under clause 5A.E.3(c)(1) and (2), the AER's guideline must:

- describe the method for determining charges for *premises connection assets*; and
- describe the circumstances (or how to determine the circumstances) under which a DNSP may receive a capital contribution, prepayment or financial guarantee from a retail customer or real estate developer for the provision of a connection service.

Securities, whether by prepayment or financial guarantee, help to insure DNSPs against the risk of failing to collect the total incremental revenue estimated with regard to a connection offer. In the absence of a security scheme, if the DNSP does not collect the total estimated incremental revenue, then the shortfall would eventually be recovered through higher network tariffs to all other network users.

8.1 The AER's preliminary view

The AER proposed to implement security fee principles similar to those found in the Victorian guideline 14 which states:

3.5 Distributors may require customers to pay a security fees

3.5.1 If a distributor fairly and reasonably assesses that there is a risk that, if the customer accepts the distributor's connection offer, the distributor may not earn the incremental revenue in relation to the connection offer as estimated by the distributor under clause 3.3.2(c), the distributor may under the connection offer require a security fee.

3.5.2 The amount of the security fee must not be greater than so much of that estimated incremental revenue for which the distributor fairly and reasonably assesses that risk as high and in no case may exceed the present value of the incremental costs the distributor will incur in undertaking any relevant new works and augmentation.

3.5.3 The distributor must pay to a customer interest on the amount of a security fee at a rate and on terms and conditions as approved by the Commission.

3.5.4 A connection offer must require the distributor to rebate to the customer the amount of any security fee, together with interest earned on the amount of the security fee, as the distributor earns the incremental revenue in relation to the connection offer. A rebate must be allowed at least once each calendar year beginning after the calendar year in which the connection services are provided.

Additional principles were proposed to help ensure neither customers nor DNSPs could unduly benefit from the scheme. The AER proposed that in addition to the guideline 14 principles:

- The interest rate paid to the customer on the security fee should be commensurate to the manner in which the security fee is treated by the DNSP. That is, if the security fee is invested in the business then interest should be paid at the weighted average cost of capital. However, if it is held in trust then it may be appropriate to pay at an interest rate similar to commercial deposit rates.

- Over the entire security fee period, a DNSP should not receive—through DUoS and security fee—an amount more than the original estimated revenue, unless above estimated incremental revenue was realised in total over the period. In such a case, the amount should not be more than the estimated revenue plus the actual above estimated revenue.
- The customer should not receive an amount greater than the security fee deposit plus interest from the DNSP in total over the security fee period.

8.2 Submissions and AER considerations

There was general support from stakeholders on the AER’s preliminary view to allow a security fee scheme.

The AER received submissions from Ergon and ETSA in support of allowing security fees in the form of bank guarantees. This method removes the need for DNSPs to charge interest on security fees, which simplifies the scheme. The AER agrees the scheme should allow for security in this form. This form of security would reduce many of the complexities associated with the retention of cash. The AER has therefore included a clause to allow this in its draft guideline.

The MEU submitted that the scheme is a barrier to entry. It also considered the right to require a fee should be based on the bankability of the customer and the extent of the works. The AER considers under the principles of the scheme it has outlined, DNSPs will be responsible for demonstrating to the AER their schemes fairly and reasonably assesses a customer’s risk and only requires security for incremental revenue which is fairly and reasonably considered high risk. These requirements balance the needs of DNSPs, new customers and existing users of the network.

Ausgrid noted that a security fee scheme may not be required if works are contestable. The AER considers it will be optional for DNSPs to develop and implement security fee schemes. However, any security fee scheme must be published on the DNSP’s website to ensure transparency and to feed into customers’ decision making processes.

Ergon also submitted the scheme should not impede prudential requirements in Part K, chapter 6 of the NER. It submitted the guideline should not govern security arrangements between real estate developers and DNSPs where developers build and gift assets. The AER does not consider the provisions of its security fee scheme to impede the prudential requirements of the NER.

8.3 AER draft decision

The AER will adopt the principles set out in section 8.1 above. The AER will also allow the option to collect a security fee from customers in certain circumstances in accordance with an approved connection policy. Security in the form of a bank guarantee will be available to DNSPs—removing the need to pay interest on the amount of a cash security held on deposit.

9 Non-registered embedded generators

9.1 The AER's preliminary view

The AER considered it appropriate to calculate capital contributions for non-registered embedded generators connecting to the network using a cost-revenue-test.

For non-registered embedded generators that are also load customers, the AER considered all costs associated with the load portion and all costs associated with generation output would be considered separately. The expected overall peak demand of the customer would be used to determine the shared network augmentation charge. The incremental revenue from electricity generated would be zero for the purposes of the cost-revenue-test.

The AER considered non-registered embedded generators should pay for the user specific cost for removing output constraints, unless there is a demonstrable net benefit to other network users.⁷¹

9.2 Submissions

ActewAGL, SP AusNet, Ergon and JEN supported the AER's preliminary view. DTEI and Aurora considered embedded generators should pay to remove output constraints if there is not evidence of a net benefit.⁷² Ausgrid supported the AER's position, however it noted that these services are contestable in its case. ETSA, CitiPower and Powercor supported the AER's preliminary view and further contended that a per kW charge could be levied where the name plate rating exceeds a threshold, for example, 100kW. This would address fault level issues arising due to increased demand for connection of embedded generators.

Seed submitted that, as the network's capacity to receive embedded generators' output, for example fault level impact on the network, will diminish with each new connection, the AER's proposed approach would lead to the last embedded generator being required to fund major network augmentation.

UED considered that if the policy objective is to promote embedded generation, the existing Victorian Guideline 15 should be retained. Embedded generators are only liable for shallow augmentation costs.

MEU considers embedded generation should only pay the shallow connection costs and then be dispatched to the extent of the constraint limit. The MEU does not agree that embedded generators should pay any shared network augmentation charges. Large generators do not pay, and so neither should embedded generators. The MEU also submitted that if an embedded generator pays to remove a network constraint, it should have firm access rights the capacity it funds.

EWON sought clarification on the AER's proposal that embedded generators should pay for removing output constraints unless there was a demonstrable net benefit to other users. EWON also questioned if there was such a benefit, whether the DNSP should fund the costs of removing output constraints or whether a refund scheme is

⁷¹ AER p. 35, 36.

⁷² DTEI p. 2.

contemplated. EWON submitted the DNSP should have an obligation to alert customers to potential network constraints at the time the connection application is submitted.

Energex considered that embedded generators should face cost reflective charging. However, they consider this is against the general intention that shared network augmentation charges should not be levied on retail customers and the embedded generators fall in this category. It also considered this is a policy issue which should be resolved prior to the charging regime being implemented.

9.3 AER considerations

The proposal that a non-registered embedded generator is entitled to a proportion of the capacity of the shared network is logical. However, under the current rules, the shared network must provide equal access to all users. Therefore, no individual user is entitled to a defined share of the capacity. If a demonstrated net market benefit is identified by the network service provider, the shared network will be augmented accordingly. It should also be noted that, if a market generator wants to reduce output constraint due to the transmission network, it will need to fund this augmentation, unless there is a net benefit to the market for removing the network constraint.

While energy consuming customers and non-registered embedded generators are all customers of a DNSP, the main difference between these two types of network users is that energy consuming customers pay for the network asset cost (through the distribution use of service charges) in order to receive energy from the wholesale electricity market; whereas all generators regardless of size do not pay to use the distribution network to access the market.

9.3.1 Costs imposed upon a distribution network by embedded generators

Using network fault level management as an example, a distribution network's fault level is the result of all input sources (at the transmission connection points) and the sources from within the network (typically embedded generators and, in some cases, load customers' equipment). There is a limit to the fault level a distribution network can accommodate and so sufficient embedded generation will trigger a need for network augmentation.

Because non-registered embedded generators do not pay DUoS charges, it is appropriate that they contribute to the network when they impose a cost upon it.

As part of its price proposal for 2011-15, CitiPower proposed a \$75 million (\$ real, 2010) program for a fault level mitigation program for its CBD network for more flexible network operation and to create further headroom for future embedded generators.⁷³ CitiPower also proposed to apply a fault level compliance charge to new embedded generators on a per kW name plate rating basis to recover some of the cost.

⁷³ AER, *Draft decision, Victorian electricity distribution network service providers, Distribution determination 2011–2015*, p346

The AER did not approve CitiPower's proposal to recover the cost of this specific capital expenditure under standard control; that is to increase customers' distribution tariff,⁷⁴ because CitiPower did not:

- Quantify the benefits and outcomes for all customers that will be achieved by the forecast level of investment. Furthermore it was not apparent to the AER why this cost should be borne by all customers when the beneficiaries are new embedded generators.
- Demonstrate an underlying need for this investment nor has it provided an economic justification.
- Demonstrate why it cannot manage the associated risks within the current level of expenditure and existing practices as achieved in the current regulatory control period.

However, the AER considered that fault level compliance services should be classified as alternative control services under the NER because the charge can be attributed to the party that creates the fault level issue (that is, the embedded generator).

The AER proposed that, while CitiPower cannot undertake this project as a standard control service, it may nominate this kind of service to new non-registered embedded generators as alternative control service. However, the AER noted that CitiPower, in submitting its revised regulatory proposal, would need to provide a cost break down of the fee associated with the fault level compliance service.⁷⁵ CitiPower did not nominate this fault level compliance service in its revised regulatory proposal.⁷⁶

9.4 AER draft decision

The AER maintains its initial views that non-registered embedded generators should pay for the cost of removing specific output constraints, unless there is a demonstrable net benefit to other network users.

To facilitate connection, the AER considers that distribution DNSPs should propose constraint reduction services, such as a fault level mitigation service, which relate to augmenting the shared network to reduce network constraints. DNSPs should also propose an appropriate form of control for these services. If a DNSP proposes such a service, the AER will examine the appropriate service classification and form of control in accordance with section 6.2 of the NER.⁷⁷

⁷⁴ *ibid* pp346-7

⁷⁵ AER, *Final decision, Victorian electricity distribution network service providers, Distribution determination 2011–2015*, p19

⁷⁶ *ibid*

⁷⁷ The AER notes its previous views on the manner and its reasoning that fault level compliance services should be classified as alternative control services, because the charge can be attributed to the party that creates the fault level issue. The AER acknowledges that under this approach embedded generators would pay a charge, only if they triggered the need for augmentation. However, the AER notes that other technical solutions are available to embedded generators, and currently being used, to prevent high fault current from injecting into the network. For example, the use of specialised high speed circuit breakers.

10 Real estate developers

10.1 Submissions and AER considerations

In some jurisdictions DNSPs offer rebates to real estate developers when they undertake reticulation work themselves.

Ergon contended that jurisdictions should have flexibility to require developers to fully fund the costs of making electricity available via a capital contribution. Ergon contended the Local Government Authorities require developers to provide and fund electrical infrastructure.⁷⁸ The AER considers its guideline allows DNSPs to charge for this work upfront, when classified as an alternative control service. When classified as standard control, the AER considers it appropriate for the cost-revenue-test to apply, to ensure the developer pays its connection cost in total—via either DUoS or capital contributions.

ActewAGL submitted that under the *ACT Electricity Network Capital Contributions Code*, ActewAGL funds standard extensions to the network and developers contribute to the cost of undergrounding in accordance with the *ACT planning requirements*.⁷⁹ The AER considers DNSPs should develop policies and propose service classifications which enable them to comply with chapter 5A and jurisdictional regulations. The guidelines are not intended to prevent DNSPs from meeting both chapter 5A and jurisdictional requirements.

ActewAGL was also concerned that in some cases, multiple customers may individually fall beneath a threshold (shared network augmentation charge threshold) while the total project costs may exceed the threshold. The AER considers developments with multiple customers should be treated as a single customer in regards to shared network augmentation charges.

10.2 AER draft decision

As outlined in clause 5A.E.3(c)(4), the shared network augmentation charge threshold will not apply to real estate developers.

Subject to a contrary agreement with the developer, DNSPs are able to include costs for connection services that a prudent service provider would consider necessary to provide efficiently for forecast load growth in the cost-revenue-test.

A real estate developer will be treated as a single customer for the purposes of a connection application.

⁷⁸ Ergon Energy Corporation Limited, Submission on the Connection Charge Guidelines, August 2011, p. 4.

⁷⁹ ActewAGL, *submission*, 10 August 2011, p.3.

A Appendix – the AER’s design criteria

In the issues paper, the AER considered that, subject to and in addition to the conditions of chapter 5A, it was important to establish a policy framework to guide it in designing the connection charge guideline. Based on the purpose of the connection charge guideline outlined in clause 5A.E.3(b), the AER proposed the following design criteria in developing the connection charge guideline:

1. Where possible, the connection charge should be reflective of the actual cost for providing the network extension attributed to the individual customers.
2. Where suitable alternative service providers for construction works are available, the DNSP’s charge should be reflective of the market price; where no alternative service providers are available, DNSPs must charge at a reasonable rate, which is reflective of the market price.
3. Any cross subsidies between new and existing customers should be minimised. However, minimising cross subsidies should not be pursued at the expense of undue administrative costs.
4. Customers should not experience a large step change in capital contributions if they fall above or below the threshold for charging for shared network augmentation.

10.2.1 Submissions

The MEU contended an extra principle—that DNSPs should not benefit from a new connection—should be added.

JEN submitted that the AER should include a design criterion that references the National Electricity Objective (NEO) and separate criterion in reference to clause 5A.E.3(b)(4). JEN suggested the AER reword criterion two, to address how the rate can be reflective of the market price if there is no market. Otherwise, JEN supports the AER’s criteria.

Ergon did not support criterion two. Ergon believed that it should be able to charge its actual costs rather than a market price, when undertaking works. Otherwise, a single customer may have to pay more than the actual connection cost, or all customers would pay more for the new customer’s connection cost depending on whether Ergon’s actual costs are below or above the market price. This would contradict limiting cross subsidisation. Ergon is also unsure on how to charge based on pre-established contract prices when there are no providers for an area.

CitiPower and Powercor contended criterion two should have regard to the characteristics of each connection including location, environmental conditions and timing requirements. The criterion should be replaced and provide customers with the option to choose alternative service providers to perform connection works for Greenfield sites, and DNSPs should charge a rate reflective of market price for brown-fields sites.

ETSA contended criterion one should remove the focus from only being on extensions, to include both extensions and premises connection assets. It also

submitted adding criteria regarding consistency with the exiting regime, and transparency and simplicity for retail customers.

Energex considered that criterion one only refers to network extensions where it appears that it is intended to also extend to premises connection assets. Criterion one and three could be merged as cost reflective charging should reduce cross subsidies. The ‘where possible’ qualification to criterion one should be removed or rephrased as ‘where practicable’. In respect to criterion two it is not clear to Energex why a DNSP’s charge should be regulated in a competitive environment.

Ausgrid is not sure why criterion one only applies to extensions and not premises connection assets. It also considers that criterion two is somewhat contradictory, where there is no alternative service provider then presumably there is no market and therefore no price—Ausgrid suggests referring to chapter 6 for guidance on the price where there is no market.

Ausgrid considered its contestable environment meets the AER’s design criteria and is a more efficient approach and should be retained as far as possible.

ActewAGL submitted connection charges need to be reflective of the customer class rather than an individual customer—which is too difficult to estimate. Additionally, it encouraged the AER to consider jurisdictional factors in assessing the market price of services where no alternative providers are available.

UED and SPA also submitted that there should be a criterion related to the NEO—to promote efficient investment in, and use of electricity services. UED submitted it should be specifically referenced because the minimising cross subsidies criterion has been focussed on by the AER, with a resulting reduction in emphasis on the achievement of the NEO. UED also submitted there are no criteria promoting productive, allocative and dynamic efficiencies.

SCCEE considers that the following key design criteria should be added to the AER guidelines:

1. The charging framework should strive for equity between the funding/ownership models available to the customer.
2. The DNSP should be required to provide sufficient information to enable the customer to make an explicit informed decision on the optimal connection arrangements over the life of the asset.
3. The regulatory guidelines should ensure that incentives remain for economically rational investment decisions in technologies that exceed the minimum regulatory requirements for energy efficiency performance.

10.2.2 AER considerations

The AER clarifies that:

- DNSPs are regulated monopolies with respect to the provision of distribution services. All expenditures incurred by a DNSP are passed through to customers. The connection charge guideline sets the principles for the allocation method of these expenditures. DNSPs’ efficient expenditure and profit margin levels

(weighted average cost of capital) are set by the AER under distribution price control determinations every five years.

- The distribution determinations also take into consideration efficient investments by the DNSPs.

As these two issues are already addressed, there is no need for them to be part of the design criteria.

In designing the guideline, the AER has and will continue to take into consideration the efficient use of the network. However, the focus of this guideline is the fair and reasonable allocation of costs to new and existing users.

The AER accepts DNSPs' concerns that, as expressed above and elsewhere reflected in this paper, to tender for connection works would add to the DNSPs' cost, which is eventually borne by the customers. A workable alternative is to provide customers with the option of seeking alternate service providers where they are available. The customer will make such decisions by considering the potential cost reduction against the additional administrative costs incurred by the DNSP [to be passed onto the customer] for the preparation of work specifications and design briefs.

10.2.3 AER draft decision

The AER considers that its design criteria was useful in framing its preliminary positions paper and that the submissions received assisted in clarifying its approach in drafting the draft connection charge guideline and decisions document, and ensuring they are consistent with the requirements of chapter 5A. However, the AER has not explicitly recast its design criteria or applied it in the draft connection charge guideline.