

PRELIMINARY DECISION

SA Power Networks determination 2015−16 to 2019−20

Attachment 18 − Connection policy

April 2015

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1. Note
2. This attachment forms part of the AER's preliminary decision on SA Power Networks' 2015–20 distribution determination. It should be read with all other parts of the preliminary decision.
3. The preliminary decision includes the following documents:
4. Overview
5. Attachment 1 – Annual revenue requirement
6. Attachment 2 – Regulatory asset base
7. Attachment 3 – Rate of return
8. Attachment 4 – Value of imputation credits
9. Attachment 5 – Regulatory depreciation
10. Attachment 6 – Capital expenditure
11. Attachment 7 – Operating expenditure
12. Attachment 8 – Corporate income tax
13. Attachment 9 – Efficiency benefit sharing scheme
14. Attachment 10 – Capital expenditure sharing scheme
15. Attachment 11 – Service target performance incentive scheme
16. Attachment 12 – Demand management incentive scheme
17. Attachment 13 – Classification of services
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1. Shortened forms

| Shortened form | Extended form |
| --- | --- |
| AEMC | Australian Energy Market Commission |
| AEMO | Australian Energy Market Operator |
| AER | Australian Energy Regulator |
| augex | augmentation expenditure |
| capex | capital expenditure |
| CCP | Consumer Challenge Panel |
| CESS | capital expenditure sharing scheme |
| CPI | consumer price index |
| DRP | debt risk premium |
| DMIA | demand management innovation allowance |
| DMIS | demand management incentive scheme |
| distributor | distribution network service provider |
| DUoS | distribution use of system |
| EBSS | efficiency benefit sharing scheme |
| ERP | equity risk premium |
| Expenditure Assessment Guideline | Expenditure Forecast Assessment Guideline for electricity distribution |
| F&A | framework and approach |
| MRP | market risk premium |
| NEL | national electricity law |
| NEM | national electricity market |
| NEO | national electricity objective |
| NER | national electricity rules |
| NSP | network service provider |
| opex | operating expenditure |
| PPI | partial performance indicators |
| PTRM | post-tax revenue model |
| RAB | regulatory asset base |
| RBA | Reserve Bank of Australia |
| repex | replacement expenditure |
| RFM | roll forward model |
| RIN | regulatory information notice |
| RPP | revenue and pricing principles |
| SAIDI | system average interruption duration index |
| SAIFI | system average interruption frequency index |
| SLCAPM | Sharpe-Lintner capital asset pricing model |
| STPIS | service target performance incentive scheme |
| WACC | weighted average cost of capital |

# Connection policy

1. We are required to approve a connection policy prepared by a distributor under the National Electricity Rules (NER).[[1]](#footnote-1)
2. A connection policy sets out the nature of connection services offered by a distributor, when connection charges may be payable by retail customers and how those charges are calculated. A connection policy:[[2]](#footnote-2)
* must be consistent with:
* the connection charge principles set out in chapter 5A of the NER
* the connection policy requirements set out in part DA of chapter 6 of the NER
* our connection charge guidelines published under chapter 5A[[3]](#footnote-3), and
* must detail:
* the categories of persons that may be required to pay a connection charge and the circumstances in which such a requirement may be imposed
* the aspects of a connection service for which a connection charge may be made
* the basis on which connection charges are determined
* the manner in which connection charges are to be paid (or equivalent consideration is to be given)
* a threshold (based on capacity or any other measure identified in the connection charge guidelines) below which a retail customer (not being non-registered embedded generator or a real estate developer) will not be liable for a connection charge for an augmentation other than an extension.

The AER's connection charge guidelines for electricity retail customers

1. A connection policy must be consistent with our connection charge guidelines for electricity retail customers to ensure that connection charges:
* are reasonable and take into account the efficient costs of providing the connection services arising from the new connection or connection alteration
* provide, without undue administrative cost, a user-pays signal to reflect the efficient costs of providing the connection services
* limit cross-subsidisation of connection costs between different classes (or subclasses) of retail customers
* are competitively neutral, if the connection services are contestable.

## Preliminary decision

1. We do not approve SA Power Networks' connection policy because:
2. the upstream shared network asset augmentation charge rate[[4]](#footnote-4) is not consistent with our connection charge guideline; and
3. certain terms and conditions need refinement to improve clarity to new customers.

## SA Power Networks' proposal

1. SA Power Networks' connection policy provides an outline of its connection services, when connection charges may be payable by its retail customers and how those charges are calculated.[[5]](#footnote-5)

## AER’s assessment approach

We examined the proposed connection policy against the requirements of Part DA of chapter 6 as stated above––whether it:

* is consistent with the connection charge principles set out in chapter 5A of the NER, and our connection charge guidelines
* contains all the information for new customers as prescribed by the NER.

In addition, we also examined whether:

* other connection related charges included in the connection policy, such as metering installation charges, are consistent with the service classification of this preliminary determination
* the connection policy contains terms that are not fair and reasonable.

## Reasons for preliminary decision

1. We have not approved SA Power Networks' proposed connection policy because:
* While its proposed marginal cost per unit of network assets is reasonable, SA Power Networks' proposed shared network augmentation charge rate for customers above the threshold for paying upstream cost is based on the full marginal cost without taking into account the connection lives of new connections as required by our connection charge guideline.
* While the proposed terms and conditions of the connection policy largely met the minimum requirements of the rules, we consider that the policy should be improved to provide clarity on how shared network augmentation charges are applied.
1. These reasons are explained below.

### Marginal cost for shared network augmentation

1. SA Power Networks proposed a two-step marginal cost framework for shared network augmentation charges, similar to the current charging guideline published by ESCOSA.[[6]](#footnote-6) The key differences from the current guideline are:
* a 180 per cent increase for LV connection to $431 per kVA for those customers with no significant impact on system peak demand (which comprise less than 10 per cent of the zone substation capacity).
* a small increase to the additional capacity charge for those larger customers––using more than 10 per cent of the zone substation and sub-transmission line capacity––to:
* $326 and $225 per kVA for zone substation and sub-transmission line capacity costs respectively for Metro users and
* $438 and $684 per kVA for zone substation and sub-transmission line capacity costs respectively for Country users.
* relaxing the threshold level for the application of the additional capacity charge for those customers with significant impact on system peak demand––from 5 to 10 per cent of the zone substation and sub-transmission line capacity.

This represents a maximum charge rate of $982/kVA for those Metro users and $1553/kVA for those country users who take up more than 10 per cent capacity of the relevant sub-transmission lines.

1. These rates are indexed to CPI for each subsequent regulatory year. This rate was calculated based on actual and historical costs.[[7]](#footnote-7)
2. In order to verify whether these cost rates are reasonable, we compare the proposed marginal cost for shared network augmentation against a previous study by the Productivity Commission and SA Power Networks' historical cost.

Compared with Productivity Commission's findings on long run marginal cost of network augmentation

1. In its report published in 2013, the Productivity Commission found that the long run marginal cost (LRMC) of distribution infrastructure costs for an additional kW per year to be between $150 and $220.[[8]](#footnote-8)
2. The above rate is equivalent to about $2010-$2950 per kVA based on 5.45 per cent WACC and 50 years asset life and at unity (1.0) power factor.[[9]](#footnote-9),[[10]](#footnote-10)
3. SA Power Networks' proposed cost rates––$982/kVA for Metro users and $1553/kVA for country users––are less than what is predicted by the Productivity Commission's findings.

Comparison with historical cost

1. We calculated that SA Power Networks' historical average shared network cost to be about $2450 per kVA based on its Benchmarking RIN report for 2013–14.[[11]](#footnote-11) This historical cost is also higher than SA Power Networks' proposed marginal cost for shared network augmentation. Table 18.1 provides the details of our calculation.

Table 18.1 assessment of SA Power Networks' historical cost

|  |  |
| --- | --- |
| Information from Benchmark RIN |  |
| Depreciated RAB of relevant portion of network asset ($000) (note a) | A= 3,136,964 |
| Non-coincident Summated Raw System Annual Maximum Demand (MW) | 3,066 |
| AER assumed utilisation factor (note b) | 60% |
| Optimal system capacity based on assumed utilisation factor based on the above utilisation factor (MW) | B= 5,110 |
| Average depreciated system capacity cost, $/kW  | A/B = 614 |
| Remaining asset life (note c) | 35% |
| Average undepreciated network capacity cost ($/kVA), adjusted for straight line depreciation of asset age, based on unity power factor | $1,754 |

Notes to table

(a) The reset RIN does not have all the info that we need (in particular, the average asset life). So, we used the benchmarking RINs for 2013–14 instead. Only the following network asset values are included in the calculation, all non-network asset values are not counted:

* overhead network assets less than 33kV
* underground network assets less than 33kV
* distribution substations and transformers
* overhead network assets 33kV and above
* underground network assets 33kV and above
* zone substations and transformers.

(b) Assumption on utilisation factor based on:

Darryl Somerville, Detailed Report of the Independent Panel for Electricity Distribution and Service Delivery for the 21st Century, [Queensland] – July 2004, p12 statement that: The Australian average [utilisation factor] is around 56 per cent and the professional advice that the Panel obtained was that prudent practice dictates that utilisation should be around 60 per centt to 65 per cent.

(c) Based on the benchmarking RINs for 2013–14.

Conclusion

We conclude that SA Power Networks' proposed marginal cost rates for shared network augmentation are reasonable because, first, the rate is less than the actual historical cost and, second, it is consistent with the Productivity Commission's review findings on the LRMC for providing additional network capacity.

### Shared network augmentation charge rate

1. SA Power Networks proposed to apply the full marginal cost per kVA for 2015-16 as the share network augmentation charge rates.
2. We consider that such proposal to charge new customers the full marginal cost is not consistent with our Connection Charge Guideline, because the rate has not taken new customers' connection life into consideration.[[12]](#footnote-12) The need to take the connection life into consideration was explained in our Explanatory Statement for the Proposed Connection Charge Guidelines: under chapter 5A of National Electricity Rules for retail customers accessing the electricity distribution network. On pages 33-34, we explained as follows:

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….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. The AER considers DNSPs will need to either adopt a method similar to this, or an alternative method that achieves a similar outcome.

The rationale of our previously proposed MCR calculation method for CitiPower is that:

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 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 intertemporal transfer of wealth and would be inequitable for some customers.

1. As SA Power Networks has not developed an alternative method to calculate the upstream charge rates based on the expected connection life, we consider that we should adopt the method previously published by us, as indicated in the Explanatory Note.
2. We calculated that an adjustment factor of 0.549 and 0.796 should be applied to the proposed full charge rates for business and residential customers respectively (representing a 45 and 20 per cent reduction respectively). These factors are based on the WACC of 5.45 per cent for SA Power Networks, and a connection life of 15 and 30 years for business and residential customers respectively.

### SA Power Networks' proposed terms and conditions of the connection policy

1. While the proposed terms and conditions of the connection policy largely met the minimum requirements of the rules, we identified that the policy does not contain definitions for zone substations and sub-transmission lines. We consider that the policy should contain such definitions to provide clarity on how shared network augmentation charges are applied.

## AER approved connection policy

We have modified SA Power Networks' proposed connection policy to reflect the above preliminary decision on this matter.[[13]](#footnote-13) This revised connection policy is appended to this chapter.

1. AER approved connection policy for SA Power Networks

Click on image below to view document

1. 
1. NER, Part DA of chapter 6. [↑](#footnote-ref-1)
2. NER, cl. 6.7A.1(b). [↑](#footnote-ref-2)
3. AER, Connection charge guideline for electricity retail customers, Under chapter 5A of the National Electricity Rules Version 1.0, June 2012. [↑](#footnote-ref-3)
4. This charge only applies to new customers above certain threshold levels specified in the connection policy, for such larger customers' share of use of the upstream network. [↑](#footnote-ref-4)
5. SA Power Networks, Attachment 12.1, Proposed connection policy for 2015-2020, October 2014. [↑](#footnote-ref-5)
6. ESCOSA, Application of Chapter 3 of The Electricity Distribution Code Electricity Industry Guideline No. 13. [↑](#footnote-ref-6)
7. AER SAPN 001. [↑](#footnote-ref-7)
8. Productivity Commission, The costs and benefits of demand management for households, Supplement to inquiry report on Electricity Network Regulatory Frameworks, 9 April 2013, p.22. [↑](#footnote-ref-8)
9. The Productivity Commission expressed the LRMC is $/KW. The relationship between kW and kVA is expressed as "power factor". 1 kVA at 0.9 power factor equals 0.9 kW of real power. [↑](#footnote-ref-9)
10. SA Power Networks advised that (AER SAPN 034) its network overall power factor is 0.988, very close to unity. [↑](#footnote-ref-10)
11. <http://www.aer.gov.au/node/483?date%5Bvalue%5D%5Byear%5D=&sector=All&category=1495> [↑](#footnote-ref-11)
12. Clause 5.2.11 of the Connection Charge Guideline requires that: In calculating the applicable unit rate(s), a distribution network service provider must take account of the cost of augmenting each network component with reference to: (a) The proportion of each network component used by the connection applicant; and (b) The useful life of the network component and the assumed period for which the connection applicant will be using the network. [↑](#footnote-ref-12)
13. Rule 6.12.3(j) provides that we may amend the proposed connection policy to the extent necessary to enable it to be approved in accordance with the Rules. [↑](#footnote-ref-13)