



Proposed

**Demand Management and Embedded
Generation Connection Incentive Scheme**

**ACT and NSW distribution
determinations—2014–19**

May 2012

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Request for submissions

Interested parties are invited to make written submissions to the Australian Energy Regulator (AER) regarding this document by the close of business, 1 August 2012.

Submissions should be sent electronically to: NSWACTelectricity@ aer.gov.au

Alternatively, submissions can be mailed to:

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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 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.

Enquiries about this paper, or about lodging submissions, should be directed to the Network Regulation branch of the AER on (02) 9230 9133.

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Shortened forms

AER	Australian Energy Regulator
ACT and NSW DNSPs	ActewAGL Distribution; Ausgrid; Endeavour Energy and Essential Energy
annual report	reporting required under section 4.1.4 of the DMEGCIS
capex	capital expenditure
DMEGCIS	demand management and embedded generation connection incentive scheme
DMIA	demand management innovation allowance
DMIS	demand management incentive scheme
DNSP	distribution network service provider
F&A	framework and approach
NEL	National Electricity Law
NER	National Electricity Rules
next regulatory control period	1 July 2014 to 30 June 2019
NPV	net present value
opex	operating expenditure
RAB	regulatory asset base
subsequent regulatory control period	1 July 2019 to 30 June 2024
WACC	weighted average cost of capital

1 Rule Change

On 22 December 2011, an amendment was made to the National Electricity Rules (NER), the National Electricity Amendment (Inclusion of Embedded Generation Research into Demand Management Incentive Scheme) Rule 2011 No. 11.¹ Clause 6.6.3 of the NER now refers to the Australian Energy Regulator (AER) developing and publishing a demand management and embedded generation connection incentive scheme (DMEGCIS).

All references to *demand management incentive scheme* (DMIS) in various clauses in the NER have been omitted and substituted with demand management and embedded generation connection incentive scheme. The NER clauses affected in this way are:

- clause 6.3.2(a)(3)
- clause 6.4.3(a)(5)
- clause 6.4.3(b)(5)
- clause 6.6.3 (including the title and various references throughout).

Pursuant to this rule change, there have also been certain additions and modifications to the substance of the rules. These include:

- a definition of the DMEGCIS has now been inserted as cl. 6.1.1A of the NER
- clause 6.6.3(a) of the NER now refers to a DMEGCIS providing incentives for distribution network service provider (DNSP) to 'implement efficient non-network alternatives, or to manage the expected demand for standard control services in some other way, or to efficiently connect embedded generators'
- clause 6.6.3(b)(6) has also been inserted into the NER. The AER is required to consider 'the effect of classification of distribution services, as determined in accordance with clause 6.2.1, on a DNSPs incentive to adopt or implement efficient embedded generator connections'.

The Australian Energy Market Commission (AEMC) is currently undertaking a review of demand-side participation in the National Electricity Market (NEM) through the Power of Choice review. The AEMC is expected to provide final advice to the Ministerial Council on Energy (MCE) in September 2012.

While the AER's approach to the DMEGCIS may require revision at the conclusion of this review, the AER considers that the operation of the scheme is appropriate for the purposes of the AER's preliminary positions framework and approach (F&A). The AER will consider its position after the Power of Choice review has concluded.

¹ AEMC, Rule Determination: *National Electricity Amendment (Inclusion of embedded generation research into Demand Management Incentive Scheme) Rule 2011*, December 2011.

2 Nature and authority

2.1 Introduction

This document sets out the AER's proposed DMEGCIS to be applied to ActewAGL Distribution; Ausgrid (formerly EnergyAustralia); Endeavour Energy (formerly Integral Energy) and Essential Energy (formerly Country Energy) (ACT and NSW DNSPs) for the next regulatory control period, 1 July 2014 to 30 June 2019 and beyond.

2.2 Authority

Clause 6.6.3 of the NER allows the AER to develop, in accordance with the distribution consultation procedures in r. 6.16 of the NER, a DMEGCIS. The AER's DMEGCIS has been developed and published in accordance with these provisions.

2.3 Role of this scheme

The role of the DMEGCIS, as set out in cl. 6.6.3(a) of the NER, is to provide incentives for DNSPs to implement efficient non-network alternatives, or to manage the expected demand for standard control services in some other way, or to efficiently connect embedded generators. It operates in conjunction with existing incentives in the regulatory framework to achieve these objectives.

2.4 Confidentiality

The AER's obligations regarding confidentiality and the disclosure of information provided to it by a DNSP under this scheme are governed by the *Competition and Consumer Act 2010* (Cth), the National Electricity Law (NEL) and the NER.

Any information submitted by a DNSP must be submitted in a form suitable for publication. If any aspect of this information is confidential, the DNSP must:

1. clearly identify the information that is the subject of the confidentiality claim
2. provide a non-confidential version of the report for publication.²

The AER's and the Australian Competition and Consumer Commission (ACCC)'s approach to managing confidential information is set out in the joint information policy.³

2.5 Version history and effective date

A version number and an effective date of issue will identify each version of this scheme.

² ACCC & AER, *Information policy: the collection, use and disclosure of information*, October 2008, p. 5.

³ ACCC & AER, *Information policy: the collection, use and disclosure of information*, October 2008.

3 Objectives and application of this scheme

3.1 Objectives

The objective of this scheme is to provide incentives for DNSPs to implement efficient non-network alternatives, or to manage the expected demand for standard control services in some other way, or to efficiently connect embedded generators.⁴

The NER requires that the AER, in developing and implementing a DMEGCIS, have regard to:

- the need to ensure that benefits to consumers likely to result from the scheme are sufficient to warrant any reward or penalty under the scheme for DNSPs
- the effect of a particular control mechanism (i.e. price – as distinct from revenue–regulation) on a DNSP’s incentives to adopt or implement efficient non-network alternatives
- the extent the DNSP is able to offer efficient pricing structures
- the possible interaction between a DMEGCIS and other incentives schemes
- the willingness of the customer or end user to pay for increases in costs resulting from the implementation of the scheme
- the effect of classification of distribution services, as determined in accordance with cl. 6.2.1, on a DNSP’s incentive to adopt or implement efficient embedded generator connections.⁵

3.2 Application of the DMEGCIS

This DMEGCIS will be applied through the AER’s distribution determinations for the ACT and NSW DNSPs. This will occur in three stages:

- the AER’s F&A papers will set out the AER’s likely approach, in its forthcoming distribution determination, to the application of the DMEGCIS to a particular DNSP⁶
- a DNSP’s regulatory proposal for a distribution determination must include a description, including relevant explanatory material, of how the DNSP proposes the DMEGCIS should apply for the relevant regulatory control period.⁷ If the proposed DMEGCIS application differs from that set out in the F&A paper, the DNSP must submit in detail the differences in its proposed approach. The DNSP should also submit in its regulatory proposal, why its approach in the DMEGCIS’s application would be more appropriate than the AER’s, and how it would satisfy the requirements of the NEL and NER

⁴ NER, cl. 6.6.3(a).

⁵ NER, cl. 6.6.3(b).

⁶ NER, cl. 6.8.1(b) (4).

⁷ NER, cll. 6.8.2(c)(2), 6.4.3(a)(5).

- the AER's final decision on how the DMEGCIS is to apply to a DNSP in a regulatory control period will be part of the distribution determination it makes for that DNSP.⁸

⁸ NER, cl. 6.12.1(9).

4 The DMEGCIS

The AER's DMEGCIS for the ACT and NSW DNSPs is designed to complement the broader regulatory framework and to provide an incentive to defer expenditure on network augmentation where it is efficient to do so. The DMEGCIS provides incentives for DNSPs to carry out non-network alternatives in managing expected demand for standard control services in other ways, or to efficiently connect embedded generators.

The DMEGCIS encourages DNSPs to investigate and conduct broad-based and or peak demand management projects or programs throughout the regulatory control period. These projects or programs may include research and development into efficient and innovative means of connecting embedded generators. The AER considers that cost-effective connections of embedded generators will provide an alternative to consumption from the network by distribution network users. Such alternative generation increases the ability of users to respond to the tariff-based demand management projects and programs implemented by a DNSP.

The DMEGCIS is targeted towards controlling the growth of electricity prices by increasing knowledge and experience with demand management and other alternatives to network augmentation. In the long term, it is intended that the DMEGCIS will encourage the consideration of non-network solutions to rising peak demand as a viable alternative to augmentation in the decision making process of DNSPs.

The scheme is not designed to be the sole, or even primary source, of funding for expenditure on non-network alternatives or efficient connection of embedded generators in a regulatory control period. The primary source of recovery for demand management expenditure in a distribution determination is likely to be the approved forecasts of capital and operating expenditure assessed under the requirements of cl. 6.5.6 and cl. 6.5.7 of the NER. Before approving forecasts of the capital expenditure (capex) and operating expenditure (opex) forecasts, the NER requires DNSPs to demonstrate that efficient non-network alternatives to capex and opex have been satisfactorily considered in the development of the DNSP's expenditure proposals for the regulatory control period.⁹ Approved forecasts are required to be prudent, efficient and reflect realistic expectations of cost inputs and demand.¹⁰

This scheme is designed to supplement a DNSP's approved capex and opex. It is intended to facilitate investigation and implementation of demand management strategies and efficient means of connecting embedded generators. The development of reliable and viable strategies in these fields will allow DNSPs to manage the expected demand for standard control services by means other than network augmentation. The DMEGCIS to apply to the ACT and NSW DNSPs for the next regulatory control period consists of two parts. The first is the demand management innovation allowance (DMIA), an ex-ante allowance in addition to the annual revenue requirement. The second element is a forgone revenue component which allows a DNSP to recover forgone revenues that is directly attributable to a non-tariff demand management project or program approved under the DMIA.

⁹ NER, cl.6.5.6(e)(10) and 6.5.7(e)(10).

¹⁰ NER, cl.6.5.6(e)(10) and 6.5.7(e)(10).

The DMIA in part A of the DMEGCIS is provided to the DNSP as an ex-ante allowance in the form of a fixed amount of additional revenue at the commencement of each regulatory year of the regulatory control period. In the second regulatory year of the subsequent regulatory control period, a single adjustment will be made to return any unspent or unapproved amounts to customers. Similarly, any overspend will be borne by the business. As a result the scheme remains neutral in terms of the expenditure profile within the period to which it has applied.

The ACT and NSW DNSPs must submit annual reports on outcomes and expenditure under the DMIA. The AER will publish these reports to:

- enhance industry knowledge of demand management and other non-network solutions to meet customer demand
- assist demand management proponents (including demand-side aggregators) to identify opportunities and develop knowledge on viable projects and programs.

The application of part B of the DMEGCIS addresses the impacts that certain forms of price control may have on a DNSP's incentives to undertake demand management. Part B will apply to a DNSP that has standard control services subject to a form of control, such as a weighted average price cap (WAPC) or an average revenue cap, whereby the recovery of the annual revenue requirement is partially dependent on energy sold. Part B allows a DNSP to recover any forgone revenue resulting from a reduction in the quantity of energy sold that is directly attributable to the implementation of a non-tariff demand management program approved under part A of the DMEGCIS.

Approved forgone revenue will be provided to a DNSP in the second regulatory year of the subsequent regulatory control period, as an addition to the innovation allowance adjustment in that regulatory year.

The outcomes of the DMEGCIS will be considered by the AER through an annual review process within the regulatory control period to which it applies. An assessment of the DMEGCIS will be made when considering the AER's application of incentive schemes for demand management in subsequent regulatory control periods.

4.1 Part A – DMIA

This section sets out how the DMIA will operate. The calculation of the allowance, and worked examples, are provided in appendix A.

4.1.1 Amount of the DMIA

The total amount recoverable under the DMIA within a regulatory control period will be capped, based on the AER's understanding of typical demand management and or embedded generation connection project costs. It is scaled to the relative size of each DNSP's average annual revenue allowance in the previous regulatory control period.

For the next regulatory control period, the AER's proposed amounts for allocation to the ACT and NSW DNSPs are as follows:

- ActewAGL—\$100 000 per annum
- Ausgrid—\$1 million per annum
- Endeavour Energy—\$600 000 per annum
- Essential Energy—\$600 000 per annum.

4.1.2 Access to the DMIA

The DMIA will be provided as an annual, ex-ante allowance in the form of a fixed amount of additional revenue at the commencement of each regulatory year of the regulatory control period.

The total amount of the allowance will be distributed evenly across each regulatory year of the regulatory control period.

The DNSP may propose an expenditure profile within the regulatory control period that suits its needs. However, the total amount recoverable over the regulatory control period must not exceed the total amount of the allowance determined in accordance with section 4.1.1 of the DMEGCIS.

4.1.3 The DMIA criteria

Projects and programs eligible for approval under the DMIA must meet the following criteria (the DMIA criteria):

1. demand management projects or programs are measures undertaken by a DNSP to meet customer demand by shifting or reducing demand for standard control services through non-network alternatives, or the management of demand in some other way, rather than increasing supply through network augmentation
2. demand management projects or programs may be:
 - a. broad-based demand management projects or programs—which aim to reduce demand for standard control services across a DNSP’s network, rather than at a specific point on the network. These may be projects targeted at particular network users, such as residential or commercial customers, and may include energy efficiency programs
 - b. peak demand management projects or programs—which aim to address specific network constraints by reducing demand on the network at the location and time of the constraint.
3. demand management projects or programs may be innovative, and designed to build demand management capability and capacity and explore potentially efficient demand management mechanisms, including but not limited to new or original concepts
4. recoverable demand management projects and programs may be tariff or non-tariff based
5. demand management projects or programs which may be recovered under the DMIA, can also be in the nature of research and development of efficient or innovative means of connecting embedded generators
6. costs recovered under the scheme:

- a. must not be recoverable under any other source, including another jurisdictional incentive scheme or any State, territory, Commonwealth or other government scheme
 - b. must not be included in forecast capital or operating expenditure approved in the distribution determination for the regulatory control period under which the scheme applies, or under any other incentive scheme in that determination.
7. expenditure under the DMIA can be in the nature of capex or opex. The AER considers that capex payments made under the DMIA could be treated as capital contributions under cl. 6.21.1 of the NER and therefore not rolled into the regulatory asset base (RAB) at the start of the next regulatory control period. The AER's decision in that regard will only be made as part of the next distribution determination.

4.1.4 Approval of expenditure under the DMIA

At the end of each regulatory year of the next regulatory control period, the AER will review the expenditure incurred by the DNSP in the preceding regulatory year.¹¹

Annual reporting requirements

A DNSP to which the scheme applies must submit to the AER a report on its expenditure under the DMIA for each regulatory year of the next regulatory control period. A DNSP will be required to submit its annual report under this scheme as part of the AER's annual regulatory reporting requirements for DNSPs.

The AER will review the information provided in a DNSP's annual report to assess whether the expenditure is compliant with the DMIA criteria. This information will also assist the AER in assessing proposals for demand management capex and opex submitted in a DNSP's regulatory proposal, and in the development and implementation of a DMEGCIS in future regulatory control periods.

The AER will publish the annual reports from DNSPs to which this scheme applies to provide information to stakeholders on the results of demand management projects and programs investigated or implemented under the scheme. Reports must therefore be submitted in a form suitable for publication.¹²

A DNSP's annual report must include:

1. the total amount of the DMIA spent in the previous regulatory year, and how this amount has been calculated
2. an explanation of each demand management project or program for which approval is sought, demonstrating compliance with the DMIA criteria in section 4.1.3 of DMEGCIS with reference to:
 - a. the nature and scope of each demand management project or program
 - b. the aims and expectations of each demand management project or program

¹¹ The AER's ex-post review will be undertaken once audited data becomes available for the previous regulatory year.

¹² ACCC & AER, *Information policy: the collection, use and disclosure of information*, October 2008, pp. 5–6.

- c. the process by which each demand management project or program was selected, including the business case for the project or program and consideration of any alternatives
 - d. how each demand management project or program was or is to be implemented
 - e. the implementation costs of the demand management project or program
 - f. any identifiable benefits that have arisen from the demand management project or program, including any off peak or peak demand reductions.
3. a statement signed by a director of the DNSP certifying that the costs of the demand management project or program are not:
 - a. recoverable under any other jurisdictional incentive scheme
 - b. recoverable under any other state or Commonwealth government scheme
 - c. included in the forecast capital or operating expenditure approved in the AER's distribution determination for the regulatory control period under which the scheme applies, or under any other incentive scheme in that determination.
 4. an overview of developments in relation to demand management projects or programs completed in previous years of the regulatory control period, and of any results to date.

Where a project or program extends across more than one regulatory year, a report on actual expenditure on that project or program in each regulatory year of the regulatory control period will be required. If part B of the DMEGCIS applies to a DNSP, it must also submit the information required under section 4.2.4 of the DMEGCIS.

Compliance assessment and publication of annual report

The AER will assess a DNSP's compliance with the DMIA criteria on the basis of the information provided in its annual report.

At the completion of the annual assessment, the AER will publish:

1. all annual reports submitted by DNSPs to which this scheme applies
2. a report stating:
 - a. the amount of expenditure approved by the AER, and its reasons for that decision
 - b. the amount of allowance remaining (in nominal terms) for the regulatory control period.

4.1.5 Final year adjustment

The AER will calculate a total carryover amount on the basis of the annual assessments in section 4.1.4 of the DMEGCIS to account for:

- any amount of allowance unspent or not approved over the regulatory control period
- the time value of money accrued or lost as a result of the expenditure profile selected by the DNSP.

Information on the final regulatory year of the next regulatory control period will not be available in time to be incorporated into the AER's distribution determination for the subsequent regulatory control period. Therefore, the final carryover amount will be added to or deducted from the allowed revenues in the second regulatory year of the subsequent regulatory control period.

The final year adjustment will be calculated to be neutral, in net present value (NPV) terms, based on the expenditure profile over the regulatory control period. This removes any incentive for the DNSP to defer or advance expenditure. For the purposes of the NPV calculation in the next regulatory control period, the AER will use the nominal vanilla weighted average cost of capital (WACC) approved in the distribution determination for the next regulatory control period.

The calculation of this final year adjustment is set out in appendix A.

4.2 Part B—Recovery of forgone revenue

This section sets out the circumstances in which a DNSP will be eligible to recover forgone revenue resulting from projects or programs approved under part A of the DMEGCIS. The integration of parts A and B of this scheme, and worked examples, are provided in appendix A.

4.2.1 Purpose and scope

Part B allows a DNSP to recover foregone revenue in the next regulatory control period which has resulted from a reduction in the quantity of energy sold and is directly attributable to a project or program approved under part A of the DMEGCIS. Only a DNSP to which the DMIA in part A of this scheme applies may be subject to this part B of the scheme. Part B will not automatically apply, and will not apply in isolation.

A non-tariff demand management project or program that results in a reduction in the quantity of energy sold has the potential to reduce a DNSP's revenue. The AER considers that where a revenue cap applies to a DNSP, the recovery of allowed forgone revenue is not dependent on energy sales, such that part B of the scheme will not apply. However, under forms of control where revenue is at least partially dependent on the quantity of electricity sold (e.g. a price cap or an average revenue cap), a DNSP has a disincentive to reduce electricity sales. To remove this disincentive to undertake demand management, the AER will consider allowing a DNSP subject to such a form of control to recover any forgone revenue directly attributable to the implementation of a non-tariff demand management project or program approved under the DMIA.

The AER will assess the effect a form of control has on a DNSP's incentive to undertake demand management projects or programs on a case-by-case basis. Access to part B of the scheme will be set out in the final F&A paper for the ACT and NSW DNSPs.

Recovery under part B is limited to revenue forgone as a result of non-tariff demand management projects or programs approved by the AER under the DMIA. A DNSP may propose tariff or non-tariff based demand management projects or programs under the DMIA. However, a DNSP can only recover forgone revenue resulting from a reduction in the quantity

of electricity sold due to the implementation of non-tariff based demand management projects or programs. Tariff-based demand management projects or programs are those that aim to provide price signals to electricity customers at times of peak electricity demand, for example critical peak pricing trials. DNSPs that implement tariff-based demand management receive an increase in revenues due to the higher prices charged for electricity sales. Therefore, tariff-based demand management projects or programs are unlikely to result in a DNSP foregoing revenues, despite any fall in demand associated with customers' responses to higher prices. Accordingly, the DMEGCIS allows approved DNSPs to recoup forgone revenues directly attributable to non-tariff demand management projects approved under part A.

The recovery of forgone revenue available under part B of the DMEGCIS does not have a specified cap. However, the actual amount that can be recovered is limited to approved revenue forgone resulting from a successful non-tariff demand management project or program established under part A of the DMEGCIS.

A DNSP will be unable to recover forgone revenue resulting from demand management projects or programs funded out of a DNSP's regulatory allowance, or reductions in revenue resulting from government policy changes in relation to demand management.

The AER will not allow a DNSP to recoup forgone revenues resulting from projects or programs carried out independently of the DMIA. Any project or program carried out independently of the DMIA (such as expenditure approved in the AER's regulatory determination) is implemented after a DNSP has had independent assessments of business cases for the demand management initiatives, and the risks and benefits associated with the decision to implement demand management.

Forgone revenue recoverable under part B is limited to revenue forgone within the regulatory control period in which the DMEGCIS applies, and does not include revenue forgone in previous or future regulatory control periods.

The recovery of the forgone revenue is subject to the AER's approval. The AER's assessment of forgone revenue will occur subsequent to the AER's approval of a DNSP's proposed projects or programs under the DMIA.

4.2.2 AER's assessment of forgone revenue

For the purposes of the DMEGCIS, forgone revenue will be based on the following key components:

- the amount of a change in energy consumption or demand directly attributable to the project or program approved under part A of the DMEGCIS
- the price or tariff applicable to the forgone energy consumption or demand.

The forgone revenue will be calculated in accordance with the principles in section 4.2.3 below.

The recovery of forgone revenue applies only to non-tariff demand management initiatives approved under the DMIA. Calculations must not include forgone revenue as a result of:

- initiatives undertaken by a DNSP but not approved by the AER under the DMIA
- forgone revenue resulting from tariff based demand management projects or programs approved under the DMIA
- projects or programs approved under a DNSP's forecast capex and opex
- revenue lost or forgone as a result of the operation of any other jurisdictional incentive scheme
- revenue lost as a result of the operation of any other state or Commonwealth government scheme
- revenue lost as a result of changes in government policy within or prior to the regulatory control period.

Where a demand management project or program results in reductions in revenue that extend beyond the end of that project or program, the DNSP may apply to recover the forgone revenue each regulatory year after the end of the project, up until the end of the regulatory control period in which the DMEGCIS applies.

A number of factors (other than demand management) may affect electricity consumption, and demand for electricity, such as changes in government policy, weather, or electricity prices. For the purposes of part B of the DMEGCIS, a DNSP will be required to exclude any significant distortions from other factors in its calculations of forgone revenue. The AER will require a DNSP to provide information in its annual reports setting out the rationale for the DNSP's decision to adjust or not adjust for other factors and the basis for any such decisions.

Given the difficulty in precisely calculating the impact of a demand management initiative and in adjusting for distortions caused by other factors, a DNSP may only be able to provide estimates of actual forgone revenue. In such circumstances, the AER will require the DNSP to provide information which demonstrates that the methodology used to calculate forgone revenue produces a reasonable estimate of the actual forgone revenue.

The AER will assess the recovery of forgone revenue at the time of the DNSP's annual reporting under section 4.1.4 of the DMEGCIS. A DNSP's calculation of forgone revenue will be assessed in accordance with the principles in section 4.2.3 of the DMEGCIS, having regard to the information submitted by the DNSP in accordance with section 4.2.4 of the DMEGCIS.

Approved forgone revenue will be returned to the DNSP in a single adjustment in the second regulatory year of the subsequent regulatory control period, at the same time as any adjustment under part A.

4.2.3 Principles for calculation of forgone revenue

For the purposes of part B, the recovery of forgone revenue for a DNSP means any revenue which:

- has not been recovered by the DNSP in that regulatory year

- would in all likelihood have been recovered by the DNSP in that regulatory year, in the absence of a reduction in the quantity of electricity sold resulting from a non-tariff demand management project or program undertaken by the DNSP and approved under the DMIA.

Forgone revenue occurs as a result of a change in quantities to which a dollar value is attributed. For the purposes of calculating revenue forgone as a result of implementing a project or program in a particular regulatory year, the relevant price is the tariff(s) that applied to the affected quantity that year.

A DNSP's calculation of forgone revenue must be consistent with the following principles:

1. forgone revenue (FR) occurs as a result of a change in quantities to which a value is attributed; the calculation should separately identify the forgone quantity estimate (FQ) and the price estimate (P):

$$FR_t = (P_{t-1} \times FQ_{t-1}) \times \left[(1+i)^{7-t} \times (1+i^*)^2 \right]$$

where:

i = nominal vanilla weighted average cost of capital (WACC) for the first regulatory control period.¹³ i^* = nominal vanilla WACC for the second regulatory control period¹⁴

FQ_{t-1} = the actual forgone quantity, which can only be finalised at the end of the subsequent year (i.e. for year 1 this would be year 2) when the actual forgone revenue can be calculated

P_{t-1} = the actual price, which can only be finalised at the end of the subsequent year (i.e. for year 1 this would be year 2) when the actual forgone revenue can be calculated

$(1+i)^{7-t}$ = returns on forgone revenue, which occur at end of year during the first regulatory control period and will be calculated by the DNSP at the end of the following year¹⁵

$(1+i^*)^2$ = returns on forgone revenue, for the second regulatory control period

2. the recovery of forgone revenue must be calculated with reference to approved demand forecasts in the AER's distribution determination for the DNSP for the relevant regulatory year
3. the amount of forgone revenue must be calculated in a manner consistent with the form of control that applies to the DNSP's standard control services, and the approved pricing proposal for the relevant regulatory year
4. the forgone quantities may include energy consumption and or energy demand. In addition, the quantities may relate to a specific time-period such as peak, off peak, or shoulder. Estimates of forgone quantities provided must be consistent with the relevant tariff structure

¹³ The first regulatory control period refers to the period from 1 July 2014 to 30 June 2019.

¹⁴ The second regulatory control period refers to the period from 1 July 2019 to 30 June 2024.

¹⁵ For example, actual forgone revenues in regulatory year 1 that is recognised at the end of regulatory year 2, will be compounded five (7-2) times by the nominal vanilla WACC during the first regulatory control period. All amounts receive compounded returns by the nominal vanilla WACC that applies to the second regulatory period.

5. the observed shift or reduction in demand must be directly attributable to a non-tariff demand management project or program approved under the DMIA
6. the estimates of forgone energy quantities may be derived with reference to a representative sample. If a representative sample is used, the sample must provide a reasonable estimate of actual forgone revenue
7. if a demand management measure is being implemented and managed through a demand management contract¹⁶ (or similar) the measurement and verification processes associated with the contract may be suitable as a basis for estimation
8. the estimated prices to be applied to respective estimated quantities, must be based on the appropriate tariff applying at the time the quantity was forgone. That is, if the DNSP implemented a demand management measure in regulatory year *t-2*, which resulted in the DNSP foregoing revenue in regulatory year *t-2*, the relevant price is that tariff which would have applied to that forgone quantity in regulatory year *t-2*
9. if the demand management measure is targeted at a specific customer or project, the actual distribution use of system (DUOS) tariff applying to that customer or project must be used to estimate the forgone revenue
10. if the measure affects quantities associated with more than one tariff, the price can be estimated based on actual quantities or appropriate weighted values. The basis for any weighted values, in the case of a weighted average tariff, must be demonstrated to be appropriate for the purposes of estimating forgone revenue
11. the approach used to estimate the change in quantities and estimated price must be consistent (for example, the same approach and assumptions should be used for weighting).

4.2.4 Annual reporting for forgone revenue

A DNSP to which part B of the DMEGCIS applies, must, at the same time that it submits its annual report under section 4.1.4, submit to the AER:

1. its calculation of any forgone revenue that is directly attributable to the DMEGCIS in the relevant regulatory year, prepared in accordance with section 4.2.3 above, including:
 - a. forgone quantity estimates—the amount of demand reductions (in MW) resulting from the implementation of any project conducted under the DMIA
 - b. price estimates applicable to the forgone quantity estimates.
2. a full and detailed explanation of any assumptions and or estimates used in calculation of forgone revenue, demonstrating the reasonableness of those assumptions and or estimates in calculating forgone revenue, including the rationale for the DNSP's decision to adjust or not adjust for other factors and the basis for any such adjustments
3. a full and detailed explanation of how the forgone revenue is directly attributable to a demand management project or program approved by the AER under the DMIA.

¹⁶ A demand management contract is an agreement between a demand side aggregator and a DNSP, where the demand side aggregator guarantees (via contract) to provide a reduction in demand on the DNSP's network. The contract is usually upheld by the demand side aggregator in turn developing its own contracts with large energy users to switch off at peak times, shift their loads to off peak times, or implement energy efficiency measures.

Calculations of forgone revenue must be accompanied by sufficient information to demonstrate compliance with the principles for the calculation of forgone revenue in section 4.2.3 of the DMEGCIS.

A DNSP is required to ensure that all information provided to the AER under section 4.2.4 of the DMEGCIS, is verifiable, and can be traced to a source document or assumption by the AER. A DNSP must maintain accounting and reporting arrangements that enable such information to be prepared for submission to the AER. If the AER requires more detailed information than a DNSP provides, the AER reserves the right to request access to underlying accounting records.

4.2.5 Final year adjustment

With data for the final regulatory year of the regulatory control period, the AER will calculate a total forgone revenue amount on the basis of the annual assessments in section 4.2.4 of the DMEGCIS to account for:

- the total amount of revenue forgone as a result of demand management projects or programs implemented and approved under section 4.1.4 of the DMEGCIS
- the total amount of compound interest on the forgone revenue.

As information on the final regulatory year of the regulatory control period will not be available in time to be incorporated into the AER's distribution determination for the subsequent regulatory control period, the final forgone revenue amount will be added to allowed revenues in the second regulatory year of that period. The forgone revenue will be added to the carryover amount calculated in accordance with section 4.1.5 of the DMEGCIS, resulting in a single adjustment.

The calculation of this final regulatory year adjustment is set out in appendix A.

5 Assessment of the DMEGCIS

The operation of the scheme will be monitored by the AER throughout the regulatory control period.

An assessment of the DMEGCIS's operation will be made when considering the application of the scheme to the ACT and NSW DNSPs in future regulatory control periods.

Appendix A

Appendix A provides a number of worked examples of the operation of the DMEGCIS.

Step 1 Amount of the DMIA

[Section 4.1.1]

Assume, for the purposes of the examples below, that a DNSP is granted a total DMIA of \$5 million (\$nominal) over the regulatory control period.

Step 2 Access to the DMIA

[Section 4.1.2]

The \$5 million allowance will be provided in five, equal instalments of \$1 million in each regulatory year of the regulatory control period. The amount spent under the DMIA in any one regulatory year is at the discretion of the DNSP. However, the total amount recoverable over the regulatory control period cannot exceed \$5 million. That is, the DNSP has the flexibility to select an expenditure profile that suits its circumstances, subject to remaining within the approved cap.

Step 3 Approval of expenditure under the DMIA

[Section 4.1.4]

At the end of each regulatory year of the regulatory control period the AER will conduct an assessment of expenditure incurred by the DNSP in the preceding regulatory year, in accordance with section 4.1.4 of the DMEGCIS. Expenditure will be either approved or not approved based on an assessment against the DMIA criteria in section 4.1.3 of the DMEGCIS. The total amount of expenditure approved by the AER over the regulatory control period will not exceed \$5 million.

Step 4 Final year adjustment

[Section 4.1.5, 4.2.5]

With data for the final regulatory year of the regulatory control period, the AER will calculate a carryover amount to account for:

- any amount of allowance unspent or not approved over the period
- the time value of money accrued/lost as a result of the expenditure profile selected by the DNSP
- any approved forgone revenue adjustment (if part B applies to the DNSP).

The final carryover amount will be added to or deducted from allowed revenues in the second regulatory year of the subsequent regulatory control period.¹⁷ The adjustment will be calculated to ensure the DNSP is indifferent (in NPV terms) to the expenditure profile approved by the AER over the regulatory control period. This removes any incentive for the DNSP to advance or defer expenditure.

Calculating the carryover amount

[Section 4.1.5]

The cumulative carryover balance for each year of the five-year regulatory control period (C_t) is calculated as follows:

$$C_t = C_{t-1} - \left[\frac{(R_t - A_t)}{(1+i)^t} \times (1+i)^5 (1+i^*)^2 \right]$$

Where:

R_t = ex-ante revenue allowance under the scheme for regulatory year ' t ' ($t = 1, 2, \dots, 5$)

A_t = expenditure approved under the scheme for regulatory year ' t ' ($t = 1, 2, \dots, 5$)

i = nominal vanilla WACC as set in the distribution determination for the next regulatory control period

i^* = nominal vanilla WACC as set in the distribution determination for the subsequent regulatory control period

At the end of the regulatory control period, the AER will calculate a carryover amount to be added to or deducted from allowed revenues in regulatory year 2 of the subsequent regulatory control period.

The regulatory year 5 carryover amount (C_5) is to be added to or deducted from allowed revenues in regulatory year 2 of the subsequent regulatory control period is calculated as follows:

$$C_5 = C_4 - \left[\frac{(R_5 - A_5)}{(1+i)^5} \times (1+i)^5 (1+i^*)^2 \right]; \text{or}$$

$$C_5 = C_4 - \left[(R_5 - A_5) \times (1+i^*)^2 \right]$$

¹⁷ The final carryover will not affect allowed revenues until year two of the subsequent regulatory control period due to pricing considerations. The carryover amount therefore includes an adjustment to account for the time value of money in the first year of the subsequent regulatory control period (at the nominal vanilla WACC set in the distribution determination for that period).

The amount of the final carryover (C_5) is calculated to ensure that the DNSP is revenue neutral (i.e. $NPV = 0$) to the profile of expenditure approved by the AER over the five-year regulatory control period.¹⁸ The amount of the final carryover is such that:

$$NPV = \frac{(R_1 - A_1)}{(1+i)} + \frac{(R_2 - A_2)}{(1+i)^2} + \frac{(R_3 - A_3)}{(1+i)^3} + \frac{(R_4 - A_4)}{(1+i)^4} + \frac{(R_5 - A_5)}{(1+i)^5} + \frac{C_5}{(1+i)^5(1+i^*)^2} = 0$$

Additional step to calculate forgone revenue (if part B applies)

[Section 4.2.5]

This is only relevant to DNSPs to which part B of the scheme applies under the relevant distribution determination.

At the end of each regulatory year of the regulatory control period, the AER will assess the DNSP's calculation of forgone revenue resulting from non-tariff demand management projects or programs approved under the DMIA. This assessment will occur in accordance with the principles for calculation of forgone revenue in section 4.2.3 of the DMEGCIS.

The forgone revenue (FR_t) is calculated as follows:

$$FR_t = (P_{t-1} \times FQ_{t-1}) \times \left[(1+i)^{7-t} \times (1+i^*)^2 \right]$$

The AER will only allow the recovery of forgone revenue resulting in a reduction in the quantity of electricity sold due to approved expenditure under the DMIA.

The forgone revenue is then added to the carryover amount which results in the total allowance provided in regulatory year 7, which can be expressed as:

$$D_t = C_t + FR_t$$

$$D_t = \left(C_{t-1} - \left[\frac{(R_t - A_t)}{(1+i)^t} \times (1+i)^5 (1+i^*)^2 \right] \right) + \left((P_{t-1} \times FQ_{t-1}) \times \left[(1+i)^{7-t} \times (1+i^*)^2 \right] \right)$$

The regulatory year 5 demand management amount (D_5) to be deducted from (added to) allowed revenues in regulatory year 2 of the subsequent regulatory control period is calculated as follows:

$$D_5 = \left(C_4 - \left[\frac{(R_5 - A_5)}{(1+i)^5} \times (1+i)^5 (1+i^*)^2 \right] \right) + \left((P_4 \times FQ_4) \times \left[(1+i)^2 \times (1+i^*)^2 \right] \right)$$

¹⁸ This includes an adjustment to account for the time value of money in the first two years of the subsequent regulatory control period, given the assumption the cash flows occur at the end of each year.

Worked examples

Figures A.1–A.3 below illustrate the operation of the DMIA under various expenditure profiles, in accordance with steps 1–4 above. The examples assume:

- ex-post reviews undertaken by the AER at the end of each year of the regulatory control period
- a nominal vanilla WACC of 10 per cent for the first regulatory control period ($i = 0.10$); and
- a nominal vanilla WACC of 9 per cent for the second regulatory control period ($i^* = 0.09$).

Figure A.1 provides an example of calculating forgone revenue during the regulatory control period as a result of demand management initiatives under the innovation allowance.

Figure A.1 Spend full allowance each year

Year	Year 1	Year 2	Year 3	Year 4	Year 5	Year 1	Year 2	Totals
Ex ante allowance	1.0	1.0	1.0	1.0	1.0			5.0
Actual expenditure	1.0	1.0	1.0	1.0	1.0			5.0
Ex post expenditure approved	1.0	1.0	1.0	1.0	1.0			5.0
Ex post expenditure disallowed	0.0	0.0	0.0	0.0	0.0			0.0
Cumulative carryover balance	0.0	0.0	0.0	0.0	0.0			
Adjustment to revenues							0.0	
NPV to DNSP	0.0	0.0	0.0	0.0	0.0		0.0	0.0

In figure A.1, the DNSP spends \$1 million on demand management initiatives in each regulatory year of the regulatory control period, all of which is approved by the AER. As the approved expenditure profile matches the ex-ante revenue allowance, there is no net benefit or detriment to the DNSP at the end of the regulatory control period (i.e., $NPV = 0$), and therefore there is zero carryover to the subsequent regulatory control period.

Figure A.2 Spend in excess of full allowance with variable profile

Year	Year 1	Year 2	Year 3	Year 4	Year 5	Year 1	Year 2	Totals
Ex ante allowance	1.0	1.0	1.0	1.0	1.0			5.0
Actual expenditure	2.0	1.0	0.0	2.0	1.0			6.0
Ex post expenditure approved	1.5	1.0	0.0	2.0	0.5			5.0
Ex post expenditure disallowed	0.5	0.0	0.0	0.0	0.5			1.0
Cumulative carryover balance	0.87	0.87	-0.57	0.74	0.14			
Adjustment to revenues							0.14	
NPV to DNSP	-0.45	0.00	0.75	-0.68	0.31		0.07	0.00

In figure A.2, the DNSP spends different amounts on demand management initiatives in each regulatory year of the regulatory control period. For example in regulatory year 1:

- the DNSP receives \$1 million in its ex-ante revenue allowance
- the DNSP spends \$2 million on demand management initiatives
- as a result of the ex-post review at the end of year 1, the AER approves \$1.5 million, but disallows \$0.5 million of expenditure.

The NPV of expenditure approved against the ex-ante allowance, that is, the NPV to DNSP for regulatory year 1 is calculated as follows:

$$NPV_1 = \frac{(R_1 - A_1)}{(1+i)} \text{ or}$$

$$NPV_1 = \frac{(1.0 - 1.5)}{(1 + 0.10)} = -0.45 \text{ million}$$

The cumulative carryover balance for year 1 (C_1) is calculated as follows:

$$C_1 = C_0 - \left[\frac{(R_1 - A_1)}{(1+i)} \times (1+i)^5 (1+i^*)^2 \right]; \text{ or}$$

$$C_1 = 0 + 0.45 \times (1 + 0.10)^5 \times (1 + 0.09)^2 = 0.87 \text{ million}$$

In regulatory year 5 of the regulatory control period, the DNSP spends \$1 million, however the AER disallows \$0.5 million as it exceeds the \$5 million cap.

The final carryover amount (C_5) to be added to allowed revenues in regulatory year 2 of the subsequent regulatory control period is calculated as follows:

$$C_5 = C_4 - [(R_5 - A_5) \times (1 + i^*)^2] \text{ or}$$

$$C_5 = 0.74 - [(1.0 - 0.5) \times (1 + 0.09)^2] = \$0.14 \text{ million}$$

Figure A.3 Spend full allowance in final regulatory year

Year	Year 1	Year 2	Year 3	Year 4	Year 5	Year 1	Year 2	Totals
Ex ante allowance	1.0	1.0	1.0	1.0	1.0			5.0
Actual expenditure	0.0	0.0	0.0	0.0	5.0			5.0
Ex post expenditure approved	0.0	0.0	0.0	0.0	5.0			5.0
Ex post expenditure disallowed	0.0	0.0	0.0	0.0	0.0			0.0
Cumulative carryover balance	-1.74	-3.32	-4.76	-6.07	-1.31			
Adjustment to revenues							-1.31	
NPV to DNSP	0.91	0.83	0.75	0.68	-2.48		-0.69	0.00

In figure A.3, the DNSP defers its expenditure until the final regulatory year of the regulatory control period. As a result of the ex-post review at the end of regulatory year 5, the AER approves \$5 million of expenditure by the DNSP on demand management initiatives. In this example, the AER will deduct an amount of \$1.31 million from allowed revenues in regulatory year 2 of the subsequent regulatory control period to remove the time value of money accrued as a result of the expenditure profile selected by the DNSP.

Figure A.4 Calculation of forgone revenue

Year	Year 1	Year 2	Year 3	Year 4	Year 5	Year 1	Year 2
Forecast Quantity (t-2)		10.0	10.1	10.2	10.3	10.4	
Actual Quantity (t-2)		9.0	8.8	8.0	7.5	7.0	
Change in Forgone Quantity		1.0	1.3	2.2	2.8	3.4	
Price (t-2)		0.05	0.05	0.05	0.05	0.05	
Forecast Revenue (t-2)		0.50	0.505	0.510	0.515	0.520	
Actual Revenue (t-2)		-0.45	-0.44	-0.4	-0.375	-0.35	
Forgone Revenue (t-2)		0.05	0.065	0.11	0.14	0.17	
Return on Forgone Revenue ^(a)		0.046	0.048	0.064	0.061	0.052	
Total forgone revenue allowance							0.806

(a) Return on forgone revenue is recognised at the end of the year using $\left[(1+i)^{7-t} \times (1+i^*)^2 \right]$ to calculate the compounded return on forgone revenue.

In figure A.4, the DNSP has calculated its forgone demand quantity estimates during the regulatory control period as a result of demand management initiatives under the innovation allowance. The actual forgone quantity can only be finalised at the end of regulatory year 2 of the regulatory control period, when the actual forgone revenue can be calculated.

For example, in regulatory year 5 of the regulatory control period, the DNSP had a forgone demand of 2.8 million kilo Watts per hour (kW/h), at a price of 0.05 per kW/h.

The final carryover amount (C_5) to be added to allowed revenues in regulatory year 2 of the subsequent regulatory control period is calculated as follows:

$$FR_5 = \left((P_4 \times FQ_4) \times \left[(1+i)^2 \times (1+i^*)^2 \right] \right) \text{ or}$$

$$FR_5 = \left((0.05 \times 2.8) \times \left[(1+0.1)^2 \times (1+0.09)^2 \right] \right) = \$0.20 \text{ million}$$

This amount comprises \$0.14 million and a return on forgone revenue of \$0.061 million which equals a forgone revenue allowance of \$0.2 million.

Combining the examples in figures A.2 and A.4, the total demand management amount (D_5) to be added to allowed revenues in regulatory year 2 of the subsequent regulatory control period for a DNSP subject to both parts A and B of the DMEGCIS is calculated as follows:

$$D_5 = \left(C_4 - \left[\frac{(R_5 - A_5)}{(1+i)^5} \times (1+i)^5 (1+i^*)^2 \right] \right) + \left((P_4 \times FQ_4) \times \left[(1+i)^2 \times (1+i^*)^2 \right] \right)$$

$$D_5 = (0.74 - [(1.0 - 0.5) \times (1 + 0.09)^2]) + ((0.05 \times 2.8) \times [(1 + 0.1)^2 \times (1 + 0.09)^2])$$

$$D_5 = \$0.14 \text{ million} + \$0.20 \text{ million} = \$0.34 \text{ million}$$

The total DMIA (using figures A.2 and A.4) in regulatory year 2 of the subsequent regulatory control period will be \$0.946 million (\$0.14 million for the carryover allowance and \$0.806 million for forgone revenue).