Demand Management Incentive Scheme

Energex, Ergon Energy and ETSA Utilities

2010–15

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Contents

Shortened forms

AER	Australian Energy Regulator
DMIA	demand management innovation allowance
DMIS	demand management incentive scheme
DNSP	distribution network service provider
NEL	National Electricity Law
NER	National Electricity Rules
NPV	net present value
RAB	regulatory asset base
WACC	weighted average cost of capital

1 Nature and authority

1.1 Introduction

This document sets out the Australian Energy Regulator's (AER) demand management incentive scheme (DMIS) for Queensland and South Australian Distribution Network Service Providers (DNSPs). This scheme has been developed to apply to Energex, Ergon Energy and ETSA Utilities in their distribution determinations for the regulatory control periods commencing 1 July 2010.

1.2 Authority

Clause 6.6.3 of the National Electricity Rules (NER) allows the AER to develop, in accordance with the distribution consultation procedures in rule 6.16 of the NER, a demand management incentive scheme or schemes (DMIS). This DMIS has been developed and published in accordance with these provisions.

1.3 Role of this scheme

The role of the scheme, as set out in clause 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. The scheme is designed to complement the existing incentives within the regulatory framework for DNSPs to implement non-network alternatives and manage demand.

1.4 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 *Trade Practices Act 1974*, the National Electricity Law (NEL) and the NER.

1.5 Version history and effective date

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

2 Objectives and application of this scheme

2.1 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.

The NER require that the AER, in developing and implementing a DMIS, 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 DMIS and other incentive schemes
- the willingness of the customer or end user to pay for increases in costs resulting from implementation of the scheme.[1]

2.2 Application of the scheme

This DMIS will be applied through the AER's distribution determinations for the Queensland and South Australian DNSPs. This will occur in three stages:

- The AER's framework and approach papers will set out the AER's likely approach, in its forthcoming distribution determination, to the application of the DMIS to a particular DNSP.
- A DNSP's regulatory proposal for a distribution determination must include a description, including relevant explanatory material, of how the DNSP proposes the DMIS should apply for the relevant regulatory control period. If the proposed application differs from that set out in the framework and approach paper, the DNSP must fully detail any difference in approach, and substantiate why a different approach would be more appropriate and how it would satisfy the requirements of the NEL and NER in its regulatory proposal for the AER to assess.
- The AER's final decision on how the DMIS is to apply to a DNSP in a regulatory control period will be part of the distribution determination it makes for that DNSP.

[1] NER, cl. 6.6.3(b)

3 The demand management incentive scheme

The AER's DMIS for Queensland and South Australian DNSPs is designed to complement the broader regulatory framework in providing incentives for DNSPs to carry out non-network alternatives, and encourage DNSPs to explore ways to manage expected demand for standard control services in other ways.

The DMIS is not designed to be the sole, or primary source of funding for demand management expenditure in a regulatory control period. The primary source of a DNSP's recovery for demand management expenditure in a distribution determination is to be the approved forecasts of operating and capital expenditure in the AER's distribution determination for that DNSP. Clauses 6.5.6 and 6.5.7 of the NER require DNSPs to include expenditure required to manage the demand for standard control services in their capital and operating expenditure forecasts. Before approving forecasts of operating and capital expenditure the AER will require DNSPs to satisfactorily demonstrate that efficient non-network alternatives to capital and operating expenditure have been properly considered in the development of forecasts. Approved forecasts will take into account the DNSP's satisfaction of this requirement with regard to the established criteria that the forecasts are prudent, efficient and reflect realistic expectations of cost inputs and demand.[2]

The DMIS is designed to supplement a DNSP's approved capital and operating expenditure, to facilitate investigation and implementation of demand management strategies. The development of reliable and viable strategies will allow DNSPs to implement non-network alternatives where efficient, and to manage the expected demand for standard control services by means other than network augmentation.

The DMIS aims to provide incentives for DNSPs to investigate and conduct broad-based and/or peak demand management projects throughout the regulatory control period. It aims to increase the current stock of knowledge and experience with network demand management, to encourage greater consideration of non-network alternatives to augmentation in the decision making processes of DNSPs. The scheme aims to provide incentives for DNSPs to conduct research and investigation into innovative techniques for managing demand so that, in the future, demand management projects may be increasingly identified as viable alternatives to network augmentation.

The demand management innovation allowance (DMIA) in part A of the DMIS is provided to the DNSP 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. In the second regulatory year of the subsequent regulatory control period, when results for regulatory years one to five are known, a single adjustment will be made to return the amount of any underspend on unapproved amounts to customers. This ensures that the scheme remains neutral in terms of the expenditure profile within the period to which it has applied.

[2] See, generally, the capital expenditure criteria and the operating expenditure criteria the AER is required to assess such forecasts against in clauses 6.5.6(c) and 6.5.7(c) of the NER.

The requirement for a DNSP to submit annual reports on the outcomes and expenditure under the DMIS, which the AER will publish, will help to enhance industry knowledge of demand management, and will assist demand management proponents (including demand-side aggregators) in identifying opportunities and developing knowledge on viable demand management projects and programs.

The application of part B of the DMIS addresses the impacts that certain forms of control may have on a DNSP's incentives to make use of the DMIA. Part B allows a DNSP whose direct control services are subject to a form of control whereby recovery of the annual revenue requirement is at least partially dependent on energy sold, 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 DMIS. 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, to offset the disincentives associated with certain forms of control.

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

3.1 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.

3.1.1 Amount of the DMIA

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

3.1.2 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.

Within the regulatory control period the DNSP has the flexibility to select an expenditure profile that suits its needs. However, the total amount recoverable over the regulatory control period will not exceed the total amount of the allowance determined in accordance with section 3.1.1.

3.1.3 The DMIA criteria

Projects and programs eligible for approval under this scheme 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; and/or
    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 projects and programs may be tariff or non-tariff based.
5. Costs recovered under this scheme:

a. must not be recoverable under any other jurisdictional incentive scheme,

b. must not be recoverable under any other state or Commonwealth Government scheme, and

c. 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.

6. Expenditure under the DMIA can be in the nature of capital or operating expenditure. 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, however the AER's decision in that regard will only be made as part of the next distribution determination.

3.1.4 Approval of expenditure under the DMIA

At the end of each regulatory year of the regulatory control period, the AER will conduct a review of expenditure incurred by the DNSP in the preceding regulatory year to ensure compliance with the DMIA criteria.[3]

3.1.4.1 Annual reporting requirements

A DNSP to which this scheme applies must submit to the AER a report on its expenditure under the DMIA for each regulatory year of the 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 information provided in a DNSP's annual report will form the basis of the AER's assessment of the DNSP's compliance with the DMIA criteria, and its entitlement to recover expenditure under the DMIA.

The AER will publish the annual reports from DNSPs to which this scheme applies to provide information to stakeholders on the results of projects and programs investigated and/or implemented under this scheme. This information will assist the AER in assessing proposals for demand management expenditure in operating and capital expenditure forecasts submitted in a DNSP's regulatory proposals, and in the development and implementation of demand management incentive schemes, in future regulatory control periods.

Reports must be submitted in a form suitable for publication. If a report contains confidential information, the DNSP must:

1. clearly identify the information that is the subject of the confidentiality claim
2. provide reasons to substantiate any confidentiality claim, and
3. provide a non-confidential version of the report for publication.

[3] The AER's ex-post review will take place once audited data becomes available for the previous regulatory year.

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 3.1.3 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,
    c. the process by which each project or program was selected, including the business case for the project and consideration of any alternatives,
    d. how each project or program was/is to be implemented,
    e. the implementation costs of the project or program, and
    f. any identifiable benefits that have arisen from the 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 program:
    a. are not recoverable under any other jurisdictional incentive scheme,
    b. are not recoverable under any other state or Commonwealth government scheme, and
    c. are not 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 projects or programs completed in previous years of the regulatory control period, and of any results to date.

A report must be submitted for each regulatory year of the regulatory control period. Where a demand management project or program extends across more than one year of the regulatory control period, 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 DMIS applies to a DNSP, it must also submit the information required under section 3.2.4 of the DMIS.

3.1.4.2 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, and

b. the amount of allowance remaining (in nominal terms) for the regulatory control period.

3.1.5 Final year adjustment

Once data becomes available for the final regulatory year of the regulatory control period, the AER will calculate a total carryover amount on the basis of the annual assessments in section 3.1.4 of this scheme to account for:

- any amount of allowance unspent or not approved over the regulatory control period, and

- the time value of money accrued / lost as a result of the expenditure profile selected by the DNSP.

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 carryover amount will be deducted from/added to allowed revenues in the second regulatory year of that regulatory control period.

The final year adjustment will be calculated to ensure the DNSP will be indifferent (in net present value (NPV) terms) to its 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, the AER will use the nominal vanilla weighted average cost of capital (WACC) approved in the distribution determination for the regulatory control period under which this scheme applied.

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

3.2 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 demand management projects or programs approved under part A of this scheme. The integration of parts A and B of this scheme, and worked examples, are provided in appendix A.

3.2.1 Purpose and scope

Part B allows a DNSP to recover revenue forgone in a regulatory control period resulting from a reduction in the quantity of energy sold directly attributable to a project approved under part A of the DMIS within that period. Only a DNSP to which the DMIA in part A of this scheme applies may be subject to this part B. Part B will not automatically apply, and will not apply in isolation.

A non-tariff demand management program that results in a reduction in the quantity of energy sold has the potential to reduce a DNSP's revenue. Under forms of control where revenue is at least partially dependent on the quantity of electricity sold (e.g. a price 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 program approved under the DMIA.

The AER will assess the effect a form of control will have on a DNSP's incentive to undertake demand management projects or programs on a case-by-case basis, having regard to the form of control applied to that DNSP's standard control services in the relevant distribution determination.

> Example: The AER has determined that a revenue cap will apply to standard control services provided by Energex and Ergon Energy during the 2010-15 regulatory control period. [4] Under a revenue cap, a DNSP's ability to recover its allowed annual revenue is not affected by the quantity of electricity sold. Therefore, part B of the DMIS will not apply to Energex and Ergon Energy.

Recovery under this 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.

Although recoverable programs under the DMIA may be tariff or non-tariff based, a DNSP will only be able to recover forgone revenue resulting from a reduction in the quantity of electricity sold due to the implementation of non-tariff based demand management programs allowed by the AER under this scheme. Tariff-based demand management 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. As such, tariff-based demand management programs are unlikely to result in a DNSP foregoing revenues,

[4] AER, *Framework and approach, Classification of services and control mechanisms, Energex and Ergon Energy 2010–15*, August 2008.

despite any fall in demand associated with customers' responses to higher prices. Accordingly, the DMIS allows approved DNSPs to recoup forgone revenues associated only with non-tariff demand management projects.

Revenue available under part B of the scheme does not have a specified cap. However, the actual amount that can be recovered is limited to approved revenue forgone resulting from a successful project established under part A of the scheme.

A DNSP will be unable to recover forgone revenue resulting from demand management programs funded out of a DNSP's regulatory allowance, or reductions in revenue resulting from government policy changes in relation to demand management. Any demand management carried out independently of the DMIS (such as expenditure approved in the AER's regulatory determination) is implemented after a DNSP has assessed business cases for the demand management initiatives, and the risks and benefits associated with the decision to implement demand management. The AER will not allow a DNSP to recoup forgone revenues resulting from demand management carried out independently of the DMIS.

Forgone revenue recoverable under part B is limited to revenue forgone within the regulatory control period in which the DMIS 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 demand management projects under the DMIA.

3.2.2 AER's assessment of forgone revenue

For the purposes of this scheme forgone revenue will be based on the following key components:

- the amount of a change in energy consumption or demand directly attributable to the demand management initiative, and
- the price/tariff applicable to the forgone energy/demand,

and will be calculated in accordance with the principles in section 3.2.3 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 rejected by the AER under the DMIA
- forgone revenue resulting from tariff based demand management programs approved under the DMIA
- demand management projects approved under a DNSP's forecast operating and capital expenditure
- 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.

DNSPs will only be allowed to recover forgone revenue resulting from a reduction in the quantity of electricity sold that is directly attributable to the implementation of a demand management project approved under the DMIA. Where a demand management project results in reductions in revenue that extend beyond the end of that project, 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 DMIS applies.

A number of factors (other than demand management) may affect electricity consumption, and demand for electricity, such as weather, or electricity prices.

DNSPs will be required to ensure that significant distortions from other factors are separated or corrected for in calculations of forgone revenue attributed to demand management projects or programs under the DMIA. The AER will require DNSPs to provide information in their 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.

Where a DNSP is only able to provide estimates of actual forgone revenue given the difficulty in precisely calculating the impact of a demand management initiative or the need to adjust for other factors such as weather, 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 3.1.4.1 of this scheme, based on the information provided by the DNSP. A DNSP's calculation of forgone revenue will be assessed in accordance with the principles in section 3.2.3 of this scheme, having regard to the information submitted by the DNSP in accordance with section 3.2.4 below.

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.

3.2.3 Principles for calculation of forgone revenue

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

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

- 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 demand management project 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):

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

where:

i = nominal vanilla WACC for the first regulatory control period.

i^* = nominal vanilla WACC for the second regulatory control period.

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 period and will be calculated by the DNSP at the end of the following year.

$(1+i^*)^2$ = returns on forgone revenue, for the second regulatory control period. [5]

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.

[5] For example actual forgone revenues in regulatory year 1 that are 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. If the demand management measure is being implemented and managed through a demand management contract[6] (or similar) the measurement and verification processes associated with the contract may be suitable as a basis for estimation.

7. The estimates of prices to be applied to respective quantity estimates 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.

8. If the demand management measure is targeted at a specific customer or project, the actual DUOS tariff applying to that customer or project must be used to estimate the forgone revenue.

9. If the measure affects quantities associated with more than one tariff, the price can be estimated based on actual quantities or appropriate weightings. The basis for any weightings, in the case of a weighted average tariff, must be demonstrated to be appropriate for the purposes of estimating forgone revenue.

10. 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).

3.2.4 Annual reporting for forgone revenue

A DNSP to which this part B applies must, at the same time that it submits its annual report under section 3.1.4.1, submit to the AER:

1. Its calculation of any forgone revenue that is directly attributable to the DMIS in the relevant regulatory year, prepared in accordance with section 3.2.3 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.

[6] 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.

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.

Calculations of forgone revenue must be accompanied by sufficient information to demonstrate compliance with the principles for the calculation of forgone revenue in section 3.2.3 of this scheme.

A DNSP shall ensure that all information provided to the AER under this section 3.2.4 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.

3.2.5 Final year adjustment

Once data becomes available 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 3.2.4 of this scheme to account for:

- the total amount of revenue forgone as a result of demand management projects or programs implemented and approved under section 3.1.4 of this scheme, and

- 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 3.1.5 above, resulting in a single adjustment.

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

4 Relevant determinations

This DMIS has been developed to apply to Energex, Ergon Energy and ETSA Utilities in the regulatory control periods commencing 1 July 2010.

This scheme will not be applied to other DNSPs or in other distribution determinations without further consultation.

5 Assessment of the scheme

The operation of the scheme will be monitored by the AER throughout the regulatory control periods for Energex, Ergon Energy, and ETSA Utilities commencing 1 July 2010.

An assessment of the scheme's operation will be made when considering the application of demand management incentive schemes to Energex, Ergon Energy, and ETSA Utilities in subsequent regulatory control periods.

Appendix A

This appendix provides a number of worked examples of the operation of the DMIS.

Step 1 Amount of the DMIA

[Section 3.1.1]

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

Step 2 Access to the DMIA

[Section 3.1.2]

This $5 million allowance will be provided in five, equal instalments of $1 million — one 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 five regulatory years 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 3.1.4]

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 3.1.4.2 of this scheme. Expenditure will be either approved or rejected based on an assessment against the DMIA criteria in section 3.1.3 of this scheme. The total amount of expenditure approved by the AER over the five year regulatory control period will not exceed $5 million.

Step 4 Final year adjustment

[Section 3.1.5, 3.2.5]

Once data becomes available 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 deducted from (added to) allowed revenues in the second regulatory year of the subsequent regulatory control period.[7] The adjustment

[7] 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).

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 defer or advance expenditure.

Calculating the carryover amount

[Section 3.1.5]

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,…,5)

A_t = expenditure approved ex-post under the scheme for regulatory year 't' (t = 1,2,…,5)

i = nominal vanilla WACC as set in the distribution determination for the forthcoming 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 deducted from (added to) allowed revenues in regulatory year 2 of the subsequent regulatory control period.

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

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

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

The amount of the final carryover (C_5) is calculated so as to ensure that the DNSP is revenue neutral (ie. $NPV = 0$) to the profile of expenditure approved by the AER over the five-year regulatory control period.[8] In other words, the amount of the final carryover is such that:

[8] 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.

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

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

[Section 3.2.5]

This applies only to DNSPs to which part B of this 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 approved under the DMIA, in accordance with the principles for calculation of forgone revenue in section 3.2.3 of this scheme.

The forgone revenue (FR_t) is calculated as follows:

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

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:

$$D_t = C_t + FR_t$$

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

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:

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

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% for the first regulatory control period (i = 0.10), and
- a nominal vanilla WACC of 9% for the second regulatory control period (i* = 0.09).

Figure A.4 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 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	0.00	0.00	0.00	0.00	0.00			
Adjustment to revenues							0.00	
NPV to DNSP	0.00	0.00	0.00	0.00	0.00		0.00	**0.00**

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 / 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 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; and
- 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 net present value of expenditure approved against the ex-ante allowance (ie. 'NPV to DNSP') for regulatory year 1 is calculated as follows:

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

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

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

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

$$C_1 = 0 + 0.47 \times (1+0.10)^5 \times (1+0.09)^2 = 0.87$$

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:

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

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

Figure A.3: Spend full allowance in final regulatory 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	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 (t-2)		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)		0.500	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 current 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 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:

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

$$FR_5 = \left((0.05 \times 0.14) \times \left[(1+0.1)^2 \times (1+0.9)^2\right]\right) = \$0.20 million$$

This amount comprises \$0.14 million and a return on 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 this scheme is calculated as follows:

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

$$D_5 = \left(0.74 - \left[(1.0 - 0.5) \times (1+0.09)^2 \right] \right) + 0.74 - \left[(1.0 - 0.5) \times (1+0.09)^2 \right]$$

$$D_5 = \$0.14 million + \$0.20 million = \$0.34 million$$

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).