

Ausgrid 2011-12 D-Factor Submission Independent Review

24 January 2013

Ausgrid

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| | | | |

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1. Introduction

Parsons Brinckerhoff has been engaged by Ausgrid to conduct an independent review of the D-Factor submission for the 2011-12 financial year.

The Australian Energy Regulator (AER) decided to implement demand management incentive schemes for NSW Distribution Network Service Providers (DNSPs) during the regulatory period from 2009-10 through to 2013-14. There are two types of demand management incentives:

- A demand management innovation allowance (DMIA) scheme, and
- The D-Factor scheme as developed and applied by IPART in its 2004 determination¹

This report only reviews projects which are covered by the D-Factor scheme as part of the Regulatory Information Notice, Template 14b.

1.1 D-Factor scheme overview

The purpose of the D-Factor scheme is to neutralise barriers to demand management associated with the regulatory framework of network pricing by providing incentives for DNSPs to implement demand management to defer network investment. This was achieved by the introduction of a D-factor into the weighted average price cap (WAPC) control formula. The D-Factor allows the DNSPs to recover²:

- the cost of implementing the demand management measures
- foregone revenue associated with the impact of reduced energy volumes under the WAPC formula.

1.1.1 Avoided distribution costs

The amount claimable by the DNSP is capped at the maximum Avoided Distribution Cost (ADC). The ADC includes both operational and capital expenditure and is calculated as the difference between the present value of the network investment project without demand management, and the present value of the same network investment project deferred due to the implementation of demand management. That is:

$$\text{ADC Cap} = \text{PV} [\text{Network Project without DM}] - \text{PV} [\text{Deferred Network Project with DM}]$$

The guideline recommends a default period of analysis of 15 yrs.

The ADC amount is claimed annually in an ex-post assessment. The ADC and any annual claims are inflated by the appropriate weighted average cost of capital (WACC) to the year being assessed. The claim is made provided the ADC cap has not been reached.

¹ Australian Energy Regulator, *Final Decision New South Wales distribution determination 2009-10 to 2013-14*, 28 April 2009, page 253.

² IPART, *Guideline: Methodology for estimating foregone revenue*, 28 April 2005.

1.1.2 Foregone revenue

Foregone revenue is the revenue that is not recovered by the DNSP due to the implementation of a non-tariff demand management project, that otherwise, in all likelihood, would have been received by the DNSP if the demand management project had not been undertaken.

The foregone revenue is calculated by:

$$FR = P \times FQ$$

where FR is the foregone revenue, P is the price estimate and FQ is the foregone quantity of energy.

Foregone revenue is claimed annually in an ex-post assessment, but is limited to the duration of the demand management project, or if the foregone revenue continues past the end of the project it is limited to the end of the regulatory period.

1.2 Weighted average cost of capital

Parsons Brinckerhoff notes that the following WACCs have been applied during past years:

- a WACC of 9.7% for nominal pre-tax has previously been applied for cash flows which occurred during the 2004 to 2009 regulatory period³
- a WACC of 10.02% for nominal pre-tax cash flows, or 7.5% for real pre-tax cash flows, has been applied for the cash flows incurred after 2009-10.

Parsons Brinckerhoff considers that using the WACC applicable at the time when the cash flow occurred is appropriate and consistent with the principles in the D-Factor calculation guidelines as well as with the methodology used in previous years.

1.3 Scope of the review

This report reviews the distribution management projects that are applicable to the D-Factor scheme during the 2011-12 financial year. The AER requires that the projects satisfy the following criteria:

- a network constraint exists
- non-tariff demand management is targeted at reducing network expenditure
- the costs of the network expenditure deferred or postponed are reasonable.

Parsons Brinckerhoff has not conducted this review as a formal audit, rather as a verification of the reasonableness and accuracy of the information reported by Ausgrid in Template 14b of the RIN. Parsons Brinckerhoff reviewed the relevant project documentation, and has accepted the information that Ausgrid provided in good faith.

³

EnergyAustralia Distribution Revenue – D Factor submission 2009/10, Independent assessment of demand management avoided distribution costs and revenue foregone for 2009/10, SKM, 23 February 2011.

Where a project existed in the previous financial year, and it had previously been assessed against the D-Factor criteria, Parsons Brinckerhoff has relied on the existing report. In these cases, Parsons Brinckerhoff's review focuses on ensuring that the ADC and foregone revenues are calculated correctly, and that the ADC limits have not been exceeded.

All documentation available for new projects or those projects not previously assessed have been fully reviewed and assessed against the criteria.

1.4 Independence of Parsons Brinckerhoff

The AER requires that the DNSPs provide independent expert evidence which verifies the link between the implementation of the non-tariff-based demand management measure and the resulting estimate of the actual foregone energy quantum.⁴

Parsons Brinckerhoff qualifies as an independent expert capable of meeting this requirement. Parsons Brinckerhoff does not have commercial interest in the outcome of the review and is suitably qualified through appropriate technical knowledge and experience as an auditor in the electrical industry.

Parsons Brinckerhoff's lead auditor is accredited and trained, holding certificates in Lead Auditor and Auditing Quality Management Systems through SAI Global Ltd. Relevant experience includes multiple regulatory and compliance audits for Australian DNSPs to provide independent verification of the reported results for the AER and jurisdictional regulators. The audits have included components such as verification for the STPIS, compliance with minimum service standards, and certification of Victorian distribution loss factors.

⁴

Demand management incentive scheme for the NSW 2009 distribution determinations, D-factor scheme, Australian Energy Regulator, February 2008, Section 2.1.

2. Project reviews

There are a total of seven D-Factor projects which require review for the 2011-12 RIN. Four of the projects were reviewed during the 2009-10 financial year review by SKM⁵, and two of the projects were reviewed during the 2010-11 financial year by Parsons Brinckerhoff (2012)⁶. No record of a D-factor review was found for the Medowie project for previous years.

The seven projects to be reviewed are:

1. Wollombi Embedded Generator Project Extension 2
2. Greenacre Demand Management Project
3. Terry Hills PFC & Generator Project
4. Willoughby STS Demand Management Project
5. North West Pennant Hills Demand Management Project
6. Medowie Demand Management Project
7. East Maitland Demand Management Project

The following sections of this report will discuss each of the seven D-Factor scheme projects in respect to the AER's criteria.

2.1 Wollombi Embedded Generator Project

Ausgrid's Wollombi Embedded Generator Project was implemented to provide support to a long rural feeder by reducing demand at times of high load.

Ausgrid has submitted the figures shown in Table 1 as part of the D-Factor scheme.

Table 1 Wollombi Demand Management Project D-Factor Costs

| Description | Value (\$'000) |
|---------------------------------------|----------------|
| Avoided Distribution Cost Cap 2011-12 | \$0 |
| DM Implementation Cost 2011-12 | \$277.6 |
| Avoided Distribution Cost Claim | \$0 |
| Foregone Revenue Claim 2011-12 | \$0 |

Wollombi Embedded Generator Project is an existing project that was established in 2006. It has previously been reviewed by SKM for independent verification as required by the AER. Parsons Brinckerhoff has relied on the past reviews undertaken by SKM and has limited the

⁵ SKM, *EnergyAustralia Distribution Revenue – D Factor submission 2009/10, Independent assessment of demand management avoided distribution costs and revenue foregone for 2009/10, 23 February 2011.*

⁶ Parsons Brinckerhoff (2012), *Ausgrid 2010-11 D Factor Submission Independent Review, 16 March 2012.*

independent review to ensure the claimed expenditure has been based on appropriate data and calculated according to the correct methodology for the 2011-12 financial year.

2.1.1 Avoided distribution costs

Distribution network constraint

This project was previously reviewed by SKM. Reference should be made to the 2011 SKM report for the 2009-10 financial year for further information regarding the network constraint.

Given that no claim has been made for this project for the 2011-12 financial year, Parsons Brinckerhoff has relied on the 2011 SKM report and is satisfied that the demand management project targets the network constraint.

Demand management is targeted at reducing network expenditure

This project was previously reviewed by SKM. Reference should be made to the 2011 SKM report for the 2009-10 financial year for further information regarding this project.

Based on the 2011 SKM report, Parsons Brinckerhoff is satisfied that the demand management project targets the network expenditure.

The costs of the network expenditure deferred or postponed are reasonable

The ADC cap, which was set as \$103,300, was reached prior to 2010, therefore no avoided distribution costs have been claimed for the 2011-12 financial year. Parsons Brinckerhoff considers this to be appropriate and consistent with the ADC guidelines.

2.1.2 Foregone revenue

There has not been any foregone revenue claimed under this project for the 2011-12 financial year.

2.2 Greenacre Demand Management Project

Ausgrid's Greenacre Demand Management Project was implemented to address capacity constraints at the adjacent Greenacre Park and Sefton Zone substations. Load growth and revised rating resulted in both substations being overladed in 2008 and the network solution could not be implemented until 2011.

The demand management project consisted of Network Support Agreements with customer stand-by generators and a small amount of power factor correction.

Ausgrid has submitted the following figures shown in Table 2 as part of the D-Factor scheme.

Table 2 Greenacre Demand Management Project D-Factor Costs

| Description | Value (\$000's) |
|---|------------------------|
| Avoided Distribution Cost Cap 2011-12 | \$5,080.7 |
| Demand Management Implementation Cost 2011-12 | \$639.7 |
| Avoided Distribution Cost Claim | \$639.7 |
| Foregone Revenue Claim 2011-12 | \$140.7 |

Greenacre Demand Management Project is an existing project that was established in 2007-08. It has previously been reviewed by SKM for independent verification as required by the AER. Parsons Brinckerhoff has relied on the past reviews undertaken by SKM and has limited the independent review to ensuring that claimed expenditure has been based on appropriate data, and that the claim is calculated according to the correct methodology for the 2011-12 financial year.

2.2.1 Avoided distribution costs

Distribution network constraint

Parsons Brinckerhoff has reviewed the latest project documentation, and in conjunction with the 2011 SKM report for the 2009-10 financial year, is satisfied that the network constraint caused by insufficient capacity at Greenacre Park and Sefton Zone Substations was correctly identified in 2007.

Demand management is targeted at reducing network expenditure

Parsons Brinckerhoff did not review the project in detail and has relied on the 2011 SKM report which states that the demand management is clearly linked to the constraint and therefore results in reducing network expenditure.

Parsons Brinckerhoff notes that since the network constraint had insufficient capacity and the network solution was to build a new zone substation at Potts Hill, demand reduction through generation and power factor correction projects is an appropriate demand management approach to defer network expenditure.

The costs of the network expenditure deferred or postponed are reasonable

SKM reviewed the methodology used by Ausgrid to calculate the foregone revenue and concluded that the methodology was sound. Parsons Brinckerhoff has relied on the SKM findings that the methodology is sound and has reviewed the 2011-12 data to ensure the same methodology was used and was based on appropriate data.

The total cost of the Greenacre Demand Management Project was \$639,720 during the 2011-12 financial year. This comprised of \$595,711 for the generator option, and the remainder was for the power factor correction program. This cost falls within the avoided cost cap amount, and represents 1.3% of the proposed network option of \$51m. Parsons Brinckerhoff is therefore satisfied that the avoided distribution costs being claimed during the 2011-12 financial year are reasonable.

2.2.2 Foregone revenue

Installing power factor equipment will directly lead to foregone revenue due to a reduction in billable demand. Ausgrid calculates the foregone revenue based on actual metered data and the historic power factor from the financial year preceding the installation of the power factor equipment.

Parsons Brinckerhoff is satisfied that Ausgrid has used an appropriate methodology which accurately calculates the foregone revenue based on actual results of the demand management project and tariff prices appropriate to the time when the energy sales were foregone.

Ausgrid has claimed \$140,708 of foregone revenue caused by the Greenacre Demand Management project.

2.3 Terrey Hills PFC and Generator Project

Ausgrid's Terrey Hills Demand Management Project was implemented in 2009 to reduce demand on the 33 kV network in the Sydney East Sub Transmission Station (STS) area.

Ausgrid has submitted the costs and claims shown in Table 3 as part of the D-Factor scheme.

Table 3 Terrey Hills PFC and Generator Project D-Factor Costs

| Description | Value (\$'000) |
|---------------------------------------|----------------|
| Avoided Distribution Cost Cap 2011-12 | \$112.5 |
| DM Implementation Cost 2011-12 | \$0 |
| Avoided Distribution Cost Claim | \$0 |
| Foregone Revenue Claim 2011-12 | \$7.5 |

Terrey Hills PFC and Generator Project is an existing project that was established in 2008-09. It has previously been reviewed by SKM for independent verification as required by the AER. Parsons Brinckerhoff has relied on the past reviews undertaken by SKM and has limited the independent review to ensuring that claimed expenditure has been based on appropriate data and that the claim is calculated according to the correct methodology for the 2011-12 financial year.

2.3.1 Avoided distribution costs

Distribution network constraint

When this project was implemented, there was a network constraint in the Sydney East STS area as identified in the 2011 SKM report. To address the constraint a combination of generation and power factor correction projects were implemented.

During the 2011-12 financial year, the network constraint was resolved. Hence, no ADCs were claimed. However, the power factor correction plant is still installed on the network and has resulted in foregone revenues.

The power factor correction plant was supported by a constraint that reflects the state of knowledge at the time of the business decision. Therefore, Parsons Brinckerhoff is satisfied that a constraint exists for this option.

Demand management is targeted at reducing network expenditure

Parsons Brinckerhoff did not review the project in detail, and has relied on the 2011 SKM report that states that the demand management is clearly linked to the constraint and therefore results in reducing network expenditure.

The costs of the network expenditure deferred or postponed are reasonable

The ADC Cap was reviewed by SKM during the 2009-10 financial year and found to be based on appropriate data and calculated according to the correct methodology.

Since the network constraint no longer exists, there were no avoided distribution costs incurred during the 2011-12 financial year. Parsons Brinckerhoff is satisfied that this is appropriate and reasonable.

2.3.2 Foregone revenue

Installing power factor equipment will directly lead to foregone revenue due to a reduction in billable demand. Ausgrid calculates the foregone revenue based on actual metered data and the historic power factor from the financial year preceding the installation of the power factor equipment.

Parsons Brinckerhoff is satisfied that Ausgrid has used an appropriate methodology that accurately calculates the foregone revenue based on actual results of the demand management project and the tariff prices appropriate at the time when the energy sales were foregone.

Ausgrid has claimed \$7,518 of foregone revenue caused by the Terrey Hills Demand Management Project.

2.4 Willoughby STS Demand Management Project

Ausgrid's Willoughby STS Demand Management Project was implemented to reduce the load at Willoughby Subtransmission Substation. This project reduced the impact on the delayed completion of the Royal North Shore Hospital zone substation, and additional works at Willoughby Subtransmission Substation.

The project consisted of two elements, a non-dispatchable network support agreement with a gas-fired cogeneration site, and a customer power factor correction program.

Ausgrid has submitted the costs and claims shown in Table 4 as part of the D-Factor scheme.

Table 4 Willoughby STS Demand Management Project D-Factor Costs

| Description | Value (\$'000) |
|---------------------------------------|-----------------------|
| Avoided Distribution Cost Cap 2011-12 | \$1,823.5 |
| DM Implementation Cost 2011-12 | \$3.9 |
| Avoided Distribution Cost Claim | \$3.9 |
| Foregone Revenue Claim 2011-12 | \$92.4 |

Willoughby STS Demand Management Project was established in 2008-09. It has previously been reviewed by SKM for independent verification as required by the AER. Parsons Brinckerhoff has relied on the past reviews undertaken by SKM and has limited our independent review to ensuring that the claimed expenditure has been based on appropriate data and calculated according to the correct methodology for the 2011-12 financial year.

2.4.1 Avoided distribution costs

Distribution network constraint

Parsons Brinckerhoff has reviewed the latest project documentation, Ausgrid's Demand Management Screening Test, and Ausgrid's Demand Management Investigation Report, in conjunction with the 2011 SKM report for the 2009-10 financial year. Parsons Brinckerhoff is

satisfied that the network constraint was caused by insufficient capacity at Willoughby, and that the STS demand management Project was correctly identified.

Demand management is targeted at reducing network expenditure

Parsons Brinckerhoff did not review the project in detail, and has relied on the 2011 SKM report, which states that the demand management project is clearly linked to the constraint, and therefore results in reducing network expenditure.

Parsons Brinckerhoff notes that the new substation is required to reduce the load at risk within the Willoughby area. The demand management projects will reduce the load in the peak summer period, which reduces the load at risk. For 2010-11, the project's present value of avoided network costs as calculated in 2010 under the AER methodology is \$4.1m. The demand management project directly targets the demand driver for the new substation, and therefore reduces network expenditure by delaying the proposed \$53.7m substation project.

Parsons Brinckerhoff is satisfied that the demand management project is targeted at reducing the network expenditure.

The costs of the network expenditure deferred or postponed are reasonable

The total cost of building the new Royal North Shore Hospital (RNSH) substation is estimated at \$53.7m. The total cost of the demand management project was estimated at \$750,000 which includes the power factor correction program, and non-dispatchable network support.

In order to calculate the ADC cap, Ausgrid completed a discounted cash flow analysis, in accordance with the guidelines, to calculate the difference between immediate and deferred implementation of the network solution. The cash flows occurring after 2010-11 were discounted by the WACC to 2011-12 dollars.

The ADC cap was calculated to be \$1.82m, as reported in Template 14b of the RIN, and \$3.9k was claimed during the 2011-12 financial year.

After reviewing the costs for both the network solution and the distribution management solution, as well as the DCF calculation for immediate and deferred implementation of the network solution, Parsons Brinckerhoff is satisfied that the costs are reasonable.

2.4.2 Foregone revenue

Installing power factor equipment will directly lead to foregone revenue due to a reduction in billable demand. Ausgrid calculates the foregone revenue based on actual metered data and the historic power factor from the financial year preceding the installation of the power factor equipment.

Parsons Brinckerhoff is satisfied that Ausgrid has used an appropriate methodology that accurately calculates the foregone revenue based on actual results of the demand management project and the tariff prices appropriate at the time when the energy sales were foregone.

Ausgrid has claimed \$92,397 of foregone revenue caused by the Willoughby STS Demand Management Project.

2.5 North West Pennant Hills Demand Management Project

Ausgrid's North West Pennant Hills Demand Management Project was implemented to address capacity constraints and enable the installation of 11 kV cables from the Pennant Hills Zone Substation to the north of Cherrybrook to be deferred. The demand management project consists of using a relocatable diesel generator to provide network support for an 18 week period during each summer from 2010-11 through to 2014-15.

Ausgrid has submitted the costs and claims as shown in Table 5 as part of the D-Factor scheme.

Table 5 North West Pennant Hills Demand Management Project D-Factor Costs

| Description | Value (\$'000) |
|---------------------------------------|-----------------------|
| Avoided Distribution Cost Cap 2011-12 | \$1,057.2 |
| DM Implementation Cost 2011-12 | \$127.8 |
| Avoided Distribution Cost Claim | \$127.8 |
| Foregone Revenue Claim 2011-12 | \$0 |

North West Pennant Hills Demand Management Project is an existing project that was established in the 2010-11 financial year. It has previously been reviewed by Parsons Brinckerhoff (2012) for independent verification as required by the AER. Parsons Brinckerhoff has relied on this past review and has limited the independent review to ensure that the claimed expenditure has been based on appropriate data, and that the claim has been calculated according to the correct methodology for the 2011-12 financial year.

2.5.1 Avoided distribution costs

Distribution network constraint

Parsons Brinckerhoff's 2012 report documented that, 'Ausgrid identified that there is a network constraint due to the capacity of the existing 11 kV cables on Feeder 38 from Pennant Hills Zone Substation'. Investigation into the issues found that load reduction of 500 kVA in 2010-11 increasing to 1 MVA in 2014-15 would be sufficient to defer the cable replacement project by five years.

Parsons Brinckerhoff has reviewed the current project documentation and is satisfied that a distribution network constraint existed.

Demand management is targeted at reducing network expenditure

In this audit, Parsons Brinckerhoff has relied on the 2012 Parsons Brinckerhoff report, which describes the demand management and network option, as well as confirming that the option reduces network expenditure.

The costs of the network expenditure deferred or postponed are reasonable

Parsons Brinckerhoff has relied on the Parsons Brinckerhoff (2012) findings that the methodology is sound, and has reviewed the 2011-12 data to ensure that the same calculation methodology was applied and that the calculation was based on the use of appropriate data.

During the 2011-12 financial year, the total cost of the North West Pennant Hills Generation Project was \$127,789. This cost is within the avoided cost cap and represents 3.3% of the proposed network option of \$3.8m. Parsons Brinckerhoff is therefore satisfied that the avoided distribution costs being claimed during the 2011-12 financial year are reasonable.

2.5.2 Foregone revenue

There has not been any foregone revenue claimed under this project for the 2011-12 financial year.

2.6 Medowie Demand Management Project

Ausgrid's Medowie Demand Management Project was implemented to reduce the load at risk prior to the construction of the new Medowie Zone Substation. The Demand Management Project consists of the installation of 5.0 MVA of temporary diesel generators and 62 kVA of Power factor correction to address network constraints across the summer seasons of 2011-12 and 2012-13.

Ausgrid has submitted the costs and claims as shown in Table 6 as part of the D-Factor scheme.

Table 6 Medowie Demand Management Project D-Factor Costs

| Description | Value (\$'000) |
|---------------------------------------|-----------------------|
| Avoided Distribution Cost Cap 2011-12 | \$2,586.0 |
| DM Implementation Cost 2011-12 | \$1,027.0 |
| Avoided Distribution Cost Claim | \$1,027.0 |
| Foregone Revenue Claim 2011-12 | \$1.5 |

Medowie Demand Management Project is not a new project; however no reference to previous D-factor reviews were obtained. This Review will stand as an independent assessment.

2.6.1 Avoided distribution costs

Distribution network constraint

Parsons Brinckerhoff reviewed the Demand Management Screening Test (Dated 08/09/10) and observed that Ausgrid had identified that there was a network constraint at the Williamtown zone substation, where demand peak load occurs during summer evenings.

Ausgrid conducted a load at risk analysis in October 2010, which showed that for the Medowie Substation there is a total of 747 MVAh of load at risk. The investigation showed that in order to reduce the load at risk to zero, peak reductions of 8.2 MVA in summer 2011/12 would be required, rising to 9.2 MVA in summer 2012/13.

Parsons Brinckerhoff has reviewed the project documentation and is satisfied that a distribution network constraint exists.

Demand management is targeted at reducing network expenditure

The preferred network option is to build a new 33/11kV Medowie zone substation, including the replacement of the 33kV circuit breakers and building a permanent 11kV switchboard at

Williamstown zone substation. The planning estimate for this project is \$22.2m, which in our opinion is a reasonable estimate of the expected cost.

The demand management solution involves the installation of four 1.25 MVA diesel generators in summer 2011/12. Installation of these generators will involve connection at two separate 11kV feeder locations and facilities to enable control from the Ausgrid control room. By operating the generators during times of peak demand, the load on the 11kV network in the Medowie area can be reduced. In addition, a program will be conducted to encourage commercial/industrial customers to install power factor correction equipment, which will reduce demand by approximately 62 kVA. The estimated cost of the demand management project is \$2.738m.

The implementation of the demand management option reduces the load at risk and defers the requirement for implement of the \$22.2m Medowie zone substation. In addition to the demand management option, Ausgrid has proposed that for 2011-12 and 2012-13 the generator and power factor correction project will cost less than the value calculated for the D-Factor consideration of the base ADC. Therefore the project is also cost effective.

Parsons Brinckerhoff has reviewed Ausgrid's Project Proposal – Demand Management Report (Dated 02/09/11), Demand Management Investigation Report (Dated 18/07/11), and Demand Management Screening Test (Dated 08/09/10) describing the constraints and the proposed solutions, as described above, and is satisfied that the demand management solution is effectively targeting the identified network constraint.

The costs of the network expenditure deferred or postponed are reasonable

The total cost of the network solution project was estimated to be \$22.2m. The total cost of the demand management project was estimated to be \$2.738m. To calculate the ADC cap, Ausgrid completed a discounted cash flow analysis in accordance with the guidelines to calculate the difference between immediate and deferred implementation of the network solution. The cash flows occurring after 2010-11 were discounted by the WACC to 2011-12 dollars.

The ADC cap was calculated to be \$2.586m, as reported in Template 14b of the RIN, and \$1.0m was claimed during the 2011-12 financial year.

After reviewing the costs for the network solution and the distribution management solution, as well as the DCF calculation for immediate and deferred implementation of the network solution, Parsons Brinckerhoff is satisfied that the costs are reasonable.

2.6.2 Foregone revenue

Installing power factor equipment will directly lead to foregone revenue due to a reduction in billable demand. Ausgrid calculates the foregone revenue based on actual metered data and the historic power factor from the financial year preceding the installation of the power factor equipment.

Parsons Brinckerhoff is satisfied that Ausgrid has used an appropriate methodology which accurately calculates the foregone revenue based on actual results of the demand management project and tariff prices appropriate at the time when the energy sales were foregone.

Ausgrid has claimed \$1,456 of foregone revenue caused by the Medowie Demand Management Project.

2.7 East Maitland Demand Management Project

Due to insufficient capacity at East Maitland Zone Substation, Ausgrid's East Maitland Demand Management Project was implemented to address load at risk and to maintain compliance with licence conditions. The project involved using a combination of demand reduction through the installation of power factor correction plant and 5 MVA of relocatable diesel generation.

Ausgrid has submitted the costs and claims shown in Table 7 as part of the D-Factor scheme.

Table 7 East Maitland Demand Management Project D-Factor Costs

| Description | Value (\$'000) |
|---------------------------------------|----------------|
| Avoided Distribution Cost Cap 2011-12 | \$1,686.6 |
| DM Implementation Cost 2011-12 | \$143.3 |
| Avoided Distribution Cost Claim | \$143.3 |
| Foregone Revenue Claim 2011-12 | \$10.9 |

East Maitland Demand Management Project is an existing project that was established in 2010-11 financial year. It has previously been reviewed by Parsons Brinckerhoff (2012) for independent verification as required by the AER. Parsons Brinckerhoff has relied on its previous review, and has limited this independent review to ensuring that the claimed expenditure has been based on appropriate data and that the claim was calculated according to the correct methodology for the 2011-12 financial year.

2.7.1 Avoided distribution costs

Distribution network constraint

Parsons Brinckerhoff's 2012 report documented that, 'Ausgrid identified that there was a network constraint at the East Maitland Zone Substation due to insufficient 11 kV switchgear capacity. The demand was expected to exceed the substation design rating from summer 2011-12, putting load at risk if there was a major plant outage'.

However, in September 2011 the following was advised:

- 6 MVA of available transfer capacity to Thornton Zone Substation was identified.
- A revised demand forecast for East Maitland Zone Substation was issued, showing reduced demand due to weather correction factors.
- A customer advised a two year delay to an expected 4 MVA load increase.

Due to these three factors, the network constraint no longer existed, and the demand management project was cancelled.

Parsons Brinckerhoff has reviewed the current project documentation and is satisfied that based on the information initially available, it was reasonable for Ausgrid to conclude that a distribution network constraint existed.

Demand management is targeted at reducing network expenditure

In this audit, Parsons Brinckerhoff has relied on the 2012 Parsons Brinckerhoff report, which reviewed the documents describing the constraints and proposed solutions, and concluded that the demand management solution is effectively targeting the identified network constraint. The proposed demand management project removed the need to advance the construction of the new Metford Zone Substation. Parsons Brinckerhoff is satisfied that Ausgrid acted appropriately in cancelling the demand management project once new information was available which identified that the network constraint no longer existed.

The costs of the network expenditure deferred or postponed are reasonable

Parsons Brinckerhoff (2012) reviewed the methodology used by Ausgrid to calculate the foregone revenue and concluded that the methodology was sound. Parsons Brinckerhoff has relied on the Parsons Brinckerhoff (2012) findings that the methodology is sound and has reviewed the 2011-12 data to ensure that the same calculation methodology was used and that the calculation was based on appropriate data.

The total cost of the East Maitland Demand Management Project was \$143,334 during the 2011-12 financial year. This cost is within the avoided cost cap and represents about 1% of the proposed network option of \$20.1m. Parsons Brinckerhoff is therefore satisfied that the avoided distribution costs being claimed during the 2011-12 financial year are reasonable.

2.7.2 Foregone revenue

Installing power factor equipment will directly lead to foregone revenue due to a reduction in billable demand. Ausgrid calculates the foregone revenue based on actual metered data and the historic power factor from the financial year preceding the installation of the power factor equipment.

Parsons Brinckerhoff is satisfied that Ausgrid has uses an appropriate methodology that accurately calculates the foregone revenue based on actual results of the demand management project, and tariff prices appropriate at the time when the energy sales were foregone.

Ausgrid has claimed \$10,926 of foregone revenue caused by the East Maitland Demand Management Project.

3. Conclusion

Parsons Brinckerhoff has reviewed Ausgrid's D-Factor submission for 2011-12 against the three criteria set out by the AER. Parsons Brinckerhoff is satisfied that the calculation methodologies for avoided distribution costs and foregone revenues are appropriate, are based on appropriate data, and do not contain errors.

The demand management projects were found to be based on identified network constraints and are appropriate in type and scale to address the constraints. Where additional information was subsequently available and resulted in the demand management option being no longer being feasible, or the network constraint being resolved, Ausgrid acted appropriate to cancel the project and has claimed reasonable amounts for the costs incurred up to the point of cancellation.

Parsons Brinckerhoff reviewed the costs for implementation of the demand management projects, and found them to be reasonable and based on a detailed scope of works and sources of cost data.

Parsons Brinckerhoff considers that the requirements for independent verification of the D-Factor scheme have been met for each of the projects discussed in this report.