REPORT ON DEMAND MANAGEMENT PROJECTS 2011/12

6 November 2012

Endeavour Energy

CONTENTS

1.0 SUMMARY

This submission of Demand Management Information (DM Information) to the Australian Energy Regulator (AER) is made in accordance with the AER's Final Decision, *New South Wales distribution determination 2009-10 to 2013-14, 28 April 2009* (the 2009 Determination).

The DM Information sets out Endeavour Energy's costs incurred, and revenue foregone, as a result of Demand Management measures implemented up to FY2011/12. Once assessed and approved by the AER these costs will be used to calculate the D-factor for 2013/14 distribution prices.

Endeavour Energy notes that these costs are above the threshold at which the DNSP may defer the "DM Cost Pass Through Amount" (see Table 1.1 below).

Endeavour Energy requests that this submission be kept confidential.

Materiality test for deferral	
Definition	DM Cost Pass Through Amount (t) / SRR (t-1) - AF Revenue (t-2) < 0.001
Parameter values	
DM Cost Pass Through Amount (t) (2013/14)	Endeavour Energy has calculated the total DM Cost Pass Through Amount for 2013/14 at $7,221,916 ($2013/14). This amount includes Non-Tariff DM costs of $1,123,709 ($2011/12), Foregone Revenue of $4,842,647 ($2011/12) and an amount for the Time Value of Money of $1,255,560 ($2013/14) to cover the holding costs on the above amounts. There are no Tariff-DM costs claimed for 2011/12.
SRR (t-1) (2012/13)	$1,077.6 million
AF Revenue (t-2) (2011/12)	Endeavour Energy has calculated the AF Revenue at $4,842,647
Materiality factor	0.00673 > 0.001

Table 1.1 – Materiality test.

Endeavour Energy estimates the D-factor for 2013/14 to be:

$$D_t = \frac{\text{DM cost pass through amount}_{t}}{\text{SRR}_{t-1} - \text{AF revenue}_{t-2}} - \frac{\text{DM cost pass through amount}_{t-1}}{\text{SRR}_{t-2} - \text{AF Revenue}_{t-3}}$$

$$D_{2013/14} = \frac{\$\text{m } 7.222}{\$\text{m } 1{,}077.6 - \$\text{m } 4.843} - \frac{\$\text{m } 6.807}{\$\text{m } 1{,}023.9 - \$\text{m } 4.619}$$

$$D_{2013/14} = 0.000$$

2.0 SUBMISSION CONTEXT AND STRUCTURE

2.1 AER requirements for reporting on demand management

This report and information has been prepared in accordance with the 2009 Determination which sets out the requirements for DNSPs on “Demand management reporting and the setting of “D” factors”.

The detailed information to be provided under the Determination includes information on the demand management measures, the costs associated with implementation and the revenue foregone as a result of the demand management activity.

2.2 Endeavour Energy’s demand management measures

Endeavour Energy has an active demand management program and considers demand management measures as part of its annual asset management and planning process.

The D factor provisions relate to network demand management measures. In 2011/12 Endeavour Energy had 20 non tariff demand management measures relevant to this submission. Nine non tariff measures were active during 2011/12. A description of each measure is provided below in Table 2.1.

Measure	Description
Chipping Norton	An RFP was issued to the market for provision of Demand Management Services for the Chipping Norton industrial and surrounding area on 19 November 2007. A DM service provider was selected via this selective tendering process to approach customers, perform free level 1 audits and implement approved DM initiatives. In addition to the audit service Endeavour Energy provided financial assistance to implement DM initiatives identified based on the achievable demand reduction. The program has now concluded. This program concluded in 2010/11 after achieving a total of 2.72 MVA in load reduction.
Windsor/Richmond	This program commenced in 2008/09 with two DM service providers selected via a Request for Quotes process to approach customers, perform free level 1 audits and implement approved DM initiatives. The target area encompasses both Windsor and Richmond commercial and industrial areas. The program has now concluded. This program concluded in 2010/11 after achieving a total of 1.63 MVA of load reduction.
Liverpool	A DM service provider was selected via a public tendering process to approach customers, perform free level 1 audits and implement approved DM initiatives. The target area is the Liverpool CBD and surrounding industrial area. The program was operational in FY11/12. The Liverpool program has achieved 6.24 MVA of load reduction.

Measure	Description
Parramatta	A DM service provider was engaged through a competitive process to provide DM services for this project. They approached customers, performed free level 1 audits and implemented approved DM initiatives. The target area is the Parramatta CBD and surrounding area. This program has achieved peak load reductions of 5.86 MVA. The Parramatta DM program has been extended to achieve an additional 2 years of deferral of the proposed supply-side augmentation. The program was operational in FY11/12.
Minto	The Minto DM program was approved for implementation in 2006/07 with a DM service provider being selected via a public tendering process to approach customers, undertake DM investigations and implement any cost-effective opportunities identified. The demand management initiatives identified and implemented in the Minto industrial area have provided a total of 4.19 MVA of peak load reduction capacity. The program has now concluded.
Bawley Point	This DM program was approved for implementation during 2007/08 and designed to reduce peak demand during holiday periods at a South Coast holiday area. The total demand reduction achieved was 1.3 MVA using an embedded generator. The program was operational in FY11/12.
Granville	An RFP was issued to the market for provision of Demand Management Services for the Granville industrial/commercial and surrounding area on 4 November 2009. A DM service provider was selected via this selective tendering process to approach customers, perform free level 1 audits and implement approved DM initiatives. In addition to the audit Endeavour Energy provides financial assistance to implement DM initiatives identified based on the achievable demand reduction. The program was operational in FY11/12. This program has achieved 0.61 MVA of load reduction.
Rooty Hill	An RFP was issued to the market for provision of Demand Management Services for the Rooty Hill/Glendenning industrial and surrounding area on 19 November 2008. A DM service provider was selected via this selective tendering process to approach customers, perform free level 1 audits and implement approved DM initiatives. In addition to the audit Endeavour Energy provides financial assistance to implement DM initiatives identified based on the achievable demand reduction. As part of the industrial area DM program, Endeavour Energy implemented two residential DM initiatives as a component of the entire Rooty Hill DM Program. One measure was the “CoolSaver” program in which Endeavour Energy remunerate customers for being allowed to reduce the energy consumption of their air conditioners during peak times. The second measure was to remunerate customers for voluntarily reducing energy consumption during peak times known as “PeakSaver”. The program was operational in FY11/12. This program has achieved 4.58 MVA of load reduction.

Measure	Description
Arndell Park	The Arndell Park DM Program aims to reduce summer afternoon peak demand by 6.9 MVA to defer the construction of Huntingwood 132kV ZS by one year. A DM service provider was contracted via a public tendering process in FY 2010/11 to approach customers, perform free level 1 audits and to implement approved DM initiatives in the Arndell Park and Huntingwood industrial areas. The program was operational in FY11/12. This program has achieved 1.36 MVA in load reduction.
Castle Hill	The Sustainable Energy Development Authority (SEDA) formed a strategic alliance with Endeavour Energy to deliver DM measures that could defer the need to invest in additional network capacity in the Castle Hill Zone Substation (ZS) supply area for up to three years. A DM service provider was retained by SEDA to identify, implement, and monitor/verify energy efficiency and peak demand reduction projects encompassing measures such as lighting retrofits, HVAC upgrades, car park ventilation optimization and compressor optimisation. This DM program concluded in 2006/07 after achieving 0.91 MVA in peak load reduction.
Nowra	A DM service provider was engaged through a competitive process to provide DM services for this project. They approached customers, performed free level 1 audits and implemented approved DM initiatives. The target area is the Nowra Commercial Centre and surrounding areas. The Nowra DM program concluded in 2006/07 after achieving 0.44 MVA in peak load reduction.
Customer A	An agreement between Endeavour Energy and Customer A was put in place to implement energy and demand saving initiatives with all initiatives implemented at Customer A. The customer received $80/kVA for permanent demand reduction. The program concluded in 2007/08 after achieving 1.81 MVA in peak load reduction.
Wetherill Park	A DM service provider was engaged through a competitive process to provide DM services for this project. They approached customers, performed free level 1 audits and implemented approved DM initiatives. The target area was the Wetherill Park Industrial area. The Wetherill Park DM program was concluded in 2006/07 after achieving a total peak load reduction of 5.45 MVA.
Campbelltown	A DM service provider was selected via a public tendering process to approach customers, performing free level 1 audits and implement approved DM initiatives. The target area is the Campbelltown CBD and surrounding industrial areas. This program concluded on 31 March 2009 having achieved a total of 1.42 MVA in load reduction.

Measure	Description
Unanderra	A DM service provider was selected via a competitive tendering process to approach customers, perform free level 1 audits and implement approved DM initiatives. This program concluded in 2008/09 after achieving a total of 2.42 MVA in load reduction.
Leabons Lane (Commercial and Blacktown Solar Cities (BSC) non tariff residential)	*Commercial Measure:* The Leabons Lane (Blacktown) program was initiated in 2004/05. Two companies were chosen to approach customers, perform free level 1 energy audits and implement approved DM measures in the Leabons Lane ZS supply area. This program concluded on 2008/09 after achieving 4.857MVA in peak load reduction. *BSC Residential Measures:* In November 2006, Blacktown became the third 'Solar City' to be announced in Australia. The Blacktown Solar City consortium included: Endeavour Energy, Landcom, Blacktown City Council and several consultants. The consortium launched a wide range of initiatives to promote sustainable energy use in Blacktown. To date, these include: a) the installation of over one megawatt (MW) of solar PV technology; b) 2,000 solar hot water systems; c) 30,000 energy efficiency packs; d) 1,400 demand management measures; e) 500 standby power reports; f) 1,000 household pricing trials; g) 3,500 energy consultations, and h) 4,000 smart meters. Endeavour Energy's role in assisting the implementation of the BSC program has included: free home energy audits; distribution and installation of free energy efficiency packs containing compact fluorescent light bulbs (CFLs) and flow-restricting showerheads. These non Tariff demand management measures aimed at reducing residential peak demand load by approximately 0.6 MVA at Leabons Lane zone substation (ZS) providing a total cost of $117/kVA for this measure. The reductions achieved by the BSC Residential Measures at Leabons Lane ZS provided additional support to programs targeted at commercial customers as most opportunities for these customers had been exhausted.
Blacktown North/ Marayong (BSC non-tariff Residential)	The BSC project reductions at the Marayong ZS supply area were to provide additional support to a soon-to-launch program targeting the Blacktown industrial area. Approximately 0.6MVA of load reduction was achieved providing a total cost of $117/kVA for this measure. During FY2008/09 Endeavour decided not to proceed with the Blacktown program as load in the supply area had failed to grow as expected. This may have been in part due to BSC measures.
Customer A (extension)	The Customer A ZS (extension) DM Program aims to reduce summer afternoon peak demand by 2.0 MVA and achieve a deferral of the planned augmentation works on Customer A ZS by one year. Endeavour Energy entered an agreement in FY10/11 with Customer A to implement additional demand and energy reduction initiatives at the Customer A. Initiatives implemented and commissioned in FY11/12 include lighting upgrades and controls, a HVAC chiller upgrade and a solar PV demonstration project. This program has achieved 1.28 MVA in load reduction.

Measure	Description
Mamre	The Mamre ZS DM Program is a newly implemented DM program with the aim of reducing summer afternoon peak demand by 8.8 MVA and defer the construction of a third 132/11 kV transformer and associated 11kV busbar works by two years. A DM service provider was contracted via a public tendering process in FY11/12 to approach customers, perform free level 1 audits and to implement approved DM initiatives in the Erskine / Minchinbury industrial areas.
Eschol Park	The Eschol Park ZS DM Program is a newly implemented DM program which aims to reduce summer afternoon peak demand by 9.0 MVA and defer the construction of the new Eschol Park ZS by two years. Approvals were given in FY11/12 to engage a DM service provider to approach customers, perform free level 1 audits and to implement approved DM initiatives in the Minto industrial area. A generation service company, was also engaged to provide network support by injecting power into the Minto ZS network during peak demand periods upon receiving notification from Endeavour Energy.
Table 2.1 – Descriptions of Endeavour Energy's 2011/12 demand management measures.	

2.3 Structure of submission

The submission covers 20 Non-Tariff Demand Management programs, of which nine programs are active, undertaken by Endeavour Energy to 2011/12. There were no Tariff Demand Management programs in 2011/12. Detailed information on the new DM programs implemented in 2011/12, Mamre, Eschol Park and Customer A (extension), is provided in Section 5.

A summary of the total demand management costs, foregone revenue, and adjustment required to reflect the time value of money is provided in Section 4.

As required by the AER, Endeavour Energy engaged an auditor, Futura Consulting, to carry out an independent review of the avoided distributions costs, foregone revenue and other parameters relevant to the D-factor calculation. Futura Consulting's report is provided in a separate (Confidential) attachment to this submission.

Futura Consulting concluded that the information provided on the DM programs selected by Endeavour Energy for inclusion in its 2011/12 D-factor submission to the AER is correct and reasonable.

2.4 Additional information

Endeavour Energy has compiled this DM information consistent with the 2009 Determination. It believes that the material included in the submission, and the attachments, is sufficiently detailed. However, Endeavour Energy is happy to provide further information if requested.

3.0 ASSUMPTIONS AND METHODOLOGIES

3.1 Assumptions used in avoided distribution cap calculations

The methodology for calculating avoided distribution costs is according to the AER guidelines and represents the expected change in the present value, in 2011/12 dollars, of future capital and operating costs affected by the non-tariff demand management measures. Unless otherwise stated the following assumptions are made when identifying possible programs and calculating the Avoided Distribution Cost (ADC):

- Load forecasts are based on Endeavour Energy's Forecasting Methodology as outlined in the Endeavour Energy Branch Procedure Document Number NFB 0010. Endeavour Energy's load forecasts are based on extrapolation of historical growth rates, combined with known future spot loads and new residential releases.
- Supply side capital costs quoted are as per the Endeavour Energy's Strategic Asset Management Plan (SAMP). The SAMP details forecasts capital expenditure over a rolling 10 year period.
- Time period used for ADC calculations is 15 years.
- Discount rate used for ADC calculations is 7%.
- Nominal Rate of Return used in time value of money calculations for 2012/13 is 10.02%.
- Operating costs comprise maintenance costs only, which are budgeted at 2% of the depreciated capital cost of the asset.

3.2 Methodologies underpinning foregone revenue calculations

There are two commonly deployed methodologies used to calculate energy and demand foregone. Both of these methodologies are described below.

Once energy and demand foregone estimates are calculated each customer's FY11/12 network prices are applied to these values and a value for revenue foregone calculated.

Metering Data Verification Methodology: This methodology involves using historical customer meter data and comparing it to meter data post implementation of approved DM initiatives. This methodology is typically used for:

- Power factor correction (PFC) equipment installations.
- Large peak reduction reducing load shedding initiatives.
- Deploying of back up generators.
- Initiatives for which peak load reductions comprise a significant proportion of overall site load such as in the case of Demand Side Response (on call load curtailment) initiatives.

Engineering Calculation Methodology: This methodology involves estimating load reductions by subtracting calculated energy and demand after implementation of initiatives from calculations of energy and demand prior to the implementation of initiatives. This methodology is typically used for:

- Replacement or conversion of equipment such as hot water systems, chillers, computer monitors and light fittings (lamps and ballasts) from less efficient to more efficient.
- Installation of equipment such as skylights, lighting control equipment or variable speed drives.
- Upgrading of equipment such as lighting control equipment and chillers.

When using the engineering calculation methodology the following items are considered:

- Equipment ratings.
- Equipment quantities.
- Hours of operation of equipment.
- Changes in diversity of usage patterns.

3.3 Costs incurred

Actual demand management costs incurred are recorded in Endeavour Energy's financial systems and include:

- Payments to customers or DM service providers.
- Legal costs.
- Marketing costs.
- Project management and administration costs.

4.0 TOTAL DM COST PASS THROUGH AMOUNTS

The DM Cost Pass Through Amount for year 2013/14 for Non-Tariff and Tariff DM programs implemented by Endeavour Energy up until 2011/12 submitted in this information document is as shown in Table 4.1. This table demonstrates how each measure contributes to the total DM Cost Pass Through Amount for year 2013/14, together with the calculated available avoided distribution cost (ADC), referenced to FY2011/12 provided for each measure.

Measure	Type	Demand Management Costs ($11/12)	Foregone Revenue ($11/12)	Time Value of Money ($13/14)	Total ($13/14)	Available ADC Cap ($11/12) For Reference
Chipping Norton	Non tariff	$2,511	$357,528	$ 75,767	$435,805	$1,143,371
Windsor/Richmond	Non tariff	$2,511	$75,783	$ 16,476	$94,770	$847,097
Liverpool	Non tariff	$22,933	$952,164	$ 205,199	$1,180,296	$1,545,506
Parramatta	Non tariff	$10,230	$833,689	$ 177,594	$1,021,512	$9,681,212
Minto	Non tariff	$0	$302,624	$ 63,684	$366,309	$2,278,156
Bawley Point	Non tariff	$197,949	$0	$ 41,656	$239,605	$329,813
Granville	Non tariff	$97,912	$79,638	$ 37,364	$214,914	$991,579
Rooty Hill	Non tariff	$386,473	$197,592	$ 122,911	$706,975	$1,029,501
Arndell Park	Non tariff	$205,049	$97,244	$ 63,614	$365,907	$2,129,085
Castle Hill	Non tariff	$0	$182,202	$ 38,343	$220,544	$1,086,993
Nowra	Non tariff	$0	$67,898	$ 14,288	$82,187	$925,012
Customer A	Non tariff	$0	$165,459	$ 34,819	$200,278	$1,037,477
Wetherill Park	Non tariff	$0	$463,685	$ 97,578	$561,263	$6,044,006
Campbelltown	Non tariff	$0	$221,907	$ 46,698	$268,606	$216,699
Unanderra	Non tariff	$0	$201,541	$ 42,412	$243,954	$1,765,937
Leabons Lane	Non tariff	$0	$374,931	$ 78,901	$453,832	$1,259,697
Marayong	Non tariff	$0	$217,610	$ 45,794	$263,404	$1,269,690
Customer A Exten.	Non tariff	$191,018	$51,150	$ 50,962	$293,130	$437,880
Mamre	Non tariff	$0	$0	$ -	$0	$823,000
Eschol Pk	Non tariff	$7,126	$0	$ 1,500	$8,626	$2,344,526
Total		**$1,123,709**	**$4,842,647**	**$1,255,560**	**$7,221,916**	**$37,012,932**

Table 4.1 – Costs associated with both the Tariff and non Tariff DM programs.

Table 4.2, shows the breakdown of the total amount for the DM Cost Pass Through Amount for year 2012/13 according to the relevant AER categories, being Non-Tariff Demand Management Costs, Tariff Demand Management Costs, Foregone Revenue, and an amount to reflect the time value of money.

Component	AER Reference	Details
Non-Tariff DM Costs for 2011/12 ($2011/12)	11.1 (b)	$1,123,709
Tariff DM Costs for 2011/12 ($2011/12)	11.1 (d)	$0
Reasonable estimate of Foregone Revenue for 2011/12 ($2011/12)	11.1 (e 1)	$4,842,647
Amount to reflect the time value of money ($2013/14)	11.1 (g)	$1,255,560
Deferred DM Cost Pass Through for 2011/12 ($2012/13)	11.5 (a)	$0
Value of Deferred DM Cost Pass Through for 2012/13($2013/14)	11.5(b)	$0
Total DM Cost Pass Through for 2013/14 ($2013/14)		$7,221,916

Table 4.2 – Breakdown of DM Cost Pass through Amount (2012/13) by AER category.

For further information on the calculations compiled in Table 4.1 and Table 4.2 and the assumptions underlying them please refer to Sections 3, 5 and 6. Detailed information on each of the measures underlying the totals for Endeavour Energy's Non-Tariff Demand and Tariff DM projects shown in Figure 4.2 was presented in Futura Consulting's report "Audit of Endeavour Energy's D-factor Claim for FY2011/12".

5.0 MEASURES COMMENCED DURING FY2011/12

Detail	Mamre
Description of the Network Element and Constraint.	The Mamre Zone Substation supplies the Mamre industrial area and the surrounding residential areas. These areas are experiencing natural growth in demand predominantly from the industrial area. This is resulting in current capacity limits being reached and the need for additional electricity network to supply this increase in electrical demand. Based on a review of revisions to the Summer Demand Forecast 2012 – 2021 issued in 22 September 2011, the expected load at risk on the Mamre ZS was 2.8 MVA in FY12/13, 5.3 MVA in FY13/14, and 8.8 MVA in FY14/15.
Description of the Preferred Supply Side Option.	The supply side project to be deferred is the augmentation of the Mamre ZS by the addition of a third 45 MVA 132/11 kV transformer and associated 11kV busbar extension works at a project cost of $6m. This project will be deferred by two years.
Description of DM Measures.	The measures implemented under the Mamre DM program in FY2011/12 were the engagement of a DM service provider, contracted via a public tendering process, to approach customers, perform free level 1 audits and implement approved DM initiatives in the Erskine / Minchinbury industrial areas.
Avoided Distribution Cost (ADC)	The ADC for the deferral of the supply-side augmentation is $823 ($k11/12)
Detail	**Eschol Park**
Description of the Network Element and Constraint.	The Minto Zone Substation supplies the Minto industrial area, commercial centre and the surrounding residential areas. These areas are experiencing natural growth in demand predominantly from the industrial area. This is resulting in current network capacity limits being reached and the need for additional electricity network to supply this increase in electrical demand. Based on a review of Endeavour Energy's RFP 1494/11P (Provision of Demand Management Services for Eschol Park), issued on 4 November 2011, the expected load at risk on the Minto ZS was forecast at 9.7 MVA in FY12/13, 10.6 MVA in FY13/14, and 11.4 MVA in FY14/15.
Description of the Preferred Supply Side Option.	The supply side project to be deferred is the construction of a new zone substation at Eschol Park at a cost of $20.5 million. This project will be deferred by two years.
Description of DM Measures.	The measures implemented under the Eschol Park DM program in FY2011/12 were the engagement of (1) a DM service provider to approach customers, perform free level 1 audits and implement approved DM initiatives in the Minto industrial area and (2) a generation service company, to provide network support by injecting power at the Minto zone substation during peak demand periods.
Avoided Distribution Cost (ADC)	The ADC for the deferral of the supply-side augmentation is $2,131 ($k10/11)

Detail	Customer A (extension)
Description of the Network Element and Constraint.	The Customer A DM Program was originally implemented in April 2005. The objective of the program was to defer the augmentation of the Customer A ZS for one year based on the 2005 SAMP. Demand reduction initiatives were implemented at the Customer A. The original DM program was successful in assisting to defer this project. The SAMP 2009-2019 has the Customer A ZS augmentation scheduled for commissioning in 2012-13. The 2010 summer forecast has Customer A ZS exceeding its firm rating by 2 MVA.
Description of the Preferred Supply Side Option.	The supply side project to be deferred is the augmentation of the Customer A zone substation by constructing a third 25 MVA transformer, 33 kV busbar and additional 11 kV feeder breakers at a cost of $7.17 million. This project will be deferred by one year.
Description of DM Measures.	The measures implemented under the Customer A (extension) DM Program in FY2011/12 were various demand and energy reduction initiatives at Customer A as part of an agreement entered into with Customer A in FY10/11. Initiatives implemented and commissioned in FY11/12 included lighting upgrades and controls, a HVAC chiller upgrade and a solar PV demonstration project.
Avoided Distribution Cost (ADC)	The ADC for the deferral of the supply-side augmentation is $398 ($k10/11)

Table 5.1 – Measures commenced during FY2011/12.

6.0 ATTACHMENT – AUDITOR'S REPORT

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