Decision

Applications by DNSPs for Demand Management Innovation Allowance for:

- 2013 calendar year (Victorian DNSPs); and
- 2012–13 financial year (all other DNSPs)

April 2015

AUSTRALIAN ENERGY REGULATOR

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Summary

The Demand Management Incentive Scheme (DMIS) aims to provide incentives for Distribution Network Service Providers (DNSPs) to conduct research and investigation into innovative techniques for managing demand. It also aims to enhance industry knowledge of practical demand management projects and programs through the publication of annual DMIS reports. The DMIS has been applied to all DNSPs in the NEM as part of our current distribution determinations.

The DMIS contains a Demand Management Innovation Allowance (DMIA) element. DMIA is provided to each DNSP in the form of a fixed allowance for each regulatory period. DNSPs are required to justify and seek our approval of their actual DMIA expenditures on demand management improvement projects.[1]

If a DNSP has not spent it DMIA allowance in the regulatory period, it will be required to return the amount of any underspend or unapproved amounts to customers in the form of tariff reduction. However, any over-spend would be borne by the DNSP.

DNSPs are required to report their DMIA expenditures and activities to us each regulatory year. We approve or reject DNSPs' claims based on our assessment of these claims against six criteria, listed in section 2 of this paper. While descriptive, the criteria enable a wide range of demand management project options.

DMIA reports from ActewAGL, Ausgrid, Endeavour Energy, Ergon Energy, Essential Energy and TasNetworks, formerly Aurora Energy (the non-Victorian DNSPs) were provided to us as part of the DNSPs' 2012–13 RIN responses.

DMIA reports for Powercor, Jemena Electricity Networks, AusNet Services, formerly SP AusNet, and United Energy (the Victorian DNSPs) were provided to us as part of their 2013 RIN responses.[2]

CitiPower, Energex and SA Power Networks did not claim DMIA expenditure for this reporting period.

The projects undertaken vary considerably in both their nature and scale. For example, the projects include tariff based measures designed to incentivise customers to reduce their usage at times of peak demand. However, the majority of the projects were non-tariff based. These projects included various trials of technologies with the potential to reduce and/or shift demand, improving the storage of renewable energy generated during non-peak times for subsequent use during peak periods, improving power factor correction to reduce the amount of electricity that requires transportation across a distribution network and load control options which result in shifting load to non-peak times.

[1] The DMIS reports from each of the DNSPs are available on our website at www.aer.gov.au.
[2] Non-Victorian DNSPs' regulatory years align with financial years, whereas Victorian DNSPs regulatory years align with calendar years.

We have approved the DMIA expenditure claimed by all of the DNSPs as the expenditure complies with the DMIA criteria.

In total, DNSPs' reported just over $4.3 million DMIA expenditure for this reporting period. This represents a 50 per cent increase in expenditure from the previous period, around $2.8 million in total. However, with the exception of Jemena and Essential Energy, all other DNSP spent significantly less than their respective original forecast based on a straight line projection. On average, DNSPs only spent less than a quarter of their allowances. Summaries of each DNSP's DMIA expenditures are shown in the table below.

Table: Summaries of DMIA expenditures to date

DNSP	DMIA approved for this regulatory year	DMIA approved to date	DMIA remaining for the period	Years of scheme operation	Proportion of approved DMIA spent (%)
ActewAGL	33 625	93 651	452 452	4th year of the 5 year scheme	17.1
Ausgrid	934 071	1 668 434	3 792 595	4th year of the 5 year scheme	30.6
AusNet Services	359 838	563 768	2 638 099	3rd year of the 5 year scheme	17.6
CitiPower	N/A	123 651	943 638	3rd year of the 5 year scheme	11.6
Endeavour Energy	412 036	860 869	2 415 748	4th year of the 5 year scheme	26.3
Energex	N/A	52605	5 260 723	3rd year of the 5 year scheme	1.0
Ergon Energy	881 264	1 911 333	3 401 994	3rd year of the 5 year scheme	36.0
Essential Energy	976 600	2 321 504	955 113	4th year of the 5 year scheme	70.9
Jemena	48 356	767 258	300 031	3rd year of the 5 year scheme	71.9
Powercor	189 000	208 579	2 993 287	3rd year of the 5 year scheme	6.5
SA Power Networks	N/A	N/A	3 187 996	3rd year of the 5 year scheme	0.0
TasNetworks	137 117	137 117	1 887 729	1st year of the 5 year scheme	6.8
United Energy	332 990	422 169	1 712 409	3rd year of the 5 year scheme	19.8
TOTAL	**4 304 897**	**9130938**	**29941812**	**NA**	**23.4**

Source: AER analysis and DMIA Reports submitted by DNSPs

1 Background

The Demand Management Incentive Scheme (DMIS) is a research and development fund which aims to provide incentives for Distribution Network Service Providers (DNSPs) to conduct research and investigation into innovative techniques for managing demand. The AER published its DMIS for the non-Victorian DNSPs (in October and November 2008) and Victorian DNSPs (in April 2009) in accordance with clause 6.6.3 of the National Electricity Rules (NER).

The Demand Management Innovation Allowance (DMIA) is part A of the DMIS. DMIA is provided to a DNSP in the form of a fixed amount of additional revenue at the commencement of each year of the regulatory period. As part of its distribution determination the AER has previously approved the allowances in accordance with Part A of the DMIS.

In the second year of the next regulatory control period, when results for the five years of the current regulatory control period are known, a single adjustment will be made to return the amount of any underspends or unapproved DMIA amounts to customers. This ensures that the scheme remains neutral in terms of the expenditure profile which the DNSP adopts during the regulatory control period.

Part B of the DMIS relates to foregone revenue. It allows the DNSPs to recover foregone revenue in a regulatory control period resulting from a reduction in the quantity of energy sold directly attributable to demand management projects or programs approved under Part A of the scheme.

A key objective of the DMIS is to assist in enhancing industry knowledge of practical demand management projects and programs through the annual publication of DMIS reports from DNSPs. As such, the DMIS sets out annual reporting requirements for DNSPs for the regulatory control period. DNSPs are required to submit a report to the AER on their DMIS expenditure shortly after the end of each regulatory year. The information provided in a DNSP's annual DMIS report is used in the AER's assessment of a DNSP's compliance with the DMIA criteria and entitlement to recover expenditure under the DMIA.

2 Demand Management Incentive Scheme Criteria

The AER is required to assess claims for the DMIA against the criteria contained in the DMIS each year. The DMIA criteria are:

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.

Criteria #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 in 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.

Criteria #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.

Criteria #4: Recoverable projects and programs may be tariff or non-tariff based.

Criteria #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 Australian Government scheme

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.

Criteria #6: Expenditure under the DMIA can be in the nature of capex or opex.

3 DMIA Assessment

We conducted our DMIA compliance assessments based on the DMIA reports (for the 2012/13 financial year or 2013 calendar year as applicable) and responses to further information requests received from the following DNSPs:

- ActewAGL (for 2012/13 financial year)
- Ausgrid (for 2012/13 financial year)
- AusNet Services (for 2013 calendar year)
- Endeavour Energy (for 2012/13 financial year)
- Ergon Energy (for 2012/13 financial year)
- Essential Energy (for 2012/13 financial year)
- Jemena Electricity Networks (for 2013 calendar year)
- Powercor (for 2013 calendar year)
- TasNetworks (for 2012/13 financial year)
- United Energy (for 2013 calendar year).

Table 3.1 Non- Victorian DNSPs DMIA expenditure claimed, approved and remaining ($Dec 2012)

DNSP	DMIA claimed 2012–13	DMIA approved 2012–13	DMIA approved to date	DMIA remaining for the period	Years of scheme operation	Proportion of approved DMIA spent (%)
ActewAGL	33 625	33 625	93 651	452 452	4th year of the 5 year scheme	17.1
Ausgrid	934 071	934 071	1 668 434	3 792 595	4th year of the 5 year scheme	30.6
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Energex	N/A	N/A	52605	5 260 723	3rd year of the 5 year scheme	1.0
Ergon Energy	881 264	881 264	1 911 333	3 401 994	3rd year of the 5 year scheme	36.0
Essential Energy	976 600	976 600	2 321 504	955 113	4th year of the 5 year scheme	70.9
SA Power Networks	N/A	N/A	N/A	3 187 996	3rd year of the 5 year scheme	0.0
TasNetworks	137 117	137 117	137 117	1 887 729	1st year of the 5 year scheme	6.8
TOTAL	**3 374 713**	**3 374 713**	**7 045 513**	**21 354 350**	**NA**	**24.8**

Source: DMIA Reports submitted by DNSPs

Table 3.1 shows the amount of DMIA expenditure we approved for the non-Victorian DNSPs for 2012–13 and the remaining allowance for each DNSP in their current regulatory control periods. Energex and SA Power Networks did not claim DMIA expenditure in 2012–13. The DMIA expenditure we have approved to date (within current regulatory periods) accounts for approximately 25 per cent per cent of the total allowance available to the non-Victorian DNSPs.

Table 3.2 Victorian DNSPs DMIA expenditure claimed, approved and remaining ($Jun 2013)

DNSP	DMIA claimed 2013	DMIA approved 2013	DMIA approved to date	DMIA remaining for the period	Years of scheme operation	Proportion of approved DMIA spent (%)
AusNet Services	359 838	359 838	563 768	2 638 099	3rd year of the 5 year scheme	17.6
CitiPower	N/A	N/A	123 651	943 638	3rd year of the 5 year scheme	11.6
Jemena	48 356	48 356	767 258	300 031	3rd year of the 5 year scheme	71.9
Powercor	189 000	189 000	208 579	2 993 287	3rd year of the 5 year scheme	6.5
United Energy	332 990	332 990	422 169	1 712 409	3rd year of the 5 year scheme	19.8
TOTAL	**930 184**	**930 184**	**2 085 425**	**8 587 462**	3rd year of the 5 year scheme	**19.5**

Source: 2013 DMIA Reports submitted by Victorian DNSPs

Table 3.2 shows the amount of DMIA expenditure we approved for the Victorian DNSPs for 2013 and the remaining allowance for each DNSP in the current regulatory control period. CitiPower did not claim DMIA expenditure in 2013. The DMIA expenditure we have approved to date (within current regulatory periods) accounts for approximately 20 per cent per cent of the total allowance available to the Victorian DNSPs.

Collectively, DNSPs spent more than $4.3 million in 2012–13 and 2013 (compared with total expenditure of around $2.8 million in 2011–12 and 2012). Essential Energy and Jemena have spent about 71 and 72 per cent of their respective allowances for the current regulatory period while the other DNSPs have a significant proportion of their allowance remaining.

Table 3.3 shows annual approved DMIA expenditure for the DNSPs by regulatory year.

Table 3.3 Annual approved DMIA expenditure by regulatory year ($Dec 2012/$Jun 2013)*

DNSPs	2009–10**	2010–11/2011	2011–12/2012	2012–13/2013
Non-Victorian	369 667	1 028 841	2 272 292	3 374 713
Victorian	N/A**	578 973	576 268	930 184

Source: 2012–13 and 2013 DMIA Reports submitted by non-Victorian and Victorian DNSPs

* Non-Victorian data in $December 2012 and Victorian data in $June 2013.

** In 2009-10 only the NSW and ACT DNSPs were regulated by the AER.

4 ActewAGL

We have approved ActewAGL's 2012–13 DMIA expenditure of $33 625 for the costs of an ongoing demand management project that meets the DMIA criteria. The following section sets out our assessment of this project. For more detailed information about the project, please refer to ActewAGL's 2012–13 DMIA report.

4.1 Power Factor Correction

4.1.1 Project overview

ActewAGL and TransGrid's joint Power Factor Correction project commenced in 2009–10. ActewAGL's 2012–13 DMIA expenditure is for the continuation of this project. The project aims to reduce demand for standard control services for large commercial customers who record 15 minute interval consumption data across its network.

4.1.2 Assessment against DMIA criteria

Criteria #1 The project is a measure undertaken by ActewAGL to reduce peak apparent demand on commercial feeders. The project aims to reduce demand for standard control services by identifying customers for whom suitable power correction equipment may be installed.

Criteria #2 This is a broad-based demand management project that targets large commercial users.

Criteria #3 This project will explore potentially efficient demand management mechanisms in terms of power factor correction equipment installation in existing premises

Criteria #4 Non-tariff based

Criteria #5 This criterion is met because expenditure for this project cannot be recovered through any other jurisdictional, state or Australian Government scheme, nor through any other part of the distribution determination for the current regulatory control period.

Criteria #6 Opex

5 Ausgrid

We approve DMIA expenditure of $934 071 for 14 projects because they meet the DMIA criteria. Of these 14 projects, Ausgrid began nine new projects in 2012–13 and continued another five (which have previously been approved by the AER). The following section sets out our assessment of the individual projects. For more detailed information about these projects, please refer to Ausgrid's 2012–13 DMIA report.

5.1 AS4755 Air Conditioner and Pool Pump Load Control

5.1.1 Project overview

This is a new trial which tests low cost direct load control options for air conditioners and pool pumps using AS4755 compliant devices that do not rely on smart meter interfaces. Ausgrid claimed DMIA expenditure in 2012–13 of $175 008 for this project.

5.1.2 Assessment against DMIA criteria

Criteria #1 Load control of air conditioners and pool pumps can help reduce summer peak demand, which can help reduce the need for network augmentation.

Criteria #2 This is a peak demand project.

Criteria #3 Load control initiatives such as this can improve demand management capability.

Criteria #4 Non-tariff based

Criteria #5 This criterion is met because expenditure for this project cannot be recovered through any other jurisdictional, state or Australian Government scheme, nor through any other part of the distribution determination for the current regulatory control period.

Criteria #6 Opex

5.2 Grid Battery Trial

5.2.1 Project overview

This project will investigate the potential benefits of using network grid-side battery storage as a means for reducing peak demand on the network with a trial over the summer 2013–14 period. The trial will test for reliability, quality and effectiveness at reducing summer peaks. It will also look into optimum battery management and control methodologies. Ausgrid claimed DMIA expenditure in 2012–13 of $7 115 for this project.

5.2.2 Assessment against DMIA criteria

Criteria #1 This is a trial of network grid-side battery storage (rather than domestic storage) that can be drawn on to help reduce peak demand (and in turn avoid network augmentation).

Criteria #2 This is a peak demand project.

Criteria #3 Grid batteries are an innovative technology that have the potential to improve Augrid's demand management capability.

Criteria #4 Non-tariff based

Criteria #5 This criteriion is met because expenditure for this project cannot be recovered through any other jurisdictional, state or Australian Government scheme, nor through any other part of the distribution determination for the current regulatory control period.

Criteria #6 Opex

5.3 Off Peak 2 Summer Scheduling

5.3.1 Project overview

This project involves trialling a new summer load control schedule for summer peak reduction for customers with Controlled Load 2 tariffs. The main objective of the trial is to investigate the potential issues and barriers for implementing a summer scheduling regime for Controlled Load 2 customers across the whole network. Ausgrid claimed DMIA expenditure in 2012–13 of $1 343 for this project.

5.3.2 Assessment against DMIA criteria

Criteria #1 This project meets this requirement as it shifts load outside of peak times which will lower peak demand reduce the need for network augmentation.

Criteria #2 This is a peak demand management project.

Criteria #3 This project satisfies this condition as it explores a potentially efficient demand management mechanism (reducing the impact of hot water systems at times of peak demand through load control).

Criteria #4 Non-tariff based

Criteria #5 This criterion is met because expenditure for this project cannot be recovered through any other jurisdictional, state or Australian Government scheme, nor through any other part of the distribution determination for the current regulatory control period.

Criteria #6 Opex

5.4 Verification of Demand Savings from Energy Efficiency Programs

5.4.1 Project overview

Ausgrid are working jointly with NSW government on this project which aims to identify which energy efficiency programs or initiatives offered by NSW government organisations are effective at reducing peak demand. Ausgrid claimed DMIA expenditure in 2012–13 of $37 562 for this project.

5.4.2 Assessment against DMIA criteria

Criteria #1 This project will help the government to target energy efficiency initiatives that best contribute to reductions in peak demand which in turn can help reduce network augmentation.

Criteria #2 This project focuses on peak demand reduction.

Criteria #3 The collaborative approach and evidence-based focus will help build the demand management capacity of both Ausgrid and the NSW government.

Criteria #4 Non-tariff based

Criteria #5 This criterion is met because expenditure for this project cannot be recovered through any other jurisdictional, state or Australian Government scheme, nor through any other part of the distribution determination for the current regulatory control period.

Criteria #6 Opex

5.5 Co-managing Home Energy Demand

5.5.1 Project overview

This project involves using qualitative research to better understand residential users' level of knowledge on peak demand and how they are responding to current demand management activities. This will assist in developing strategies and programs to reduce peak demand from the residential sector.

Topics explored in the first phase of qualitative research in 2011-12 included an understanding of peak demand issues, understanding and acceptance of time-based pricing concepts (both existing and hypothetical) and discretionary and non-discretionary practices during peak times. Research in 2012-13 focused on consumer trust in the electricity industry and explored opportunities for household demand management participation. Ausgrid claimed DMIA expenditure in 2012–13 of $8 486 for this project.

5.5.2 Assessment against DMIA criteria

Criteria #1 Understanding customer behaviour and perceptions can help Ausgrid to have more effective peak demand management strategies which in turn can reduce peak demand which defers the need for network augmentation.

Criteria #2 This is a peak demand management program.

Criteria #3 This customer research builds Ausgrid's capacity to deliver effective peak demand management programs.

Criteria #4 Non-tariff based

Criteria #5 This criterion is met because expenditure for this project cannot be recovered through any other jurisdictional, state or Australian Government scheme, nor through any other part of the distribution determination for the current regulatory control period.

Criteria #6 Opex

5.6 TransGrid Triage Database

5.6.1 Project overview

This project involved the production of a database of aggregated large customer information to enable TransGrid to estimate the likely demand management potential in an area and determine whether non-network solutions are likely to be viable. Ausgrid claimed DMIA expenditure in 2012–13 of $14 240 for this project.

5.6.2 Assessment against DMIA criteria

Criteria #1 This project provides information which may be used by TransGrid to investigate the viability of non-network solutions as an alternative to network augmentation.

Criteria #2 The database can be used for both broad-based demand and peak demand management.

Criteria #3 Having information about customer usage and demand builds capacity for network businesses to develop targeted non-network demand management initiatives.

Criteria #4 Non-tariff based

Criteria #5 This criterion is met because expenditure for this project cannot be recovered through any other jurisdictional, state or Australian Government scheme, nor through any other part of the distribution determination for the current regulatory control period.

Criteria #6 Opex

5.7 Large Customer Power Factor Correction

5.7.1 Project overview

Power factor correction at customer premises lowers the peak demand in kVA and reduces the electrical infrastructure requirements for networks. This project examines the incentives required to encourage medium to large customers whose power factor is below the network standard during peak periods to install power factor correction equipment. Ausgrid claimed DMIA expenditure in 2012–13 of $18 859 for this project.

Ausgrid was not eligible to recover its costs under the NSW Energy Savings Scheme, as this project did not include installation of any power factor correction equipment, nor did Ausgrid provide any funding to customers to install power factor correction equipment.

5.7.2 Assessment against DMIA criteria

Criteria #1 By correcting the power factor, less electricity needs to be transported through the distribution network, thereby reducing network demand.

Criteria #2 This project can help to improve energy efficiency overall (i.e. broad-based demand management) as well as be useful in managing peak demand as Ausgrid is proposing to target customers in areas that have network constraints.

Criteria #3 Encouraging power factor correction is a useful tool to manage demand.

Criteria #4 Non-tariff based

Criteria #5 This criterion is met because expenditure for this project cannot be recovered through any other jurisdictional, state or Australian Government scheme, nor through any other part of the distribution determination for the current regulatory control period.

Criteria #6 Opex

5.8 Load Control of Irrigation Pumping

5.8.1 Project overview

Irrigation and other water pumping loads in the Hunter Valley are a significant component of demand. The scope of the project is to explore the viability of load control of these systems to potentially shift load to non-peak times. The project will also investigate the projected value from the use of pumping load control to defer network investment. The use of pumping for irrigation and mining operations in the Hunter Valley was found to be sizeable with an estimated 65 MVA of connected load from pumping systems. An estimated 40-45 MVA of this load operates during peak periods. Ausgrid claimed DMIA expenditure in 2012–13 of $39 565 for this project.

5.8.2 Assessment against DMIA criteria

Criteria #1 Shifting load away from peak times can help to defer network augmentation.

Criteria #2 This is a peak demand management project.

Criteria #3 Load control options are part of an efficient demand management strategy.

Criteria #4 Non-tariff based.

Criteria #5 This criterion is met because expenditure for this project cannot be recovered through any other jurisdictional, state or Australian Government scheme, nor through any other part of the distribution determination for the current regulatory control period.

Criteria #6 Opex

5.9 Small Customer Power Factor Correction

5.9.1 Project overview

Correcting for power factor helps reduce peak demand but conventional power factor correction relies on sophisticated and expensive devices which are not financially viable for small customers. This project explored the potential for peak demand reductions from the development and installation of low cost single step, small PFC units. Ausgrid claimed DMIA expenditure in 2012–13 of $21 940 for this project.

Ausgrid was not eligible to recover its costs under the NSW Energy Savings Scheme, as this project did not include installation of any power factor correction equipment, nor did Ausgrid provide any funding to customers to install power factor correction equipment.

5.9.2 Assessment against DMIA criteria

Criteria #1 By correcting the power factor, less electricity needs to be transported through the distribution network, thereby reducing network demand.

Criteria #2 Power factor correction can have both broad-based demand and peak demand management benefits.

Criteria #3 Encouraging power factor correction is a useful tool to manage demand.

Criteria #4 Non-tariff based

Criteria #5 This criterion is met because expenditure for this project cannot be recovered through any other jurisdictional, state or Australian Government scheme, nor through any other part of the distribution determination for the current regulatory control period.

Criteria #6 Opex

5.10 Dynamic Load Control of Small Hot Water Systems

5.10.1 Project overview

This project is aimed at trialling a load control option for small and medium sized hot water systems. It would involve turning off electricity supply to the tank for periods of typically three to five hours but only as necessary to actively manage network demand (5 to 10 days per year). Ausgrid claimed DMIA expenditure in 2012–13 of $120 463 for this project.

5.10.2 Assessment against DMIA criteria

Criteria #1 Reducing peak demand through using load control can help defer the need for network augmentation.

Criteria #2 This is a peak demand management project.

Criteria #3 Load control options are part of an efficient demand management strategy.

Criteria #4 Non-tariff based

Criteria #5 This criterion is met because expenditure for this project cannot be recovered through any other jurisdictional, state or Australian Government scheme, nor through any other part of the distribution determination for the current regulatory control period.

Criteria #6 Opex

5.11 CBD embedded generator connection

5.11.1 Project overview

This project is to develop, design and test an alternative embedded generator connection in the Sydney CBD that addresses the potential fault level and feeder imbalance issues which are considered to be potential barriers to their widespread uptake in these types of network locations. Ausgrid claimed DMIA expenditure in 2012–13 of $6 440 for this project.

5.11.2 Assessment against DMIA criteria

Criteria #1 Improving the quality of embedded generation can help alleviate pressure on distribution network demand.

Criteria #2 This is a broad-based demand management project.

Criteria #3 Better integration of embedded generation can be used as part of an effective demand management strategy.

Criteria #4 Non-tariff based

Criteria #5 This criterion is met because expenditure for this project cannot be recovered through any other jurisdictional, state or Australian Government scheme, nor through any other part of the distribution determination for the current regulatory control period.

Criteria #6 Opex

5.12 Subsidised Off-peak Hot Water Connections

5.12.1 Project overview

Ausgrid's Subsidised Off-peak Hot Water Connections program aims to encourage customers to connect large electric hot water systems to off peak electricity. The program includes developing and demonstrating market approaches to achieve high take up rates. This is a joint collaboration with TransGrid. Ausgrid claimed DMIA expenditure in 2012–13 of $35 818 for this project.

5.12.2 Assessment against DMIA criteria

Criteria #1 This project aims to shift hot water loads to off peak times and by doing so helps reduce peak demand and defer network augmentation.

Criteria #2 This is a peak demand management program.

Criteria #3 Spreading load to off-peak times to lower peak demand is part of an efficient demand management strategy.

Criteria #4 Non-tariff based

Criteria #5 This criterion is met because expenditure for this project cannot be recovered through any other jurisdictional, state or Australian Government scheme, nor through any other part of the distribution determination for the current regulatory control period.

Criteria #6 Opex.

5.13 Market Research for Residential Air Conditioner & Pool Pump Load Control Options

5.13.1 Project overview

Ausgrid intends to gain an understanding of the take up rates and product attributes for residential air conditioner and pool pump direct load control programs. This project also explores the extent that these take up rates can change for a range of customer incentives. Ausgrid intends to gain an understanding of the number of households that might participate in a suitable program and the associated costs. Ausgrid claimed DMIA expenditure in 2012–13 of $65 124 for this project.

5.13.2 Assessment against DMIA criteria

Criteria #1 Direct load control of air conditioners and pool pumps can help lower summer peak demand. This research will help facilitate better take up of these direct load control options.

Criteria #2 This is a peak demand management project.

Criteria #3 This research improves Ausgrid's capacity to effectively deploy these technologies that enable peak demand reductions.

Criteria #4 Non-tariff based

Criteria #5 This criteria is met because expenditure for this project cannot be recovered through any other jurisdictional, state or Australian Government scheme, nor through any other part of the distribution determination for the current regulatory control period.

Criteria #6 Opex

5.14 Dynamic Peak Rebate for Non-Residential Customers

5.14.1 Project overview

Ausgrid's trial of a dynamic peak rebate for medium to large non-residential customers provides an incentive for customers to reduce demand when network assets are operating at capacity. Ausgrid anticipates this peak period will be approximately 10–20 days annually. Ausgrid claimed DMIA expenditure in 2012–13 of $382 107 for this project.

5.14.2 Assessment against DMIA criteria

Criteria #1 Dynamic peak rebates creates an incentive for users to reduce peak demand which can help defer network augmentation.

Criteria #2 This is a peak demand management program.

Criteria #3 Ausgrid's trial is consistent with this criterion because it is exploring potentially efficient and effective demand management mechanisms.

Criteria #4 Non-tariff based

Criteria #5 This criteria is met because expenditure for this project cannot be recovered through any other jurisdictional, state or Australian Government scheme, nor through any other part of the distribution determination for the current regulatory control period.

Criteria #6 Opex

6 AusNet Services

AusNet Services is claiming 2013 DMIA expenditure for four demand management projects totalling $359 838. We approve this expenditure as it meets the DMIA criteria. The following section sets out our assessment of the individual projects. For more detailed information about these projects, please refer to AusNet Services' 2013 DMIA report.

6.1 Residential Battery Storage Trial

6.1.1 Project Overview

AusNet Services' Residential Battery Storage Trial will use battery and inverter systems connected to consumer homes to provide demand management and to simulate the potential capability of vehicle-to-grid enabled electric vehicles. The battery systems are fully programmable and can be remotely controlled by AusNet Services.

The battery systems are intended to shift customer demand from peak to off-peak times by discharging whenever the customer's instantaneous demand is high, and by re-charging overnight when the customer's demand is low. The flexibility provided by the programmable inverter makes this type of system capable of both addressing specific network constraints and providing broad-based demand management across the network if rolled-out in sufficiently large numbers. AusNet Services claimed DMIA expenditure in 2013 of $51 643 for this project.

6.1.2 Assessment against DMIA criteria

Criteria #1 The battery systems are intended to shift customer demand from peak to off-peak times by discharging whenever the customer's instantaneous demand is high, and by re-charging overnight when the customer's demand is low.

Criteria #2 This is a peak demand management program.

Criteria #3 This trial will explore how battery storage at the residential level can be used for peak demand management to defer network augmentation as well as developing key insights into how electric vehicles may interact with the network in the future.

Criteria #4 Non-tariff based

Criteria #5 This criteria is met because expenditure for this project cannot be recovered through any other jurisdictional, state or Australian Government scheme, nor through any other part of the distribution determination for the current regulatory control period.

Criteria #6 Opex and Capex

6.2 Grid Energy Storage System (GESS) Trial

6.2.1 Project Overview

In 2012, AusNet Services initiated a Grid-scale Energy Storage System (GESS) project to trial the use of a large battery storage system to defer asset augmentation by managing peak demand and explore other benefits of storage systems to network management. The GESS will shift demand on a particular feeder from peak to off-peak times by discharging during feeder peaks and re-charging overnight when the feeder demand is low. In practice, the GESS is suited to addressing a specific network constraint and is containerised to allow portability to different locations as required. AusNet Services claimed DMIA expenditure in 2013 of $246 095 for this project.

Criteria #1 AusNet Services is exploring grid connected storage to manage network demand and to defer augmentation works until a clear demand growth trend emerges guaranteeing higher level of asset utilisation.

Criteria #2 This is a peak demand management program.

Criteria #3 Shifting load on particular feeders from peak to off-peak times is an effective demand management strategy.

Criteria #4 Non-tariff based

Criteria #5 This criteria is met because expenditure for this project cannot be recovered through any other jurisdictional, state or Australian Government scheme, nor through any other part of the distribution determination for the current regulatory control period.

Criteria #6 Opex and Capex

6.3 Mallacoota Sustainable Energy Study

6.3.1 Project Overview

AusNet Services has partnered with the Mallacoota community through the Mallacoota Sustainable Energy Group (MSEG) and the East Gippsland Shire Council (EGSC) to investigate non-network alternative electricity supplies to the Mallacoota community. During 2013, AusNet Services contributed to funding a feasibility study into distributed electricity supply options that provide improved reliability of supply to customers and incorporate sustainable generation technologies. The study essentially covers options to meet customer demand via a mini-grid (embedded generation, storage and control systems) and therefore reduces reliance on bulk network supply.

This approach is suited to addressing specific localised areas on AusNet Services' network, such as remote locations, where there is a high cost of augmentation to serve increasing demand or improve reliability. In such locations, the use on non-network alternatives such as mini-grids may provide a significantly lower cost option to network augmentation. AusNet Services' claimed DMIA expenditure in 2013 of $29 100 for this project.

6.3.2 Assessment against DMIA criteria

Criteria #1 By meeting customer demand via a mini-grid, reliance on bulk network supply is reduced.

Criteria #2 This is a broad-based demand management program.

Criteria #3 This innovative technology is being trialled in anticipation of lower battery prices in future. Large battery systems offer demand levelling and voltage support services which can defer asset investment as well as improve the quality of supply to customers.

Criteria #4 Non-tariff based

Criteria #5 This criteria is met because expenditure for this project cannot be recovered through any other jurisdictional, state or Australian Government scheme, nor through any other part of the distribution determination for the current regulatory control period.

Criteria #6 Opex

6.4 Solar Forecast Uptake Study

6.4.1 Project Overview

This project aimed to provide AusNet Services with a model to understand and predict demand for market uptake of distributed solar power. As a major determinant of the magnitude, profile and variability of demand for network services, it is important AusNet Services to understand solar power market drivers in order to target the development of demand management strategies and projects that are effective in reducing peak demand levels. This includes both broad-based demand management initiatives such as tariffs as well as localised peak demand management projects such as the application of storage and embedded generation.

A proof of concept study was undertaken to develop a preliminary model based on prior work by University of Technology Sydney's Centre for the Study of Choice (CenSoC) in the Australian market based on consumer behaviour. A spreadsheet model and associated descriptive material were delivered for the project, in addition to a series of meetings and one on one discussions between AusNet Services and CenSoC providing detailed explanations of the materials. AusNet Services claimed DMIA expenditure in 2013 of $33 000 for this project.

6.4.2 Assessment against DMIA criteria

Criteria #1 This project provides AusNet Services with a model to understand and predict demand for market uptake of distributed solar power.

Criteria #2 This project includes both broad-based demand management initiatives such as tariffs as well as localised peak demand management projects such as the application of storage and embedded generation.

Criteria #3 The project was intended to build AusNet Services internal knowledge and capability in regards to understanding the mechanisms that drive PV uptake and the impact on network demand.

Criteria #4 Non-tariff based

Criteria #5 This criteria is met because expenditure for this project cannot be recovered through any other jurisdictional, state or Australian Government scheme, nor through any other part of the distribution determination for the current regulatory control period.

Criteria #6 Opex

7 Endeavour Energy

Endeavour Energy is claiming 2012–13 DMIA expenditure for four demand management projects totalling $412 036. We approve this expenditure as it meets the DMIA criteria. Three of these are continuing projects which have already been approved by the AER.[3] The following section sets out our assessment of the individual projects. For more detailed information about these projects, please refer to Endeavour Energy's 2012/13 DMIA report.

7.1 Project overview

This project involves enlisting residential customers to the air conditioning (Cool Saver) and peak time rebate (Peak Saver) programs. Customers are given a financial reward if they reduce their electricity consumption below their baseline usage. Expenditure sought in 2012–13 for this project will provide for the purchase and installation of metering, communications equipment and feedback surveys.[4] Endeavour Energy claimed DMIA expenditure in 2012–13 of $99 511 for this project.

7.1.1 Assessment against DMIA criteria

Criteria #1 This project aims to reduce residential peak demand in Rooty Hill through PeakSaver, a rebate scheme that rewards customers for using less energy than forecast, and CoolSaver which incentivises customers with air conditioners to sign up for load control of their air conditioner on event days.

Criteria #2 This project is a peak demand management project to better manage Rooty Hill zone substation network constraints.

Criteria #3 The PeakSaver scheme was the first peak time rebate demand management program in Australia and explores the potential of using rebates to reduce demand.

Criteria #4 Non-tariff based

Criteria #5 This criteria is met because expenditure for this project cannot be recovered through any other jurisdictional, state or Australian Government scheme, nor through any other part of the distribution determination for the current regulatory control period.

Criteria #6 Opex and capex

[3] Rooty Hill Residential Demand Management Program, the Glenmore Park Demand Response Trial, and the Data Analysis and Reporting project.
[4] All other costs for this program are claimed through the D-Factor.

7.2 Glenmore Park Demand Response Trial

7.2.1 Project overview

This trial will provide an insight into how smart meters can be used to reduce peak demand through time-based financial incentives (through extending the Cool Saver and Peak Saver programs first trialled in Rooty Hill), information from in-home displays and control of air conditioners. Endeavour Energy claimed DMIA expenditure in 2012–13 of $254 714 for this project.

7.2.2 Assessment against DMIA criteria

Criteria #1 This project investigates how smart meters can be used to reduce peak demand through time-based incentives, information from in home displays and direct control of air-conditioners.

Criteria #2 This project is a peak demand management project.

Criteria #3 This project explores how smart meters, an increasingly prevalent technology, can be used to manage peak demand.

Criteria #4 Non-tariff based

Criteria #5 This criteria is met because expenditure for this project cannot be recovered through any other jurisdictional, state or Australian Government scheme, nor through any other part of the distribution determination for the current regulatory control period.

Criteria #6 Capex and opex

7.3 Data Analysis and Reporting

7.3.1 Project overview

Endeavour Energy's Data Analysis and Reporting project provides statistical and data analytical services for its various demand management and energy efficiency schemes. In 2012–13, data collected from the Western Sydney Pricing Trial and Blacktown Solar City Load Control was analysed to assess the demand response of these schemes. Endeavour Energy claimed DMIA expenditure in 2012–13 of $55 558 for this project.

7.3.2 Assessment against DMIA criteria

Criteria #1 This project relates to demand management as it analyses the data from demand management trials (such as Blacktown Solar City, PeakSaver and CoolSaver programs and other pilots and trials of energy efficiency programs).

Criteria #2 This project supports both broad-based demand management as well as projects that focus on peak demand.

Criteria #3 This project builds Endeavour Energy's capability to improve its demand management projects by analysing the results from various trials and pilot studies.

Criteria #4 Non-tariff based

Criteria #5 This criteria is met because expenditure for this project cannot be recovered through any other jurisdictional, state or Australian Government scheme, nor through any other part of the distribution determination for the current regulatory control period.

Criteria #6 Opex

7.4 Changing Controlled Load 2 Switching Schedule

7.4.1 Project overview

This project aims to change the current Controlled Load 2 summer heating times (which operate until 5pm) so it does not clash with summer peak times (between 1pm and 8pm). This should shift 8,000MWh of energy per annum away from peak times. Endeavour Energy claimed DMIA expenditure in 2012–13 of $2 253 for this project.

7.4.2 Assessment against DMIA criteria

Criteria #1 This project aims to shift demand from summer afternoon peaks.

Criteria #2 This project is aimed at reducing peak demand by changing the Controlled Load 2 summer heating time so it does not coincide with the summer afternoon peak.

Criteria #3 This project uses load control to manage peak demand.

Criteria #4 Non-tariff based

Criteria #5 This criteria is met because expenditure for this project cannot be recovered through any other jurisdictional, state or Australian Government scheme, nor through any other part of the distribution determination for the current regulatory control period.

Criteria #6 Opex

8 Ergon Energy

Ergon Energy is claiming 2012–13 DMIA expenditure for 15 demand management projects totalling $881 264. We approve this expenditure as it meets the DMIA criteria. Five of these projects have received co-contributions from partners. Nine projects were continuing and six were new projects. The following section sets out our assessment of the individual projects. For more detailed information about these projects, please refer to Ergon Energy's 2012–13 DMIA report.

8.1 Stockland North Shore Display

8.1.1 Project overview

This project promotes energy sustainability to local builders and home buyers at a residential development in Townsville. Project delivery has largely concluded (a final project report is due in early 2014). Ergon Energy claimed DMIA expenditure in 2012–13 of $26 487 for this project.

8.1.2 Assessment against DMIA criteria

Criteria #1 This project educates prospective home buyers and local builders about energy efficiency options (including building features and using off-peak tariffs).

Criteria #2 This is a broad-based demand management program.

Criteria #3 By educating customers about energy efficient options, Ergon Energy is encouraging lower demand that may help avoid network augmentation.

Criteria #4 Non-tariff based

Criteria #5 This criteria is met because expenditure for this project cannot be recovered through any other jurisdictional, state or Australian Government scheme, nor through any other part of the distribution determination for the current regulatory control period.

Criteria #6 Opex

8.2 Auto Demand Response Trial

8.2.1 Project overview

The trial involves examining opportunities where customer equipment may be shut down or “dialled back” for short periods of time in order to reduce peak load with minimal or no impact on the customer. Trials show an average demand reduction of 32.6% from baseline levels. Ergon Energy claimed DMIA expenditure in 2012–13 of $48 220 for this project.

8.2.2 Assessment against DMIA criteria

Criteria #1 Automatic load control reduces demand at peak times and helps avoid the need for network augmentation.

Criteria #2 This is a peak demand management program.

Criteria #3 This project increases Ergon Energy's demand management capacity.

Criteria #4 Non-tariff based

Criteria #5 This criteria is met because expenditure for this project cannot be recovered through any other jurisdictional, state or Australian Government scheme, nor through any other part of the distribution determination for the current regulatory control period.

Criteria #6 Opex

8.3 Grid Utility Support System Phase 2

8.3.1 Project overview

The goal of the project is to improve the grid connection of renewable energy systems (particularly photovoltaics) to optimise the value of these systems to the network and to the customer. Appropriate integration will allow renewable energy to be stored and released when needed. Ergon Energy claimed DMIA expenditure in 2012–13 of $139 455 for this project.

8.3.2 Assessment against DMIA criteria

Criteria #1 This project seeks to improve the efficiency of non-network alternatives which helps avoid network augmentation. In particular, the project looks at storage options for renewable energy that can be drawn upon at times of peak demand.

Criteria #2 This project can be used to address both broad-based demand and peak demand issues.

Criteria #3 This project explores innovative methods to optimise the value of renewable energy which improves the overall efficiency of the network.

Criteria #4 Non-tariff based

Criteria #5 This criteria is met because expenditure for this project cannot be recovered through any other jurisdictional, state or Australian Government scheme, nor through any other part of the distribution determination for the current regulatory control period.

Criteria #6 Opex

8.4 Passive Air Cooling Trial

8.4.1 Project overview

The Passive Air Cooling Trial was developed to determine the commercial potential of a current market product that may help to reduce air conditioning load. As both the manufacturer and the supplier lack scientific data to support the efficacy of the product, this trial seeks to determine if this product can demonstrate energy and demand savings that can be actively promoted in the residential market. Ergon Energy claimed DMIA expenditure in 2012–13 of $66 754 for this project.

8.4.2 Assessment against DMIA criteria

Criteria #1 This project investigated an option to reduce air conditioning load which, in turn, can lower summer peak demand and thus reduce the need for network augmentation.

Criteria #2 This project investigated a potential peak demand management tool.

Criteria #3 This project explored the benefit of a new technology that claimed to have the benefit of reducing air conditioning load which would help manage demand.

Criteria #4 Non-tariff based

Criteria #5 This criteria is met because expenditure for this project cannot be recovered through any other jurisdictional, state or Australian Government scheme, nor through any other part of the distribution determination for the current regulatory control period.

Criteria #6 Opex

8.5 Smart Camp Feasibility

8.5.1 Project overview

The purpose of Ergon Energy's Smart Camp Feasibility project is to identify energy efficiency and demand management measures and to develop a cost/benefit model for evaluating efficiency improvements that result in a demand reduction in loads associated with construction and mining camps. Ergon Energy claimed DMIA expenditure in 2012–13 of $6 980 for this project.

8.5.2 Assessment against DMIA criteria

Criteria #1 This project explores opportunities to reduce the demand of specific loads.

Criteria #2 This is a broad-based demand management project for a specific class of network users.

Criteria #3 This project has allowed Ergon Energy to improve their demand management capacity for specific loads.

Criteria #4 Non-tariff based

Criteria #5 This criteria is met because expenditure for this project cannot be recovered through any other jurisdictional, state or Australian Government scheme, nor through any other part of the distribution determination for the current regulatory control period.

Criteria #6 Opex

8.6 Smart Voltage Regulator Trial

8.6.1 Project overview

The project involves laboratory testing the effectiveness of three phase smart voltage regulators in maintaining distribution network power quality in the context of increasing penetration of renewable generation. Ergon Energy claimed DMIA expenditure in 2012–13 of $3 459 for this project.

8.6.2 Assessment against DMIA criteria

Criteria #1 Smart voltage regulators can help improve the ability of the existing network to handle the increasing penetration of renewable generation rather than upgrading the network through augmentation.

Criteria #2 This is a broad-based demand management project.

Criteria #3 Using smart voltage regulators to improve the capability of the existing network is potentially a more efficient strategy than having to upgrade the network to handle the distribution of renewable generation.

Criteria #4 Non-tariff based

Criteria #5 This criteria is met because expenditure for this project cannot be recovered through any other jurisdictional, state or Australian Government scheme, nor through any other part of the distribution determination for the current regulatory control period.

Criteria #6 Opex

8.7 Urban Statcom

8.7.1 Project overview

This project aims to address negative network and customer supply impacts caused by the increase of photovoltaic systems and non-linear load that can cause over-voltage and voltage swings. Network issues such as these can cause photovoltaic (PV) systems to trip off and may require network augmentation and the potential restriction of PV system connection to address them. Ergon Energy claimed DMIA expenditure in 2012–13 of $13 909 for this project.

8.7.2 Assessment against DMIA criteria

Criteria #1 This project explores ways to improve the ability of the existing network to handle photovoltaic generation and non-linear load rather upgrading the network through augmentation.

Criteria #2 This is a broad-based demand management program.

Criteria #3 This project helps improve the efficiency of Ergon Energy's ability to meet the changing nature of network demand (which increasingly has to transport photovoltaic energy generated at the residential level) through optimising use of the existing network.

Criteria #4 Non-tariff based

Criteria #5 This criteria is met because expenditure for this project cannot be recovered through any other jurisdictional, state or Australian Government scheme, nor through any other part of the distribution determination for the current regulatory control period.

Criteria #6 Opex

8.8 Large Statcom

8.8.1 Project overview

This project will trial a three phase 300kVAr statcom unit to support the voltage on a long, medium voltage rural feeder with voltage regulation issues caused, in part, by increased generation by residential photovoltaic systems. A field trial will take place in 2013–14. Ergon Energy claimed DMIA expenditure in 2012–13 of $56 026 for this project.

8.8.2 Assessment against DMIA criteria

Criteria #1 This project seeks to improve the ability of the existing network to handle photovoltaic generation as an alternative to network augmentation.

Criteria #2 This is a broad-based demand management program.

Criteria #3 This project helps improve the efficiency of Ergon Energy's ability to meet the changing nature of network demand (which increasingly has to transport photovoltaic energy generated at the residential level) through optimising use of the existing network.

Criteria #4 Non-tariff based

Criteria #5 This criteria is met because expenditure for this project cannot be recovered through any other jurisdictional, state or Australian Government scheme, nor through any other part of the distribution determination for the current regulatory control period.

Criteria #6 Opex

8.9 Single-Wire Earth Return Statcom

8.9.1 Project overview

This project assessed the performance of two 20kvar single phase low voltage static compensator units to provide reactive power support to assist with the network voltage management for single-wire earth return networks. Ergon Energy claimed DMIA expenditure in 2012–13 of $19 596 for this project.

8.9.2 Assessment against DMIA criteria

Criteria #1 This project tested a product that had the potential to improve network voltage management which helps optimise use of the existing network and thus defer the need for network augmentation.

Criteria #2 This project explored a possible broad-based demand management option.

Criteria #3 Trials of this nature help Ergon Energy build capacity to efficiently manage demand.

Criteria #4 Non-tariff based

Criteria #5 This criteria is met because expenditure for this project cannot be recovered through any other jurisdictional, state or Australian Government scheme, nor through any other part of the distribution determination for the current regulatory control period.

Criteria #6 Opex

8.10 Solar Energy Management Systems

8.10.1 Project overview

This is a collaborative project with the CSIRO and heating and cooling manufacturer GWA. It aims to develop a Solar Energy Management controller to overcome existing challenges associated with integrating renewable energy with the current network. The aim is to develop a controller that is capable of continuous operation and the displacement of electrical consumption, increasing the penetration of cost-effective and reliable renewable energy technology. Ergon Energy claimed DMIA expenditure in 2012–13 of $64 960 for this project.

8.10.2 Assessment against DMIA criteria

Criteria #1 This project seeks to improve the ability of the existing network to handle photovoltaic generation as an alternative to network augmentation.

Criteria #2 The technology being tested has the potential to help better manage peak demand.

Criteria #3 This project trials innovative technology that can address network issues that arise as the demand for photovoltaic generation at the residential level increases.

Criteria #4 Non-tariff based

Criteria #5 This criteria is met because expenditure for this project cannot be recovered through any other jurisdictional, state or Australian Government scheme, nor through any other part of the distribution determination for the current regulatory control period.

Criteria #6 Opex

8.11 Network Embedded Solar Thermal

8.11.1 Project overview

This project aims to quantify the economic benefit of using Concentrating Solar Thermal (CST) electricity generation in the distribution network. The project aims to identify and map locations where CST generation could provide cost effective network support and quantify its value. Ergon Energy claimed DMIA expenditure in 2012–13 of $58 225 for this project.

8.11.2 Assessment against DMIA criteria

Criteria #1 The energy generated through solar thermal, unlike solar photovoltaics, can be stored and converted to electricity when required (for example, at times of peak demand) and is therefore a non-network demand management alternative.

Criteria #2 This technology can be used in grid constrained areas at times of peak demand.

Criteria #3 Concentrating solar thermal electricity generation is an innovative technology that can be used to provide network support as part of an efficient demand management strategy.

Criteria #4 Non-tariff based

Criteria #5 This criteria is met because expenditure for this project cannot be recovered through any other jurisdictional, state or Australian Government scheme, nor through any other part of the distribution determination for the current regulatory control period.

Criteria #6 Opex

8.12 Cool Roof Trial

8.12.1 Project overview

This is a collaborative project with industry partners and Queensland University of Technology to develop and trial a roof coating system that maximises energy and

demand reductions for customers. The project aims to develop a scientifically valid testing regime that validates the performance of cool rood products and quantifies the energy and demand reductions. Ergon Energy claimed DMIA expenditure in 2012–13 of $204 781 for this project.

8.12.2 Assessment against DMIA criteria

Criteria #1 Cool roof technology can keep buildings cooler, and is a potentially useful demand management tool to reduce summer peaks through lower air conditioner usage.

Criteria #2 Cool roof technology has the potential to both lower broad-based demand and peak demand.

Criteria #3 Cool roof technology is an emerging technology that has the potential to more efficiently manage demand.

Criteria #4 Non-tariff based

Criteria #5 This criteria is met because expenditure for this project cannot be recovered through any other jurisdictional, state or Australian Government scheme, nor through any other part of the distribution determination for the current regulatory control period.

Criteria #6 Opex

8.13 RECESS

8.13.1 Project overview

Ergon Energy has identified that only 10% of new homes are taking advantage of off-peak tariffs (compared to 69% of existing homes). This project aims to address this issue by the increasing customers' and electricians' awareness of off-peak tariffs and the associated value propositions. Ergon Energy claimed DMIA expenditure in 2012–13 of $128 412 for this project.

8.13.2 Assessment against DMIA criteria

Criteria #1 This is an educative campaign to encourage customers and electricians in new homes to use off-peak tariffs in order to encourage customers to shift demand away from peak times which can help defer the need for network augmentation.

Criteria #2 This is a peak demand management project.

Criteria #3 The move towards cost-reflective tariffs is not a new idea, but applying it more widely furthers Ergon Energy's demand management capacity.

Criteria #4 Tariff based

Criteria #5 This criteria is met because expenditure for this project cannot be recovered through any other jurisdictional, state or Australian Government scheme, nor

through any other part of the distribution determination for the current regulatory control period.

Criteria #6 Opex

8.14 Building Design Led Capacity

8.14.1 Project overview

This project aims to use a Design Led Innovation methodology to co-design energy management solutions with stakeholders in an iterative consultative process. Amongst other initiatives, it involves gathering customer insights about domestic level battery storage that will be used in developing business models for battery storage deployment. Ergon Energy claimed DMIA expenditure in 2012–13 $34 000 for this project.

8.14.2 Assessment against DMIA criteria

Criteria #1 Domestic level battery storage has network demand management potential because it can be drawn on at times of peak network demand.

Criteria #2 This project has both broad-based demand and peak demand management potential.

Criteria #3 This project developed customer insights about battery storage and grid connect, but also builds capacity in design led innovation.

Criteria #4 Non-tariff based

Criteria #5 This criteria is met because expenditure for this project cannot be recovered through any other jurisdictional, state or Australian Government scheme, nor through any other part of the distribution determination for the current regulatory control period.

Criteria #6 Opex

8.15 Super Conductor

8.15.1 Project overview

This is a pilot study of a High Temperature Superconducting (HTS) power cable which has the potential to significantly increase network capacity and flexibility by replacing conventional electrical assets with new cryogenic technology. Ergon Energy claimed DMIA expenditure in 2012–13 of $10 000 for this project.

8.15.2 Assessment against DMIA criteria

Criteria #1 This technology has the potential to increase network capacity and flexibility and reduce the frequency of network augmentation.

Criteria #2 This is a broad-based demand management project.

Criteria #3 This is a trial of an innovative technology that has the potential to better manage demand.

Criteria #4 Non-tariff based

Criteria #5 This criteria is met because expenditure for this project cannot be recovered through any other jurisdictional, state or Australian Government scheme, nor through any other part of the distribution determination for the current regulatory control period.

Criteria #6 Opex

9 Essential Energy

Essential Energy is claiming 2012–13 DMIA expenditure for six demand management projects totalling $976 600. We approve this expenditure as it meets the DMIA criteria. The following section sets out our assessment of the individual projects. For more detailed information about these projects, please refer to Essential Energy's 2012–13 DMIA report.

9.1 Grid Interactive Inverter program 20kVA based

9.1.1 Project overview

The grid interactive inverter program involves research, development and field testing of four quadrant inverters which can be used to avoid or defer network augmentation in low and medium voltage distribution networks. Following field trials in 2011–12, further monitoring and modification took place in 2012–13 to prepare the units for general deployment use. Essential Energy claimed DMIA expenditure in 2012–13 of $136 014 for this project.

9.1.2 Assessment against DMIA criteria

Criteria #1 This project involves testing four quadrant inverters, which are an enabling technology for energy storage, and reactive power support which has the potential to shift/reduce demand at peak times rather than relying on network augmentation.

Criteria #2 This is a peak demand management program.

Criteria #3 This project explores innovative technologies to build demand management capability and capacity.

Criteria #4 Non-tariff based

Criteria #5 This criteria is met because expenditure for this project cannot be recovered through any other jurisdictional, state or Australian Government scheme, nor through any other part of the distribution determination for the current regulatory control period.

Criteria #6 Opex and Capex

9.2 Grid Interactive Inverter program 5kVA based

9.2.1 Project overview

This project builds on the ‘Grid Interactive Inverter program 20kVA based’. The 5kVA project focuses on developing this technology for use at a residential level. During 2012–13, 5kVA four quadrant inverters were tested at the Clearwater Zone Substation in Port Macquarie. Essential Energy claimed DMIA expenditure in 2012–13 of $202 262 for this project.

9.2.2 Assessment against DMIA criteria

Criteria #1 Unlike the 20kVA based project which is used at the network level, the 5kVA inverters are developed to use at the residential level to support renewable generation connections while minimising adverse impacts to the distribution network.

Criteria #2 The technology explored in this project can be used in broad-based demand management programs and to address specific network constraints.

Criteria #3 This project explores innovative technologies to build demand management capability and capacity.

Criteria #4 Non-tariff based

Criteria #5 This criteria is met because expenditure for this project cannot be recovered through any other jurisdictional, state or Australian Government scheme, nor through any other part of the distribution determination for the current regulatory control period.

Criteria #6 Opex and Capex

9.3 Conservation Voltage Reduction through Low Voltage Regulators

9.3.1 Project overview

Conservation voltage reduction is a lowering of voltage at the customer connection point in order to increase end use efficiency, lower peak demand, lower energy use and decrease losses without adversely affecting power quality. It is also known as voltage optimisation. Overall project costs in 2012-13 include research, purchasing and testing of two three phase low voltage regulators by appropriately qualified staff. Essential Energy claimed DMIA expenditure in 2012–13 of $196 785 for this project.

9.3.2 Assessment against DMIA criteria

Criteria #1 Low voltage regulators have the potential to support voltage at times of peak demand and generally help conserve energy.

Criteria #2 The technology explored in this project can be used in broad-based demand and peak demand management program.

Criteria #3 This project explores ways to better manage demand by improving the effectiveness of existing network capacity.

Criteria #4 Non-tariff based

Criteria #5 This criteria is met because expenditure for this project cannot be recovered through any other jurisdictional, state or Australian Government scheme, nor through any other part of the distribution determination for the current regulatory control period.

Criteria #6 Opex and Capex

9.4 Capacitor Package Development

9.4.1 Project overview

This project explores the use of distribution feeder capacitors to help manage demand. They can be used to supplement substation power factor correction, provide an alternative to substation capacitors and manage distribution voltage profiles, increase network capacity and reduce line losses. Essential Energy has previously trialled capacitor installation in 2011–12. This project helps facilitate wider implementation of distribution capacitor banks in Essential Energy's network by developing maintenance plans, developing manuals and educating end users. Essential Energy claimed DMIA expenditure in 2012–13 of $90 856 for this project.

9.4.2 Assessment against DMIA criteria

Criteria #1 Distribution pole top capacitor banks are being used to reduce demand (for example, by increasing network capacity by correcting the power factor of a feeder) and avoid network augmentation.

Criteria #2 This project targets the use of distribution pole top capacitors in areas where there are specific network constraints at a particular location to help reduce peak demand.

Criteria #3 Capacitor banks are highly utilised in the United States and this technology is being transferred for use in Essential Energy's business to build its demand management capability.

Criteria #4 Non-tariff based

Criteria #5 This criteria is met because expenditure for this project cannot be recovered through any other jurisdictional, state or Australian Government scheme, nor through any other part of the distribution determination for the current regulatory control period.

Criteria #6 Opex

9.5 Energy and Network Capacity Cost Evaluation

9.5.1 Project overview

This project was developed in order to provide a more cost reflective evaluation of demand management measures within Essential Energy and to enable the use of broad-based demand management initiatives. A model was designed and implemented to determine the average long run marginal cost and average cost of capacity at each level of Essential Energy's network. Valuations for location specific demand management incorporating specific upstream demand reductions were also

provided. Essential Energy claimed DMIA expenditure in 2012–13 of $255 900 for this project.

9.5.2 Assessment against DMIA criteria

Criteria #1 By improving the ability to make business cases for broad-based demand management projects, Essential Energy will be able to make more efficient decisions when choosing between network and non-network solutions.

Criteria #2 This project improves the ability to make business cases for broad-based demand management programs.

Criteria #3 This project increases the capability to explore potential demand management mechanisms by improving the methodology and models needed to develop demand management business cases.

Criteria #4 Non-tariff based

Criteria #5 This criteria is met because expenditure for this project cannot be recovered through any other jurisdictional, state or Australian Government scheme, nor through any other part of the distribution determination for the current regulatory control period.

Criteria #6 Opex

9.6 Energy and Demand Audits

9.6.1 Project overview

The Energy and Demand Audits project was developed in order to analyse the minor changes consumers can make to processes and equipment which benefit both the consumer and the network. By the end of the 2012–13 financial year, a total of 10 audits had been completed with approximately 101 demand management initiatives investigated. Preliminary results have been compiled and they show that substantial benefits are available to both the consumers involved and the network. Essential Energy claimed DMIA expenditure in 2012–13 of $94 784 for this project.

9.6.2 Assessment against DMIA criteria

Criteria #1 Energy and demand audits analyse a customer's usage and this information can be used to identify suitable demand management initiatives for particular customer classes.

Criteria #2 This project will help identify both broad-based demand management and peak demand management initiatives.

Criteria #3 This project will improve demand management capability and explore potentially efficient demand management mechanisms.

Criteria #4 Non-tariff based

Criteria #5 This criteria is met because expenditure for this project cannot be recovered through any other jurisdictional, state or Australian Government scheme, nor through any other part of the distribution determination for the current regulatory control period.

Criteria #6 Opex

10 Jemena Electricity Networks

Jemena is claiming 2013 DMIA expenditure for one demand management project totalling $48 356. We approve this expenditure as it meets the DMIA criteria. The following section sets out our assessment of the individual projects. For more detailed information about these projects, please refer to Jemena's 2013 DMIA report.

10.1 Impact of the Energy Portal

10.1.1 Project Overview

Following the release of the Energy Portal to Jemena customers in June 2012, Jemena undertook an initiative in 2013 to understand the impact of the Energy Portal on customers' electricity consumption. Jemena sought approval for costs associated with engaging an analyst to assess the capabilities of the Energy Portal as a demand management initiative and to promote the portal to Jemena's customers. The project included the development of questionnaires and strategies for carrying out surveys in order to understand the impact of the Energy Portal on Jemena's customers.

10.1.2 Assessment against DMIA criteria

Criteria #1 The project has the potential to provide demand management capabilities through promoting portal use among Jemena's customers and giving them the tools to manage their demand.

Criteria #2 The project is a broad based demand management initiative targeted at consumers with smart meters, and is not aimed at a specific location on the network.

Criteria #3 The project is an initiative designed to explore customers' response to smart metering information and price signals.

Criteria #4 Non-tariff based

Criteria #5 This criteria is met because expenditure for this project cannot be recovered through any other jurisdictional, state or Australian Government scheme, nor through any other part of the distribution determination for the current regulatory control period.

Criteria #6 Opex

11 Powercor

Powercor is claiming 2013 DMIA expenditure for one demand management project totalling $189 000. We approve this expenditure as it meets the DMIA criteria. The following section sets out our assessment of the individual projects. For more detailed information about these projects, please refer to Powercor's 2013 DMIA report.

11.1 Boundary Bend Generation 2012/13 Summer

11.1.1 Project overview

The project is a network support project which was deployed to inject electrical power into a 22kV feeder in the Boundary Bend Network in North Western Victoria. The project included 2x1250kVA and 2x350kVa portable generators and included supply and lease of equipment, labour and fuel. This project has the effect of deferring capital expenditure and providing operational and planning learnings with the ability for it to be redeployed at other locations and times.

11.1.2 Assessment against DMIA criteria

Criteria #1 Two portable generators were used to reduce demand and avoid network augmentation. (For example, using fuel run generators instead of relying on Electricity supply during a short demand period)

Criteria #2 This project provided a solution to a peak demand management problem which addressed specific network constraints by reducing demand on the network.

Criteria #3 This project improved demand management capability and explored potentially efficient demand management mechanisms.

Criteria #4 Non-tariff based project

Criteria #5 This criteria is met because expenditure for this project cannot be recovered through any other jurisdictional, state or Australian Government scheme, nor through any other part of the distribution determination for the current regulatory control period.

Criteria #6 Opex

12 TasNetworks

We approve 2012–13 DMIA expenditure of $137 117 for three projects because they meet the DMIA criteria. The following section sets out our assessment of the individual projects. For more detailed information about these projects, please refer to TasNetwork's 2012–13 DMIA report.

12.1 Uncontrolled Domestic Hot Water Heating (Load Modelling)

12.1.1 Project overview

The purpose of the project is to develop a Hot Water Demand Management Tool to model and then predict demand reductions associated with controlling residential electric storage hot water systems. The tool will inform the design of a load management program for domestic hot water systems that results in peak demand reduction while minimally impacting customer amenity. TasNetworks claimed DMIA expenditure in 2012–13 of $71 061 for this project.

12.1.2 Assessment against DMIA criteria

Criteria #1 This project meets this requirement as it is part of a wider initiative to help manage load issues due to domestic hot water heating which in turn will lower peak demand in Tasmania and thus, reduce the need for network augmentation.

Criteria #2 This is a peak demand management project.

Criteria #3 This project satisfies this condition as it explores a potentially efficient demand management mechanism (reducing the impact of hot water systems at times of peak demand through load control).

Criteria #4 Non-tariff based

Criteria #5 This criterion is met because expenditure for this project cannot be recovered through any other jurisdictional, state or Australian Government scheme, nor through any other part of the distribution determination for the current regulatory control period.

Criteria #6 Opex

12.2 Bruny Island network constraints (research and modelling of non-network solutions)

12.2.1 Project overview

The purpose of this project is to model an integrated non-network solution involving load management, energy storage, static voltage control and backup diesel generation to address network constraint issues around Bruny Island. TasNetworks claimed DMIA expenditure in 2012–13 of $40 000 for this project.

12.2.2 Assessment against DMIA criteria

Criteria #1 This project meets the criteria because it seeks to better integrate non-network solutions to help address capacity constraints in the distribution network (rather than relying on network augmentation).

Criteria #2 This is a peak demand management project.

Criteria #3 This project meets the criteria as it explores the use of newer technologies such as battery storage and embedded generation in order to manage network demand.

Criteria #4 Non-tariff based

Criteria #5 This criterion is met because expenditure for this project cannot be recovered through any other jurisdictional, state or Australian Government scheme, nor through any other part of the distribution determination for the current regulatory control period.

Criteria #6 Opex

12.3 Peak demand reduction amongst commercial and industrial customers (scoping survey)

12.3.1 Project overview

This project involves a state-wide load survey of commercial and industrial customers to understand their characteristics and identify demand management potential. The findings of this survey will be used to shape the scope of a commercial and industrial customer demand management project. TasNetworks claimed DMIA expenditure in 2012–13 of $26 056 for this project.

12.3.2 Assessment against DMIA criteria

Criteria #1 This project meets this requirement because it investigates the scope of reducing peak demand for standard control services from commercial and industrial customers.

Criteria #2 This is a peak demand management project.

Criteria #3 This project meets this requirement as it is designed to build demand management capability and capacity through understanding the scope for peak demand reduction of commercial and industrial customers.

Criteria #4 Non-tariff based

Criteria #5 This criterion is met because expenditure for this project cannot be recovered through any other jurisdictional, state or Australian Government scheme, nor through any other part of the distribution determination for the current regulatory control period.

Criteria #6 Opex

13 United Energy

United Energy is claiming 2013 DMIA expenditure for two demand management projects totalling $332 990. We approve this expenditure as it meets the DMIA criteria. The following section sets out our assessment of the individual projects. For more detailed information about these projects, please refer to United Energy's 2013 DMIA report.

13.1 District Energy Services Scheme (DESS) Project

13.1.1 Project Overview

In August 2011, United Energy (UE) formalised a Memorandum of Understanding (MoU) with Manningham City Council to work with the Council in providing support for jointly planned initiatives within the Doncaster Hill Smart Energy Zone. The MoU has allowed United Energy to provide its expertise in electricity distribution to assist the Council to explore and facilitate projects which promote sustainable energy development and demand management opportunities within the precinct.

United Energy is supportive of and is actively engaged with the Council in its District Energy Services Scheme (DESS) project, predominantly through in-kind labour support, but also in cash support in instances when external consulting resources were required for the development of the project. United Energy claimed DMIA expenditure in 2013 of $28 880 for this project.

13.1.2 Assessment against DMIA criteria

Criteria #1 One of the objectives of the District Energy Service Scheme is to defer the proposed network augmentation of establishing Templestowe Zone Substation.

Criteria #2 The DESS aims to address specific network constraints by reducing demand on the network at the location and time of the constraint. UE's Doncaster Zone Substation supplies much of this developing area around Doncaster Hill.

Criteria #3 The two District Energy Service Scheme commercial feasibility study reports offer quite different and novel solutions for the area. The reports identify commercially viable demand management opportunities within the precinct which can be developed within the existing regulatory and planning frameworks.

Criteria #4 Non-tariff based

Criteria #5 This criteria is met because expenditure for this project cannot be recovered through any other jurisdictional, state or Australian Government scheme, nor through any other part of the distribution determination for the current regulatory control period.

Criteria #6 Opex

13.2 Virtual Power Plant (VPP) Project

13.2.1 Project Overview

The VPP project attempts to combine the capabilities of solar PV generation and battery storage to flatten out the demand profile by charging the battery during the middle of the day when solar PV generation is at its maximum and discharging the battery during the early evening when residential demand is at its maximum. Aggregating VPP units will provide a system that can be dispatched to manage network capacity constraints.

If the VPP concept is proven, it is intended to locate such units in areas where there are identified network constraints. In the first instance, this is likely to be in areas where there are significant distribution transformer constraints by clustering the VPP units in localised areas. The VPP offers a new solution for a constrained network area, particularly where load growth is low, uncertain or is expected to plateau in future. The ability to provide incremental amounts of capacity through combining renewable generation and storage to meet the demand as it materialises could be economic against a more traditional network solution that provides significant step increases in capacity at higher cost. The VPP is intended to test this concept. United Energy claimed DMIA expenditure in 2013 of $304 110 for this project.

13.2.2 Assessment against DMIA criteria

Criteria #1 VPP could be a useful alternative in environments of low peak demand growth, targeting those areas of the network where future peak demand could decline, potentially leading to under-utilised network assets or where the cost of additional capacity on the network is higher than average.

Criteria #2 VPP is a peak demand management strategy which aims to address specific network constraints by reducing demand on the network at the location and time of the constraint.

Criteria #3 The VPP offers a new solution for a constrained network area, particularly where load growth is low, uncertain or is expected to plateau in future.

Criteria #4 Non-tariff based

Criteria #5 This criteria is met because expenditure for this project cannot be recovered through any other jurisdictional, state or Australian Government scheme, nor through any other part of the distribution determination for the current regulatory control period.

Criteria #6 Opex