



# E3

Equipment Energy  
Efficiency

# Achievements 2010/2011

A joint initiative of Australian, State and Territory  
and New Zealand Governments.

---

[www.energyrating.gov.au](http://www.energyrating.gov.au)



## Mixed Sources

Product group from well-managed forests, controlled sources and recycled wood or fiber  
www.fsc.org Cert no. SGS-COC-003917  
© 1996 Forest Stewardship Council

### **Ownership of intellectual property rights in this publication**

Unless otherwise noted, copyright (and any other intellectual property rights, if any) in this publication is owned by the Commonwealth of Australia (referred to below as the Commonwealth).

### **Creative Commons licence**

With the exception of the Coat of Arms, this publication is licensed under a Creative Commons Attribution 3.0 Australia Licence.

Creative Commons Attribution 3.0 Australia Licence is a standard form licence agreement that allows you to copy, distribute, transmit and adapt this publication provided that you attribute the work. A summary of the licence terms is available from <http://creativecommons.org/licenses/by/3.0/au/deed.en>. The full licence terms are available from <http://creativecommons.org/licenses/by/3.0/au/legalcode>. The Commonwealth's preference is that you attribute this publication (and any material sourced from it) using the following wording:

*Source: Licensed from the Commonwealth of Australia under a Creative Commons Attribution 3.0 Australia Licence.*

The Commonwealth of Australia does not necessarily endorse the content of this publication.

### **Use of the Coat of Arms**

The terms under which the Coat of Arms can be used are set out on the It's an Honour website (see [www.itsanhonour.gov.au](http://www.itsanhonour.gov.au))

While reasonable efforts have been made to ensure that the contents of this publication are factually correct, E3 does not accept responsibility for the accuracy or completeness of the content, and shall not be liable for any loss or damage that may be occasioned directly or indirectly through the use of, or reliance on, the contents of this publication.

- **ACHIEVEMENTS 2010/11** continues the series of annual reports for the Equipment Energy Efficiency Program (E3 Program) – formerly known as the National Appliance and Equipment Energy Efficiency Program, which commenced nationally in Australia in 1992. New Zealand joined the E3 Program in 2002 and annual public reporting began in 2001.
  
- This report highlights the progress made in the 12 month financial year period from 1 July 2010 to 30 June 2011 against the goals set for the E3 Program by the Ministerial Council on Energy.
  
- More information about the E3 Program can be found at [www.energyrating.gov.au](http://www.energyrating.gov.au)



# Contents

EXECUTIVE SUMMARY	8
GLOSSARY AND ABBREVIATIONS	12
1 Introduction to the Equipment Energy Efficiency Program	15
1.1 Current Work Plan and Achievements	16
1.2 Governance	19
1.3 Program Budget	21
2 Long-term Strategies	22
2.1 Industrial Equipment Strategy	22
2.2 Commercial Refrigeration Strategy: In From the Cold	22
2.3 Street Lighting Strategy	23
2.4 Commercial Catering Equipment Strategy	23
2.5 Lighting Strategy - Greenlight Australia	23
2.6 National Hot Water Strategic Framework	23
3 Regulatory Impact Analysis	24
3.1 MCE Decision	24
3.2 Consultation RIS Released	26
3.3 Product Profile Published	27
4 Standards Development	28
4.1 Air-conditioners	28
4.2 Clothes Dryers	28
4.3 Clothes Washers	29
4.4 Dishwashers	29
4.5 Gas Water Heaters	29
4.6 Incandescent Lamps	29
4.7 Refrigerators and Freezers	29
4.8 Set Top Boxes	30
4.9 Televisions	30
5 Regulatory Compliance	31
5.1 Online Database for Product Registrations	33
5.2 Market Surveillance	33
5.3 Compliance Results	35
5.4 Check Testing and Enforcement	36
5.5 Settlements	37
6 Communications	38
6.1 Website	38
6.2 E3 Program Branding	39
6.3 Publications	39
6.4 Newsletters	39
6.5 Training Materials	39
6.6 Consumer Communications Campaigns	40
6.7 Stakeholder Communication Campaigns	40

7	Monitoring and Evaluation	42
	7.1 Impact Studies	42
	7.2 Evaluation Studies	46
	7.3 Other Evaluation Activities	51
8	International Engagement	53
	8.1 APEC	57
	8.2 Asia Pacific Partnership	57
	8.3 Asia Lighting Compact	57
	8.4 IEA 4E	57
	8.5 International Energy Agency	59
	8.6 International Partnership for Energy Efficiency Cooperation (IPEEC)	59
	8.7 Lighting Information and Technical Exchange on Standards (lites.asia)	59
	8.8 Super-efficient Equipment and Appliance Deployment (SEAD) initiative	60
	8.9 Bilateral Partnerships	60
	8.10 International Electro-technical Commission	61
	APPENDICES	62
	1. E3 PROGRAM GOVERNANCE	
	2. E3 COMMITTEE MEMBER ORGANISATIONS	
	3. MINISTERIAL COUNCIL ON ENERGY MEMBERSHIP	
	4. STANDARDS AND REGULATORY RULINGS	
	5. PUBLICATIONS	
	6. PARTICIPANTS IN INTERNATIONAL INITIATIVES	

## Tables

Table ES1. E3 Program achievements 1 July 2010 to 30 June 2011	9
Table 1: Summary of tasks relating to the development of regulations	16
Table 2: Major E3 Program achievements 1 July 2010 to 30 June 2011	17
Table 3: Long-term strategies covered by the E3 Program	22
Table 4: Status of Regulation Impact Statements and Product Profiles as at 30 June 2010	24
Table 5: Number of submitted and approved registrations for regulated products in 2010/11	32
Table 6: Compliance rates for energy rating labelling and registration of air-conditioners by jurisdiction	33
Table 7: Compliance rates for energy rating labelling and registration of televisions by jurisdiction	34
Table 8: Check tests results for 2010/11	36
Table 9: Summary of E3 involvement in major international initiatives, 2010/11	54
Table 10: E3 Committee member organisations as at 30 June 2011	64
Table 11: Australia and New Zealand standards and test methods released during 2010/11	66
Table 12. Regulatory rulings released during 2010/11	66
Table 13: E3 Program publications released from 1 July 2010 to 30 June 2011	68
Table 14. E3 newsletters issued from 1 July 2010 to 30 June 2011	70

---

## Figures

Figure ES1. Contribution from various programs to greenhouse gas abatement	9
Figure 1. Projected emissions reductions, 2012-2030 – accumulation over time	19
Figure 2: E3 Program reporting structure	19
Figure 3: Comparison of 2009/10 and 2010/11 online registration details	32
Figure 4. Summary of New Zealand labelling compliance visits results	35
Figure 5: Energy Rating website visits versus hits	38
Figure 6. Dandiiri Contact Centre in Zillmere, Queensland	41
Figure 7: Historical and projected impacts of E3 Programs on residential sector electricity use in Australia	43
Figure 8: Historical and projected impacts of E3 Programs on residential sector electricity use in New Zealand	43
Figure 9: Historical and projected impacts of E3 Programs on non-residential sector electricity use in Australia	44
Figure 10: Historical and projected impacts of E3 Programs on non-residential sector electricity use in New Zealand	44
Figure 11: Projected electricity savings by jurisdiction to 2020	45
Figure 12: Projected emissions avoided by jurisdiction to 2020	46
Figure 13: Estimated annual energy savings from previous household refrigeration policies (GWh/year)	47
Figure 14: Estimated energy savings for 2005 household refrigeration MEPS (RIS and present analysis)	48
Figure 15: Estimated energy savings for 1999 household refrigeration MEPS and 2000 label (RIS and present analysis)	48
Figure 16: Estimated annual energy savings from previous E3 air-conditioner policies (GWh/year)	49
Figure 17: Estimated energy savings for 2003 and 2005 air-conditioner RIS and present analysis	50
Figure 18: Cumulative energy savings (GWh) resulting from E3 Program in New Zealand, 2002-2011	52

# Executive Summary

*This report highlights the progress made by the Equipment Energy Efficiency (E3) Program in the 12 month period from 1 July 2010 to 30 June 2011.*

The E3 Program had its origins in an Australian inter-governmental agreement in 1992 to label several domestic appliances on a national basis. The E3 Program remains one of the key delivery mechanisms progressing Australia's National Framework for Energy Efficiency (NFee)<sup>1</sup> and National Strategy on Energy Efficiency (NSEE)<sup>2</sup> and the New Zealand Energy Efficiency and Conservation Strategy (NZECS)<sup>3</sup>.

The E3 Program makes a significant contribution to Australia's greenhouse gas mitigation efforts in the stationary energy sector, which accounted for 51% of Australia's total greenhouse gas emissions in 2009<sup>4</sup>.

As the E3 Program approaches its 20th year, it is both the longest running and one of the most significant national energy saving initiatives in the stationary energy sectors for Australia and New Zealand.

The E3 Program is funded by the Australian Government, State and Territory governments and the New Zealand Government. The program uses a range of measures aimed at improving the energy efficiency of equipment and appliances used in the residential, commercial and manufacturing sectors in Australia and New Zealand. Its core objectives are to deliver cost-effective greenhouse gas abatement and reduce energy consumption by addressing market failures and to lower the cost to consumers of operating energy-using appliances and equipment.

1. [www.ret.gov.au/documents/mce/energy-eff/nfee/default.html](http://www.ret.gov.au/documents/mce/energy-eff/nfee/default.html)

2. [www.coag.gov.au/coag\\_meeting\\_outcomes/2009-07-02/docs/Energy\\_efficiency\\_measures\\_table.pdf](http://www.coag.gov.au/coag_meeting_outcomes/2009-07-02/docs/Energy_efficiency_measures_table.pdf)

3. [www.eeca.govt.nz/node/13339](http://www.eeca.govt.nz/node/13339)

4. Australia's emissions projections 2010, <http://www.climatechange.gov.au/publications/projections/australias-emissions-projections.aspx>

The main policy tools used by the E3 Program to achieve these outcomes are:

- Mandatory Minimum Energy Performance Standards (MEPS).
- Mandatory energy efficiency labelling (Energy Rating Label).
- Voluntary agreements and measures – including endorsement labelling.

The work undertaken in 2010/11 is in accord with plans to expand the E3 Program to include new products and equipment using significant energy and to prepare for the transfer from Australian State and Territory legal responsibility to the proposed Greenhouse and Energy Minimum Standards (GEMS) administered by the Commonwealth and aligning with the existing New Zealand legislation<sup>5</sup>. A detailed examination of future opportunities suggests potential exists to double the level of greenhouse gas savings resulting from E3 Program actions by 2030.

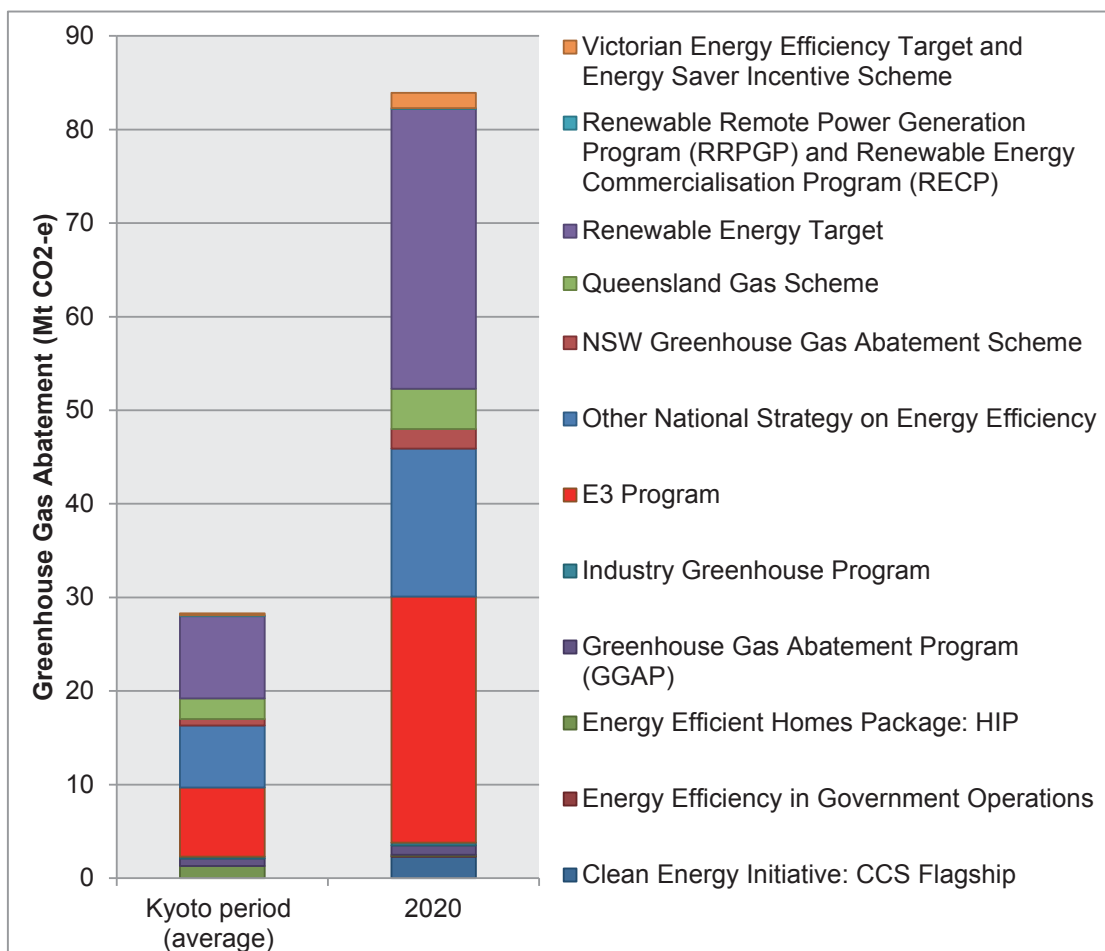
These savings continue to be a highly cost-effective form of abatement and energy saving. The E3 Program is forecast to achieve a 250.2 Mt CO<sub>2</sub>-e reduction in Australia over the period 2000-2020 while yielding net cumulative benefits of AUD \$22.4 billion by 2024 to the Australian economy. Planned new measures are estimated to benefit the New Zealand economy by NZD \$2.0 billion between 2012 and 2037. The E3 Program saves costs on average AUD \$56 for every tonne of greenhouse gas emissions avoided in Australia.

The E3 Program relies upon sustained investment by governments and industry to improve the efficiency of appliances and equipment. Product design cycles require that government communicate performance requirements well in advance of implementation, allowing industry to find the least-cost means to comply. Even when in place, the full impact of policies cannot be fully measured for many years due to the time taken for new products

5. Proposed under the National Strategy for Energy Efficiency.



**Figure ES1. Contribution from various programs to greenhouse gas abatement .**



to penetrate the market and replace the stock of less efficient products. During this period, governments track technological improvements and market evolution, adjusting policies so that they remain relevant and effective.

*A full list of the major E3 Program achievements 1 July 2010 to 30 June 2011 are found at Attachment 1.*

## Regulation and Standards Development

As it matures, the E3 Program divides its attention between maintaining vigilance on existing regulations while also investigating opportunities for introducing energy efficiency initiatives to other products.

The challenges posed by new product categories, together with investment in improved consultation processes with industry, has led to a lengthening of the policy development cycle and a slowing of the regulatory implementation from past timetables. While this has meant that fewer regulations came into force in this year compared to the previous 12 months, the regulatory process has greater engagement and support from industry which should lead to more realistic targets being set in the

future. In December 2010, Ministers approved new performance requirements for air-conditioners, with most commencing during 2011 and new standards for multi-split air-conditioners coming into effect from November 2012.

Significant progress has also been made on a number of new and revised regulations. The E3 Program has released proposals for new MEPS for computers, monitors<sup>6</sup> and distribution transformers. In New Zealand, stakeholder consultation on MEPS for televisions and compact fluorescent lamps (CFLs) was completed, aligning these energy efficiency regulations with Australia.

Product Profiles for gas ducted heaters and outdoor radiant heaters were also published, and changes made to test or performance standards for air-conditioners, gas water heaters, incandescent lamps and residential refrigeration appliances. A Discussion Paper on industrial equipment was published as the first step towards expanding product coverage in this area beyond electric motors.

## Program Evaluation

In response to past calls by bodies like the Productivity Commission, the program undertook several forms of evaluation to measure its effectiveness. Retrospective evaluation of programs provides an accurate measure of whether the E3 Program is actually achieving its projected impacts in terms of energy savings and environmental impacts.

Two studies into the impact of regulations upon refrigerators and air-conditioners in Australia found that actual savings gained after the regulations came into being, were approximately double those initially projected, and had been achieved at a lower cost than predicted. These studies demonstrate that the conservative nature of the initial predictions result in an underestimation of the benefits actually achieved. Importantly, these studies also found no evidence that the real price of appliances had increased or that the

number of brands or models had been reduced following the introduction of energy efficiency regulations. Consumers still purchase efficient air-conditioners and refrigerators in a competitive market from an ample range of models.

Analysis of sales data in New Zealand also confirmed that projections had under-estimated the level of savings resulting from the E3 Program.

## Compliance and Enforcement

Compliance is vital to ensure that the level of savings expected by the E3 Program is achieved, and the integrity of the program is maintained. The E3 Program has expanded its compliance program and its monitoring of effectiveness this year.

More than 100 check tests verified that actual performance which matched supplier claims were carried out during 2010/11. This represents more than double the number of tests completed in the previous year. Although products are selected based on risk assessment, more than 90% of the products tested verify suppliers' claims, while less than 10% resulted in a product being de-registered. These results are similar to the results achieved for the 2009/10 period giving confidence that the level of overall compliance achieved by the E3 Program is stable at better than 90%.

During 2010/11, five negotiated settlements were reached and/or progressed with product suppliers whose products failed check tests. Reparations typically comprise compensating purchasers for the extra operating costs incurred when using these products and the supplier companies purchasing carbon offsets to reduce the environmental impact of their actions.

The E3 Program also published two Australian national surveys of compliance with mandatory energy rating labelling and registration requirements. For air-conditioners, 89% of the 3,371 air-conditioners examined in 321 stores throughout Australia were labelled correctly. This represents an improvement on the previous survey result for this product type conducted in 2005 which found 8 out of 10 air-conditioners carried an accurate label.

6. MEPS for computers and monitors are only applicable for Australia

When televisions were surveyed between 7 December 2010 and 4 February 2011 mandatory performance requirements had been in place for less than 18 months. Therefore, the result that 93% of displayed televisions were labelled correctly supported the E3 Program claim of a successful transition from unregulated to a regulated environment. A total of 5,140 televisions were examined in the survey of 101 stores located throughout Australia (except the Northern Territory). These results compare favourably with similar programs conducted in North America and Europe.

## Communication

Communication is a vital part of the E3 Program. It ensures suppliers and retailers are aware of their obligations, it informs stakeholders of proposed regulatory changes, or it alerts industry groups of new initiatives in their field.

2010/11 has seen a major revamping of the main E3 Program communication tools, particularly an investment in the development of a new more interactive website and a rebranding for its publications. Consultation with key user groups during the year informed the design of the revamped public interface and also improved the new registration system. The website continues to be the primary means of communication for both suppliers and the general public.

*The Efficiency Standard* was launched in Spring 2010 as a quarterly newsletter providing up-to-date information on the E3 Program to local and international stakeholders. Together with the *Load Down* newsletter, which focuses on the latest standby power research results and policy initiatives, these publications provide an easy means for readers to keep in touch with the full range of E3 Program initiatives. The newsletters highlight the 21 consultancy reports that are available from the website in 2010/11.

A new development this year was an award to encourage excellence in the design of efficient lighting. Launched at this year's Conference of the Illuminating Engineering Society of Australia

and New Zealand (IESANZ), the first Australian Lighting Energy Efficiency Design Award (ALEEDA) was won by the Dandiiri Contact Centre in Zillmere, Queensland.

## International Liaison and Coordination

International liaison is a recurrent theme throughout all areas of the E3 Program, reflecting the need for Australia and New Zealand to understand and influence the energy efficiency debate within the global economy. This has very direct impacts on the E3 Program. For example, through advancing the alignment of local test methods and performance specifications for individual products with international ones, the E3 Program is able to reduce the burden on manufacturers and suppliers. This increases the availability of cost-effective energy efficient products in the local market.

During 2010/11, the E3 Program has not only further developed bilateral links, but E3 Program staff have also been actively involved in major multinational initiatives that could bring the lessons learned in energy efficiency debates in North America, Europe and Asia to our region.

## Looking Forward

The year began with the Prime Minister's Task Group on Energy Efficiency highlighting the benefit from giving energy efficiency a more prominent role within Australia's policy framework:

*"Energy efficiency is Australia's untapped energy resource — a means to improve the productivity of the economy as well as an important element in moving towards a prosperous low-carbon future."*

During 2010/11, the E3 Program has continued to be the most cost effective energy efficiency program in the economies of Australia and New Zealand. In developing the next three-year Work Plan, the E3 Program will focus on the introduction of the GEMS program and preparing national legislation for Minimum Energy Reporting Standards and energy labelling. This will establish a nationally-consistent framework that streamlines and strengthens the current regulatory scheme based on state laws.

## GLOSSARY AND ABBREVIATIONS

4E	Efficient Electrical End-use Equipment (an Implementing Agreement under the IEC)
<b>ABARE</b>	<b>Australian Bureau of Agricultural and Rural Affairs</b>
ACCC	Australian Competition and Consumer Commission
ALC	Asia Lighting Compact
ANZCERTA	Australia New Zealand Closer Economic Relations Trade Agreement
ANZ	Australia/New Zealand
APEC	Asia-Pacific Economic Cooperation
APP	Asia-Pacific Partnership on Clean Development and Climate
AS/NZS	Australian and New Zealand Standards
ASEAN	Association of Southeast Asian Nations
BATF	Buildings and Appliances Task Force (an APP working group)
BAU	Business-as-usual (assumed circumstances under which no policy intervention has been taken)
CSTB	Conditional-access Set Top Box
CFL	Compact Fluorescent Lamp
CHEARI	China Household Electric Appliance Research Institute
CIMISB	Commercial Ice Maker and Ice Storage Bin
CO <sub>2</sub> -e	Carbon Dioxide Equivalent
COAG	Council of Australian Governments (the peak intergovernmental forum in Australia, comprising the Prime Minister, State Premiers, Territory Chief Ministers and the President of the Australian Local Government Association)
CPRS	Carbon Pollution Reduction Scheme
DCCEE	The Department of Climate Change and Energy Efficiency
DEWHA	The Department of the Environment, Water, Heritage and the Arts
DR	Demand Response (the ability to respond to an initiating signal originating from, or defined by, a remote agent)
DRED	Demand Response Enabling Device (a device that automatically alters an electrical product's normal mode of operation in response to an initiating signal originating from, or defined by, a remote agent)
EECA	The New Zealand Energy Efficiency and Conservation Authority
EGEE&C	Expert Group on Energy Efficiency and Conservation (one of five expert groups which assist EWG)
E <sub>2</sub> WG	Energy Efficiency Working Group
E <sub>3</sub> Program	Equipment Energy Efficiency Program (formerly known as the National Appliance and Equipment Energy Efficiency Program)
EEMODS	Energy Efficiency in Motor Driven Systems
EER	Energy Efficiency Ratio (calculated by dividing energy out by energy in)
ELV	Extra Low Voltage
ELVC	Extra Low Voltage Converter (a device used to provide power to low voltage halogen lighting systems)
EN	European Standard denotation
EN ISO	European Standard based on International Standard

<b>4E Efficient Electrical End-use Equipment (an Implementing Agreement under the IEC)</b>	
<b>ABARE</b>	<b>Australian Bureau of Agricultural and Rural Affairs</b>
EPS	External Power Supply
EMSA	The IEA Electric Motor Systems Annex
ERL	Energy Rating Label
EWG	The APEC Energy Working Group
GEMS	Greenhouse and Energy Minimum Standards
GLS	General Lighting Service (more commonly known as the traditional pear-shaped incandescent lamps)
GWh	Gigawatt-hour (10 <sup>9</sup> watt-hours)
IEA	International Energy Agency
ISO	International Organisation for Standardisation
HE	High Efficiency Voluntary Label
HEPS	High Energy Performance Standards
HVAC	Heating, Ventilation and Air-Conditioning
IEC	International Electrotechnical Commission
Kt	Kilotonnes (1000 (10 <sup>3</sup> ) tonnes)
kV	Kilovolts
kVA	Kilovolt-Ampere (a unit used for the apparent power in an electric circuit)
kWh	Kilowatt-hour (one thousand (10 <sup>3</sup> ) watt-hours)
kWr	Kilowatt-refrigeration
LE	Low Efficiency Mandatory Label
LED	Light Emitting Diode
LCA	Lighting Council Australia
LPG	Liquefied Petroleum Gas
MCE	Ministerial Council on Energy
MEF	Major Economies Forum on Energy and Climate
MEPS	Minimum Energy Performance Standards
MJ	Megajoule (10 <sup>6</sup> joules, equivalent to 0.278 kWh)
ML	Mandatory Label
Mt	Megatonne (one million (10 <sup>6</sup> ) tonnes)
NAEEEP	The National Appliance and Equipment Energy Efficiency Program (now the E3 Program)
NATA	National Association of Testing Authorities
NECA	National Electrical and Communications Association
NFEE	National Framework for Energy Efficiency
NSEE	National Strategy on Energy Efficiency
NZEECS	New Zealand Energy Efficiency and Conservation Strategy
OBPR	Office of Best Practice Regulation (a part of the Australian Government's Department of Finance and Deregulation)
PBIS	2-phenyl-5-benzimidazole-sulfonic acid – a marker material for clothes washer testing
PIC	Pacific Island Country

<b>4E Efficient Electrical End-use Equipment (an Implementing Agreement under the IEC)</b>	
<b>ABARE</b>	<b>Australian Bureau of Agricultural and Rural Affairs</b>
PJ	Petajoules (1015 joules, equivalent to 277.78 GWh)
PoC	Proof of Concept
prEN	Denotes a Draft European Standard
RBVM	Refrigerated Beverage Vending Machine
RDC	Refrigerated Display Cabinet
REEEP	Renewable Energy and Energy Efficiency Partnership
Regulatory Rulings	Revisions to regulatory standards to provide clarification on their interpretation
REMP	Residential Energy Monitoring Program
RET	The Department of Resources, Energy and Tourism
RIAT	Regulatory Impact Assessment Team, New Zealand Government Treasury
RIA	Regulatory Impact Analysis (the process of examining the likely impacts of a proposed regulation and a range of alternative options which could meet the government's policy objectives)
RIS	Regulation Impact Statement (assesses the cost, benefit and impacts of proposed regulation). During the RIA process, two types of RIS are produced – an initial Consultation RIS that invites comments from the wider community on the proposal and a Decision RIS on which the MCE decision on whether or not to regulate the product is based.
SCO	Standing Committee of Officials
TLP	Tempered Liquefied Petroleum Gas
TTMRA	The Trans-Tasman Mutual Recognition Agreement between Australia and New Zealand
TWh	Terawatt-hour (10 <sup>12</sup> watt-hours)
USAID	The United States Agency for International Development
VL	Voluntary Label
WELS	Water Efficiency Labelling Standards

# Introduction to the Equipment Energy Efficiency Program

The Equipment Energy Efficiency Program (E3 Program) is funded by the Australian Government, State and Territory governments and the New Zealand Government. It embraces a range of measures aimed at improving the energy efficiency of equipment and appliances used in the residential, commercial and manufacturing sectors in Australia and New Zealand. Its core objectives are to deliver cost-effective greenhouse gas abatement, to reduce energy use by addressing market failures and to lower the cost to consumers of operating energy-using appliances and equipment.

The key policy mechanisms used by the E3 Program to maximise the energy saving outcomes, include:

- Mandatory Minimum Energy Performance Standards (MEPS) – set out in the relevant product standards.
- Mandatory energy efficiency labelling (Energy Rating Labelling) – also set out in the relevant product standards.
- Voluntary measures – including endorsement labelling such as the voluntary ENERGY STAR label<sup>7</sup>.
- Training and support to promote the most energy efficient products.

Together these stimulate the development of world-class products, as well as helping to create fairer competition in the marketplace, by:

- Informing consumers of comparative energy consumption.
- Using energy rating labels to identify the top energy efficiency performing models in a product range.

7. ENERGY STAR is an international standard for energy efficient consumer products. It was developed in the United States (US) in the 1990s and is a joint program of the US Environmental Protection Agency and the US Department of Energy. More information can be found on the US ENERGY STAR website at [www.energystar.gov](http://www.energystar.gov) or on the New Zealand EECA website at [www.eeca.govt.nz/standards-and-ratings/energy-star](http://www.eeca.govt.nz/standards-and-ratings/energy-star).

- Defining high efficiency products within relevant standards.
- Stipulating minimum acceptable efficiency levels below which products may not be sold.

The E3 Program has its origins in the National Appliance and Equipment Energy Efficiency Program (NAEEEP) which began with an agreement in 1992 to use the Energy Rating Label for a few domestic appliances on a national basis.

Steady growth since this time has made the E3 Program one of the key delivery mechanisms of Australia's National Framework for Energy Efficiency (NFEE)<sup>8</sup> and National Strategy on Energy Efficiency (NSEE)<sup>9</sup> and the New Zealand Energy Efficiency and Conservation Strategy (NZECS)<sup>10</sup>.

As it approaches its 20th year, the E3 Program has impacts in all sectors and experts model a cumulative economic benefit to the Australian economy of AUD \$22.4 billion<sup>11</sup> by 2024.

Savings to date for the E3 Program in New Zealand are around \$726 million or 11.6 PJ<sup>12</sup> and planned new measures will add a further NZD \$2.0 billion by 2037. The most recent impact study on the Program, *Prevention is Cheaper than Cure – Avoiding Carbon Emissions through Energy Efficiency*, estimates that emissions avoided due to the E3 Program over the period 2000-2020 in Australia will be 250.2 Mt CO<sub>2</sub>-e.

8. [www.ret.gov.au/documents/mce/energy-eff/nfee/default.html](http://www.ret.gov.au/documents/mce/energy-eff/nfee/default.html)

9. [www.coag.gov.au/coag\\_meeting\\_outcomes/2009-07-02/docs/Energy\\_efficiency\\_measures\\_table.pdf](http://www.coag.gov.au/coag_meeting_outcomes/2009-07-02/docs/Energy_efficiency_measures_table.pdf)

10. [www.eeca.govt.nz/node/13339](http://www.eeca.govt.nz/node/13339)

11. Source: *Prevention is Cheaper than Cure – Avoiding Carbon Emissions through Energy Efficiency: Projected Impacts of the Equipment Energy Efficiency Program to 2010*, p. 5 (Report 2009/01, available at [www.energyrating.gov.au/library/pubs/200901-projected-impacts.pdf](http://www.energyrating.gov.au/library/pubs/200901-projected-impacts.pdf))

12. Source: New Zealand Energy Efficiency and Conservation Authority, Sales Data Report for year ending March 2011.

## 1.1 Current Work Plan and Achievements

The current work plan, for the three-year period from 2008/09 to 2010/11, responds to the policy framework agreed by COAG in the National Strategy for Energy Efficiency in 2008 and the New Zealand equivalent process. It includes the following major objectives:

- Broadening the range of products, particularly into the industrial equipment sector to cover off-the-shelf products in areas such as compressors, boilers, industrial chillers, pumps and fans, heat exchangers and refrigeration equipment.
- Improving the E3 Program's processes in terms of:
  - Engagement with industry,
  - Developing test methods and standards,
  - Regulatory Impact Assessments.
- Expanding compliance and enforcement activities to maintain the E3 Program's integrity.
- Accelerating the review of MEPS for covered appliances and implementing increasingly stringent regulations to keep pace with technological improvement.

As it matures, the E3 Program divides its attention between maintaining existing regulations while

also investigating the opportunities for introducing energy efficiency initiatives for a wider range of products.

Once introduced, energy efficiency regulations require on-going attention to ensure that the requirements remain relevant to the evolution of individual products and markets, as well as to policy developments in other economies. Without this on-going scrutiny and the resultant changes to standards, the predicted level of savings is unlikely to be realised.

The development of new regulations is time-consuming, involving extensive investigation and several rounds of consultation with stakeholders. Therefore the development cycle from an initial scoping study to the approval of a new regulation may take between two to four years, with recent experience demonstrating the longer time frame is becoming more of the norm.

The major tasks and stages relating to these activities are shown in Table 1.

As a result, the number of regulations implemented will vary from year to year. The E3 Program has placed a greater emphasis on reviews and on the exploration of new regulations in this reporting period.

**Table 1: Summary of tasks relating to the development of regulations**

	Products currently regulated	New Products	Products identified for regulation
Tasks/ stages	On-going Management and Enforcement	Research and Scoping Studies	
	Review of potential to increase stringency (3 to 4 year cycle)	Production of Product Profile	
	Where justified: ↓	Where justified:→	Development of useable test and regulatory standards
	Consultation RIS <sup>13</sup> approved		Consultation RIS approved
	Decision RIS approved		Decision RIS approved
	Regulatory sign-off		Regulatory sign-off
	Actual implementation		Actual implementation

13. Regulation Impact Statement



## Reporting Definitions

To ensure consistency the following definitions have been applied to achievements reporting:

*A Consultation RIS* – is a draft RIS approved for release by the Office of Best Practice Regulation (OBPR).

*A Decision RIS* – occurs when a Ministerial level decision is made that will allow implementation of the proposed RIS.

*A Product Profile* – is only determined when published for consultation.

Major program achievements undertaken in the 2010/2011 year are identified in Table 2.

This table is a snapshot highlighting more important activity undertaken during 2010/11 and does not include discussion papers, revised performance standards, evaluation reports or general publications. The remainder of this section reports on some of the more important developments.

**Table 2: Major E3 Program achievements 1 July 2010 to 30 June 2011**

Program Area	Number	Summary
Decision Regulation Impact Statements Approved	1	Air-conditioners
Consultation Regulation Impact Statements released	2	Computers and Computer Monitors Distribution Transformers
Product Profiles published	2	Ducted gas heaters Outdoor radiant gas heaters
Regulatory Rulings	10	Covers a range of products
Check-tests	102	Covers a range of products
Market Surveillance Reports	5	Surveys of Energy Efficiency Labelling: Air-conditioners Televisions  Report on the results of the first 1,000 verification tests undertaken in Australia and New Zealand between 1991 and 2010  Report on Refrigerator Energy Labelling and MEPS Compliance in the Australian Market  Evaluation of the 'Change the Globe' and related communication strategy to support the phase-out of inefficient incandescent lamps
Approved Mandatory Product Registrations	5,685	Covers a wide range of products
Approved Voluntary Product Registrations	10	Swimming pool pump-units
Newsletters	6	Load Down (3 issues) Efficiency Standard (3 issues)

### **1.1.1 Greenhouse and Energy Minimum Standards (GEMS) legislation**

Greenhouse and Energy Minimum Standards (GEMS) legislation is a key reform of the Council of Australian Government (COAG) that will see the development of a nationally-consistent legislative and policy framework for the regulation of equipment and appliances. The Commonwealth Department of Climate Change and Energy Efficiency (DCCEE) has been working collaboratively with states and territories to deliver on this 2009 COAG commitment that will bring consistency to the various state and territory laws that currently regulate equipment energy efficiency. Aside from regulating appliances and equipment that use electricity, the GEMS scheme will also allow for the expansion of the E3 Program beyond electrical equipment to potentially cover equipment using other fuel sources, as well as non-energy using products and greenhouse gas emissions-intensity labelling and standards.

A key focus in 2010/11 for DCCEE has been the development of the GEMS Bill, the passage of which will – for the first time – establish a single legislative framework through which standards and labelling for a range of energy and non-energy using products can be set. New product standards will be agreed to by the States, Territories and the Commonwealth, and put into effect via Ministerial determinations at the Commonwealth level. The new standards will then apply across every state and territory, and compliance will be monitored by a new national Regulator, providing certainty and consistency to industry and consumers.

Similarly, the National Hot Water Strategic Framework is working to transform the market for residential water heaters towards low-emission alternatives. This has included targeting installations in new homes and major renovations, new regulatory measures targeting replacements, enhanced incentives and building the capacity of industry. Jurisdictions already have in place a

range of measures relating to the installation of low emission hot water systems in new homes and during replacements, including both incentive programs and mandated requirements.

### **1.1.2 Investigation of New Opportunities for Energy Efficiency**

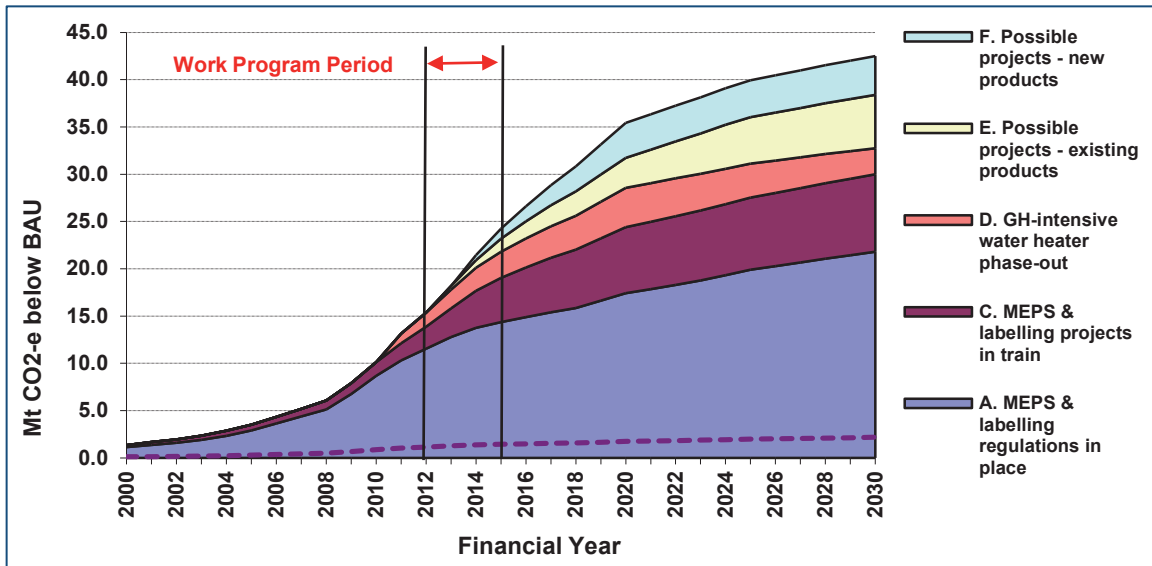
During 2010/11, work began on developing the next three-year Work Plan, covering the period from July 2011 to June 2014. This involved a strategic assessment of the major opportunities for expanding the program by sector and end-use product category, and the calculation of estimated energy and greenhouse gas savings.

In addition to the current list of regulated products, the review identified a further 19 MEPS, labelling and demand response projects, including the phase-out of greenhouse-intensive water heaters<sup>14</sup>, which are already under development and are expected to result in new regulations by 2014. There are also 11 projects that revise, upgrade or extend regulations for products currently covered by E3 Program activities. Possible new projects have been identified for a further 35 products that have not previously been covered, but which show promise based on a preliminary examination in Australia/New Zealand or investigations undertaken by other economies.

If the resources are available to implement all of the proposed projects, modelling suggests the reduction in greenhouse gas emissions by at least 650 Mt CO<sub>2</sub>-e in total by 2030 compared to business-as-usual scenarios. This is approximately twice the savings from current regulations. Figure 1 illustrates the CO<sub>2</sub>-e savings anticipated from the year 2000 to 2030 and indicates the period of the new three-year work plan.

14. The phase-out of greenhouse intensive water heaters is a NSEE program, however it is closely aligned to E3 Program activities and has been included in this report to ensure that all related projects can be evaluated. The E3 Program directly supports the phase-out by progressing work on MEPS for a range of water heating products.

**Figure 1. Projected emissions reductions, 2012-2030 – accumulation over time**



### 1.1.3 International Liaison and Coordination

International liaison is undertaken to understand and influence the equipment energy efficiency debate within the global economy.

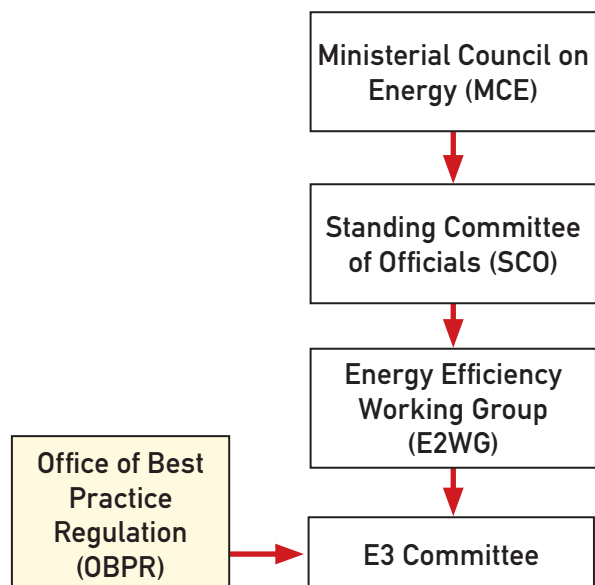
This has very direct spin-offs for the E3 Program. For example, through advancing the alignment of test methods and performance specifications for individual products, the E3 Program is able to reduce the burden on manufacturers and suppliers, increasing the availability of cost-effective energy efficient products in the local market.

Forging ties with overseas energy efficiency programs also enables the E3 Program to identify potential new categories of products and reduce the cost of developing regulations through the sharing of expertise. This, in itself, will also promote increased harmonisation.

### 1.2 Governance

The E3 Program sits within, and is managed through, the overall NFEE/NSEE structure. A diagram of the reporting structure, as it applied in 2011, is shown below in Figure 2 while the full NFEE/NSEE organisational structure can be found in Appendix 1.

**Figure 2: E3 Program reporting structure**



Administration of the E3 Program is the responsibility of the E3 Committee, which consists of officials from Commonwealth, State and Territory government agencies, as well as representatives of the New Zealand Government (the E3 Committee membership list as at 30 June 2011 is shown in Appendix 2).

In 2010/11, the E3 Committee was accountable to the Ministerial Council on Energy (MCE)<sup>15</sup>, which was established by the Council of Australian Governments (COAG)<sup>16</sup> in 2001 to deliver the economic and environmental benefits to Australia from implementation of the COAG national energy policy framework<sup>17</sup>. The MCE is comprised of the Federal Energy Minister, each jurisdiction's Minister responsible for energy, and observers from New Zealand, Papua New Guinea and Norfolk Island (the MCE membership list as at 30 June 2011 is shown in Appendix 3).

The New Zealand Minister for Energy has full membership and voting rights in regards to issues that fall under the Trans-Tasman Mutual Recognition Arrangement (TTMRA)<sup>18</sup>, a trigger which applies whenever any proposals for mandatory performance standards or labelling for end-use products are being considered. Measures approved by the MCE are subject to additional approval by the New Zealand Cabinet before they are adopted in New Zealand.

Regulatory Impact Statements relating to Australian appliance and equipment regulations are reviewed by, and required to obtain clearance from, the Office of Best Practice Regulation (OBPR) prior to their public release for consultation or finalisation for Ministerial consideration. Proposals with trans-Tasman implications are also

subject to review by the New Zealand Government's Regulatory Impact Assessment Team (RIAT). In effect, these cost benefit studies of possible regulation are very similar and are often conducted jointly and with one document providing all necessary information.

Under the Equipment Energy Efficiency Program, Australia and New Zealand have established a common approach to energy efficiency standards and labelling. This seeks to:

- Ensure that the same regulatory standards apply to suppliers in both countries, offering improved economies of scale in local production and reduced compliance costs.
- Stimulate the development of world-class products and helps to create fairer competition in marketing products.
- Ensure that consumers are able to make informed purchasing decisions as a result of a greater number of energy-efficient products available on the market with consistent standards and labelling schemes in each country.
- Ensure that efficiency regulators deliver common regulatory proposals with resultant public sector resource savings.
- Fulfil the obligations of the Australia New Zealand Closer Economic Relations Trade Agreement<sup>19</sup> and the TTMRA.

15. [www.mce.gov.au](http://www.mce.gov.au)

16. [www.coag.gov.au](http://www.coag.gov.au)

17. From 1 July 2011, the Ministerial Council on Energy (MCE) and the Ministerial Council on Mineral and Petroleum Resources (MCMPR) will amalgamate to form the Standing Council on Energy and Resources (SCER)

18. [www.coag.gov.au/mutual\\_recognition/tt\\_mutual\\_recog\\_agreement.cfm](http://www.coag.gov.au/mutual_recognition/tt_mutual_recog_agreement.cfm)

19. [www.daff.gov.au/market-access-trade/fta/anzcerta](http://www.daff.gov.au/market-access-trade/fta/anzcerta)

In 2010/11, the E3 Committee was responsible for advising the MCE on implementation measures to address the efficiency needs of all types of electrical equipment. MCE has given the E3 Committee a mandate to assess any energy-using product for possible regulation, subject to community consultation and the completion of a Regulation Impact Statement (RIS)<sup>20</sup> as required by COAG. In 2006, the MCE agreed for the first time to consider regulating products even in circumstances where a net cost is imposed upon the community, providing such action will offset even more expensive greenhouse gas mitigation action sometime in the future.

### 1.3 Program Budget

In 2010/11, funding for the E3 Program was sourced primarily from the MCE's Energy Special Account, administered by the Australian Department of Resources, Energy and Tourism (RET). The Energy Special Account receives contributions for the E3 Program from the New Zealand Government<sup>21</sup>, the Australian Government and the States and Territories. The New Zealand Government contributes around 18% of E3 Program funds, with the balance being split between the Australian Government<sup>22</sup> and the combined States and Territories according to the agreed COAG funding formula of a 50/50 split. The State and Territory contributions are determined on a pro-rata formula based on population.

In December 2007, MCE agreed on a three-year forward budget for the E3 Program of \$10 million as part of NFEE Stage 2. The annual budget for 2010/11 was set at \$3.5 million.

---

20. [www.finance.gov.au/obpr/ris/index.html](http://www.finance.gov.au/obpr/ris/index.html)

21. New Zealand contributes to the E3 Program only

22. In 2010/11, the Commonwealth contribution was jointly funded by the Department of Resources, Energy and Tourism (RET) and the Department of Climate Change and Energy Efficiency (DCCEE)

## Long-term Strategies

A feature of the E3 Program is the development of potentially ten-year strategies to clearly articulate government policy and to provide a road map for reducing energy use in key sectors. These strategic plans typically consider several products under the one umbrella, demonstrating the potential for transitions to new technologies and assessing a range of policy measures. The ten-year timeline provides industry with the opportunity to change product lines and bring more energy efficient technologies to the market.

This approach has proven effective in the past whereby successful engagements with stakeholders have led to agreement between government and industry on the key policies required to stimulate greater energy efficiency improvements and their uptake in the market. New Zealand participates in the development of long term strategies with Australia where there are benefits in aligning measures for both markets and where measures are captured under the joint work plan approved by New Zealand Cabinet.

Copies of completed strategies are available to download via the electronic library on the Energy Rating website at [www.energyrating.gov.au/resources/program-publications](http://www.energyrating.gov.au/resources/program-publications).

**Table 3: Long-term strategies covered by the E3 Program**

Strategy
Industrial Equipment Strategy
Commercial Refrigeration Strategy – <i>In from the Cold</i>
Street Lighting Strategy
Commercial Catering Equipment Strategy
Industrial Equipment Strategy Discussion Paper
National Standby Strategy – <i>Money Isn't All You're Saving</i>
Gas Strategy – <i>Switch on Gas</i>
Lighting Strategy – <i>Greenlight Australia</i> <sup>23</sup>
Heating, Ventilation and Air- conditioning (HVAC) High Efficiency Systems Strategy – The Measures

23. Update in progress

### 2.1 Industrial Equipment Strategy

During 2010/11, Sustainability Victoria, on behalf of the E3 Program, continued the work to develop a ten-year industrial equipment strategy designed to drive energy efficiency improvements in non-domestic pumps, fans, air compressors, chillers and boilers. Input to this process was invited through the public release of a Discussion Paper for public comment in September 2010 presenting an analysis of the contribution made by electricity- and gas-fuelled industrial equipment to energy use and greenhouse emissions in Australia and New Zealand. It also gave the results of an investigation into the feasibility of increasing the energy efficiency of key industrial equipment through a regulatory approach.

Consultation workshops were held for industry stakeholders in both Australia (Melbourne) and New Zealand (Auckland) prior to closure of the comment submission period in November 2010.

### 2.2 Commercial Refrigeration Strategy: In From the Cold

The Commercial Refrigeration Strategy, *In From the Cold: Strategies to increase the energy efficiency of non-domestic refrigeration in Australia and New Zealand*<sup>24</sup>, is designed to help improve the energy performance and uptake of energy efficient non-domestic refrigeration products and services within Australia and New Zealand. It also aims to identify the priority refrigeration technologies and market sectors to be targeted over the ten years from 2010 to 2020.

A consultation draft of the strategy was released for public comment in 2009/10. In response to comments received, E3 Program staff held a number of meetings with key stakeholders during 2010/11, to inform preparation of the final document.

24. <http://www.energyrating.gov.au/products-themes/refrigeration/commercial-refrigeration/documents-and-publications/>

## 2.3 Street Lighting Strategy

The development of a three-year Street Lighting Strategy was identified as part of the COAG's National Strategy on Energy Efficiency (NSEE), to identify barriers to the uptake of more efficient street lighting, develop strategies to address any identified problems and make available information on energy efficient street lighting technologies and operational practices nationwide.

Led by the South Australian Department for Transport, Energy and Infrastructure, a comprehensive needs survey of local and State Governments and distributor businesses was undertaken during 2010/11 to identify possible barriers to the uptake of energy efficient street lighting. Specific advice was also commissioned regarding potential barriers in the national electricity market to improved energy efficiency of streetlights.

Development of the Australian National Street Lighting Energy Efficiency Strategic Plan is expected to be completed in early 2012.

## 2.4 Commercial Catering Equipment Strategy

During 2008/09, work began on a Discussion Paper for the development of a ten-year commercial catering equipment strategy led by Sustainability Victoria. It was informed by the results of a commercial catering equipment end-use metering study that identified the most resource-intensive items of commercial catering equipment and provided a better understanding of their energy performance characteristics. Data was collected on the electricity, gas and water consumption of key commercial catering equipment items in ten commercial kitchens in Melbourne.

Development of the Discussion Paper was put on hold during 2010/11, due to lack of staff resources to manage the work, with work scheduled to re-start during 2011/12.

## 2.5 Lighting Strategy - Greenlight Australia

The *Greenlight Australia*<sup>25</sup> ten-year strategy for improving the efficiency of lighting in Australia was released by the MCE in November 2004. The Strategy represents the agreed government plan of all jurisdictions for improving the efficiency of lighting products and reducing greenhouse gas emissions from lighting. It sets out immediate and future priorities for consideration.

In 2009, work began, in cooperation with Lighting Council Australia (LCA), to revise the Strategy to extend its scope beyond 2015 and to take into account recent advances in lighting technology and developments in the lighting industry.

The revised Strategy will outline measures to improve the efficiency of all lighting equipment in the residential, commercial, industrial and public lighting sectors. This review and industry consultation has continued through 2010/11.

## 2.6 National Hot Water Strategic Framework

The National Hot Water Strategic Framework aims to provide the water heater industry with a transition pathway over the period 2010 to 2020 to the supply of low-emission water heaters. High emission water heater systems typically cost more to operate and have three to seven times the greenhouse gas intensity of low-emission systems.

The most effective time to bring about such an improvement is at the time of replacement, which represents around 69 per cent of water heater installations each year across Australia (source BIS Shrapnel, 2008).

---

25. <http://www.energyrating.gov.au/resources/program-publications/>

## Regulatory Impact Analysis

As part of the Australian and New Zealand governments' framework, the E3 Program is required to develop and assess the likely impacts of any proposed regulation through a Regulatory Impact Analysis (RIA) process. A key component of this analysis is the Regulation Impact Statement (RIS). RISs are written documents that inform affected parties and stakeholders of the potential impacts and regulatory options of any proposed new or amended regulation, which could, directly or indirectly, affect business or competition.

The RIS process comprises two stages:

- Release of a **Consultation RIS** that invites comments from the wider community.
- Preparation of a **Decision RIS** on which the MCE decision on whether or not to regulate the product is based.

To maximise opportunities for interested parties and stakeholders to assist in identifying potential impacts, the E3 Program often augments the RIA process with public meetings or by publishing Product Profiles, technical reports, cost-benefit analyses or fact sheets before seeking industry and community input in response to a Consultation RIS.

During 2010/11, one decision RIS was approved by the MCE, two Consultation RISs were released for public consultation and two Product Profiles were produced.

Preparatory work was also carried out for a further seven products: Commercial Refrigeration (RDCs, RBVMs and CIMISBs), Demand Response Interfaces, Gas Space and Decorative Heaters, Home Entertainment Products, Portable Air-conditioners, Standby Power and Swimming Pool Pump-units.

### 3.1 MCE Decision

#### Air-conditioners

##### Release date

In December 2010, the Ministerial Council on Energy endorsed the Decision RIS, *Minimum Energy Performance Standards for Air-conditioners: 2011*, to increase Minimum Energy Performance Standards for air-conditioners.<sup>27</sup>

##### Outline

The decision RIS is applicable only to Australia and outlines new requirements which will come into effect from October 2011:

**Table 4: Status of Regulation Impact Statements and Product Profiles as at 30 June 2010**

Product Type	Summary of Regulation	Sector <sup>26</sup>	Status
Air-conditioners (Single- and Three-phase)	Increasing stringency of MEPS	R,C	MCE decision
Computers	Introduction of MEPS	R,C	Consultation RIS released
Computer Monitors	Introduction of MEPS and Labeling	R,C	
Distribution Transformers	Increasing stringency of MEPS	I	Consultation RIS released
Gas Ducted Heaters	Feasibility of regulation	R	Product Profile published
Greenhouse-Intensive Water Heaters <sup>27</sup>	Phase-out through plumbing regulations	R	MCE decision
Outdoor Radiant Gas Heaters	Feasibility of regulation	R,C	Product Profile published

26. Sector: R = Residential; I = Industrial; C = Commercial

27. This NSEE initiative comes under the National Hot Water Strategic Framework



- Upgrade of national MEPS levels for air-conditioners broadly by an average of 10% (with transitional arrangements).
- DCCEE and key industry representatives remain in negotiations over possible deferrals and concessions to be granted to industry. An addendum outlining the deferrals and concessions in the form of proposed amendments to the decision RIS was presented to the MCE for consideration on 10 June 2011. A decision by MCE on these deferrals is expected to be made before the 1 October 2011 implementation date.

### Benefits and Costs

By 2025, it is predicted that the measures to be implemented in October 2011 in Australia will:

- Result in energy savings of 10,506 GWh.
- Reduce greenhouse gas emissions by 8.8 Mt CO<sub>2</sub>-e.
- Cost \$1,015 million but deliver a benefit of \$2,248 million, giving rise to a net benefit of \$1,233 million and a benefit-cost ratio of 2.1.

### 3.1.2 Greenhouse-Intensive Water Heaters

The phase-out of greenhouse intensive water heaters is a NSEE program.

#### Release Date

In December 2010, the MCE endorsed the Decision RIS, *Phasing Out Greenhouse-Intensive Water Heaters in Australian Homes*, to phase-out domestic greenhouse-intensive water heaters by prohibiting the installation of electric water heaters in existing Australian homes. The phase-out is intended to apply to all states and territories except Tasmania<sup>28</sup> and will be implemented in two stages; the first stage commencing in 2010, and the second stage in 2012.

<sup>28</sup>. Which has elected not to participate, citing the low greenhouse intensity of its public electricity supply resulting from its high proportion of hydro-electric power generation.

### Outline

The Decision RIS outlines the potential costs and benefits arising from the phase-out of greenhouse gas intensive hot water heaters from existing Australian houses (Class 1 dwellings: defined in the Building Code of Australia as detached, row, terrace or town houses, but not including apartments).

Around half of Australia's 8 million homes have greenhouse-intensive electric water heaters, which produce up to three times more greenhouse gases than the low emission alternatives. Water heating is the second largest energy user in households, accounting for nearly 23% of household energy, 22% of household greenhouse gas emissions and over 5% of total stationary energy sector emissions in 2008. 80% of emissions relating to water heating result from electric systems, while, natural gas systems are responsible for most of the balance, with some use of LPG and direct solar.

Australian governments have agreed to implement the phase-out of greenhouse gas-intensive water heaters through a staged approach. Stage 1 (from 2010) for existing homes is being implemented on a state by state basis, with Queensland and South Australia already having provisions in place. Stage 2 (from 2012), will require that electric resistance hot water systems are no longer installed in any existing detached, terraced and town houses except where an exemption applies. Households will only be required to replace their existing greenhouse-intensive systems with solar, gas or heat pump systems when their existing system breaks down and requires replacing.

To assist with the transition to less greenhouse-intensive water heating technologies by industry and consumers, a training package and online material targeting the general public was made and training rolled out nationally through Registered Training Providers. Training was provided for plumbers and other installers of solar and heat pump hot water systems, on a state-by-state basis. Two reference manuals, the *Solar and Heat Pump Hot Water Systems – Plumber Training Handbook*

and *Solar and Heat Pump Hot Water Systems – Plumber Training Reference Guide*, were published to complement the training.

### **Benefits and Costs**

In the period 2011-2020, the phase-out measures recommended will deliver an estimated greenhouse gas emissions savings of 51.1 million tonnes.

## **3.2 Consultation RIS Released**

### **3.2.1 Computers and Computer Monitors**

#### **Release Date**

In October 2010, the MCE released the Consultation RIS, *Proposed Minimum Energy Performance Standards for Computers and Computer Monitors*, with submissions invited until December 2010.

#### **Outline**

The RIS outlines the proposal to implement MEPS for computers and MEPS and energy labelling for computer monitors solely in Australia, in order to improve existing levels of energy efficiency and performance<sup>29</sup>.

The proposed standard would apply to all computers and computer monitors used in all sectors of the market (residential, commercial and government) throughout Australia and includes:

- Desktop, integrated and notebook/tablet type computers.
- Small scale servers.
- Most types of computer monitors.

The RIS summarises the arguments and analysis for introducing MEPS for all computers and MEPS and mandatory labelling of energy performance ratings for all computer monitors commencing not earlier than 30 June 2011. These regulations only apply to new stocks of computers and computer monitors manufactured or imported on or after the implementation date and will result in some current

<sup>29</sup>. A parallel process will be undertaken in New Zealand in the 2011/12 financial year.

models of computers and computer monitors no longer being eligible for sale.

The proposed regulation aligns with the internationally accepted test method, ENERGY STAR V5.0, developed by the United States Environmental Protection Agency (EPA) following advice from the computer industry.

### **Benefits and Costs**

The proposal demonstrates that by 2025, introducing MEPS and ERLs for computers and computer monitors in Australia will result in:

- Cumulative energy savings of approximately 28,000 GWh.
- A cumulative reduction in greenhouse gas emissions of 22.63 Mt CO<sub>2</sub>-e.
- A total cost of between \$590 and \$900 million, with associated savings worth between \$2,800 and \$5,600 million, resulting in an overall net benefit of between \$2,210 and \$4,700 million, with a benefit-cost ratio between 4.7 and 6.2.

### **3.2.2 Distribution Transformers**

#### **Release Date**

In May 2011, the MCE released the Consultation RIS, *Review of Minimum Energy Performance Standards for Distribution Transformers*, with a closing date for submissions of 29 July 2011.

#### **Outline**

The RIS examines the proposal to raise the minimum energy efficiency levels of new distribution transformers sold in Australia and New Zealand. These transformers are used in public electricity supply systems and the industrial, mining and commercial sectors. In light of the currently available technology, the original targets are not sufficiently challenging and there is now room for further cost-effective improvement. Market failures hinder the use of more efficient technology available and these failures, left unaddressed, will be responsible for a growing quantity of energy wastage and costs for end-users.

Therefore, the aim is to reduce distribution transformer energy losses to below the business-as-usual (BAU) case while ensuring that savings exceed costs, without compromising the quality and reliability of supply. The proposal under consideration is for the minimum efficiency levels in Australian Standard AS2374 to be increased to the existing high efficiency levels available, adjusted to take account of industry concerns. Further, the scope would be expanded to include transformers up to 3,150 kVA and system maximum voltage level up to 36 kV.

### **Benefits and Savings**

For the period 2010 to 2039, the RIS predicts that the proposal outlined will result in:

- Cumulative reduction in energy losses of 10,200 GWh (worth \$277 million) for Australia and 2,000 GWh (worth \$54.3 million) for New Zealand
- Cumulative reduction in CO<sub>2</sub> emissions of approximately 9.4 Mt CO<sub>2</sub>-e (worth \$118 million) in Australia and 1.8 Mt CO<sub>2</sub>-e (worth \$22.6 million) in New Zealand
- Calculated costs of implementing the proposal in Australia of \$231 million, giving a benefit-cost ratio of between 1.2 and 1.71.

## **3.3 Product Profile Published**

### **3.3.1 Gas Ducted Heaters**

In January 2011, a Product Profile on Gas Ducted Heating was finalised and released for public comment and stakeholder consultation workshops were held in both Australia and New Zealand.

The Product Profile provides an overview of the market in Australia and New Zealand for gas ducted heaters and includes a summary of what products are available and their efficiencies, identifying major suppliers, and presenting estimates of product sales and installed stock. It considers if technical improvements are possible with minimal disruptions to business, and the reasons why more efficient models aren't dominating the market.

It also explores a variety of different policy options that could be used to improve products and makes recommendations for further policy investigation to achieve energy savings and greenhouse gas reductions.

### **3.3.2 Outdoor Radiant Gas Heaters**

In September 2010, a Product Profile on Outdoor Radiant Gas Heaters was released to further advance the minimum energy performance standards (MEPS) process for these products and to provide updated information regarding these heaters in Australia.

The Product Profile provides an overview of the main technologies, the current market and the energy consumption of these products by type and application and presents information on applicable international trends and standards. It also details current efficiency regulation and test standards applied to these products.

The Product Profile analyses the potential to reduce energy consumption and greenhouse gases through the introduction of MEPS or other forms of regulation. It suggests that these are not expected to be justifiable, given the cost of such a program to the public and industry. However, it does present options such as: one-hour cut-off timers for all outdoor radiant gas heaters sold, mandatory energy warning labels and the introduction of voluntary bans with major retailers, all of which could be explored should authorities and stakeholders believe action is warranted.

## Standards Development

The role of standards within the E3 Program portfolio is an essential one, with broad agreement being reached between industry and government in the 1990s to use Australian and New Zealand Standards (AS/NZS) as the primary reference to deliver consistent regulations. The standards provide a 'one-stop-shop' for stakeholders, comprising two elements:

- **Test Method** which describes the method and procedures to be used for testing the energy performance of products.
- **Energy Performance** which details the technical and regulatory requirements for energy labelling and Minimum Energy Performance Standards (MEPS).

Standards development commences after the Ministerial Council on Energy (MCE) reaches a decision on MEPS and labelling policy. Standards are drafted under supervision by the relevant Standards Committee, which has representation from industry and other stakeholders, with support from the E3 Program. This ensures that the regulatory requirements for products are integrated with the test procedure. Following public consultation, these documents are then published as an Australian Standard or as a joint Standard.

From time-to-time, regulatory rulings may be issued to complement these standards. These rulings usually follow a formal application from a manufacturer to a regulator for an interpretation on a particular issue. Such interpretations or clarifications are required where a provision in a standard is found to be ambiguous, or in circumstances where the standard does not adequately cover an issue or is silent in relation to a particular matter. Often, interpretations are sought in relation to the scope of a standard with a view to having a particular class or type of product deemed exempt from the regulations.

During 2010/11, two new performance level standards, two revised performance level standards and two revised test method standards were

published. In addition, ten regulatory rulings were released during the year. These are described below and a summary can be found in Appendix 4.

### 4.1 Air-conditioners

In May 2011, a draft of AS/NZS 3823.2:2009/Amdt 1:2010, *Performance of electrical appliances – Air-conditioners and heat pumps - Energy labelling and minimum energy performance standard (MEPS) requirements*, was released for public comment.

In October, a revision of the associated test method standard was published in October 2010 as AS/NZS 3823.1.2:2001/Amdt 5:2010, *Performance of electrical appliances – Air-conditioners and heat pumps - Test methods - Ducted air-conditioners and air-to-air heat pumps - Testing and rating for performance*.

### 4.2 Clothes Dryers

Two regulatory rulings were agreed for clothes dryers in August 2010 (and published in January 2011):

- Regulatory Ruling 31A, *Clothes dryers with both timer and auto-sensing controls*, which clarifies the test requirements in respect to dryers with options for both timer control and autosensing control.
- Regulatory Ruling 32A, *Clothes dryer with door interlock*, which clarifies the procedure for measuring the energy and water consumption<sup>30</sup> for dryers with an interlock that prevents access to the load immediately prior to commencement of the cool-down period.

<sup>30</sup>. In the case of washer dryer combinations

### 4.3 Clothes Washers

In December 2010, Regulatory Ruling 33A, *Clothes Washers – Concentration of PBIS in the conditioned load*, was agreed stating that the maximum concentration of PBIS permitted to be retained in the rinse liquor extracted from the conditioned load as noted in clause M5.1 of AS/NZS 2040.1:2005 be increased from 0.05 mg/L to 0.2 mg/L.

### 4.4 Dishwashers

In April 2011, Regulatory Ruling 19B, *Acceptable alternative infant cereal to Farex 6+ months*, was agreed stating that regulators shall accept applications for registration approval that rely on test reports using specified alternative soiling agents against Clause A10(e) of AS/NZS 2007.1.

### 4.5 Gas Water Heaters

The performance standard AS/NZS 4552.2:2010, *Gas fired water heaters for hot water supply and/or central heating - Minimum Energy Performance Standards for gas water heaters*, was published in December 2010 and implementation of the new MEPS is scheduled for 2011/12.

### 4.6 Incandescent Lamps

In September 2010, Regulatory Ruling 30C, *Incandescent lamp efficacy*, was released specifying that a revision to the MEPS level for mains voltage halogen non-reflector lamps within AS/NZS 4934.2(Int):2008, *Incandescent lamps for general lighting services - Minimum Energy Performance Standards (MEPS) requirements*, be applied for an initial two year period.

In April 2011, this interim standard was replaced with AS 4934.2:2011, *Incandescent lamps for general lighting service*. A revision to the associated test method was also published in April 2011 as AS/NZS 4934.1(Int):2008/Amdt 1:2011, *Incandescent lamps for general lighting services - Test methods - Energy performance*.

### 4.7 Refrigerators and Freezers

Amendments to the refrigerator test standard were passed during 2010/11, leading to the publication of AS/NZS 4474.1:2007/Amdt 2:2011, *Performance of household electrical appliances - Refrigerating appliances - Energy consumption and performance*, and AS/NZS 4474.2:2009/Amdt 1:2011, *Performance of household electrical appliances - Refrigerating appliances - Energy labelling and minimum energy performance standard requirements*, in March 2011. The new requirements have come into force after an eight month transition to enable suppliers to confirm that their products comply with the new requirements.

These amendments ensure that estimates of energy consumption are more accurate and repeatable. In addition, devices designed specifically to underestimate energy consumption under test conditions are outlawed, and the treatment of icemakers during an energy test have been clarified. Additional changes include the requirement to declare automatic controls and a new approach on how to account for the energy used by ambient temperature controlled anti-sweat heaters.

In June 2011, Regulatory Ruling 39A, *Clarification of 'refrigerating appliances' claimed to be 'cooled appliances' that are required to be registered for energy labelling and MEPS for refrigerators*, was released to clarify the range of products falling under the scope of AS/NZS 4474.2:2009. It was replaced by another ruling in August 2011.

---

## 4.8 Set Top Boxes

Two regulatory rulings were released for set top boxes during 2010/11:

- Regulatory Ruling 35A, *Reference to AS/NZS 62087.1:2004*, was released in February 2011 to specify that any reference to AS/NZS 62087.1:2004 in the standard AS/NZS 62087.2.1:2008, *Power consumption of audio, video and related equipment - Minimum energy performance standards (MEPS) requirements for digital television set-top boxes*, be replaced by AS/NZS 62087.1:2010.
- Regulatory Ruling 37A, *Set top boxes supplied at less than 230/240Vac*, was released in March 2011 amending AS/NZS 62087.2.1:2008/Amdt 2:2010, *Power consumption of audio, video and related equipment - Minimum energy performance standards (MEPS) requirements for digital television set-top boxes*, to clarify the set top boxes which require energy efficiency registration and to enable capture of the data required with respect to external power supplies.

## 4.9 Televisions

In March 2011, *Regulatory Ruling 36A, Televisions supplied at less than 230/240Vac*, was published to clarify the scope of televisions that must be registered against AS/NZS 62087.2.2:2010, *Power consumption of audio, video and related equipment. Part 2 Minimum Energy Performance Standards (MEPS) and Energy Rating Label requirements for television sets*.

## Regulatory Compliance

A key element of the E3 Program is the administration of a monitoring, verification and enforcement program to maximise compliance with energy efficiency regulations and ensure that the overall efficiency goals of the program are being met. These activities are based on practices developed in other countries and fields, including environmental programs. They are designed to raise the perceived risks of non-compliance by stakeholders in the E3 Program and follow the principles of deterrence theory, which:

*“... maintains that there must be a credible likelihood of detecting violations, swift, certain, and appropriate sanctions upon detection; and a perception among the regulated firms that these detection and sanction elements are present”<sup>31</sup>*

Activities undertaken by the E3 Committee to monitor compliance include:

- Maintenance of a registration database and on-line registration system.
- In-store surveys to check that the correct labels are being displayed and check that products on the market are registered.
- Aiding compliance through education, stakeholder forums and other communication activities.
- Check testing to verify the claimed performance of products.

Sanctions against non-compliant products range from Regulatory agency action, including withdrawing the lawful right to sell that appliance model, taking direct legal action or to referring complaints to the Australian Competition and Consumer Commission (ACCC) or the New Zealand Commerce Commission.

<sup>31</sup> Zaelke, D. et al. (2005). *What Reason Demands: Making Law Work for Sustainable Development in Compliance, Rule of Law and Good Governance*. Available at [www.inece.org/mlw/Chapter1\\_ZaelkeStilwellYoung.pdf](http://www.inece.org/mlw/Chapter1_ZaelkeStilwellYoung.pdf)

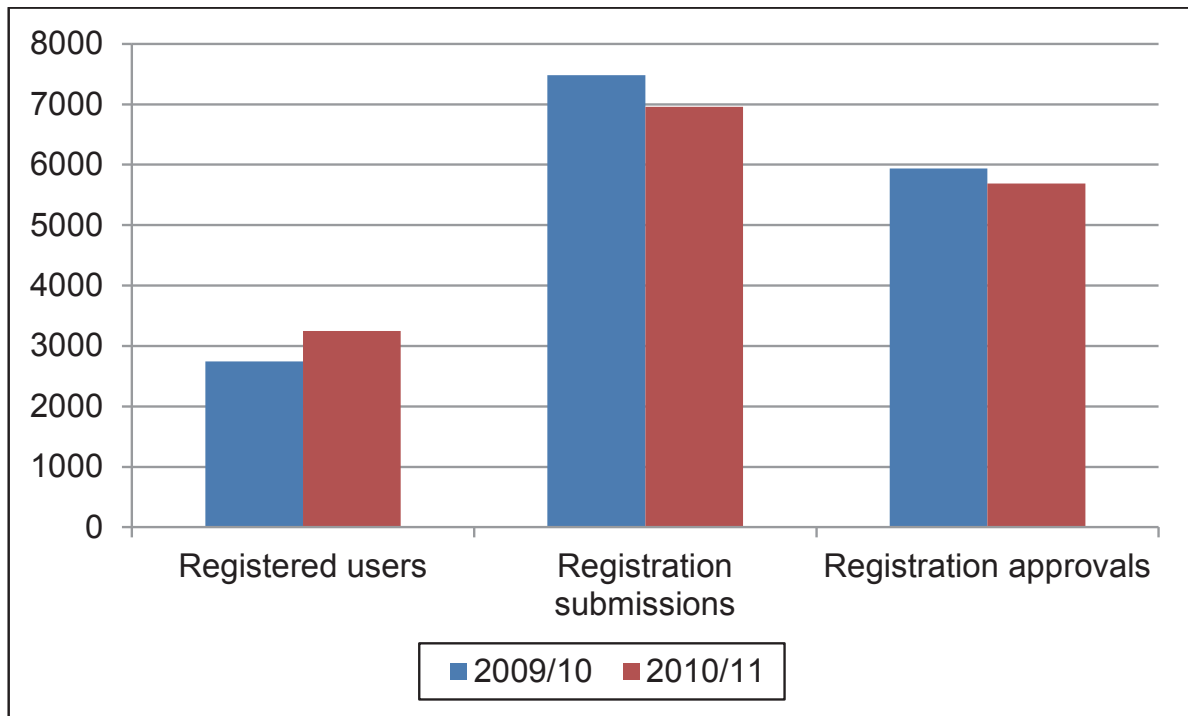
### 5.1 Online Database for Product Registrations

The online registration database system was introduced in 2002 to facilitate the registration process for prescribed appliances and equipment and is an integral part of the Energy Rating website, [www.energyrating.gov.au](http://www.energyrating.gov.au). The website also hosts an interface that allows users to search the database of registered products to gain comparative information on performance of an appliance.

During 2010/11, the registration process for all suppliers was revised. All suppliers were required to confirm the availability of regulated products registered on the Energy Rating website before 31 March 2011 to avoid being removed from the public listing. This new arrangement was introduced to address the frustration felt by consumers using the site to select products to buy, only to find that these were no longer being offered for sale. In future, any registered product that has not been verified as available for purchase by 31 March each year will automatically be transferred to the ‘run out’ listing on the Energy Rating website.

Over the period 1 July 2010 to 30 June 2011, there were 3,250 registered users of the online registration system. 6,958 submissions were completed and sent to regulators, resulting in 5,685 registration approvals. The number of registered users has increased from 2,744 in 2009/10, while the number of submissions has reduced from 7,484, resulting in 5,938 registration approvals. This is shown graphically in Figure 3 and a summary of the submitted and approved registrations by product type is given in Table 5.

**Figure 3: Comparison of 2009/10 and 2010/11 online registration details**



**Table 5: Number of submitted and approved registrations for regulated products in 2010/11**

Product Type	Submissions	Approvals
Air-conditioners	1,290	1,278
Ballasts	46	12
CFL Lamps	486	361
Chillers	76	57
Closed Control Air-conditioners	86	30
Clothes Dryers	51	42
Clothes Washers	134	110
Commercial Refrigerators	319	169
Dishwashers	98	86

Product Type	Submissions	Approvals
Distribution Transformers	70	25
Electric Motors	874	686
Extra Low Voltage Converters	27	4
Fluorescent Lamps	193	158
Incandescent Lamps	178	114
Power Supplies	1,611	1,297
Refrigerators	361	347
Set Top Boxes	76	53
Televisions	896	782
Electric Water Heaters	86	74
<b>Totals</b>	<b>6,958</b>	<b>5,685</b>



## 5.2 Market Surveillance

Two national surveys of compliance with mandatory energy labelling and registration requirements were published in 2010/11 – one for air-conditioners and one for televisions.

Each followed a similar pattern where appliances offered for sale on retail showroom floors were inspected to determine whether the appliance displayed the mandatory label correctly and was registered with one of four Australian state regulatory authorities.

In parallel, New Zealand has an ongoing program of bi-annual store visits to audit compliance with labelling regulations.

### 5.2.1 Air-conditioners

In January 2011, the results of a survey investigating compliance with the energy rating labelling and registration requirements for domestic air-conditioners were published in a report, *Survey of Energy Efficiency Labelling of Air-conditioners: A Report on inspections of 321 retail air/conditioner outlets in Australia*.

The survey targeted stores in capital cities, suburban locations and in regional areas, as well as stores of varying sizes, to gather an impression of the entire market. It examined air-conditioning

products displayed in 321 stores throughout Australia involving individual inspection of all of 3,371 products offered for sale in those stores between May and September 2009.

The survey found that 3,003 (89.1%) air-conditioners were labelled correctly, 352 products (10.4%) were not labelled at all and a further 16 products (0.5%) had errors in the way the label was displayed or with the information on the label.

With almost 9 out of 10 air-conditioners carrying an accurate label, this result represents an improvement on the previous survey result for this product type conducted in 2005 which found 8 out of 10 air-conditioners carried an accurate label.

As can be seen in Table 6, the compliance rates for energy labelling in state and territory jurisdictions varied, although the spread of results clustered around the national average (89.1%). Four jurisdictions (South Australia, the Northern Territory, Victoria and Western Australia) had results that were better than the national average. However, the results for the Australian Capital Territory, the Northern Territory and Tasmania were from relatively small sample sizes (though proportional to their share of the national housing stock) which may account for the extremes within the range of findings.

**Table 6: Compliance rates for energy rating labelling and registration of air-conditioners by jurisdiction**

Jurisdiction	Energy Rating Label Compliance	Registration Compliance	Sample Size (No. of appliances)
Australian Capital Territory	88.0%	99.1%	108
New South Wales	87.7%	99.8%	601
Northern Territory	96.0%	98.6%	139
Queensland	87.0%	99.2%	799
South Australia	91.0%	99.6%	548
Tasmania	69.4%	98.0%	98
Victoria	92.8%	97.2%	470
Western Australia	89.5%	99.7%	352
Internet	98.4%	96.9%	256
<b>National Average</b>	<b>89.1%</b>	<b>98.9%</b>	<b>3,371</b>

Across the country, the average compliance with mandatory registration requirements was 98.9%, indicating that the registration requirements are well understood by suppliers of air-conditioners in Australia.

### 5.2.2 Televisions

In April 2011, the results of a survey investigating compliance with the energy rating labelling and registration requirements for televisions were published in a report, *Survey of Energy Efficiency Labelling of Televisions: A Report on Inspections of 101 Retail Television Outlets in Australia*.

The survey examined televisions displayed in 101 stores throughout Australia (with the exception of the Northern Territory) and involved individual inspection of 5,140 products offered for sale in those stores between 7 December 2010 and 4 February 2011.

It found that 4,790 (93.2%) of televisions were labelled correctly. Of the 350 incorrectly labelled televisions, 73% did not display a label at all, and 22% were not compliant because the label was damaged or, more frequently, obscured.

These results indicate a substantial improvement compared to a preliminary study conducted twelve months earlier that suggested the average national labelling compliance rate could be as low as 76%. Furthermore, as the poorest performing 100 stores from the preliminary study were chosen for this survey, the current labelling compliance average in retail outlets in Australia may in fact exceed 93.2%. As mandatory performance requirements for televisions have been in place less than 18 months, these results represent a successful transition from an unregulated to regulated environment.

As can be seen in Table 7, the compliance rates for energy labelling in state and territory jurisdictions varied, although the spread of results clustered around the national average (93.2%). Results in three jurisdictions (New South Wales, Queensland and South Australia) were better than the national average. Although the distribution of samples surveyed was consistent with the distribution of households in Australia, the results for the Australian Capital Territory and Tasmania may be compromised by their relatively small sample sizes (see Table 7).

**Table 7: Compliance rates for energy rating labelling and registration of televisions by jurisdiction**

Jurisdiction	Energy Rating Label Compliance	Registration Compliance	Sample Size (No. of appliances)
Australian Capital Territory	99.0%	100.0%	40
New South Wales	97.0%	99.0%	1,673
Queensland	94.0%	97.4%	761
South Australia	91.8%	100.0%	407
Tasmania	90.1%	95.9%	74
Victoria	90.0%	96.6%	1,427
Western Australia	78.4%	98.9%	758
National Average	93.2%	98.2%	5,140

The average compliance rate with mandatory registration requirements amongst the 5,140 televisions surveyed was 98.2%.

### 5.2.3 New Zealand Labelling Compliance Visits

The 2010/11 surveys visited 200 stores and checked 15,681 products. A compliance rate of 98% for labelling of appliances was recorded across all traders. However, unlabelled appliances were identified in 42% of stores visited (usually only one or two products in a store). The success of the compliance regime and educational focus means that the majority of consumers will have, via the energy rating label, key energy efficiency information available to them as part of their purchasing decision. The annual compliance rates that have been identified by this survey are shown in Figure 4.

### 5.3 Compliance Results

As minimum energy performance standards and energy rating labels are based on manufacturers and importers complying with mandatory requirements, provision of information about

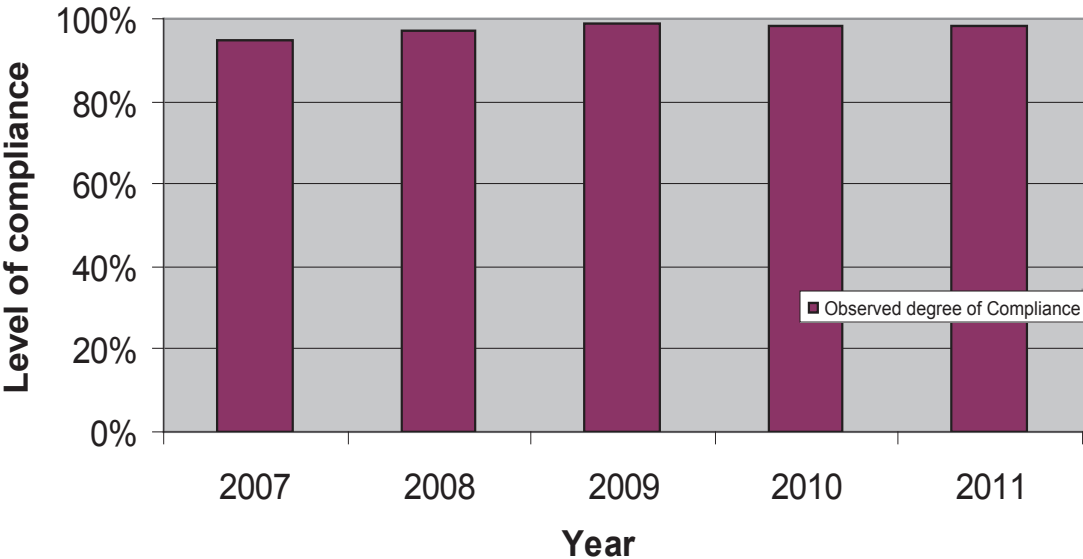
compliance is an important facet of the E3 Program.

Two reports published in 2010/11 provide a definitive picture of the levels of compliance of appliances and equipment sold in the Australian market based on analysis of historical data.

The first, *Performance Verified: The results of the first 1,000 verification tests undertaken in Australia and New Zealand between 1991 and 2010 in support of energy efficiency regulations for electrical appliances*, released in April 2011, presents the results of the first 1,000 verification (or check) tests conducted on regulated appliances since 1991.

These tests were carried out on targeted appliances selected because of their risk of failure (based on competitor complaint, a past record of non-compliance or other factors elevating the risk of the appliance not meeting its regulatory obligations). The report records that 29% were eventually confirmed as failures by testing or by suppliers accepting the initial test result as accurate for the model range.

Figure 4. Summary of New Zealand labelling compliance visits results



The second, *Refrigerator Energy Labelling and MEPS Compliance in the Australian Market*, released in June 2011, analyses the results of tests conducted between 1997 and 2008 of 260 refrigerator models.

These tests were conducted by the Australian Consumers Association for their CHOICE magazine. The products were selected on the basis of popular brands and so represent a random sample suitable for determining failures across the range of refrigerators offered for sale. Testing confirmed that 16% of models exceeded their measured energy consumption but, on a sales-weighted basis, overall non-compliance was 10%.

These reports demonstrate that:

- Overall compliance with mandatory regulations is in the order of 90% of products sold on the Australian market.
- Targeted testing directed at products more likely to offend is working to identify appliance suppliers who are unfairly trying to avoid their responsibilities.

## 5.4 Check Testing and Enforcement

Check testing or verification testing, is undertaken according to the methodology specified by a test standard or protocol and is the only means to confirm whether individual models meet the

performance requirements of MEPS and that energy rating labels indicate the correct level of performance.

Check testing provides several important functions with respect to the energy efficiency regulatory program:

- It helps to ensure that the projected energy and greenhouse gas savings are delivered.
- It safeguards the integrity of the program, maintaining consumer and industry confidence in the energy performance labels.
- It protects the investment made by those manufacturers and product suppliers producing compliant equipment from being undercut by non-compliant products.

Appliances are purchased from retail outlets or obtained anonymously and check tested in accredited testing laboratories to verify compliance to Australian standards.

Selection of products for testing is not based on random selection but on established 'risk factors', such as, competitor complaint, a past record of non-compliance or other factors elevating the risk of the appliance not meeting its regulatory obligations. This ensures that the E3 Program's financial resources are used most efficiently, allowing

**Table 8: Check tests results for 2010/11**

Product	Number of Tests Performed	Result Pending	Pass Result	Product Registration Cancelled	Cancellation of Product Registration Pending
Air-conditioners	9	0	5	4	-
Clothes Washers	8	0	6	2	1
Electric Motors	30	0	27	3	-
External Power Supplies	5	0	5	-	-
Refrigerators/Freezers	14	0	13	1	-
Set Top Boxes	10	-	10	-	-
Televisions	12	-	10	2	-
Electric Water Heaters	14	7	7	-	-
<b>TOTAL</b>	<b>102</b>	<b>7</b>	<b>83</b>	<b>12</b>	<b>1</b>

potentially expensive check tests to target products most likely to be non-compliant.

During 2010/11, 102 check tests were carried out, representing a 24% increase on the number of tests completed in the previous year. A summary of the tests performed, and their outcomes as at 30 June 2011, is given in Table 8. The confirmed rate of product de-registration (9.5%) resulting from check tests in 2010/11 was almost identical to the results for the 2009/10 period.

## 5.5 Settlements

The main sanction for failing check testing is product deregistration. In the worst cases, the E3 Program seeks reparation based on the additional energy consumed by the product from its claims. Where the manufacturer or importer agrees the performance of their product does not meet their registration claims, negotiated settlements are struck which typically comprise compensation for consumers for the extra operating costs as well as the purchase of carbon offsets to deal with the extra emissions resulting from operating the product.

### 5.5.1 Hisense HCF150A Chest Freezer

The Hisense chest freezer model HCF150A failed Stage 1 and Stage 2 testing and as a result the registration for this model was cancelled. Hisense Australia undertook to compensate consumers by offering a cash rebate of \$164.45 and purchased carbon offsets totalling 2,119 tonnes CO<sub>2</sub>-e.

### 5.5.2 Temperzone OPA333 Ducted Three Phase Packaged Air-conditioner

The Temperzone ducted three phase packaged air-conditioner model OPA333 failed Stage 1 and Stage 2 testing and as a result the registration for this model was cancelled.

Temperzone Ltd undertook to compensate consumers by offering a cash rebate of \$359.93 and purchased carbon offsets totalling 213 tonnes CO<sub>2</sub>-e.

### 5.5.3 Ariston AQXXD149H Clothes Washer

The Ariston clothes washer model AQXXD149H failed Stage 1 and Stage 2 testing and as a result the registration for this model was cancelled. Indesit Company Singapore undertook to compensate consumers by offering a cash rebate of \$51.44 and purchased carbon offsets totalling 3,970 tonnes CO<sub>2</sub>-e.

### 5.5.4 Haier HFD647SS Refrigerator

The Haier refrigerator model HFD647SS failed Stage 1 and 2 check tests and as a result the registration for this model was cancelled. Haier implemented a product recall of the model and replacement with a compliant comparable model. In addition they offered consumers a \$250 cash rebate to cover the cost of the additional energy already likely to have been consumed by the product since purchase.

### 5.5.5 Mistral MBF120W

The Mistral Bar Refrigerator model MBF120W sold exclusively through Big W outlets failed Stage 1 and 2 check tests. GSM Sales Pty Ltd issued a public notice and provided revised user instructions.

## Communications

Effective and ongoing communication activities underpin the work of the E3 Program by ensuring that stakeholders are aware of the requirements for, and the other benefits of, regulations relating to the energy efficiency and performance of individual products. These communications complement the ongoing consultation with stakeholders that take place as standards and regulations are developed.

The main communication activities undertaken during 2010/11 are described below.

### 6.1 Website

The Energy Rating website, [www.energyrating.gov.au](http://www.energyrating.gov.au) is the primary portal for the E3 Program. Its function is two-fold:

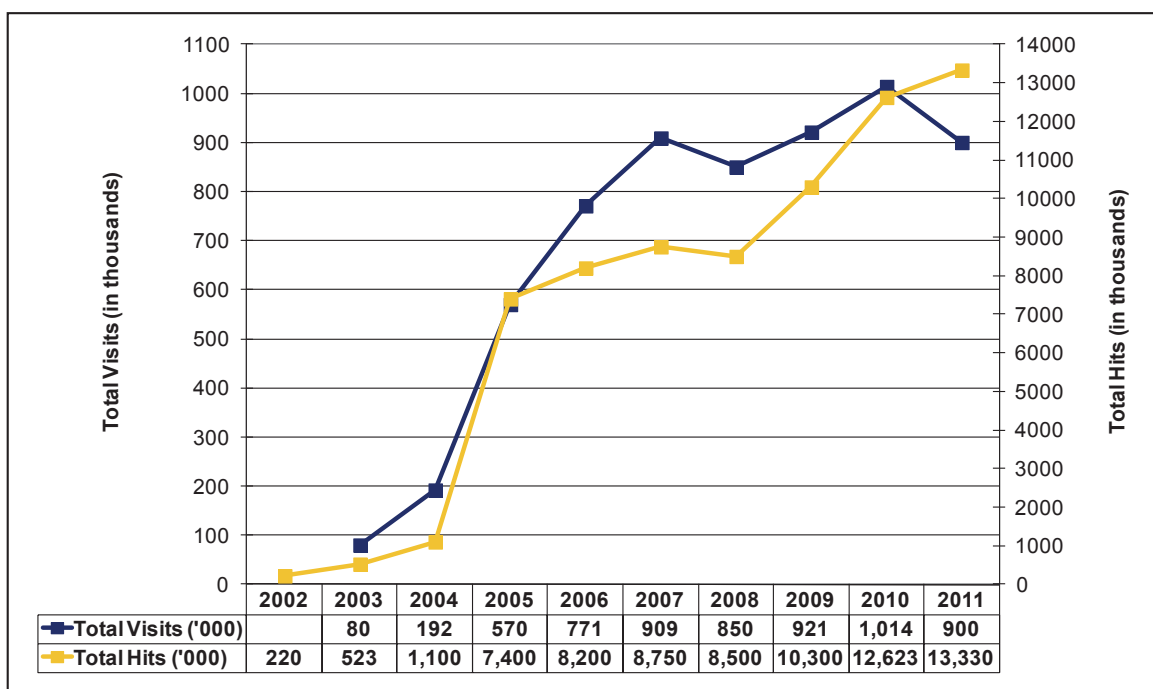
- To educate stakeholders about the E3 Program and current energy efficiency regulations and to promote and facilitate the sale of energy efficient appliances.
- To provide a single entry point for the registration of regulated appliances sold in

Australia and New Zealand and a feed-in to compliance testing of registered appliances.

The former is achieved through a comprehensive range of online information and publications about the ongoing work of the E3 Program, the products covered and the current energy efficiency programs and regulatory requirements. In addition, an interactive listing of all registered products is available to help guide consumers when choosing an energy efficient appliance. A dedicated registration interface allows suppliers to register details of appliances that comply with the regulations. More information on the registrations submitted during 2010/11 can be found in Chapter 5, Regulatory Compliance.

The Energy Rating website in its current format was launched in 2002. Since that time, web technology has changed significantly and, consequently, a rebuild of the website was commissioned in 2010/11, with a brief to improve its speed, usability and functionality. This included a revamped public

**Figure 5: Energy Rating website visits versus hits**



interface and content management system and a completely new, more efficient registration system.

To ensure that the new website fully meets the needs of all potential categories of users, stakeholder consultations have been undertaken throughout the development and rebuild process. User testing of this new registration system commenced in June 2011, while user testing of the new information website has been completed.

The total number of visits<sup>32</sup> and website hits<sup>33</sup> for 2011 and historically are illustrated in Figure 5<sup>34</sup>.

## 6.2 E3 Program Branding

Taking advantage of the opportunity presented by the rebuild of the Energy Rating website, a full rebrand of the E3 Program 'look and feel' was undertaken in 2010/11.

The brand was endorsed by the E3 Committee in early 2011 and a complete suite of new E3 Program materials has been developed, along with a corresponding new look for the website.

The new design incorporates a star emblem in the vibrant red, yellow and black colours of the Energy Rating Label, with a circular design cutting into the star that replicates the circular design at the top of the Energy Rating label. The first publication to include this new design was released in May 2011.

## 6.3 Publications

Twenty one publications covering a range of products, and serving various purposes, were released during 2010/11. These included reports, Regulation Impact Statements, discussion papers, product profiles and two reference manuals.

A full list of the publications produced, along with a brief description of each, can be found in Appendix 5. Electronic copies (along with those from previous

32. The number of times people have visited the website. A 'visit' ends once the user has been idle for 20 minutes or more. A new visit is generated when they return.

33. Any time information is requested from the website.

34. Note: The 2011 figure includes an estimate from July to December

years) are available to download from the electronic library of the Energy Rating website.

## 6.4 Newsletters

During 2010/11, a new E3 Program newsletter, *The Efficiency Standard*, was launched to keep all E3 members and both local and international stakeholders up-to-date with the latest news concerning energy efficient equipment and appliances.

The newsletter is produced quarterly and made its debut with a Spring 2010 issue in September 2010, followed by Summer 2010 and Autumn 2011 issues.

In addition, three issues of the *Load Down* newsletter, which provides updates on the latest standby power research results and policy initiatives where produced in August and September 2010 and January 2011.

## 6.5 Training Materials

Periodically, if there is perceived to be a gap in the availability of training materials relating to energy efficiency issues around a particular product or sector that is unlikely to be filled by normal market forces, the E3 Program will support the development of targeted materials in consultation with affected groups.

### 6.5.1 Solar and Heat Pump Transitional Plumber Training Program<sup>35</sup>

The phase-out of greenhouse gas-intensive hot water systems (see Section 3.1.2) will bring an increase in the uptake of more efficient/low emission technologies such as solar and heat pump water heaters. To assist with this transition, the Solar and Heat Pump Transitional Plumber Training Program, was initiated in 2009/10. The program provides training to plumbers and other installers of solar and heat pump hot water systems on these technologies and their installation in

35. This program was funded through NFFE, however has been included here because of the use of E3 staff resources used to develop these materials.

residential properties throughout Australia and also provides details of current regulatory changes.

During 2010/11, the program was rolled out nationally through Registered Training Providers, on a state-by-state basis, and two reference manuals, the *Solar and Heat Pump Hot Water Systems – Plumber Training Handbook* and the *Solar and Heat Pump Hot Water Systems – Plumber Training Reference Guide*, were published to complement the training.

These manuals provide plumbers and other installers of solar and heat pump water heating technologies with the information to correctly install solar and heat pump water systems thereby ensuring that they comply with state and territory plumbing regulations and achieve their best possible performance.

In addition, four online factsheets and checklists<sup>36</sup> were developed to help householders choose an appropriate hot water system for their circumstances and provide tips on how to maximise the environmental and economic benefits through their efficient operation.

## 6.6 Consumer Communications Campaigns

One of the aims of the National Strategy on Energy Efficiency is to improve consumer awareness of the need and benefits of energy efficiency, as well as to encourage the adoption of energy efficiency measures by informed choice.

This is achieved through mass-communication campaigns designed to equip consumers (and businesses) with information to improve the efficiency of high energy consuming items. No major mass consumer communication campaigns were carried out during 2010/11 but evaluation was undertaken of the Change the Globe campaign.

### 6.6.1 Evaluation of the Change the Globe Campaign

During 2010/11, a research study was undertaken to assess the effectiveness of the *Change the Globe* campaign that ran from May to October 2009 as part of the lead up to the sales ban of inefficient traditional pear-shaped incandescent light globes in November 2009.

The report, *A Research Study Assessing the 'Change the Globe' Point-of-Sale (POS) Material Campaign and Guiding Further Communication Supporting the Phase-Out of Inefficient Incandescent Light Bulbs Program*, reported that most stakeholders thought that there was no longer a need for the POS in its current format. However, it noted that many consumers (and some specifiers and installers) still lack confidence in choosing the right globe. Stakeholders felt that there was an ongoing need for some kind of POS material containing information to assist with the selection of the correct type of lamp and give timely warning and explanation of future lighting phase-outs. What form any future communication activities may take is being considered by the E3 Committee.

## 6.7 Stakeholder Communication Campaigns

Ensuring that stakeholders at all levels are informed of, and engaged with, E3 Program activities is essential for the smooth transition to new standards and regulations. Focused stakeholder communication campaigns are often used to complement the communications surrounding the regulatory impact analysis process and during the development of the standard or regulation. These typically use a mix of communication tools and channels to convey the key messages as effectively and extensively as possible.

<sup>36</sup> [www.climatechange.gov.au/en/what-you-need-to-know/appliances-and-equipment/hot-water-systems/phase-out/information-for-industry.aspx](http://www.climatechange.gov.au/en/what-you-need-to-know/appliances-and-equipment/hot-water-systems/phase-out/information-for-industry.aspx)



No major stakeholder communication campaigns were implemented during 2010/11, although this year saw the inauguration of a new Australian Government sponsored energy efficiency award, described below.

### **6.7.1 Australian Lighting Energy Efficiency Design Award**

ALEEDA – Australian Lighting Energy Efficiency Design Award was inaugurated at SPARC, the biennial event run by the Illuminating Engineering Society of Australia and New Zealand (IESANZ), held in Sydney in June 2011.

By emphasising the importance of efficient lighting design, the award complements existing E3 Program policies that remove the most inefficient lighting products from the market and facilitates the long term strategy to promote the best in lighting design. As such, it is hoped that the award will be a regular part of future SPARC awards.

The six entries for the award were judged by a panel consisting of IESANZ and Department of Climate Change and Energy Efficiency representatives against criteria including the use of design to achieve outstanding energy efficiency and power density levels, while exceeding relevant lighting quality and Australian safety standards.

This year's winner was the Queensland Government Department of Public Works for the design of the Dandiiri Contact Centre in Zillmere, Queensland. Photographs of the Contact Centre can be seen in Figure 6.

**Figure 6. Dandiiri Contact Centre in Zillmere, Queensland**



Source: [www.works.qld.gov.au/qgao/major\\_projects.asp](http://www.works.qld.gov.au/qgao/major_projects.asp)

## Monitoring and Evaluation

The ongoing analysis of the impacts of the policy measures implemented under a program is an integral part of the process of good regulation and policy making and is an essential element of any successful program. The E3 Program is no exception and undertakes analysis in several ways, through:

- Program-wide impact studies that evaluate the impact of the E3 Program as a whole.
- Comprehensive evaluation studies that focus on the impacts of activities implemented within particular product sectors.
- Other informal evaluations of individual products or product sectors.

### 7.1 Impact Studies

The most recent impact study, *Prevention is Cheaper than Cure – Avoiding Carbon Emissions through Energy Efficiency*, was released in January 2009. It was the fourth impact study undertaken by the Program and analysed the projected impacts of the E3 Program over the period 2000-2020 in Australia. Taking into account the latest information on the policy measures implemented, as well as those still to be implemented under the 2008/09 to 2010/11 Work Plan, the report estimates the value of energy savings and compares this with the cost of the E3 Program to energy users.

The projected impacts of the E3 Program on Australia's electricity use in residential and non-residential sectors are shown in Figure 7 and Figure 9. Subsequently, modelling was extended to include the projected impacts in New Zealand of the E3 Program. The projected energy savings calculated from this exercise for the residential and non-residential sectors in New Zealand are shown in Figure 8 and Figure 10 respectively.

#### 7.1.1 Residential Energy Savings

In the residential sector, energy savings are projected to reach nearly 22,000 GWh per annum by 2020. Until 2008, refrigerators dominated the energy savings among electrical appliances. Going

forward, water heating is estimated to represent over 33% of the projected savings from 2009 to 2020 (mostly from the phase-out of electric resistance water heaters), while refrigerators and freezers will account for 29%. Other major contributors to projected electricity savings are televisions and set top boxes (10%), lighting (8%) and air-conditioners (8%).

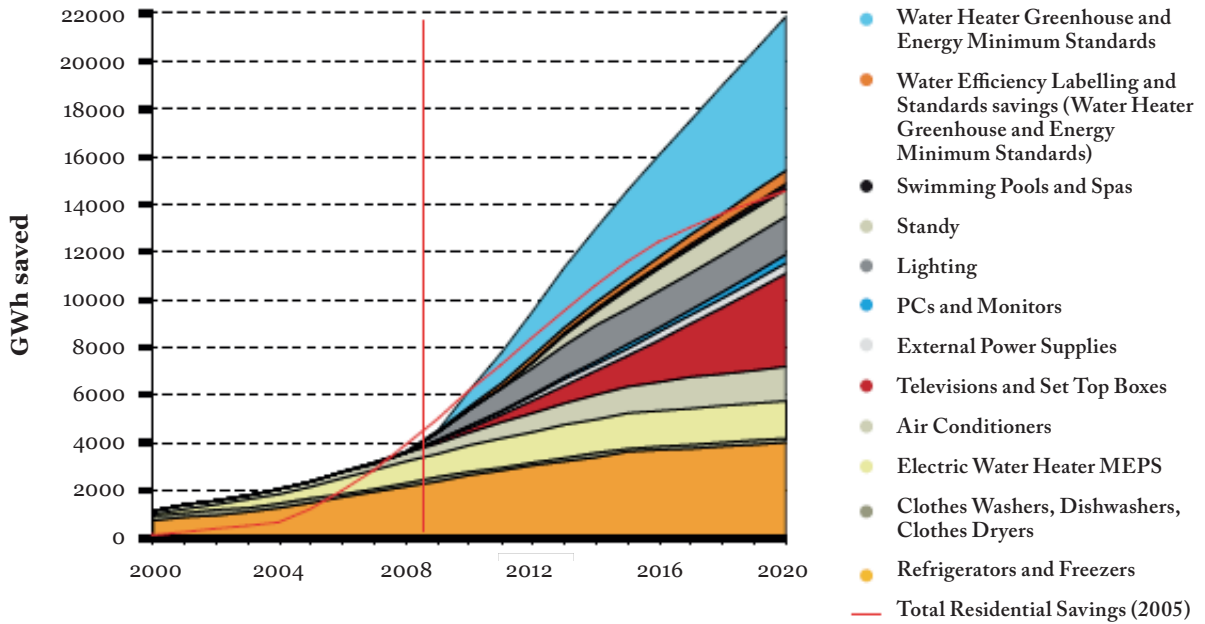
It is estimated that E3 Program measures already implemented will reduce household electricity use in 2020 by about 13% compared with business-as-usual (BAU), while measures currently planned could bring about a further reduction of nearly 15%. In order for residential sector electricity demand to remain constant despite population growth, average household electricity consumption per capita must decline. ABARE estimates that BAU household electricity use per capita will increase at about 1.0% per annum, yet the E3 Program could result in a reduction of 0.8% per annum.

The historical and projected impacts of E3 Programs on residential sector electricity use in Australia are shown in Figure 7. The historical and projected impacts of E3 Programs on residential sector electricity use in New Zealand are shown in Figure 8.

#### 7.1.2 Non-residential Energy Savings

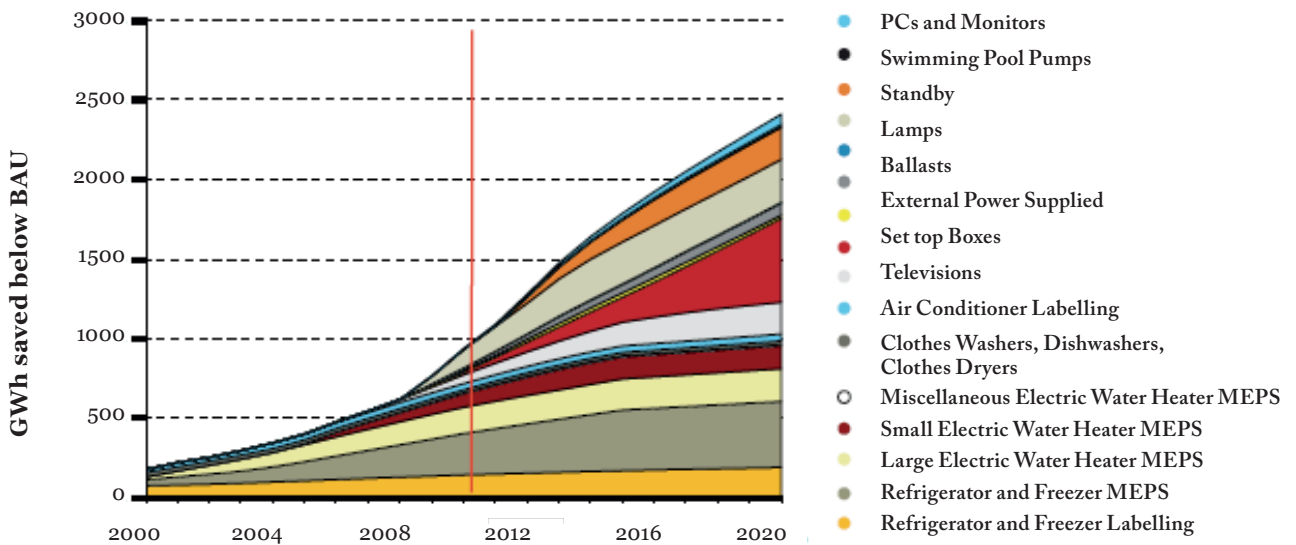
Electricity savings below BAU are projected to reach about 10,300 GWh per annum by 2020 in the non-residential sector. This is slightly less than projected for the non-residential programs in the 2005 Impacts Study, as a result of delays in implementing regulatory proposals. Lighting products will account for nearly 30% of the projected electricity savings between 2009 and 2020, followed by transformers (21%), air-conditioning products (20%), motors (13%) and computers and electronic devices (9%). Total electricity savings from all sectors are projected to exceed 32,000 GWh per annum by 2020. The E3 Program is still focussed on the residential sector, which will account for more than two thirds of total energy savings. Almost 80% of the energy savings

**Figure 7: Historical and projected impacts of E3 Programs on residential sector electricity use in Australia**

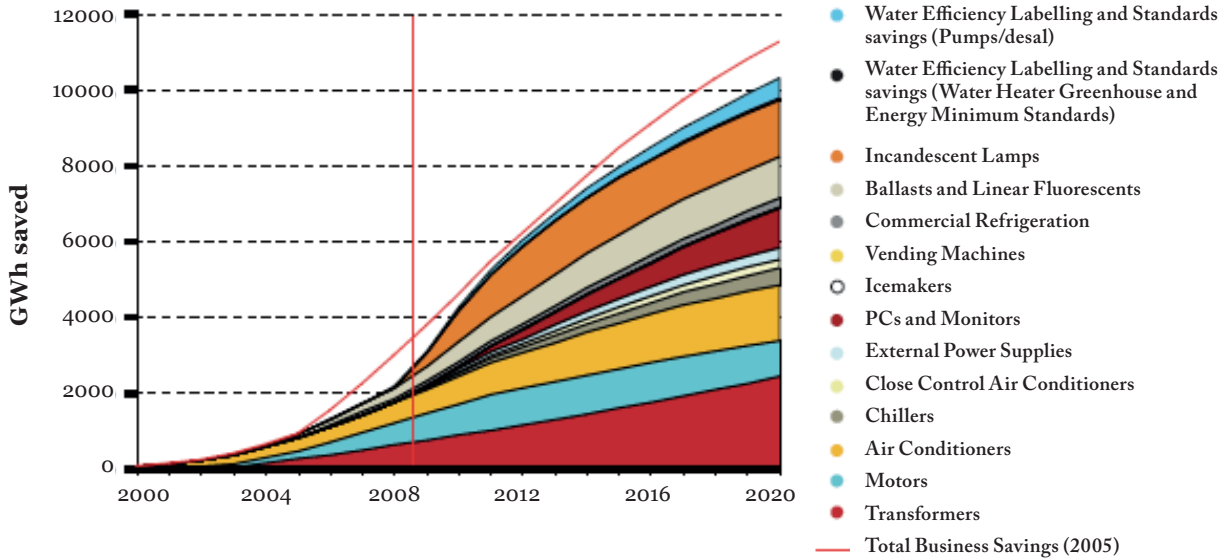


(Source: Prevention is Cheaper than Cure – Avoiding Carbon Emissions through Energy Efficiency, January 2009 Figure 18)

**Figure 8: Historical and projected impacts of E3 Programs on residential sector electricity use in New Zealand**

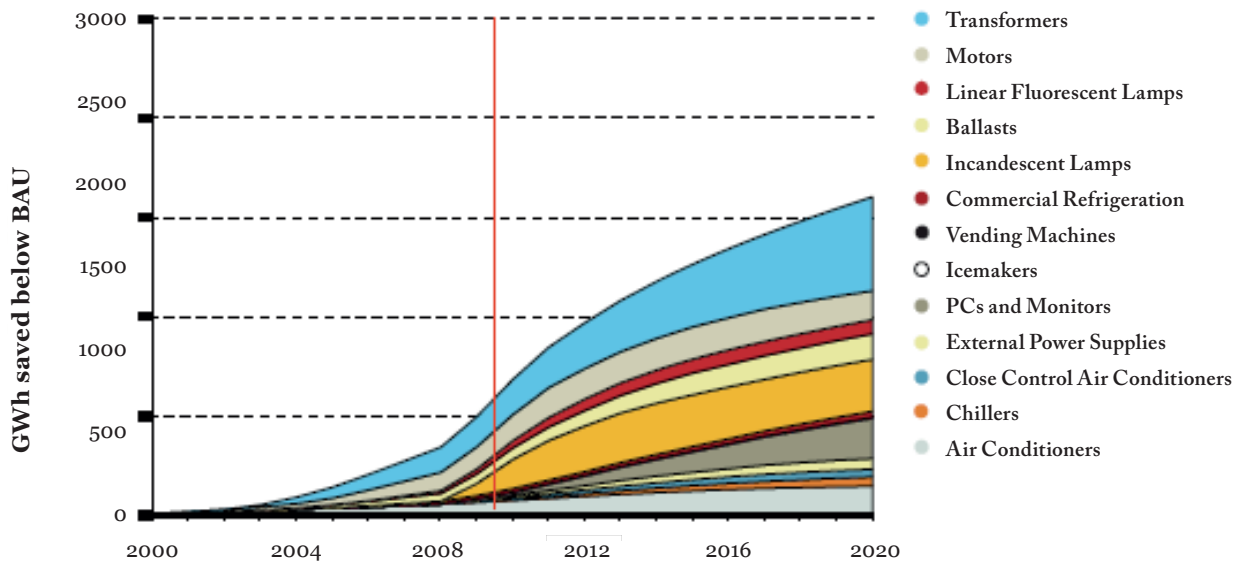


**Figure 9: Historical and projected impacts of E3 Programs on non-residential sector electricity use in Australia**



(Source: *Prevention is Cheaper than Cure – Avoiding Carbon Emissions through Energy Efficiency*, January 2009, Figure 22)

**Figure 10: Historical and projected impacts of E3 Programs on non-residential sector electricity use in New Zealand**



will come from Minimum Energy Performance Standard (MEPS) programs, and the other 20% from labelling or labelling combined with MEPS.

The historical and projected impact of the E3 Program on non-residential sector electricity use in Australia are shown in Figure 9.

The historical and projected impacts of the E3 Program on non-residential sector electricity use in New Zealand are shown in Figure 10.

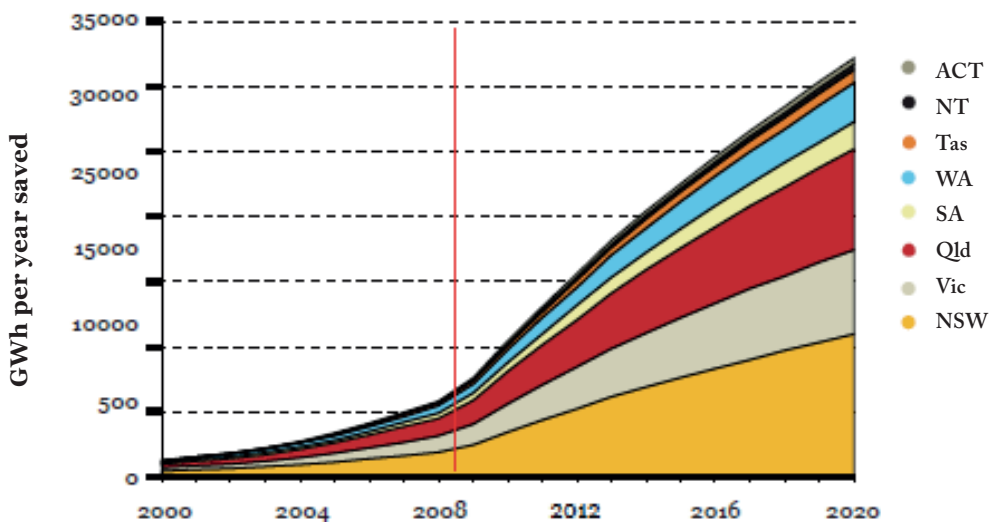
### 7.1.3 Greenhouse Gas Impacts

An earlier 2005 Impact Study estimated that emissions avoided due to E3 Programs over the period 2000-2020 would be 207.3 Mt CO<sub>2</sub>-e. The present study estimates 250.2 Mt CO<sub>2</sub>-e over the same period. By 2020, greenhouse gas abatement from the E3 Program will be in the order of 26.2 Mt CO<sub>2</sub>-e per annum, about two-thirds from greater efficiency of energy use and the rest from declining emissions intensity.

Looking at electricity use over the period 2009-2020, it is estimated that about 34% of total savings will occur in New South Wales, 24% in Queensland, 20% in Victoria, 9% in Western Australia and the remaining 13% in the other four jurisdictions (including New Zealand). The projected electricity savings by State and Territory to 2020 are illustrated in Figure 11.

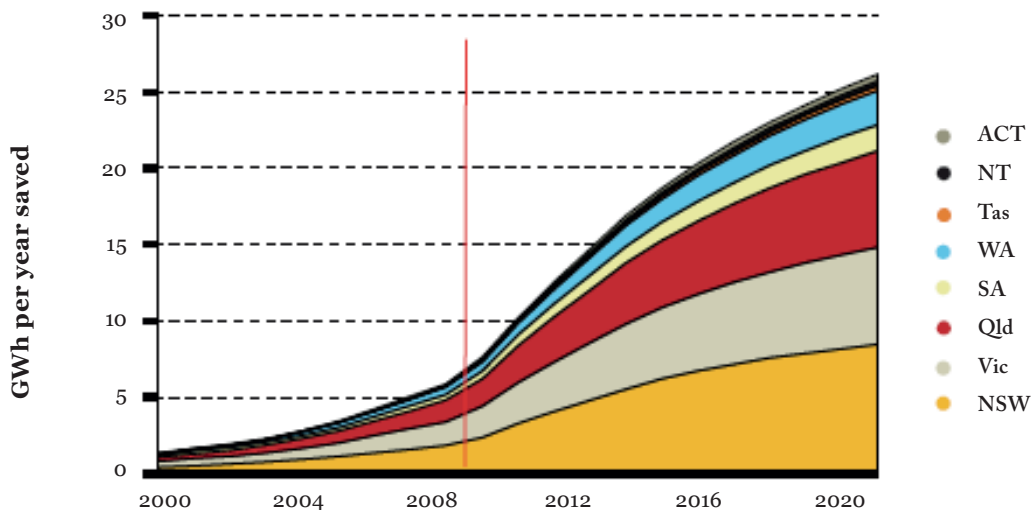
The greenhouse gas emissions avoided in each jurisdiction depend on the emissions intensity of the electricity supplied. However it is projected that over the period 2009-2020, New South Wales would account for about 36% of total emissions avoided, Queensland for 25%, Victoria for 22%, Western Australia for 8% and the remaining States and Territories for 9%. These figures include the impacts of increased or reduced gas use, where appropriate, in each jurisdiction. The projected emissions avoided by State and Territory to 2020 are illustrated in Figure 12.

**Figure 11: Projected electricity savings by jurisdiction to 2020**



(Source: *Prevention is Cheaper than Cure – Avoiding Carbon Emissions through Energy Efficiency*, January 2009, Figure 28)

**Figure 12: Projected emissions avoided by jurisdiction to 2020**



(Source: *Prevention is Cheaper than Cure – Avoiding Carbon Emissions through Energy Efficiency*, January 2009, Figure 29)

### 7.1.4 Costs and Benefits

For Australian energy users as a whole, the E3 Program is projected to return net benefits of approximately AUD \$22 billion<sup>37</sup> over the 16 years 2009-2024. This gives an overall benefit/cost ratio of 2.9. For New Zealand, the benefits of new activity included in the work program is NZD \$5.11 billion<sup>38</sup>

It is estimated that the E3 Program will save energy users about \$56 per tonne of emissions avoided (at a 7.5% discount rate) - about twice the corresponding estimate in 2005.

## 7.2 Evaluation Studies

During 2010/11, the E3 Program published two comprehensive evaluations, one for refrigerators and freezers and one for air-conditioners. The objectives of these studies was to:

- Estimate the energy savings impacts from the Minimum Energy Performance Standards (MEPS) and labelling that have been applied to these products.

<sup>37</sup> Net present value (NPV) in 2008, at a discount rate of 7.5%, excluding a carbon price

<sup>38</sup> Source: NZ Energy Efficiency and Conservation Authority

- Provide a comparison with the projections made before the policies were implemented.
- Revise projections for the impacts to 2020.

The studies were also designed to help inform generic guidelines for evaluation and were used as the basis for discussion at a workshop, *Evaluation of Energy Efficiency Programs*, held in Melbourne in June 2010.

The main findings and key graphs from the reports are shown below. The results of these evaluations are discussed in detail in a report, *Retrospective Review of the Equipment Energy Efficiency Program: Lessons Learnt from Two Reviews*, published in March 2011.

### 7.2.1 Evaluation of Energy Efficiency Policy Measures for Household Refrigeration in Australia

This study investigated the impacts (to the end of 2009) resulting from the implementation of MEPS and energy rating labels for household refrigeration products since these products were first regulated in 1986. Namely, the introduction of:

- Energy rating labels in 1986, with revisions in 2000 and 2010.
- MEPS in 1999, with revisions in 2000.

### 7.2.1.1 Energy Savings

The evaluation showed that, by the end of 2009, the annual energy savings due to policy measures on household refrigeration was around 5.9 TWh/year. Most of this (around 4.1 TWh/year) is attributed to the labels introduced from 1986, thus policies introduced from 1999 onwards will have realised an estimated energy savings of around 1.8 TWh/year by 2009.

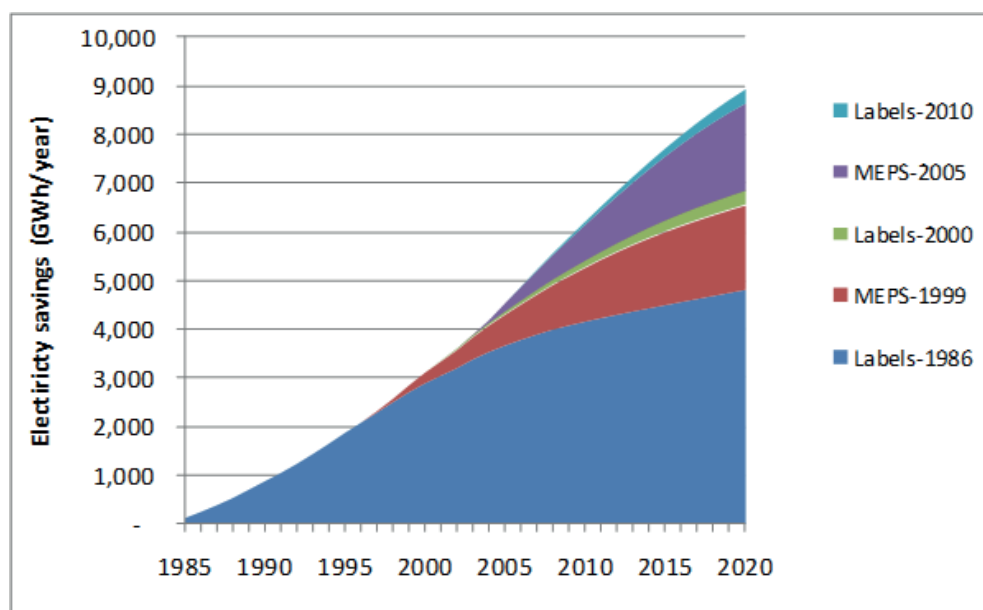
By 2020, the projected energy savings from these policy measures will more than double; with savings attributed to the policies from 1999 onwards at around 4 TWh/year. The savings accrued from the 1986 energy rating labels have more uncertainty associated with them (i.e. wider confidence intervals) because this first regulatory transition and baseline occurred more than 20 years ago and establishing what would have happened without regulation is more difficult. These savings are illustrated in Figure 13.

The study also indicates that the savings from all energy programs for household refrigeration are so substantial that not only has the average unit energy consumption fallen, the total energy consumption of these products has been decreasing since about 2003. This is despite increasing average size and increases in the total stock of refrigerators and freezers installed in houses.

### 7.2.1.2 Greenhouse Gas and Financial Savings

The 5.9 TWh/year of electricity savings estimated in 2009 represent carbon emission reductions of 5.4 Mt CO<sub>2</sub>-e in 2009, or about 1% of Australia's total greenhouse gas emissions. These savings represent considerable financial savings to Australian households from reduced electricity bills – almost \$1 billion by 2008. These financial savings and carbon emissions reductions will continue to accrue through to 2020 and beyond.

**Figure 13: Estimated annual energy savings from previous household refrigeration policies (GWh/year)**

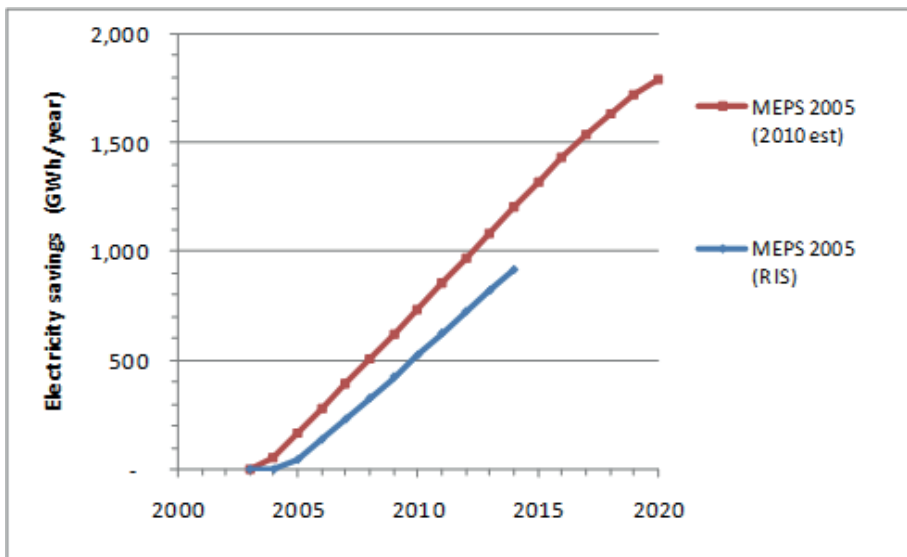


### 7.2.1.3 Comparison with Previous Estimates

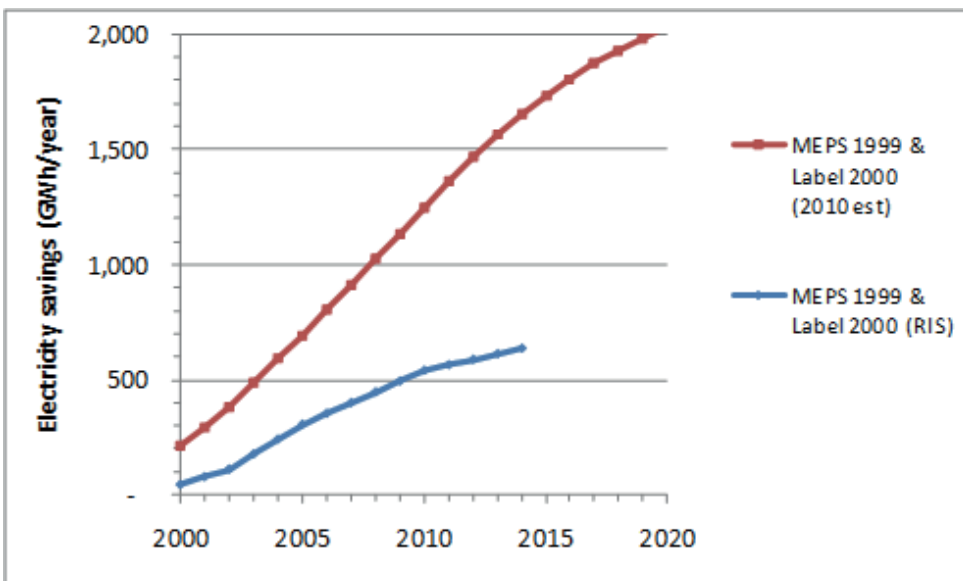
When compared against the estimates in the original RISs, the evaluation shows that the recalculated projected savings in 2014 (as a benchmark year used in both RISs) are 160% more

than the estimate for the 1999 MEPS and 32% more than for the 2005 MEPS. This is shown graphically in Figure 14 and Figure 15 below.

**Figure 14: Estimated energy savings for 2005 household refrigeration MEPS (RIS and present analysis)**



**Figure 15: Estimated energy savings for 1999 household refrigeration MEPS and 2000 label (RIS and present analysis)**





## 7.2.2 Evaluation of Energy Efficiency Policy Measures for Household Air-conditioners in Australia

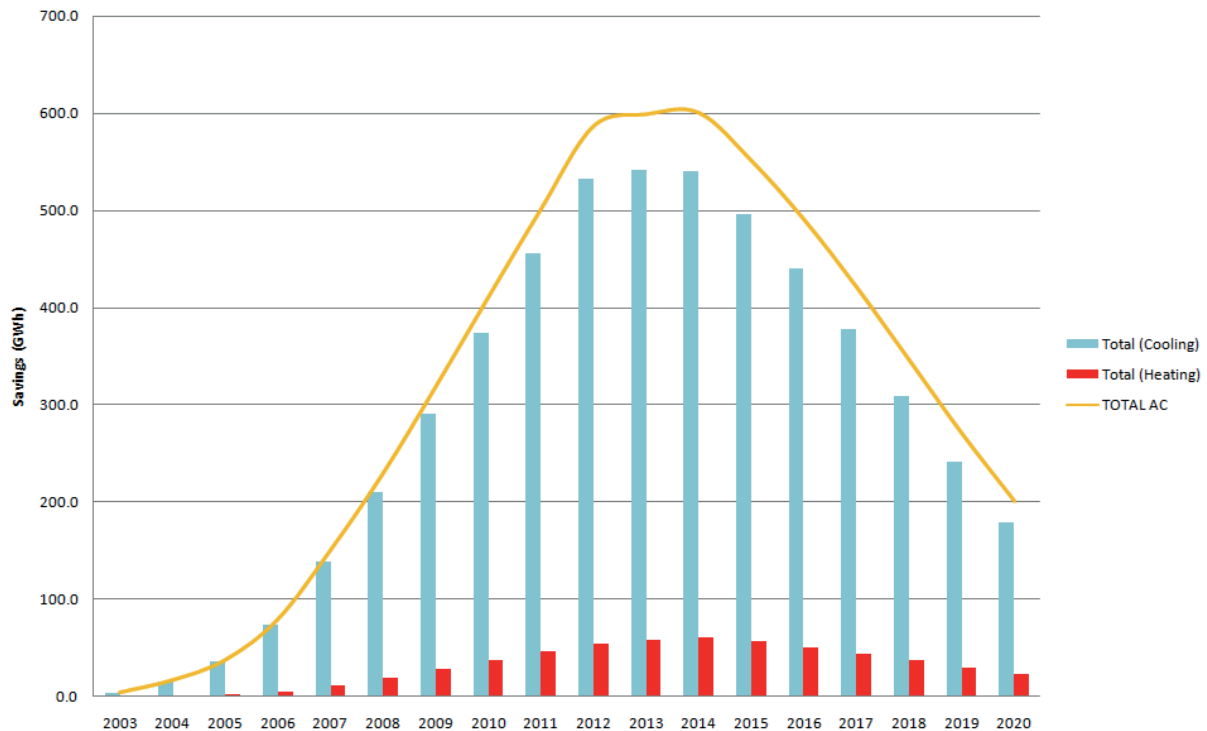
This study investigated the impacts (to the end of 2008) resulting from the implementation of MEPS and energy rating labels for air-conditioners since these products were first regulated in 1988. Namely, the introduction of:

- Energy rating labels in 1988.
- MEPS in 2004, with revisions in 2006 and 2007.

### 7.2.2.1 Energy and Financial Savings

The evaluation showed that, by the end of 2008, the annual energy savings due to E3 policy measures on air-conditioners were around 229 GWh/year, equivalent to cumulative cost savings for the consumer of \$88.9 million. In total from 2003 to 2020, the combined cumulative energy savings due to the MEPS 2004 and MEPS 2006/07 is estimated to be 6,533 GWh, worth approximately \$1,127 million. The annual savings are illustrated in Figure 16 below.

**Figure 16: Estimated annual energy savings from previous E3 air-conditioner policies (GWh/year)**



Note: MEPS regulations were assumed to only impact on the energy efficiency of appliances for ten years after implementation. Therefore, after 2014, annual energy savings decrease as no new savings are assumed to result from the MEPS and stock is scrapped.

### 7.2.2.2 Comparison with Previous Estimates

When compared to the forecast impacts made for the 2003 RIS and the 2005 RIS, the evaluation findings show that:

- Estimated recalculated annual MEPS energy savings impacts, based on data available to 2008, are 65% above the combined 2003/2005 RIS forecast.
- The current estimate of the total actual impacts until 2020 is 195% above the projected MEPS impacts.

As with refrigerators, this was largely the result of higher than expected product sales.

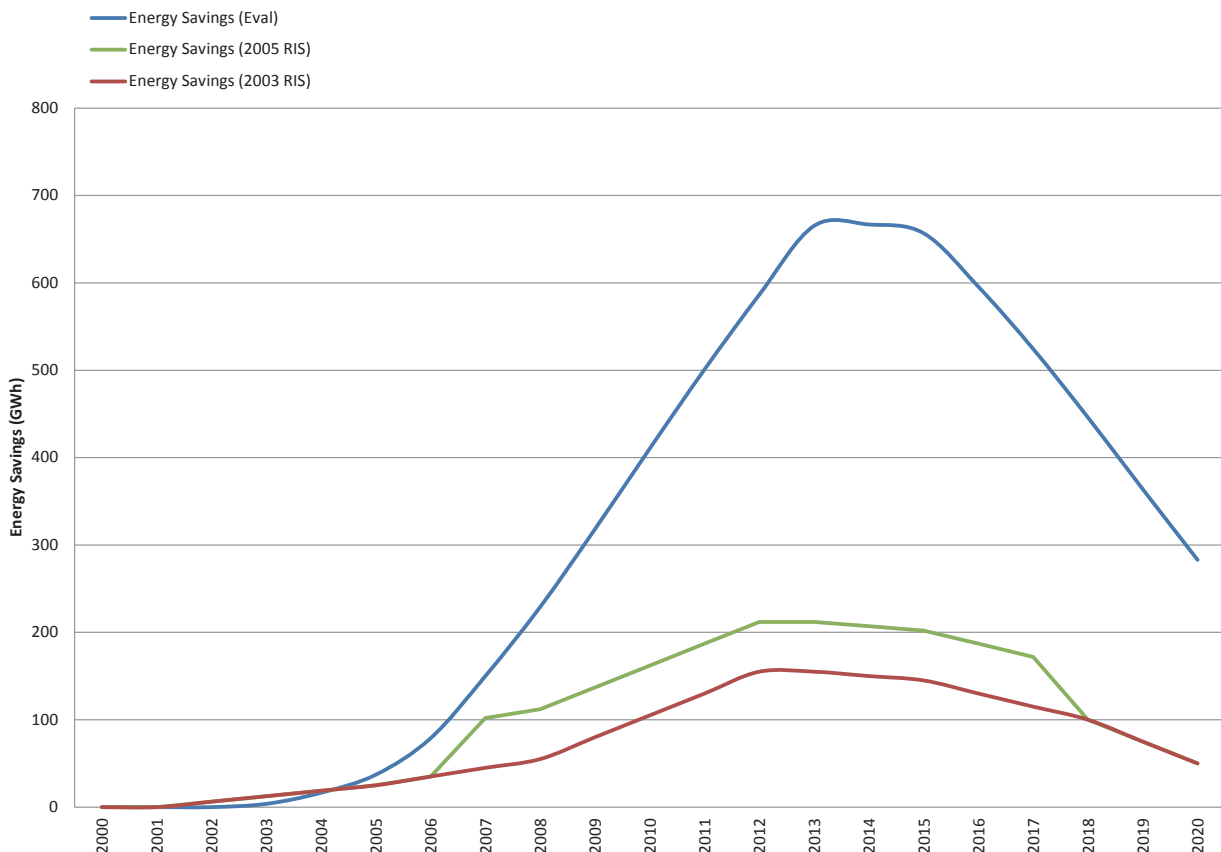
The recalculated savings are illustrated in Figure 17.

### 7.2.3 Retrospective Review of the Equipment Energy Efficiency Program: Lessons Learnt From Two Reviews

This review is based on the detailed evaluation studies on energy efficiency policy measures for household refrigeration and air-conditioning and used analysis of their results to draw conclusions and make recommendations on future E3 Program analyses. The review concludes that:

- *“The energy efficiency of appliances on the market increased sharply at the times of first implementation of labelling and MEPS, and when MEPS levels increased, directly demonstrating the effect of the measures.”*

**Figure 17: Estimated energy savings for 2003 and 2005 air-conditioner RIS and present analysis**



- The cost-effectiveness of regulatory action for both product types was significantly higher than originally projected - about twice as much energy was saved by householders at less cost than projected in the RISs.
- There is no evidence that the real price of appliances increased at all as a result of the rise in energy efficiency. The assumption that the Australian public will pay a higher price for energy efficient goods is not borne out by experience.
- There was no evidence of a reduction in the number of brands or models available, or any other evidence of reduced market competition as a result of the rise in energy efficiency imposed by regulation.

It recommends that:

- The E3 Committee should investigate requiring suppliers of regulated products to provide sales and other relevant data to enable retrospective evaluations to be conducted in a timely fashion.
- All equipment regulations should be regularly reviewed by the E3 Committee for opportunities for further increases in impact and effectiveness, even for long-standing measures.
- Retrospective evaluations should become part of the E3 Program arsenal of evaluation and review where the product has been subject to regulation for at least five years; data of sufficient reliability and detail are available; and the resources required for the evaluation can be recovered (at least in part) by the streamlining of subsequent regulatory proposals for that product.

## 7.3 Other Evaluation Activities

### 7.3.1 Phase-out of Inefficient Lighting

The importation of old technology tungsten-filament GLS incandescent lamps was banned in February 2009 by the Commonwealth Government and this was supported by a MEPS for GLS incandescent lamps in November 2009. This allows the sale of MEPS-compliant mains voltage halogen GLS lamps and does not require consumers to purchase compact fluorescent lamps (CFLs). Preliminary analysis of import data and results from an extensive household survey indicate that, since the announcement of the phase-out until the end of June 2011, the residential stock of compact fluorescent lamps has increased by more than 60 million lamps.

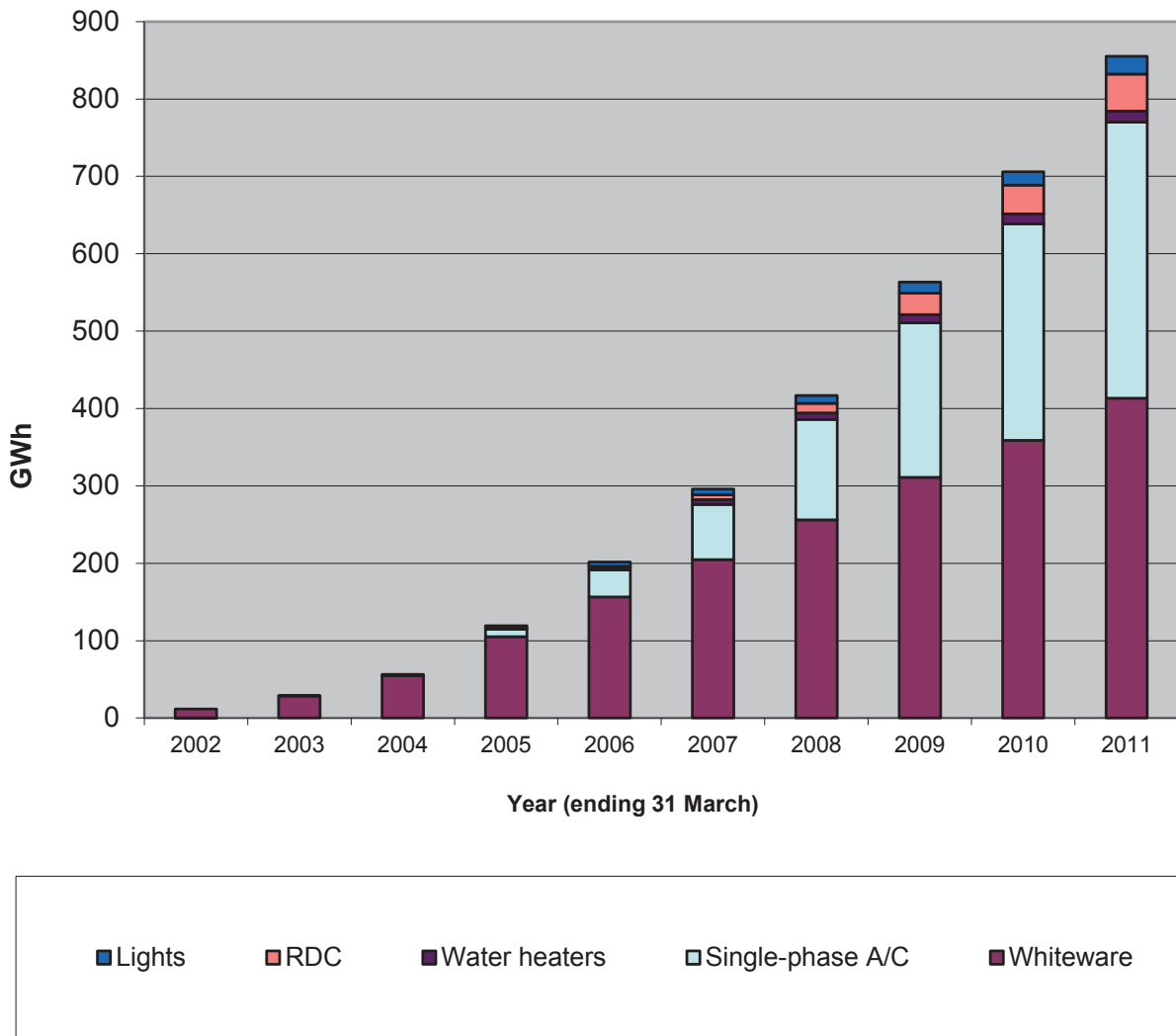
Greenhouse gas savings from this transformation of the residential lighting stock, as well as from the installation of higher efficiency halogen replacement lamps, are estimated to approach 2 million tonnes per annum, with total consumer energy savings of around 400 million dollars each year. These savings can be attributed partly to the incandescent phase-out regulations and partly to a number of state government programs which have seen the mass installation or distribution of CFLs.

### 7.3.2 New Zealand Savings

In the year ending March 2011, sales data was collected on the sales of 3.0 million appliances. From this and information held in the Energy Rating database, savings attributable to the E3 Program were calculated. The E3 Program achieved savings of up to approximately 854GWh (3.1 PJ) in New Zealand, which is equal to NZ \$195 million.

These savings were an increase of 0.5 PJ over the previous year's savings. Since the beginning of the E3 Program, cumulative savings have now reached NZ \$726 million or 3,250 GWh (11.7PJ). Figure 18 shows the annual breakdown of these savings.

**Figure 18: Cumulative energy savings (GWh) resulting from E3 Program in New Zealand, 2002-2011**



### 7.3.3 Recognition of New Zealand Labels

Market research carried out on a 12 month rolling average between April and June 2011 demonstrated that 96% of respondents were aware of the energy rating label and 77% were aware of ENERGY STAR®.

## International Engagement

During 2010/11, the E3 Program has continued to collaborate with a broad range of government, private sector and standards organisations on both a multilateral and bilateral basis, spanning a range of topics and products relating to energy efficiency.

These collaborations play an important strategic role for the E3 Program as they directly influence the continued supply of efficient and high quality appliances and equipment to the relatively small Australian and New Zealand market.

The E3 Program's international efforts deliver real financial and environmental benefits in terms of domestic energy savings through:

- The reduction of barriers to trade, primarily achieved through the alignment of energy test methods and the adoption of international test procedures.
- Shared technical and data gathering initiatives.
- Improved capacity and compliance rates through the co-ordination of round-robin laboratory testing.
- Identifying future priorities and the potential for harmonised regulatory requirements.

While some international projects have short term goals, building effective linkages requires a sustained commitment, as do initiatives aimed

at improving international standards which typically have long lead-times. The importance of international co-operation for the E3 Program is reflected by Australian and New Zealand officials playing key roles in many international fora on energy efficiency.

The national co-ordination of international approaches is another feature of E3 Program activities in this area, with officials involved in liaising with other government agencies and industry groups within Australia and New Zealand to ensure consistency and enlisting support where required. The relationship forged between the E3 Program and the national standards organisations in Australia and New Zealand continues to deliver national energy efficiency policy objectives in the context of international standards bodies.

Table 9 provides a summary of the major international initiatives where the E3 Program has been actively engaged during 2010/11, with further details shown in the text following. This illustrates not only the broad range of products and issues, but also the differences in geographical coverage by different groups and whether the participants are from government or industry. There are also differences in the level of participation, with some fora devoted to high-level policy considerations, while others deal with more detailed and often technical issues.

**Table 9: E3 Program involvement in major international initiatives, 2010/11**

Participants (see Appendix 6 for complete list)	Economic reach	Main topics of Collaboration	Aims and Objectives	link
Asia-Pacific Economic Cooperation (APEC) - Expert Group on Energy Efficiency and Conservation (EGEE&C)	16 Economies	Varied The APEC Energy Standards Information System (ESIS)	The EGEE&C promotes energy conservation and the application of energy-efficiency practices and technologies through advancing the application of demonstrated energy-efficiency practices and technologies, developing and enhancing trade between APEC Economies in products and services and energy-efficiency practices and technologies, contributing to international efforts to reduce the adverse impacts of energy production and consumption, and improving the analytical, technical, operational and policy capacity for energy efficiency and conservation within APEC Economies.	<a href="http://www.egeec.apec.org">http://www.egeec.apec.org</a> <a href="http://www.apec-esis.org">http://www.apec-esis.org</a>
Asia-Pacific Partnership on Clean Development and Climate (APP) Building and Appliance Taskforce (BATF)	7 Member Governments and private sector partners	Standby Power Harmonisation of test procedures Market transformation	The BATF provide a mechanism for partners to demonstrate technologies, enhance and exchange skills relating to energy efficiency auditing, share experiences and policies on best practices with regard to standards and codes, as well as labelling schemes for buildings, building materials and appliances.	<a href="http://www.asiapacificpartnership.org">http://www.asiapacificpartnership.org</a>
Asia Lighting Compact	19 public and private sector members	Harmonisation of lighting standards across the region	Formed through a public-private initiative, the ALC works to reduce barriers to trade and mitigate climate change by harmonizing quality and energy-efficiency standards for lighting across the region.	<a href="http://www.asialighting.org">http://www.asialighting.org</a>
IEA Efficient Electrical End-use Equipment Implementing Agreement (4E)	13 Member Governments	Mapping & Benchmarking Motors & Motor systems Standby Power Solid State Lighting Monitoring, Verification and Enforcement	4E is an International Energy Agency (IEA) Implementing Agreement established in 2008 to support governments to formulate effective policies which increase production and trade in efficient electrical end-use equipment.  4E provides a forum for member governments to cooperate on a mixture of technical and policy issues focussed on increasing the efficiency of electrical equipment. 4E members pool resources for projects designed to meet the common policy needs of participants.	<a href="http://www.iea-4e.org">http://www.iea-4e.org</a>

Participants (see Appendix 6 for complete list)	Economic reach	Main topics of Collaboration	Aims and Objectives	link
International Energy Agency	28 Member Countries	Energy security Economic development Environmental awareness Engagement worldwide	<p>The International Energy Agency (IEA) is an autonomous organisation which works to ensure reliable, affordable and clean energy for its 28 member countries and beyond.</p> <p>Founded in response to the 1973/4 oil crisis, the IEA's initial role was to help countries co-ordinate a collective response to major disruptions in oil supply through the release of emergency oil stocks to the markets.</p> <p>While this continues to be a key aspect of its work, the IEA has evolved and expanded. It is at the heart of global dialogue on energy, providing authoritative and unbiased research, statistics, analysis and recommendations.</p>	<a href="http://www.iea.org">http://www.iea.org</a>
International Partnership for Energy Efficiency Cooperation (IPEEC)	15 Member Governments	Super-efficient Appliances (see SEAD below) Industry Engagement Utilities and Energy Supply	<p>The International Partnership for Energy Efficiency Cooperation (IPEEC) is a high level international forum that provides global leadership on energy efficiency by identifying and facilitating government implementation of policies and programs that yield high energy-efficiency gains. IPEEC also aims to promote information exchange on best practices and facilitate initiatives to improve energy efficiency.</p> <p>Founded in May 2009, IPEEC is a voluntary, ministerial level forum of developed and developing countries that represent the major economies of the world.</p>	<a href="http://www.ipeec.org">http://www.ipeec.org</a>
lites.asia	9 Member Governments	Harmonisation of test procedures	<p>lites.asia is supported by the governments of Australia and the United States of America with the objective to facilitate a greater involvement by Asian / APEC countries in the development of IEC standards. This should result in standards which are more appropriate for regional needs, thus enabling Asian / APEC countries to adopt IEC specifications with minimum local variations.</p>	<a href="http://www.lites.asia">http://www.lites.asia</a>

Participants (see Appendix 6 for complete list)	Economic reach	Main topics of Collaboration	Aims and Objectives	link
Super-efficient Equipment and Appliance Deploy- ment (SEAD) initiative	16 Member Governments	Energy efficiency Standards and Labels Awards Incentives for Appliance and Equipment Ef- ficiency Procurement Technical Analysis	SEAD participants are working to- gether in voluntary activities to:  “raise the efficiency ceiling” by pulling super-efficient products into the market through measures like incentives, pro- curement, and awards;  “raise the efficiency floor” by bolstering regional efficiency standards and la- bels; and “strengthen the foundations” of efficiency programs through coordi- nated technical analysis.	<a href="http://www.superefficient.org">http://www.superefficient.org</a>
United Nations Environment Programme Efficient Lighting for Developing and Emerging Countries (en. lighten)	Range of public and private stakeholders	Country Light- ing Assess- ments, Market Data and Analysis Policy, Regula- tion and Fi- nance Consumer, Environmental Protection and Recycling Off-Grid Lighting	en.lighten assists countries in acceler- ating market transformation towards environmentally sustainable, efficient lighting technologies along three main tracks: Promotion of high performance ef- ficient technologies, showcasing best practice initiatives to expand the mar- ket for efficient lighting in developing and emerging countries. Phase-out inefficient lighting technolo- gies, in particular incandescent lamps. Substitution of traditional fuel-based lighting with modern, efficient alterna- tives, with consideration for mercury free and environmentally sound tech- nologies.	<a href="http://www.enlighten-initiative.org">http://www.enlighten-initiative.org</a>
Bilateral Partner- ships	China European Union Fiji New Zealand United States	Harmonisation of emissions monitoring, reporting and verification Certification procedures	The Australian Bilateral Climate Change Partnerships Program	<a href="http://www.climatechange.gov.au/government/initiatives/bilateral-cc-partnership-program.aspx">http://www.climatechange.gov.au/government/initiatives/bilateral-cc-partnership-program.aspx</a>
International Electrotechni- cal Commission and International Organization for Standardisation (ISO)	Industry and technical ex- perts		The IEC prepares and publishes Inter- national Standards for all electrical, electronic and related technologies.  ISO is a non-governmental organisa- tion comprising a network of the na- tional standards institutes of 162 coun- tries, one member per country, with a Central Secretariat in Geneva, Switzer- land.	<a href="http://www.iec.ch">http://www.iec.ch</a> <a href="http://www.iso.org">http://www.iso.org</a>



## 8.1 Demand Response

There is considerable interest internationally in the work being undertaken in Australia on 'smart appliance' standards. In particular, it has been proposed that the Australian Demand Response (DR) standard be put forward as an International IEC standard. Also APEC has approved a project for Australia to run a workshop with APEC economies on DR standards work.

## 8.2 Asia Pacific Partnership

### 8.2.1 Motors

Under the auspices of the Asia Pacific Partnership on Clean Development and Climate (APP)'s Building and Appliances Task Force (BATF), Australia continued to contribute to projects on the harmonisation of test procedures for electric motors. In a previous project, 27 motors were purchased in China and tested using three different test methods from IEC 60034-2-1. Nine of these motors were later tested using a fourth test method. During 2010-2011, a report was commissioned to analyse the results in order to make sense of the data and to compare the four different test methods. The analysis will be summarised in a conference paper and final report for the APP BATF 'Harmonization of Test Procedures' motors project, due to be released in late 2011.

Australia's participation in the APP program formally concluded in June 2011.

## 8.3 Asia Lighting Compact

In October 2009, the *Asia Lighting Compact* (ALC)<sup>39</sup>, a partnership comprising governments, regional lighting associations and the world's largest lighting manufacturers, was launched in Hong Kong to support the widespread adoption of high-quality, energy efficient lighting in Asia.

The initiative aims to foster harmonisation of performance requirements at a regional level by establishing a mechanism for identifying and verifying the quality and performance of compact

39. [www.asialighting.org](http://www.asialighting.org)

fluorescent lamps. The Department of Climate Change and Energy Efficiency acts as the ALC secretariat and an E3 Program official sits on the ALC Board and participated in the ALC meetings in Bangkok in December 2010 and Sydney in June 2011.

## 8.4 IEA 4E

4E is an International Energy Agency (IEA) Implementing Agreement established in 2008 to support governments to formulate effective policies which increase production and trade in efficient electrical end-use equipment. Thirteen countries<sup>40</sup> have joined together to form 4E as a forum to cooperate on a mixture of technical and policy issues focussed on increasing the efficiency of electrical equipment. However, 4E is more than a forum for sharing information – it initiates projects designed to meet the policy needs of participants. Participants find that pooling of resources is not only an efficient use of available funds, but results in outcomes which are far more comprehensive and authoritative. Like all IEA Implementing Agreements, participation is open to all countries.

### 8.4.1 Mapping & Benchmarking Annex

The IEA's 4E Mapping and Benchmarking Annex<sup>41</sup> provides policy makers with evidence based comparisons of the energy consumption of products sold in major economies across the world to:

- Enable benchmarking of the success of national policies in managing product energy consumption and efficiency;
- Identify opportunities to further optimise product performance.

Mapping and Benchmarking is built around product definitions agreed by participants and is often based on data provided by Government national testing or performance databases. The accuracy of the data is assessed and where necessary normalised for comparative purposes. All policy

40. See Appendix 6 for the list of member countries

41. <http://mappingandbenchmarking.iea-4e.org>

and performance analysis is approved by member Governments prior to release, to ensure that the conclusions are justified and comprehensive.

During 2010/11, Australia contributed to the following analysis and international benchmarking publications:

Cold Appliances, 14 September 2010.

Televisions, 20 October 2010.

Air-conditioners, 9 February 2011.

Laundry dryers, 28 June 2011.

### **8.4.2 Electric Motor Systems Annex**

Working through its eight tasks, the Electric Motor Systems Annex (EMSA)<sup>42</sup> aims to contribute to a coordinated effort towards improving the energy efficiency of motors and motor systems by:

Spreading good practice.

Encouraging new improved technology.

Creating positive policy experiences.

Australia leads the Task C – Testing Centres, which has the objective of raising the quality of motor testing by developing networks between laboratories around the world. The global network of testing laboratories continued with nearly 60 members as at June 2011. Another successful workshop was held in October 2010 in Zurich, Switzerland. This culminated in the release of the *Guide for the use of electric motor testing methods based on IEC 60034-2-1* in May 2011.

A software round-robin was also undertaken as part of Task C – Testing Centres and presented at the Zurich workshop in October 2010. The aim of the project was to simulate a round-robin motor efficiency measurement trial, but without exchanging an actual motor. Instead, participating test laboratories around the world were provided with test data obtained from one particular motor. By this means, results of calculations from different testing laboratories provided information about the

42. [www.motorsystems.org](http://www.motorsystems.org)

ways in which those organisations interpreted the standard, and in particular, highlighted ambiguities in the standard's description of the calculation algorithm. This is seen as a 'first step' in informing the rewriting of the description of the calculation algorithms in the IEC test method standard in order to achieve agreement between different testing laboratories around the world.

### **8.4.3 Standby Power Annex**

The Standby Annex<sup>43</sup> monitors and reports the extent of, and changes in, energy consumption by electrical appliances in low-power modes (standby power). The Annex also supports the development of policies which seek to minimise excessive energy consumption by products in standby power modes.

In September 2010, the 4E Standby Annex, in conjunction with the Asia Pacific Partnership on Clean Development and Climate, has released a scoping study called *Standby Power and Low Energy Networks - issues and directions*.

The study examines the issue of standby and networks, and documents key areas of existing knowledge with respect to networks. Key technical gaps and omissions with respect to networks and energy savings are identified, along with areas that may require further technical development. The report examines networked products and identifies where energy saving strategies can be implemented.

From 19 – 21 October 2010, the 4E Standby Annex and APP Standby Project supported the APEC Conference, *Alignment of National Standby Power Approaches – Moving Towards 1 Watt and Beyond*, held in Tokyo, Japan.

43. <http://standby.iea-4e.org>

#### 8.4.4 Solid State Lighting Annex (SSL)

The SSL Annex<sup>44</sup> works internationally to support the work that is being carried out on a national level to address the main challenges with SSL technologies. The three main tasks of the SSL Annex are to:

- Develop SSL Quality Assurance by working to clarify the SSL market worldwide, to reduce the risks in using SSL and to provide Governments and consumers with recommendations that they can trust when investing in SSL products.
- Harmonize SSL Performance Testing by working with global testing laboratories to increase the quality and confidence of SSL laboratory test results; working to assess a range of existing SSL test procedures; and building a system of testing that is manageable, robust and acceptable to a broad range of stakeholders.
- Develop Standards and Accreditation Infrastructure by working with existing accreditation bodies to develop a structure for world-wide interim reliability of SSL testing laboratories' performance data.

### 8.5 International Energy Agency

As a member of the IEA, the Australian Government participates in many of the standing committees on energy issues, and staff from the Department of Climate Change and Energy Efficiency make regular contributions to the IEAs publications.

### 8.6 International Partnership for Energy Efficiency Cooperation (IPEEC)

IPEEC is a high level international forum that provides global leadership on energy efficiency by identifying and facilitating government implementation of policies and programs that yield high energy efficiency gains. IPEEC also aims to promote information exchange on best practices and facilitate initiatives to improve energy efficiency.

44. <http://ssl.iea-4e.org>

IPEEC Task Groups include:

- Financial Mechanisms.
- Industry.
- Utilities and Energy Supply.
- Coordinated Action on Energy Performance.
- Energy Efficiency Indicators.
- Super-efficient Appliances.
- Sustainable Buildings and Cities.
- Policy and Capacity Building.
- National and International Action Plans.

### 8.7 Lighting Information and Technical Exchange on Standards (lites.asia)

Jointly supported by the Australian Government and USAID's ECO-Asia Program as part of the Asia Pacific Partnership on Clean Development and Climate, the Asian Network for 'Lighting Information and Technical Exchange on Standards' (or [lites.asia](http://lites.asia))<sup>45</sup> is an initiative working towards harmonising the implementation of international standards across Asia. E3 Program officials took an active role in the network during 2010/11, attending meetings in Bangkok (7-8 December 2010) and Sydney (6-7 June 2011).

During 2010/11, [lites.asia](http://lites.asia) also supported Asian stakeholder attendance at the following IEC meetings:

- IEC technical meetings, 12-16 October 2010, Seattle USA.
- IEC maintenance team meetings, 4-7 April 2011, Bad Zurzach, Switzerland.
- IEC CFL standards development and mercury meetings, 13-14 January 2011, Frankfurt, Germany.
- IEC Specialist Panel Meetings 28 June - 2 July 2011, Frankfurt, Germany.

45. [www.lites.asia](http://www.lites.asia)

## 8.8 Super-efficient Equipment and Appliance Deployment (SEAD<sup>46</sup>) initiative

An initiative of the Clean Energy Ministerial and a task within the International Partnership for Energy Efficiency Cooperation, SEAD seeks to engage governments and the private sector to transform the global market for energy efficient equipment and appliances. SEAD is developing a website that aims to serve as an online hub for appliance efficiency policy, connecting experts and policymakers with technical resources and each other<sup>47</sup>.

### 8.8.1 Standards and Labelling Working Group

Through the SEAD Standards & Labelling Working Group, SEAD partners are working together to accelerate the pace of existing efficiency standards and labelling programs to achieve the most cost-effective savings while making the most efficient use of government resources.

Australia participates in the following working groups:

- **Computers** – led by the United Kingdom, with participation from Australia, Canada, Korea, and the United States.
- **Motors** – led by the United States, with participation from Australia, Canada, Korea, Mexico, and the United Kingdom.
- **Network Standby** – led by Australia, with participation from Canada, Korea, the United Kingdom, and the United States.
- **Solid State Lighting** – participants include Australia, Canada, France, Korea, Mexico, the United Kingdom, and the United States.
- **Televisions** – led by the United States, with participation from Australia, Canada, France, Korea, and the United Kingdom.

46. [www.superefficient.org](http://www.superefficient.org)

47. This website is now operational at [www.superefficient.org](http://www.superefficient.org)

- **Distribution Transformers** – led by Canada, with participation from Australia, Korea, the United Kingdom, and the United States.

### 8.8.2 Global Energy Efficiency Awards

SEAD unveiled plans for the first international competition to recognise the most efficient appliances in the world at the second Clean Energy Ministerial in April 2011.

The awards working group, led by Australia, is developing program rules<sup>48</sup> and criteria for the 2012 SEAD Global Appliance Efficiency Awards for flat panel televisions. A total of 20 awards will be given across four international markets. The awards are intended to help consumers identify the most efficient televisions available in a particular size range.

### 8.8.3 UNEP Global Market Transformation for Efficient Lighting Project (*en.lighten*)

The UNEP *Global Market Transformation for Efficient Lighting Project*, known as *en.lighten (Efficient Lighting for Emerging and Developing Countries)*, was launched in September 2009 and has been established to promote, accelerate and co-ordinate global efforts to push for efficient lighting. The Department of Climate Change and Energy Efficiency, on behalf of the Australian Government, participates in the *Policy, Legislation and Regulation* taskforce, contributing Australian experience and expertise to help shape the first global strategy for market transformation towards efficient lighting worldwide.

## 8.9 Bilateral Partnerships

The Australian Government Bilateral Climate Change Partnerships Program<sup>49</sup> was introduced in 2004/05. It aims to develop and implement projects that deliver mutual practical benefit for Australia and partner countries, help build the capacity of

48. [www.superefficient.org/en/Activities/Awards.aspx](http://www.superefficient.org/en/Activities/Awards.aspx)

49. [www.climatechange.gov.au/government/initiatives/bilateral-cc-partnership-program.aspx](http://www.climatechange.gov.au/government/initiatives/bilateral-cc-partnership-program.aspx)

developing countries to take action on climate change and provide an additional mechanism to facilitate strategic policy dialogue with key countries.

These bilateral partnerships are a useful complement to other international forums; providing more flexible mechanisms for reaching agreement and building stronger cooperative relationships on climate change. Energy efficiency is a focus area in a number of Australian bilateral partnerships including: China, the United States, New Zealand, the European Union and Fiji. Cooperative areas include harmonisation of emissions monitoring, reporting, verification and certification procedures between Australia and partner countries.

## **8.10 International Electro-technical Commission**

### **8.10.1 Motors**

The International Standard *IEC 60034-2-1 Rotating Electrical Machinery – Part 2-1: Standard methods for determining losses and efficiency from tests (excluding machines for traction vehicles)* is currently being redrafted by the relevant IEC working group (IEC TC2 WG28). During 2010/11, the E3 Program and the Australian Standards Committee, EL-009 Rotating Electrical Machinery, continued to provide input and support to this redrafting process, providing input based on the E3 Program's experience in regulating motors.

This test method standard is expected to be adopted by the E3 Program as a regulatory standard.

### **8.10.2 Commercial Refrigeration**

During 2010/11, E3 and Standards Australia sponsored representation on CEN/TC 44/WG and ISO/TC86/SC7 to refine the international test method for refrigerated display cabinets, on which the equivalent standard used, AS1731, is based.

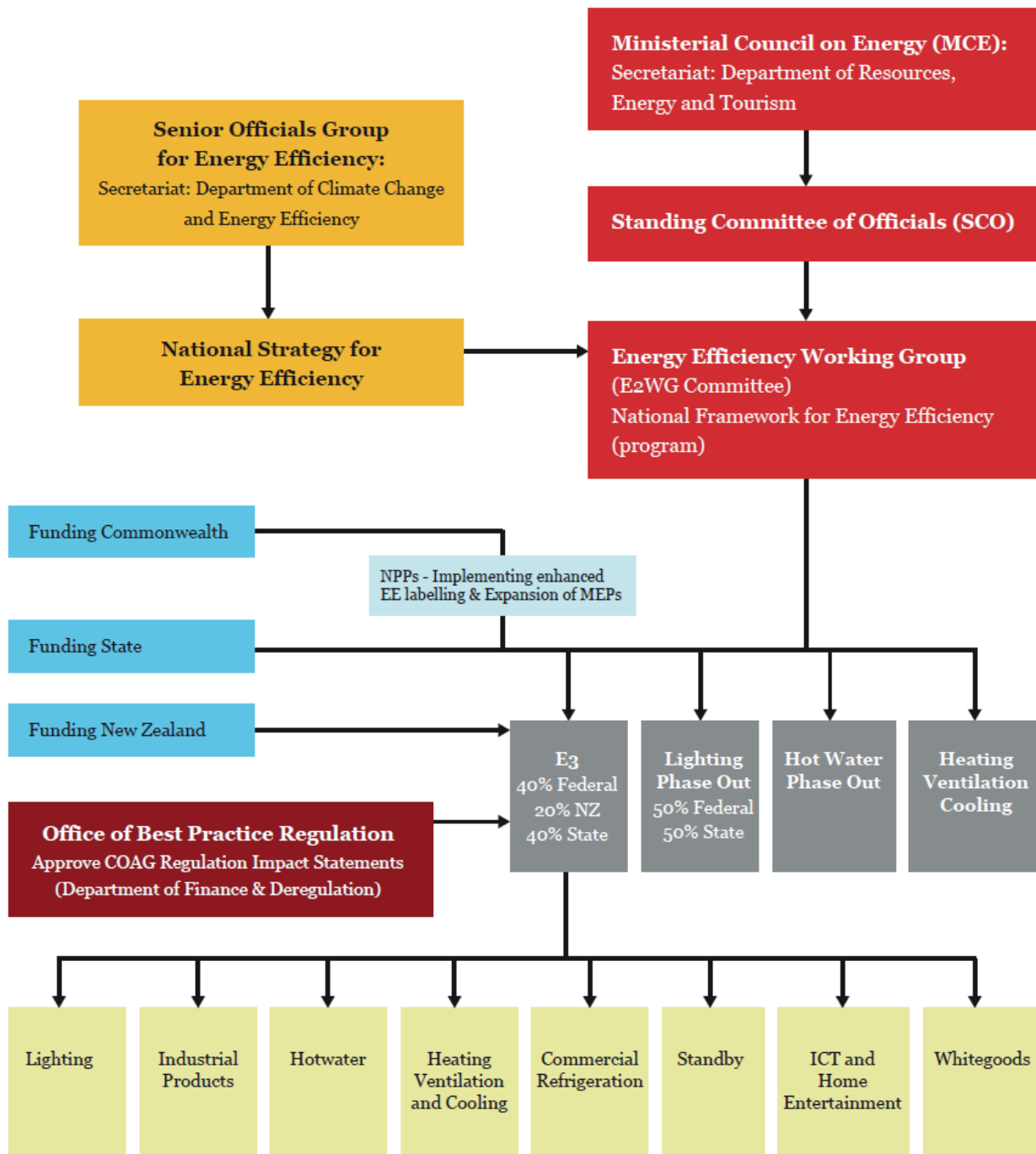
### **8.10.3 Whitegoods**

A round robin of testing for three refrigerators between laboratories in Australia, China and Japan was concluded in 2010/11. This provided an opportunity to assess inter-laboratory reproducibility on aspects which underpin the new IEC test procedure for refrigerators and freezers.

# Appendices

1. E3 PROGRAM GOVERNANCE
2. E3 COMMITTEE MEMBER ORGANISATIONS
3. MINISTERIAL COUNCIL ON ENERGY MEMBERSHIP
4. STANDARDS AND REGULATORY RULINGS
5. PUBLICATIONS
6. PARTICIPANTS IN INTERNATIONAL INITIATIVES

## Appendix 1 - E3 PROGRAM GOVERNANCE



## Appendix 2 - E3 COMMITTEE MEMBER ORGANISATIONS

The Commonwealth, New Zealand and each State and Territory are represented on the E3 Committee and participate in its deliberations. Representatives are officials within government

departments, agencies and statutory authorities, or people appointed to represent these bodies, and are usually senior officers directly responsible for energy efficiency. Current membership includes:

**Table 10: E3 Committee member organisations as at 30 June 2011**

Jurisdiction	Government Agency	Further Information
Commonwealth	Department of Climate Change and Energy Efficiency	<a href="http://www.climatechange.gov.au">www.climatechange.gov.au</a> (Provides support for the E3 Committee's activities and a DCCEE Officer is the current Chair of the Committee)
Australian Capital Territory	ACT Planning and Land Authority	<a href="http://www.actpla.act.gov.au">www.actpla.act.gov.au</a>
New South Wales	Industry and Investment NSW	<a href="http://www.industry.nsw.gov.au/energy">www.industry.nsw.gov.au/energy</a> (Regulatory Authority)
Northern Territory	Department of Resources	<a href="http://www.nt.gov.au/d/Minerals_Energy">www.nt.gov.au/d/Minerals_Energy</a>
Queensland	Office of Clean Energy, Queensland Department of Employment, Economic Development and Innovation  Electrical Safety Office, Queensland Department of Justice and Attorney-General	<a href="http://www.cleanenergy.qld.gov.au">www.cleanenergy.qld.gov.au</a>  <a href="http://www.justice.qld.gov.au/fair-and-safe-work/electrical-safety">www.justice.qld.gov.au/fair-and-safe-work/electrical-safety</a> (Regulatory Authority)
South Australia	Department for Transport, Energy and Infrastructure  South Australian Office of the Technical Regulator	<a href="http://www.dtei.sa.gov.au">www.dtei.sa.gov.au</a>  <a href="http://www.technicalregulator.sa.gov.au/office_of_the_technical_regulator">www.technicalregulator.sa.gov.au/office_of_the_technical_regulator</a> (Regulatory Authority)
Tasmania	Office of Energy, Planning and Conservation	<a href="http://www.dier.tas.gov.au/energy/home">www.dier.tas.gov.au/energy/home</a>
Victoria	Sustainability Victoria  Energy Safe Victoria	<a href="http://www.sustainability.vic.gov.au">www.sustainability.vic.gov.au</a>  <a href="http://www.esv.vic.gov.au">www.esv.vic.gov.au</a> (Regulatory Authority)
Western Australia	Office of Energy  Energy Safety, Department of Commerce	<a href="http://www.energy.wa.gov.au">www.energy.wa.gov.au</a>  <a href="http://www.commerce.wa.gov.au/EnergySafety/">www.commerce.wa.gov.au/EnergySafety/</a>
New Zealand	New Zealand Energy Efficiency and Conservation Authority	<a href="http://www.eeca.govt.nz">www.eeca.govt.nz</a> (Regulatory Authority)



**Appendix 3 -  
MINISTERIAL COUNCIL ON ENERGY  
MEMBERSHIP<sup>50</sup>**

(as at 30 June 2011)

**The Hon Martin Ferguson AM MP**  
Minister for Resources, Energy and Tourism,  
COMMONWEALTH  
(Chair, Ministerial Council on Energy)

**The Hon Stephen Robertson MP**  
Minister for Energy and Water Utilities,  
QUEENSLAND

**The Hon Chris Hartcher MP**  
Minister for Resources and Energy,  
NEW SOUTH WALES

**The Hon Michael O'Brien MP**  
Minister for Energy and Resources,  
VICTORIA

**The Hon Peter Collier MLC BA DipEd**  
Minister for Energy,  
WESTERN AUSTRALIA

**The Hon Michael O'Brien MP**  
Minister for Energy,  
SOUTH AUSTRALIA

**The Hon Delia Lawrie MLA**  
Treasurer, Northern Territory Treasury  
NORTHERN TERRITORY

**Mr Simon Corbell MLA**  
Minister for the Environment and Sustainable  
Development,  
AUSTRALIAN CAPITAL TERRITORY

**The Hon Bryan Green MP**  
Minister for Energy and Resources,  
TASMANIA

**OBSERVERS**

**The Hon Hekia Parata**  
Acting Minister for Energy and Resources,  
NEW ZEALAND

**The Hon William Duma LLB LLM MP**  
Minister for Petroleum and Energy,  
PAPUA NEW GUINEA

---

<sup>50</sup>. From 1 July 2011, the Ministerial Council on Energy (MCE) and the Ministerial Council on Mineral and Petroleum Resources (MCMPR) will amalgamate to form the Standing Council on Energy and Resources (SCER)

## Appendix 4 - STANDARDS AND REGULATORY RULINGS

**Table 11: Australia and New Zealand standards and test methods released during 2010/11**

Number	Title	Date of Issue or Amendment
<b>New Performance Standards</b>		
AS/NZS 4552.2:2010	Gas fired water heaters for hot water supply and/or central heating - Minimum Energy Performance Standards for gas water heaters.	DEC-10
AS 4934.2:2011	Incandescent lamps for general lighting services - Minimum Energy Performance Standards (MEPS) requirements.	APR-11
<b>Revised Performance Standards</b>		
AS/NZS 4474.2:2009/Amdt 1:2011	Performance of household electrical appliances - Refrigerating appliances - Energy labelling and minimum energy performance standard requirements.	MAR-11
<b>Revised Test Methods</b>		
AS/NZS 4934.1(Int):2008/Amdt 1:2011	Incandescent lamps for general lighting services - Test methods - Energy performance.	APR-11
AS/NZS 4474.1:2007/Amdt 2:2011	Performance of household electrical appliances - Refrigerating appliances - Energy consumption and performance.	MAR-11
AS/NZS 3823.1.2:2001/Amdt 5:2010	Performance of electrical appliances – air-conditioners and heat pumps - Test methods - ducted air-conditioners and air-to-air heat pumps - Testing and rating for performance.	OCT-10

**Table 12. Regulatory rulings released during 2010/11**

Ruling Number	Date	Product Type	Subject
19B	APR-11	Dishwashers	Acceptable alternative infant cereal to Farex 6+ months <i>That regulators shall accept applications for registration approval that rely on test reports using specified alternative soiling agents against Clause A10(e) of AS/NZS 2007.1.</i>
30C	SEP-10	Incandescent Lamps	Incandescent lamp efficacy <i>That Clause 4.3 of AS/NZS 4934.2 be amended such that a revised MEPS level for mains voltage halogen non-reflector lamps be applied for an initial two year period.</i>
31A	AUG-10	Clothes Dryers	Clothes dryers with both timer and auto-sensing controls <i>That Clauses 2.2, 2.3 and Appendix D Clause D2.4 of AS/NZS 2442.1:1996 be modified to clarify the test requirements in respect to dryers with options for both timer control and autosensing control.</i>

Ruling Number	Date	Product Type	Subject
32A	AUG-10	Clothes Dryers	Clothes dryer with door interlock <i>That Appendix B clause B3.2 AS/NZS 2442.1:1996 be amended to clarify the procedure for measuring the energy and water consumption for dryers with an interlock that prevents access to the load immediately prior to commencement of the cool-down period.</i>
33A	DEC-10	Clothes Washers	Clothes Washers – Concentration of PBIS in the conditioned load <i>That the maximum concentration of PBIS permitted to be retained in the rinse liquor extracted from the conditioned load as noted in clause M5.1 of AS/NZS 2040.1:2005 be increased from 0.05 mg/L to 0.2 mg/L.</i>
34A	MAR-11	Televisions	Reference to AS/NZS 62087.1:2009 in AS/NZS 62087.2.2:2010 <i>That AS/NZS 62087.2.2:2010 be amended to remove out of date references and to apply a transition period for use of the revised wording on labels.</i>
35A	FEB-11	Set Top Boxes	Reference to AS/NZS 62087.1:2004 <i>That any reference of AS/NZS 62087.1:2004 in the standard AS/NZS 62087.2.1:2008 shall be replaced by AS/NZS 62087.1:2010.</i>
36A	MAR-11	Televisions	Televisions supplied at less than 230/240Vac <i>That AS/NZS 62087.2.2:2010 be amended to clarify the television registration requirements.</i>
37A	MAR-11	Set-Top Boxes	Set top boxes supplied at less than 230/240Vac <i>That Clause 1.1 of AS/NZS 62087.2.1 be amended to clarify the set top boxes which require energy efficiency registration and that Appendix A (and on-line registration) be amended to enable capture data required with respect to external power supplies.</i>
39A	JUN-11	Refrigerators	Clarification of refrigerating appliances claimed to be cooled appliances that are required to be registered for energy labelling and MEPS for refrigerators <i>Advises that cooled appliances with any compartment capable of cooling to less than 6oC qualifies as a refrigerating appliance and must therefore be registered for energy labelling and MEPS for refrigerators.</i>  <i>Following consultation with industry stakeholders, a revision to this regulatory ruling was issued in 2011/12.</i>

## Appendix 5 - PUBLICATIONS

The E3 Program publications listed below were released from 1 July 2010 to 30 June 2011 and are available from the electronic library on Energy Rating website at [www.energyrating.gov.au/library/index.html](http://www.energyrating.gov.au/library/index.html)

**Table 13: E3 Program publications released from 1 July 2010 to 30 June 2011**

Date	Publication Type	Publication Title and Summary	Publication Reference
JUN-10 <sup>51</sup>	Report	Report on Research to Guide Proposed Changes to the Energy Efficiency Label for Clothes Washers. <i>Presents the results of focus group research undertaken to support the current revision of the clothes washer standards.</i>	2010/14
JUL-10	Discussion Paper	National MEPS Legislation: Supplementary Discussion Paper - Compliance Obligations and Enforcement. <i>Released to canvass a range of design features of the proposed national legislation for Minimum Energy Performance Standards (MEPS) and energy labelling for equipment and appliances. In particular, it explores how compliance obligations could be imposed and enforced under the national legislation.</i>	2010/05
SEP-10	Product Profile	Product Profile: Outdoor Radiant Gas Heaters. <i>Explores the potential energy and greenhouse savings through improvements to outdoor radiant gas heaters in Australia.</i>	2010/07
SEP-10	Discussion Paper	Discussion Paper: Improving the Energy Efficiency of Industrial Equipment. <i>Presents an analysis of the contribution that industrial equipment fuelled by electricity and gas make to energy use and greenhouse emissions in Australia and New Zealand, and investigates the feasibility of increasing the energy efficiency of key industrial equipment through a regulatory approach.</i>	2010/09
SEP-10	Report	Standby Power and Low Energy Networks - Issues and Directions. <i>Prepared for the 4E Standby Annex in conjunction with the Asia Pacific Partnership on Clean Development and Climate, this report examines the issue of standby and networks, and documents key areas of existing knowledge with respect to networks. Key technical gaps and omissions with respect to networks and energy savings are identified, along with areas that may require further technical development.</i>	
OCT-10	Report	Greening Whitegoods 2009. <i>Covers five major consumer appliances (refrigerators, freezers, dishwashers, clothes washers and dryers) and uses sales data to show how key energy and water efficiency attributes of whitegoods have changed over time.</i>	2010/08

<sup>51</sup>. Released in early 2010/11

Date	Publication Type	Publication Title and Summary	Publication Reference
OCT-10	Regulation Impact Statement	Consultation Regulatory Impact Statement: Proposed Minimum Energy Performance Standards for Computers and Computer Monitors. <i>Makes the case for introducing Minimum Energy Performance Standards (MEPS) for computers, and MEPS and Energy Rating Labels (ERLs) for computer monitors.</i>	2010/11
OCT-10	Reference Manual <sup>52</sup>	Solar and Heat Pump Hot Water Systems – Plumber Training Handbook.	2010/10
OCT-10	Reference Manual <sup>53</sup>	Solar and Heat Pump Hot Water Systems – Plumber Reference Guide.	2010/10
NOV-10	Regulation Impact Statement	Decision Regulation Impact Statement: Phasing Out Greenhouse-Intensive Water Heaters in Australian Homes <sup>54</sup> . <i>Communicates the potential costs and benefits arising from the proposed phase-out of greenhouse gas intensive hot water heaters from existing Australian houses.</i>	2010/11
DEC-10	Report	Evaluation of Energy Efficiency Policy Measures for Household Refrigeration in Australia: An Assessment of Energy Savings Since 1986. <i>Estimates the historical energy savings to 2009 from previous policy measures, re-appraises the likely energy savings to 2020 from all program measures implemented to date and examines changes in the prices and range of products on the market.</i>	2010/10
DEC-10	Report	Evaluation of Energy Efficiency Policy Measures for Household Air-conditioners in Australia. <i>Evaluates the impacts of the past regulation of air-conditioners, especially on product energy efficiency and energy savings, and determines whether the original forecasts that were made as part of the Regulatory Impact Statements (RIS) were fulfilled following the regulation.</i>	2010/12 a & b
DEC-10	Regulation Impact Statement	Decision Regulatory Impact Statement: Minimum Energy Performance Standards for Air-conditioners: 2011 (Report 2010/13). <i>Communicates the potential impacts, costs and benefits arising from the proposed introduction of more stringent MEPS levels for air-conditioners.</i>	2010/13
JAN-11	Report	Survey of Energy Efficiency Labelling of Air-conditioners. <i>A Report on inspections of 321 retail air/conditioner outlets in Australia.</i>	2011/01
JAN-11	Product Profile	Product Profile: Ducted Gas Heaters. <i>Explores the options available for improving the energy efficiency of the new heaters which are sold, and seeks stakeholder input and feedback on these options.</i>	2011/02

52. Available at [www.climatechange.gov.au/en/what-you-need-to-know/appliances-and-equipment/hot-water-systems/phase-out/~/\\_/media/publications/hot-water-systems/plumber-training-handbook-pdf.ashx](http://www.climatechange.gov.au/en/what-you-need-to-know/appliances-and-equipment/hot-water-systems/phase-out/~/_/media/publications/hot-water-systems/plumber-training-handbook-pdf.ashx)

53. Available at [www.climatechange.gov.au/en/what-you-need-to-know/appliances-and-equipment/hot-water-systems/phase-out/~/\\_/media/publications/hot-water-systems/plumber-reference-guide-pdf.ashx](http://www.climatechange.gov.au/en/what-you-need-to-know/appliances-and-equipment/hot-water-systems/phase-out/~/_/media/publications/hot-water-systems/plumber-reference-guide-pdf.ashx)

54. Available at [http://www.ret.gov.au/Documents/mce/\\_documents/Water%20Heaters%20Decision%20RIS%20FINAL%2015%20Nov%202010.pdf](http://www.ret.gov.au/Documents/mce/_documents/Water%20Heaters%20Decision%20RIS%20FINAL%2015%20Nov%202010.pdf)

Date	Publication Type	Publication Title and Summary	Publication Reference
MAR-11	Report	Retrospective Review of the Equipment Energy Efficiency Program: Lessons Learnt From Two Reviews. <i>Reviews the experience of the Equipment Energy Efficiency Program and its predecessors in increasing the energy efficiency of two key product groups – domestic refrigerators/freezers and domestic air conditioners.</i>	2011/10
APR-11	Report	Survey of Energy Efficiency Labelling of Televisions. <i>A Report on Inspections of 101 Retail Television Outlets in Australia</i>	2011/04
APR-11	Report	Performance Verified. <i>The results of the first one thousand verification tests undertaken in Australia and New Zealand between 1991 and 2010 in support of energy efficiency regulations for electrical appliances.</i>	2011/05
MAY-11	Regulation Impact Statement	Consultation Regulatory Impact Statement: Review of Minimum Energy Performance Standards for Distribution Transformers: May 2011. <i>Examines the proposal to raise the efficiency of new distribution transformers installed in Australia and New Zealand for use in public electricity supply systems as well as in the industrial, mining and commercial sectors.</i>	2011/07
JUN-11	Report	Achievements 2009/10: Annual Report for the E3 Program. <i>Measures the progress made in the 12 month period from 1 July 2009 to 30 June 2010 against the goals set by the Ministerial Council on Energy.</i>	2011/03
JUN-11	Report	Refrigerator Energy Labelling and MEPS Compliance in the Australian Market. <i>Uses refrigerator data as a proxy for other regulated equipment types to investigate whether the energy consumption claims for products regulated for energy efficiency are being met by equipment suppliers.</i>	2011/08

**Table 14. E3 newsletters issued from 1 July 2009 to 30 June 2010**

Newsletter	Description	Issues
<i>Efficiency Standard</i>	Online newsletter designed to provide an update on the latest news concerning energy efficient appliances and electrical equipment from the E3 Program.	Spring 2010 Summer 2010 Autumn 2011
<i>Load Down</i>	Online newsletter which provides updates on the latest standby power research results and policy initiatives.	August 2010 September 2010 January 2011

## Appendix 6 - PARTICIPANTS IN INTERNATIONAL INITIATIVES

Participants	
Asia-Pacific Economic Cooperation (APEC) - Expert Group on Energy Efficiency and Conservation (EGEE&C)	Australia Canada China Chinese Taipei Hong Kong Indonesia Japan Republic of Korea Malaysia Mexico New Zealand Peru Philippines Thailand United States Vietnam
Asia Lighting Compact	Amka Lighting Indonesian Express Delivery Companies' Association Bureau of Energy Efficiency India Bureau of Indian Standards Council of Engineers, Pakistan Carbon Futures CE Lighting DCCEE Australia Danson Electronics Department of Energy, Philippines Electric Lamp and Component Manufacturers Association of India Electricity Generating Authority of Thailand General Electric In Consultants NVC Lighting Technology Corporation Philips Philippines Lighting Industry Association UL (Underwriters Laboratories) Zhejiang Yankon Group Co Ltd
Asia-Pacific Partnership on Clean Development and Climate (APP) Building and Appliance Taskforce (BATF)	Australia Canada China India Japan Republic of Korea United States

Participants	
IEA Efficient Electrical End-use Equipment Implementing Agreement (4E)	Australia Austria Canada Denmark France Japan Netherlands Republic of Korea South Africa Sweden Switzerland United Kingdom United States
International Energy Agency	Australia Austria Belgium Canada Czech Republic Denmark Finland France Germany Greece Hungary Ireland Italy Japan Korea (Republic of) Luxembourg Netherlands New Zealand Norway Poland Portugal Slovak Republic Spain Sweden Switzerland Turkey United Kingdom United States



Participants	
International Partnership for Energy Efficiency Cooperation (IPEEC)	Australia Brazil Canada China, European Union France Germany India Italy Japan Mexico Russia Republic of Korea United Kingdom United States
lites.asia	Australia China India Indonesia Philippines Sri Lanka Thailand United States Vietnam
Super-efficient Equipment and Appliance Deployment (SEAD) initiative	Australia Brazil Canada European Commission France Germany India Japan Korea Mexico Russia South Africa Sweden United Arab Emirates United Kingdom United States
Bilateral Partnerships	China European Union Fiji New Zealand United States



## Achievements Report 2010/2011

[www.energyrating.gov.au](http://www.energyrating.gov.au)