

AUSTRALIA

1. GOALS FOR EFFICIENCY IMPROVEMENT

1.1. Overall Energy Efficiency Improvement Goals

Policies and measures to improve energy efficiency in Australia are undertaken at Australian Government and State level and are outlined below. Coordination of cross-jurisdictional policies and programs occurs through the National Strategy on Energy Efficiency (NSEE).

The Australian Government released the *Energy White Paper 2012, Australia's energy transformation*, on 8 November 2012. The Energy White Paper (EWP) sets out a strategic policy framework to address the challenges in Australia's energy sector and position the country for a long term transformation in the way it produces and uses energy.

Over the next two decades, Australia's energy future will be dominated by three intersecting factors:

- the need to deliver secure, reliable and competitively priced energy for a growing population and economy
- the further expansion of Australia's energy exports to Asia and other growth markets
- the need to become more energy efficient across the economy and transform to a clean energy economy.

The other strategic policy framework that frames Australian energy efficiency policy is the Clean Energy Future package (CEF), which contains a number of elements, including a price on carbon and initiatives to encourage energy efficiency in Australia (refer to section 1.6). Further details on the CEF are available at: www.cleanenergyfuture.gov.au.

1.2. Sectoral Energy Efficiency Improvement Goals

On 1 July 2012 the Australian Government introduced a price on carbon in the Australian economy, which contributes to energy efficiency incentives across a range of economic sectors. Further details on the carbon price are available at: www.cleanenergyfuture.gov.au.

1.3. Action Plans for Promoting Energy Efficiency

1.3.1. National energy efficiency governance arrangements

The Select Council on Climate Change (SCCC) was formed in 2012 and consists of Australian and State Government Ministers and New Zealand Ministers and a representative from Australian Local Government. The SCCC is currently responsible for overseeing the NSEE.

The Standing Council on Energy and Resources (SCER) has responsibility for the safe, prudent and competitive development of Australia's energy markets. This includes energy market reform measures designed to increased demand side participation through regulatory reform of the national electricity and gas markets.

1.3.2. National Strategy on Energy Efficiency

The National Strategy on Energy Efficiency (NSEE) is an overarching 10 year strategy for promoting energy efficiency in Australia. Details can be found at <http://ee.ret.gov.au/energy-efficiency/strategies-and-initiatives/national-strategy-energy-efficiency-nsee>.

a) Objectives

The NSEE is a coordinated approach to energy efficiency in Australia to accelerate energy efficiency efforts across all levels of government, and to help households and businesses reduce their energy costs. The NSEE aims to address barriers that prevent the optimal uptake

of energy efficient opportunities, such as split incentives and information failures. It was agreed to by the Council of Australian Governments (COAG) on 2 July 2009.

The NSEE incorporates and builds on measures already agreed by COAG and the then Ministerial Council on Energy through the National Framework on Energy Efficiency (NFEE). It aims to accelerate energy efficiency efforts, streamline roles and responsibilities across levels of governments, and facilitate the adoption of more efficient and innovative practices by ensuring that businesses and households are able to make informed decisions about investments in energy efficiency.

b) Applicable sectors

Key NSEE measures include:

- Assistance to business and industry to obtain knowledge, skills and capacity to pursue cost-effective energy efficiency opportunities
- Assistance to households to reduce energy use by providing information, advice and demonstration program
- Higher energy efficiency standards for homes, buildings including nationally consistent and increasingly stringent energy efficiency standards for appliances and equipment
- Addressing potential regulatory impediments to the take up of innovative demand side initiatives and smart grid technologies
- Improving the energy efficiency of government buildings and operations
- A detailed assessment of possible vehicle efficiency measures, such as CO₂ emissions standards.

c) Outline

The NSEE was agreed to by the COAG in July 2009. It is a 10-year strategy to deliver a consistent and cooperative national approach to energy efficiency.

d) Financial resources and budget allocation

Individual jurisdictions are responsible for funding initiatives under the NSEE. Funding of AUD 88.3 million is provided over four years (2009-10 to 2012-13).

e) Method for monitoring and measuring effects of action plans

The NSEE is currently undergoing a review process which aims to analyse the complementarity of measures with a carbon price, improve national coordination and prioritise strategic areas for continuing collaboration.

f) Expected results

Since its agreement in 2009, the NSEE has achieved a number of outcomes, including:

- Establishment of a national framework to improve appliance and equipment energy efficiency standards, replacing seven overlapping pieces of state and territory legislation. The Australian Government passed Greenhouse and Energy Minimum Standards (GEMS) legislation on 1 October 2012. GEMS saves household and business consumers money and cuts red tape for appliance and equipment businesses, and includes scope to develop new minimum energy performance standards for a greater range of appliances and equipment. The expected energy and greenhouse gas emissions savings for appliances and equipment to 2020 (under the Equipment Energy Efficiency Program (E3) MEPS and labelling program) is outlined in the report *Prevention is Cheaper than Cure - Avoiding Carbon Emissions through Energy Efficiency - Projected Impacts of the Equipment Energy Efficiency Program to 2020*.

The report is available at <http://www.energyrating.gov.au/resources/program-publications/?viewPublicationID=2204>

- Improved energy management practices and identification of energy efficiency opportunities in large energy users through the Energy Efficiency Opportunities program
- Development of the Living Greener and Energy Efficiency Exchange websites which provide comprehensive and credible energy efficiency information for households, business and industry
- Agreement to a long term training strategy for energy efficiency that identifies skills gaps and skills shortages in the energy efficiency sector, including strategies in conjunction with industry and educational organisations to address these issues
- The incorporation of residential customer bill benchmarking into the National Energy Customer Framework legislation, providing households with comparative information to assess energy use
- Sales and import restrictions on inefficient incandescent lights, and the introduction of energy performance standards for other forms of lighting, resulting in reduced energy costs to consumers and significant savings to the Australian economy
- Completion of the Truck Buyers Guide on the Green Vehicle Guide website
- Completion of the new energy efficiency provisions for commercial and residential buildings in the National Construction Code (formerly the Building Code of Australia 2010). This initiative reduces energy costs to consumers and overall energy consumption of residential and commercial buildings
- Introduction in November 2010 of the first phase of Commercial Building Disclosure. This initiative provides information to tenants and building owners about the overall energy consumption of commercial office buildings
- Establishment of a national TelePresence conferencing network to reduce the need for travel related to the COAG work and other official travel.

g) Future tasks

Continuation of existing work programs.

1.3.3. Previous action plans for promoting energy efficiency; National Framework for Energy Efficiency

The NFEE was the previous arrangement for cooperation on energy efficiency actions in Australia. All NFEE projects and activities now form part of the NSEE.

a) Objectives

The NFEE aimed to take advantage of the economic potential associated with increased uptake of energy efficient technologies and processes to help improve Australia's energy efficiency performance to reduce energy demand and lower greenhouse gas emissions.

b) Applicable sectors

Stage One of the NFEE was adopted in 2004 and is still ongoing through NFEE Stage 2 and NSEE. It contains a comprehensive set of measures that cover the residential, commercial and industrial sectors. Stage Two of the NFEE commenced in July 2008.

c) Outline

Stage One of the NFEE consisted of nine policy packages including:

- *Residential buildings*: consistent economy-wide minimum energy efficiency design standards for new buildings and renovations and mandatory disclosure of the energy performance of homes for sale or lease
- *Commercial buildings*: consistent economy-wide minimum energy efficiency design standards for new and refurbished buildings and mandatory disclosure of the energy performance at the time of sale or lease
- *Commercial/industrial energy efficiency*: mandatory energy assessments and public reporting for large energy users (the Energy Efficiency Opportunities program) and coordinated training and accreditation for energy auditors and energy performance contractors
- *Government energy efficiency*: development of consistent standards for measuring and reporting on government energy efficiency programs, introduction of public annual reporting on energy use and progress towards targets by government agencies in all jurisdictions, and the development of best practice models for government agencies to implement energy efficiency programs
- *Appliance and equipment energy efficiency*: broadening the scope of the National Appliance and Equipment Energy Efficiency Program (NAEEEP) through the introduction of mandatory Minimum Energy Performance Standards (MEPS) and introducing new or more stringent MEPS for residential, commercial and industrial products
- *Trade and professional training and accreditation*: undertaking a coordinated effort to integrate energy efficiency concepts into training courses in key professions that influence energy efficiency outcomes, and development of training and accreditation courses for practising tradespersons
- *Commercial/industrial sector capacity building*: development of a coordinated program to generate examples of energy efficient equipment or processes in key industrial sectors and new or refurbished commercial buildings, link industry and government to key centres for energy efficiency research and development, and establish coordinated energy efficiency best practice networks
- *General consumer awareness*: provision of benchmark data on energy bills, development of a coordinated network to facilitate easy and timely access to information, targeted promotional campaigns and the integration of energy efficiency concepts into the school curriculum
- *Finance sector awareness*: raising awareness of the opportunities for and benefits of investment in energy efficiency and the provision of tools to assist in the valuation and risk assessment of proposals.

Stage Two of the NFEE added another five packages, including:

- Improving the evidence base for the development and evaluation of energy efficiency policies. This will be achieved by implementing the plan developed in Phase 1 of the Energy Efficiency Data Gathering and Analysis Project (EEDP) for the collection of data required to fill identified data gaps, and collecting data to inform the development of new policies and refine existing policies
- Expanding and enhancing the MEPS program
- The Heating, Ventilation and Air Conditioning (HVAC) high efficiency systems strategy
- The phase-out of inefficient incandescent lighting
- Government leadership through green leases
- Development of measures for an Australian hot water strategy, for later consideration.

d) Financial resources and budget allocation

The budget for the packages of work under the second stage of the NFEE was AUD 6.21 million for 2008/09 and AUD 9.96 million for 2009/10. Resourcing to implement the Stage Two measures are met separately by the relevant jurisdictions.

e) Method for monitoring and measuring effects of action plans

Surveys, statistic compilation, end-use information, monitoring and trend analysis are all undertaken, and databases are maintained to assist in program evaluation, meeting international reporting obligations and policy formation.

The Australian Government Department of Resources, Energy and Tourism (DRET) is mainly responsible for energy efficiency monitoring and reporting. Programs and measures include:

- DRET on behalf of the E3 Program, monitors and reports information through its 'Energy Use in the Australian Residential Sector 1986/2020' report. The report is the second economy-wide baseline study on residential energy use. It includes private residential dwellings, both those that are separate, such as single detached family homes, and attached, such as townhouses or apartments. The modelling incorporates Australian energy policy programs in place or finalised by mid-2007
- DRET is also responsible for the analysis of the projected effects of the Equipment Energy Efficiency Program over the period 2000/2020. Results have been published in the report: 'Prevention is Cheaper than Cure' Avoiding Carbon Emissions through Energy Efficiency, Projected Impacts of the Equipment Energy Efficiency Program to 2020'
- The Clean Energy Regulator administers the National Greenhouse and Energy Reporting Scheme (NGERS). The National Greenhouse and Energy Reporting Act established NGERS in 2008, under which corporations exceeding legislated thresholds must report their annual greenhouse gas emissions, energy production and consumption. For the 2010-11 financial year and subsequent years, corporations must report if their group consumes more than 200 terajoules of energy a year or if a facility in their group consumes more than 100 terajoules of energy a year
- DRET administers the Energy Efficiency Opportunities (EEO) Program under which companies and electricity generators using more than 0.5 petajoules (PJ) of energy in a year must identify and report on energy efficiency opportunities both publicly and to the government
- Through the Commercial Building Disclosure Program, DRET produces a public listing of energy performance of many office buildings in Australia, along with an increasingly rich set of analysis of this data
- DRET commissions work on economy-wide energy intensity (undertaken by the Australian Bureau of Resource and Energy Economics (BREE)). The most recent report is 'End use energy intensity in the Australian economy' published in 2012. A full list of publications is available at: <http://www.bree.gov.au/publications/index.html> BREE also prepares the 'Australian Energy Statistics' on behalf of DRET
- The Australian Bureau of Statistics also collects and publishes a wide range of energy use and related statistics.

f) Expected results

Refer to EEO in section 2.1.1.

g) Future tasks

The NSEE provides specific actions for promoting energy efficiency (refer section 1.3.2) over the coming years.

1.4. Institutional Structure

a) Name of organisation

The Australian Constitution divides legislative powers between the national and state governments. As such, policy responsibility for energy efficiency actions varies between the levels of government.

At the national level DRET has direct responsibility for energy efficiency policy and measures. A number of other government agencies have sectoral interests in energy efficiency including the Department of Infrastructure and Transport (DIT) and the Department of Industry, Innovation, Climate Change, Science, Research and Tertiary Education (DIISRTE). The NSEE is the main mechanism for coordinating energy efficiency policy, with reports on the progress of activities being provided to COAG by the Select Council on Climate Change.

At the state/territory level, there is a range of institutional structures. The following are agencies primarily responsible for energy efficiency:

- New South Wales: Department of Environment and Heritage
- Northern Territory: Department of Lands, Planning and the Environment
- Queensland: Department of Energy and Water Supply
- South Australia: Department for Manufacturing, Innovation, Trade, Resources and Energy, the Department of Environment, Water and Natural Resources and the Essential Services Commission of South Australia
- Tasmania: Department of Infrastructure, Energy and Resources
- Victoria: Department of Primary Industries, Sustainability Victoria and the Essential Services Commission
- Western Australia: Public Utilities Office within the Department of Finance
- Australian Capital Territory: The Environment and Sustainable Development Directorate.

COAG formed the SCCC and the SCER, both mentioned above, to progress key reform elements of the Ministerial Council on Energy.

The SCCC aims to support effective responses to climate change issues with national implications and provide a forum to implement these issues and engage with all levels of government. The SCER is responsible for pursuing priority issues of national significance in the energy and resources sector.

b) Status of organisation

All agencies report to the relevant Australian or state government minister.

c) Roles and responsibilities

Vary across departments.

d) Covered sectors

All sectors of the economy are covered.

e) Established date

Multiple jurisdictions.

f) Number of staff members

No information available.

1.5. Information Dissemination, Awareness-raising and Capacity-building

a) Information collection and dissemination

A wide range of information is available to Australian energy users in different sectors.

Energy Efficiency Exchange Website – www.eex.gov.au

The Energy Efficiency Exchange (EEX) website is a joint initiative of the Australia, State and Territory governments under the NSEE. It was launched on 30 March 2012 and provides large energy users with access to a consolidated source of highly national and international resources on energy efficiency including energy management, industry sectors, technologies and business support programs. The website aims to reduce business research costs by providing resources in one central location.

Energy Made Easy Website – www.energymadeeasy.com.au

The Australian Energy Regulator has, as part of the National Energy Customer Framework (NECF), launched the Energy Made Easy website on 1 July 2012. It aims to help residential and small business energy consumers to compare different energy retail prices and understand their electricity usage in comparison with other households or small businesses in their area.

Australian Green Vehicle Guide Website – www.greenvehicleguide.gov.au

The Australian Green Vehicle Guide website aims to assist consumers to make better informed choices about the environmental performance of a vehicle. It provides information on greenhouse gas emissions, air pollution and fuel consumption of light vehicles produced in 2004 or later.

b) Awareness-raising

There is no economy-wide general energy efficiency awareness-raising program, although awareness campaigns may be undertaken within specific initiatives such as the phasing out of inefficient incandescent lighting. Some states have awareness-raising campaigns.

c) Capacity-building

The NSEE includes a number of measures related to capacity building for industry, including supporting businesses to address barriers to improving their energy efficiency and assisting businesses to ensure they have adequate knowledge, skills and capacity to meet the challenges of operating in a low carbon economy. Key elements of these measures include developing targeted outreach information and addressing skills gaps and shortages.

A transitional plumber training program is also being developed and delivered in support of the phase-out of greenhouse intensive water heaters under the NFEE.

A National Energy Efficiency Skills Initiative (NEESI) is being developed under the NSEE. The NEESI will build on the existing processes under the NFEE to ensure that Australia will have the skills and knowledge required to move to a low-carbon economy.

The EEO program engages in significant capacity building activities that reach companies account for 65 per cent of Australia's energy end use and a range of energy services providers, providing advice, producing guidance materials, case studies, and holding annual workshops. The program, and its capacity building activities, was extended to electricity generators from 1 July 2011. Work is currently underway to covering the design phase of major greenfield and expansion projects. The Government also has a voluntary program for medium sized energy users. This voluntary scheme allows the significant resources and information available under the existing EEO Program to be tailored to these energy users, a key element of which will be training, mentoring and help with energy management.

The Enterprise Connect Clean Technology Innovation Network works with firms on ways to cut energy, water and material use; plan for change; and adopt new technologies that will

reduce their energy use and environmental impact. It supports new products, processes and skills, and builds relationships with research, education and training providers.

1.6. Research and Development in Energy Efficiency and Conservation

In general, Australia has a technology-neutral approach to research and development funding, with researchers undertaking work on energy efficiency related projects competing with other projects for funding. However, there are a number of specific programs that support research and development in energy efficiency.

In July 2011, the Australian Government announced the Clean Energy Future package (CEF). CEF has four main elements: a carbon price, renewable energy, energy efficiency and action on the land (such as the storing of soil carbon, revegetation and forest conservation).

The carbon price scheme was developed to be implemented in two phases. The first phase is a fixed-price period and the second phase, a market based emissions trading scheme. The fixed price period commenced on 1 July 2012, and the Government announced in July 2013 that it will move to the market based emissions trading scheme from 2014.

There are a number of energy efficiency specific initiatives under CEF.

Clean Energy Finance Corporation

A new \$10 billion Clean Energy Finance Corporation was established in July 2013 and is independent from the Australian Government. It will invest in the commercialisation and deployment of renewable energy, low-pollution and energy efficiency technologies. Investments will be divided into two streams, a renewable energy stream and an energy efficiency and low-emissions technology stream, each with half of the allocated funding. This program does not include investment in carbon capture and storage (CCS) which is already catered for through a number of other programs such as the Global CCS Institute and the CCS Flagships program.

National Energy Savings Initiative

In its 2010 report, the Prime Minister's Task Group on Energy Efficiency recommended the introduction of a national Energy Savings Initiative (ESI). The Government has committed to develop a national ESI as part of the CEF.

The Australian Government is currently undertaking further work on the costs and benefits of a national scheme to replace existing State-based schemes which operate in South Australia, Victoria and New South Wales. This would reduce complexity and duplication and allow energy consumers in states without existing schemes to benefit. A national ESI would place obligations on energy retailers to help households, businesses and industry install energy efficient goods and technologies.

Subject to the findings of economic modelling and regulatory impact analysis, the Australian Government will make a final decision on whether to adopt a national ESI. A national ESI would be conditional on the agreement of the COAG and the abolition of existing and planned state government schemes.

Industrial Energy Efficiency Analysis Project

In January 2012, Australia commenced the Industrial Energy Efficiency Data Analysis Project (IEEDAP). IEEDAP is a collaborative project between DRET and state and territory governments. The project provides detailed analysis of the energy usage and energy savings opportunities by subsector, fuel type and technology process in a range of industry sectors. Data has been sourced from five years of mandatory company reports submitted under the EEO Program, the NGERS and a range of state based programs. The data tool has also been designed to enable detailed analysis of potential factors, both market and non-market, which affect the uptake of energy efficiencies throughout a range of industry sectors. Findings from this project will be used by policymakers to better integrate information, incentives and other policy programs to unlock energy savings potential. Findings are also disseminated to

industry to allow them to improve their identification and evaluation of energy saving opportunities.

Clean Technology Program

The Clean Technology Program (CTP) provides over \$1 billion dollars in funding to help reduce emissions and improve the energy efficiency of manufacturing industries and to support the development of new low emission and energy efficient products, processes and services.

The Clean Technology Program comprises three components:

The Clean Technology Investment Program and the Clean Technology Food and Foundries Investment Program provide combined funding of up to \$865 million to assist manufacturing businesses invest in energy efficient capital equipment and low emissions technologies , processes and products.

The Clean Technology Innovation Program is a \$173 million competitive merit-based grants program helping Australian businesses undertake applied research and development, proof-of-concept and early-stage commercialisation activities to develop low emission and energy efficient technologies that reduce greenhouse gas emissions.

Steel Transformation Plan

The Steel Transformation Plan will provide assistance worth up to \$300 million over five years to encourage investment and innovation in the Australian steel manufacturing industry. The Steel Transformation Plan is designed to improve the environmental outcomes of steel manufacturing and promote the development of workforce skills.

Clean Energy Skills Program

Funding of around \$32 million will help educational institutions and industry develop the materials and expertise needed to promote clean energy skills. The Clean Energy Skills Program will provide the foundation for the new type of workplace skills that will become increasingly more valuable as Australia moves to a clean energy economy. Tradespersons and professionals alike will be eligible for assistance under this program to develop the skills needed to deliver energy efficiency services, clean energy projects and low pollution products to Australian households, communities and businesses.

Energy Efficiency Information Grants

The Energy Efficiency Information Grants program will provide \$40 million in grants over four years to industry associations and non-government organisations which have established relationships with small businesses and community organisations to deliver information about the implications of the Government's CEF and how to reduce energy costs.

Living Greener

The Living Greener initiative provides web based information for households on living sustainability and connects to all Commonwealth, state and territory energy efficiency and climate change programs. The websites includes information on how households can improve energy efficiency to save dollars and cut carbon pollution.

Low Carbon Communities

The Government's Low Carbon Communities (LCC) program was expanded to provide funding through competitive grants to local councils and communities to improve energy efficiency in council and community-use buildings and facilities, and to assist low-income households. Information on LCC programs is available at <http://ee.ret.gov.au/energy-efficiency/grants>.

Research on energy efficiency is a major component for energy efficiency improvement in Australia and is carried out through federal and state government networks. Funding

mechanisms and involvement with the private sector are conducted on a need-only basis. States and territories also have a number of demonstration programs for business energy efficiency.

2. MEASURES FOR ENERGY EFFICIENCY IMPROVEMENTS

2.1. Government Laws, Decrees, Acts

2.1.1. Energy Efficiency Opportunities Act

a) Name

Energy Efficiency Opportunities Act 2006 (Cth) (The EEO Act).

b) Purpose

The EEO Act is designed to result in improved identification and uptake of cost effective energy efficiency opportunities, improved productivity and reduced greenhouse gas emissions, and greater scrutiny of energy use by large energy consumers.

c) Applicable sectors

The EEO Program applies to all large energy users across all sectors except electricity and natural gas networks. This mainly covers the mining, resource processing, manufacturing, transport and commercial sectors.

d) Outline

Participation in the EEO Program is mandatory for corporations whose energy exceeds 0.5 PJ (the equivalent of 10,000 households) in a financial year. Registered corporations are required to undertake an energy assessment, which involves:

- senior leadership and management of energy performance objectives
- involvement of experts and company staff with an influence on energy use
- the collection and analysis of energy use data to underpin an assessment
- a systematic process to identify opportunities, improve energy productivity and evaluate the costs and benefits of opportunities
- the presentation of outcomes to decision-makers and the board
- public reporting of assessment outcomes.

While it is mandatory for corporations to undergo an energy assessment, the implementation of identified opportunities is discretionary. This approach allows for opportunities to be identified and made apparent, while allowing corporations to implement measures in accordance with their own commercial priorities.

Over 300 corporations are registered for EEO. They are required to carry out a comprehensive and rigorous energy assessment to identify efficiency opportunities with up to a four year payback. There is a rolling five year assessment cycle. Companies are supported with advice, capacity building workshops and guidance materials.

Financial resources and budget allocation

AUD 16.9 million was allocated to the program from 2004/05 to 2008/09. A similar level of funding was allocated for 2010-2013. The CEF allocated AUD 32 million of further funding for the Program out to 30 June 2017.

e) Expected results

Participating corporations have reported financial benefits from implemented opportunities of around AUD 808 million per year during the first five year cycle of the program. The program

has recently been extended to the electricity generation sector, and will soon apply to corporations undertaking new developments and/or major expansion projects. The majority of participants in the EEO Program have recently completed the first five-year assessment cycle. In December 2011, participants reported identifying opportunities to save an estimated 164PJ, with 89 PJ of these savings being implemented (equivalent to 1,760,000 households energy use). The adopted savings are equivalent to 1.5 per cent of Australia's total energy use and represent an annual emissions abatement of 8.3 million tonnes of CO₂e and net annual financial savings of over AUD 800 million.

An independent evaluation estimated that in 2013 the EEO Program enabled an additional 40 per cent of all energy, greenhouse gas and financial savings for EEO corporations.

The independent evaluation of the EEO Program participants also highlighted that access to information on potential opportunities is significantly decreased as a barrier now, compared with when the Program commenced in 2006. The evaluation further indicated a distinct improvement in the knowledge skills and systems available to identify, implement and track opportunities to improve energy productivity.

The report '*Continuing Opportunities 2011 – Results of the EEO Assessments reported by participating Corporations*' is available on the Department's website at: <http://eeo.govspace.gov.au/files/2012/11/Continuing-Opportunities-2011.pdf>.

Savings to be implemented represent an average net abatement saving of approximately AUD 117 per tonne of CO₂ reduced. This means that companies are getting a large financial return, not a cost, for saving greenhouse emissions from their energy efficiency opportunities.

2.1.2. Hot Water Phase Out Program

a) Name

Phase out of greenhouse intensive (electric resistance) hot water heaters.

b) Purpose

Households must replace their existing greenhouse-intensive hot water systems as they fail with high efficiency solar, gas or electric heat pump systems. The phase out is a jointly run scheme between federal and state governments.

c) Applicable sectors

The phase out applies to the residential sector only. It is being implemented through standards prescribed in the Building Code of Australia (BCA) covering new buildings and regulations within State Government plumbing codes for existing buildings.

d) Outline

The phase-out forms a central element within the National Hot Water Strategic Framework. The Framework sets out a ten year pathway for the hot water industry to move to a low emission future and comprises a mix of regulatory and industry development elements.

The phase out of the installation of greenhouse intensive electric hot water heaters in new and existing homes with access to reticulated natural gas will be completed in the following stages:

(i) Phase-out for new dwellings has begun and is being implemented through the Building Code of Australia. Restrictions are now in place on the installation of greenhouse intensive water heaters in new detached, terrace, row and town houses. Stage 1 (2010) for existing homes is being implemented on a State by State basis in areas with access to reticulated gas. Queensland and South Australia have already commenced.

(ii) Stage 2 (2012), will require that electric hot water systems are no longer installed in any existing detached, terraced and town houses except where an exemption applies. The phase out is expected to extend across the country (except Tasmania) during 2012.

Research is currently being undertaken into the feasibility of extending the program to cover new apartments, flats and high rise buildings from 2013.

e) Expected results

Approximately 78.7 million tonnes of greenhouse gas emissions over 20 years are expected to be saved by the phase-out. (51.1 million tonnes over 10 years).

2.1.3. Mandatory Disclosure of Commercial Building Energy Efficiency

a) Name

Building Energy Efficiency Disclosure Act 2010.

b) Purpose

Commercial Building Disclosure (CBD) is an economy-wide program designed to improve the energy efficiency of Australia's large office buildings.

c) Applicable sectors

Commercial buildings sector.

d) Outline

Under the program, most sellers or lessors of office space of 2000 square metres or more are required to obtain and disclose a current Building Energy Efficiency Certificate (BEEC). BEECs are valid for 12 months, must be publicly accessible on the online Building Energy Efficiency Register, and include:

- a NABERS Energy star rating for the building
- an assessment of tenancy lighting in the area of the building that is being sold or leased
- general energy efficiency guidance.

e) Financial resources and budget allocation

Funding of AUD 5 million was allocated to the program from 2009⁶10 to 2012⁶13.

f) Expected results

The Commercial Building Disclosure program will stimulate investment in energy efficiency improvements to existing commercial buildings. It will do this by providing purchasers and lessees with credible information about the energy efficiency of large commercial office buildings at the point of sale, lease and sublease. The program will lead to more informed purchasers and lessees and help transition the commercial office market to a low-carbon future.

The program also provides a range of public information that is useful to energy service providers in identifying markets for improved energy performance services.

2.2. Regulatory Measures

2.2.1. Minimum Energy Performance Standards and Labelling

a) Name

Greenhouse and Energy Minimum Standards (GEMS) Act, 2012 (Gems Act).

b) Purpose

To specify mandatory requirements for the minimum energy performance standards and energy labelling of appliances, including offences and penalties for non-compliance. Further information is available at www.energyrating.gov.au.

c) Applicable sectors

Appliances, lighting and equipment in the residential, commercial and industrial sectors.

d) Outline

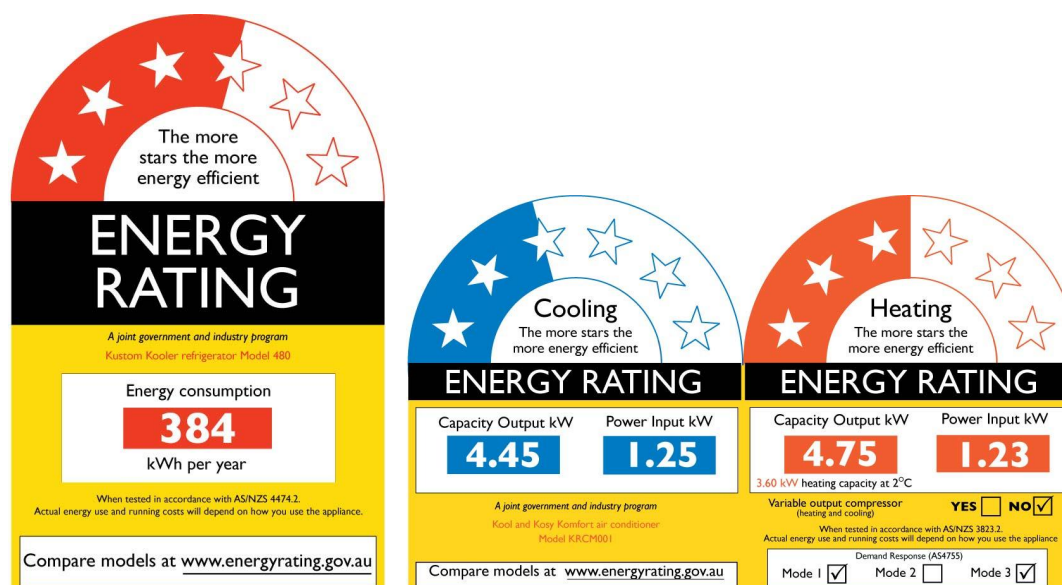
The GEMS Act provides the national framework for mandatory minimum energy performance standards (MEPS) and energy efficiency labelling. It is preceded by the long standing Equipment Energy Efficiency Program (E3), which is co-funded by the Australian Government, state and territory governments and the New Zealand Government. Products are included in the program based on whether the community would benefit from their regulation.

The establishment of MEPS and labelling requirements in Australia is a cooperative process between government and industry. Technical and economic analyses are undertaken in the development and negotiation of targets and timetables. MEPS, labelling and test method standards that are called up by regulation are Australian (in conjunction with New Zealand where appropriate) and are set to be the equivalent of world's best practice where possible.

The energy-rating label allows consumers to compare the energy efficiency of domestic appliances, thereby providing manufacturers with an incentive to continuously improve the energy performance of their appliances. The label has two main features. It rates the energy efficiency of an appliance on a scale of 1 to 10 stars or 1 to 6 stars (in half-star increments), the more stars the more efficient it is compared with models of similar size and capacity. The label also displays an estimated energy consumption figure based on typical use of the appliance (usually kWh/year).

The star system is regularly re-graded to achieve a better spread in energy efficient products (taking into account improvements in energy efficiency that occur over time and to allow room for further improvement).

All manufacturers that produce or import appliances for the Australian market must submit their products to an approved testing agency.



Labelling is mandatory for the following electrical products offered for sale in Australia:

- Refrigerators and freezers
- Clothes washers
- Clothes dryers
- Dishwashers
- Air conditioners

- Televisions.

The following products are also regulated on the basis of MEPS – this means that they have regulated minimum energy efficiency labels:

- Refrigerators and freezers
- Mains pressure electric storage water heaters
- Small mains pressure electric storage water heaters (<80L) and low pressure and heat exchanger types
- Three-phase electric motors (0.73kW to <185kW)
- Single-phase air conditioners
- Three-phase air conditioners up to 65kW cooling capacity
- Distribution transformers
- Ballasts for linear fluorescent lamps. In addition to MEPS, ballasts also have to be marked with an energy efficiency index (EEI)
- Linear fluorescent lamps - from 550mm to 1500mm inclusive with a nominal lamp power >16W
- Commercial refrigeration (self-contained and remote systems)
- Incandescent lamps
- Compact fluorescent lamps
- External power supplies
- Set top boxes
- Televisions
- Commercial building chillers
- Close control air conditioners
- Transformers and electronic step-down converters for ELV lamps.

The Australian Government is also working to introduce Greenhouse and Energy Minimum standards which will act as an expansion to the existing MEPS program and will cover additional products that consume other types of energy (for example, gas) or do not consume energy but affect the energy efficiency of appliances (for example, air conditioner ducting, building insulation or window glass).

2.2.2. Building Energy Codes

a) Name

National Construction Code (NCC - formerly Building Code of Australia) - Energy Efficiency Provisions.

b) Purpose

The aim of the NCC - Energy Efficiency Provisions is to improve the energy efficiency of the design and construction of new buildings. The NCC Energy Efficiency Provisions project was endorsed under the NFEE. Details can be found at www.abcb.gov.au/.

c) Applicable sectors

Residential and commercial.

d) Outline

Energy efficiency provisions for housing were first introduced in 2003 following an extensive consultation process. The provisions are produced and maintained by the Australian Building Codes Board (ABCB) on behalf of the Australian government and state and territory governments (through COAG). The deemed to satisfy provisions vary according to the

climate zone in which the building will be located. The original provisions included: the ability of the roof, walls and floor to resist heat transfer; the resistance to heat flow and solar radiation of the glazing; the sealing of the house; the provision of air movement for free cooling, in terms of openings and breeze paths; and the insulation and sealing of air conditioning ductwork and hot water piping.

The provisions were developed to achieve a nominal level of energy efficiency equivalent to a 3.5 to 4 star rating under the Nationwide House Energy Rating Scheme (NHERS) (www.nathers.gov.au) which has a maximum rating of 10 stars. Following the implementation of the provisions, some states indicated that they wanted to increase the stringency of the provisions. As such, provisions were developed by the ABCB to increase the nominal level of energy efficiency equivalent to 5 stars under NATHERS. Enhanced housing provisions were introduced in 2006. The most significant changes were made to the provisions on building fabric and external glazing.

In April 2009, COAG requested that the ABCB develop more stringent provisions to allow for a 6 star home rating to be included in the 2010 BCA. The new proposals were subject to a regulatory impact assessment (cost-benefit analysis) and found to be cost effective. As well as enhanced provisions for the thermal shell of residential buildings, the new residential standards include requirements for hot water and lighting. The 2010 BCA energy efficiency provisions for residential and commercial buildings were agreed by the states and territories for adoption from 1 May 2010.

e) Financial resources and budget allocation

The NCC is regularly reviewed as part of the work of the ABCB.

f) Expected results

Reduction in energy consumption, predominantly associated with thermal comfort, lighting and hot water in new residential and commercial buildings, i.e. heating and cooling energy consumption.

2.2.3. Fuel Efficiency Labelling

a) Name

Fuel consumption labelling standard (ADR81/02) and fuel consumption label.

b) Purpose

Mandated fuel consumption labelling to enable new car purchasers to compare vehicles on a common basis and incorporate vehicle fuel use in their decision making.

More information can be found at

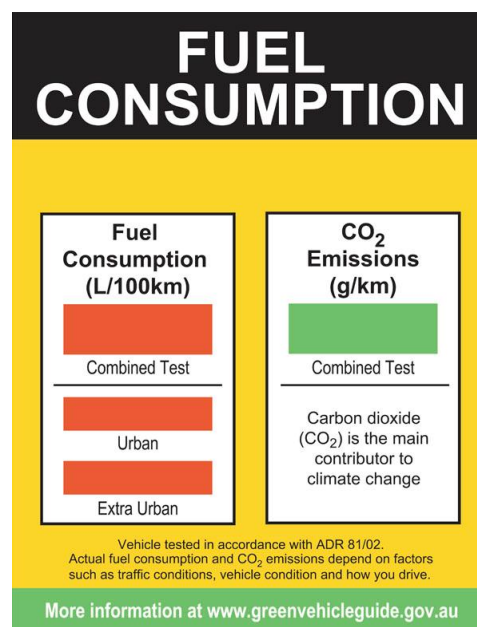
<http://www.greenvehicleguide.gov.au/GVGPublicUI/Information.aspx?type=FuelConsumptionLabel>.

c) Applicable sectors

Transport.

d) Outline

The fuel consumption labelling standard was introduced in 2004 (ADR81/01) and was subsequently updated in 2008 (ADR81/02). The standard requires all new vehicles up to 3.5 tonnes (which includes passenger cars, four wheel drive vehicles and light commercial vehicles) to display a model-specific removable fuel consumption label on the front windscreen.



The label indicates the fuel used (in litres) to travel 100 kilometres and the amount of CO₂ emissions (in grams) the vehicle emits for each kilometre travelled. The updated version of the label that took effect from October 2008 also displays figures for urban and extra-urban usage. The lower the numbers, the better the fuel efficiency and emissions of the vehicle.

In 2010, a revised version of the fuel consumption label was developed for ADR81/02 to suit electric vehicles and plug-in hybrids. The new label uses the same format as the existing label, but recasts it as an Energy Consumption label, so as to enable the listing of the test results for energy consumption and range on the vehicle. The label includes fuel consumption and CO₂ emissions boxes as well, with pure electric vehicles displaying 0 and plug-in hybrids displaying the results from testing. A cross reference to the Green Vehicle Guide website (www.greenvehicleguide.gov.au) is provided to address the potential for CO₂ emissions from recharging.

Further measures are being developed under the NSEE.

e) Financial resources and budget allocation

No information available.

f) Expected results

No information available.

2.2.4. CO₂ Emissions Standards for Light Vehicles

a) Name

Mandatory CO₂ Emissions Standards for Light Vehicles.

b) Purpose

The aim of the proposed standards is to reduce CO₂ emissions from new light vehicles, commencing in 2015.

c) Applicable sectors

Transport (new light vehicles only).

d) Outline

The Australian Government has a commitment to introduce legislation which would set CO₂ emissions targets from 2015 covering the new light vehicle fleet. The targets will be determined following consultation with industry and other key stakeholders. The consultation process is underway.

e) Financial resources and budget allocation

No information available.

f) Expected Results

The aim is to deliver emissions reductions greater than that expected under business as usual outcomes.

2.3. Voluntary Measures

Australia has a number of voluntary initiatives for improving energy efficiency. For example, the Australia Energy Star provides an international standard for energy efficient office equipment, including computers, printers and photocopiers, and home electronics, including televisions, audio products and DVD players. Products that display the Energy Star label have energy saving features enabled. See www.energystar.gov.au/ for more details.

A number of other projects have been developed with the support of the Australian government such as:

- WERS - Window Energy Rating Scheme

- EDG - Environmental Design Guides
- Building Design Association of Australia (BDAA) Marketing Sustainable Design Workshops
- Australian Council of Building Design Professions (BDP) Making Energy Pay
- Housing Industry Association (HIA) Greensmart Professional Accreditation Course
- Master Builders Association (MBA) Energy Wise - Dollar Wise Training Course
- Lighting Best Practice Project
- WELS - Water Efficiency Labelling and Standards.

2.4. Financial Measures Taken by the Government

2.4.1. Tax Measures

Expenditure on capital equipment, which may improve energy efficiency, is generally deductible under capital allowance provisions.

2.4.2. Low-Interest Loans

Clean Energy Finance Corporation

The new \$10 billion Clean Energy Finance Corporation is independent from the Australian Government. It will invest in the commercialisation and deployment of renewable energy, low-pollution and energy efficiency technologies as well as manufacturing businesses that provide inputs for these sectors. Investments will be divided into two streams, a renewable energy stream and a clean energy stream, each with half of the allocated funding. This program does not include investment in carbon capture and storage (CCS) which is already catered for through a number of other programs such as the Global CCS Institute and the CCS Flagships program. The Clean Energy Finance Corporation (CEFC) will integrate the work of Low Carbon Australia, which had worked to promote innovative financing and other energy efficiency approaches, mostly in the commercial sector.

2.4.3. Subsidies and Budgetary Measures

There are a number of budgetary measures for energy efficiency improvement programs at the federal and state levels. One example is provided below.

a) Name

Low Carbon Communities.

b) Purpose

Low Carbon Communities, comprised of three main programs, the Community Energy Efficiency Program, the Low Income Energy Efficiency Program and the Local Government Energy Efficiency Program, provides AUD 200 million in grants to support local councils and operators of community facilities to implement energy efficient upgrades. It also supports low income households in trials of energy efficiency approaches and to find more sustainable ways to manage their energy consumption. All of these programs also increase information on the effectiveness of various technologies and policy approaches.

c) Applicable sectors

Local government, community, sport and recreation, low income households.

d) Outline

The Community Energy Efficiency Program (CEEP) is providing \$112 million in grants to 170 local governments and non-profit community groups for energy efficiency upgrades. These grants will improve the energy efficiency and amenity of council and community use buildings and facilities, particularly where this would benefit low socio-economic and other disadvantaged communities or support energy efficiency in regional and rural councils. For

local government and non-profit community organisations, this includes council buildings such as town halls, chambers, libraries and administration buildings; council facilities such as bores, depots and sewerage treatment centres; community buildings such as museums, theatres, libraries, hubs and arts centres; as well as sporting and recreation facilities, aquatic and leisure centres, parks, ovals and reserves. Projects under the CEEP may consist of the installation or upgrade of energy efficiency technologies including cogeneration, tri-generation and geothermal heating; street lighting, indoor and outdoor lighting; heating, ventilation and air conditioning (HVAC), draught sealing, double glazed windows, insulation, solar hot water systems, building management systems and variable speed drives.

The Low Income Energy Efficiency Program (LIEEP) is a competitive merit-based grant program to provide grants to consortia of government, business and community organisations to trial approaches to improve the energy efficiency of low income households and enable them to better manage their energy use.

The Local Government Energy Efficiency Program (LGEEP) is a \$24 million non-competitive grant program that will assist local governing authorities (LGAs) install solar and heat pump hot water systems to drive smarter energy use in their buildings and community facilities. Grants are available to all LGAs in Australia, with the grant amount varying by the size of the LGA. If an LGA is classified to be in the lowest half of the SEIFA 2006 Index of Relative Socio-economic Disadvantage, additional funding and lower co-funding percentages are applicable.

e) **Expected results**

The Government's objective is to support local councils, communities and households to reduce emissions and energy costs by stimulating investment in energy efficient upgrades. Funded projects will also act as information hubs to motivate communities to take other actions to improve their energy efficiency.

The objectives of the CEEP are to: support a range of local councils and community organisations to increase the energy efficiency of different types of non-residential council and community-use buildings, facilities and lighting; particularly where this would benefit low socio-economic and other disadvantaged communities or support energy efficiency in regional and rural councils, and demonstrate and encourage the adoption of improved energy management practices within councils, organisations and the broader community.

The objectives of the LIEEP are to: trial and evaluate a number of different approaches in various locations that assist low income households to be more energy efficient; and, capture and analyse data and information to inform future energy efficiency policy and program approaches.

The objective of LGEEP's objective is to support LGAs to install energy efficient solar and heat pump hot water systems in their buildings and community facilities, particularly where those LGAs are situated in low socio-economic or otherwise disadvantaged areas.

2.4.4. **Other Incentives**

The Australian Government provides a number of rebates to improve energy efficiency in the agriculture, transport, residential, commercial, power and government sectors.

For a detailed description of Australian rebates for individuals refer to:

<http://www.livinggreener.gov.au/rebates-assistance> and for businesses refer to:

<http://www.business.gov.au/BusinessTopics/Grantsandassistance/Pages/default.aspx>.

2.5. **Energy Pricing**

The Australian Government in conjunction with state and territory governments through SCER implemented the National Energy Customer Framework (NECF) to regulate the sale and supply of energy (both electricity and gas) to retail customers on 1 July 2012. The NECF commenced operation in Tasmania and the ACT on 1 July 2012, South Australia on

1 February 2013 and New South Wales on 1 July 2013. Queensland has recently announced it will introduce the NECF early to mid-2014. It is expected to be implemented in other participating jurisdictions as soon as practical. The adoption of the NECF will streamline the regulation of energy distribution and energy retail functions (except price regulation) under a national framework, creating efficiencies and including appropriate consumer protection.

States and territory governments apply price regulation to retail energy everywhere except Victoria (deregulation from 1 January 2009) and South Australia (deregulation from 1 February 2013).

2.6. Other Efforts for Energy Efficiency Improvements

2.6.1 Energy Efficiency in Government Operations Policy 2006

This policy aims to improve the energy efficiency of Australian government operations with particular emphasis on building energy efficiency. It commits to a progressive improvement of overall agency energy performance through minimum efficiency requirements and regular energy reporting.

A key objective of the policy is for Government office buildings to achieve specific energy efficiency targets by 2011-12. Progress towards targets is tracked on an annual basis, showing that the target for tenant light and power has been achieved overall, while the target for Central services has not been achieved.

A major component of the policy is the Green Lease Schedule (GLS), through which Australian Government tenants and their building owners commit to working collaboratively to maintain and maximise the energy efficiency of the building. The GLS management framework enables agencies to incorporate required energy efficiency standards into their leases and other procurement activities.

2.6.2 Cooperation with Non-Government Organisations

The government cooperates with non-government organisations to stimulate energy efficiency improvements as appropriate.

2.6.3 Cooperation through Bilateral, Regional and Multilateral Schemes

Australia is a member of the International Energy Agency and is involved in various working groups, including the Energy Efficiency Working Party. It is involved in discussions relating to better data collection and development of energy efficiency indicators.

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.

Founded in May 2009, IPEEC is a voluntary forum of developed and developing countries that represent the major economies of the world. As of June 2013, IPEEC members include Australia, Brazil, Canada, China, the European Union, France, Germany, India, Italy, Japan, Mexico, Russia, South Korea, United Kingdom and USA.

Relevant international standards are taken into account in the development of Australian MEPS.

2.6.4 Other Cooperation/Efforts for Energy Efficiency Improvements

The Australian Government is committed to engaging with the business sector and providing support to new technologies through public-private partnerships including the \$10 billion CEFC. The objective of the CEFC is to overcome capital market barriers that hinder the financing, commercialisation and deployment of commercially orientated energy efficiency, renewable and low emissions technology.

The CEFC has built on the success of Low Carbon Australia Limited (LCAL), formally the Australian Carbon Trust which provided over \$100 million in funding to promote investment in energy efficiency and building retrofits. Concurrent with the commencement of operation of the CEFC, in July 2013 the merge of LCAL with the CEFC commenced. The merge allows the CEFC to leverage off the systems and expertise of LCAL while providing certainty and the efficient delivery of financial support to the market.

The National Carbon Offset Standard (NCOS), which was introduced by the Government on 1 July 2010, will be administered by the Department of Industry, Innovation, Climate Change, Science, Research and Tertiary Education as a result of the LCAL/CEFC merge. The NCOS Carbon Neutral Program is a voluntary scheme which certifies products or organisations as carbon neutral and provides a trade mark for participants to use to promote their carbon neutral status. This helps consumers and businesses trust such claims and so give them another way to take effective action on climate change and energy efficiency.