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Country profiles on policies to support environment-friendly innovation

Eco-Innovation Policies in Australia

Xavier Leflaive

Environment Directorate

FOREWORD

The report is part of a series of country profiles on eco-innovation policies developed for eight non-EU OECD members: Australia, Canada, Japan, Korea, Mexico, New Zealand, Turkey and the US. Country profiles are based on extensive desk research and on field missions in selected countries (Canada, Japan, Korea, the US). Country experts have commented earlier drafts of their country profile.

This series complements the eco-innovation roadmaps developed by EU member countries under the Environmental Technology Action Plan. It provides an empirical basis for further investigation on policies to support eco-innovation.

A short introduction presents the background for this series of country profiles, including the methodology, and a brief overview of some of the instruments identified.

The country profiles were drafted by Xavier Leflaive, under the supervision of Brendan Gillespie. Carla Bertuzzi has provided data and information on measurement issues and has drafted selected sections. IEEP was commissioned for the initial desk research and preliminary identification of policy issues. Country experts have provided most valuable inputs, in terms of time, information and policy relevance: Warren Hughes (Department of the Environment, Water, Heritage and the Arts, Australia), Javier A. Gracia-Garza (Environment Canada), Graham Campbell (Natural Resources Canada), Tim Karlsson (Industry Canada), Noriko Kishimoto (Ministry of the Environment, Japan), Kyu-Shik Park (Ministry of Environment, Republic of Korea), Carlos Muñoz Villarreal (Ministry of Environment and Natural Resources, Mexico), Vera Power and Alison Stringer (Ministry for the Environment, New Zealand), David Widawsky (USEPA), Sebahattin Dokmeci (Ministry of Environment and Forestry, Turkey).

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INTRODUCTION

Background

This report is part of the OECD work programme on eco-innovation policies.

The ambition of this report is to provide an empirical inventory of policies in place in Australia to promote eco-innovation. Considering that European countries had developed roadmaps for eco-innovation policies in the context of the European Commission Environmental Technology Action Plan (ETAP), the secretariat prepared an inventory of eco-innovation policies in eight non-EU OECD countries (Australia, Canada, Japan, Korea, Mexico, New Zealand, Turkey and the US). A similar project for China is published separately.

The objective of this work is to complement the knowledge base on eco-innovation policies in OECD countries and to provide empirical material for additional research on policy issues related to eco-innovation. The outline of each country profile is similar to that of ETAP roadmap, to facilitate comparison.

The work was implemented in coordination with country delegations, which have identified experts in each country who could provide additional information and review initial drafts of the country profile of their country.

A consultant (IEEP, Brussels, Belgium) has been commissioned to collect all information publicly available in English on eco-innovation policies in each of the eight non-EU OECD members. Field missions have been organised by the country experts in four countries (Canada, Japan, Korea, the US). During these missions, the secretariat met with the agencies identified and selected by the country expert. Draft country profiles have been developed on the basis of desk research and field missions. They have been reviewed by national experts and revised accordingly. All country profiles present information which was up-to-date at the end of 2007. In most cases, more recent information has been taken into account.

Policy instruments to support eco-innovation

The country profiles confirm that eco-innovation policies deploy a variety of instruments. They have to adjust to the features of the domestic economy, in particular the knowledge base, the size of domestic markets, and the *vigueur* of the venture capital industry.

In most non-EU OECD countries, public research and development (R&D) remains a major orientation. The US and Japan typically allocate significant public finance to environment-related R&D. However, three trends have emerged: i) some countries are concerned by the competition and trade issues related to such support; ii) public resources are increasingly channelled via Departments not directly in charge of environment policies (Energy, Agriculture, Transport), making inter-agency cooperation even more necessary; iii) the role of research organisations is being redefined, to intensify

linkages with the private sector and stimulate the development of marketable outputs; incubators in the US, or the National Institute of Advanced Industrial Science and Technology's (AIST) Technology Licensing Office in Japan illustrate innovative arrangements in this area.

Attracting private funds to finance environmental R&D is another major policy orientation. The main issue is to reduce risks for private investors investing in environmental R&D projects, while making sure that public money is used effectively and does not crowd out private initiatives. A variety of funds have been established to reduce risks to private investors (e.g. Sustainable Technology Development Canada-SDTC in Canada), or incubators (e.g. The Clean Energy Alliance in the US, Environmental Technology Business Incubator in Korea). Measures are taken to stimulate the venture capital industry and to provide incentives for environment-related projects; e.g. this is the role of the Environmental Venture Fund in Korea.

Environment-related performance standards are being set with the aim of stimulating innovation in goods and services. Such standards are pursued in particular in the field of energy and resource efficiency. However, standards may provide disincentives and can only have a lasting positive effect on innovation if they are timely revised. Schemes such as the Top Runner programme in Japan aim to address this challenge.

Market-based instruments are burgeoning in non-EU OECD Countries. A number of new projects and initiatives have been identified at national or local level. One interesting case is the all-encompassing Emission Trading Scheme envisioned in New Zealand, where equitable sharing of responsibility across sectors and stakeholders is based on the principle of equity across sectors.

There is some evidence that, besides environmental policy instruments and regulation, soft instruments such as voluntary commitments, eco-audits and eco-labels play a role as determinants of innovative behaviour in firms. Voluntary initiatives can become mandatory over time (cf. Stand-by Korea). Industry initiatives abound and, in particular contexts, can change the relationship between the administration in charge of environment policies and the business sector. This is illustrated by Performance Tracks in the US, where the US Environmental Protection Agency (USEPA) and firms enrolled in the programme construct a collaborative relationship. This typifies what can be seen as a new phase in environmental policies which sets out to promote broader sustainability, rather than address one single environmental issue. In that perspective, governments rely less on regulatory tools and endeavour to work with industries, in sectors which use materials and/or energy.

In line with the OECD Council Recommendation on Improving the Environmental Performance of Public Procurement [C(2002)3], green procurement initiatives are burgeoning at local and national levels. Guidelines are supported by websites, green products databases, and *pro forma* requests for tenders. The Green Purchasing Network is an international network active in this area.

Some initiatives set out to promote technologies and products developed by one country. Others try to alleviate barriers to the deployment of environment-friendly technologies and products; shared definitions, standards and labels contribute to a level playing field for the creation and diffusion of environment-friendly technologies, products and life-styles. Such efforts are still plagued by institutional problems related to intellectual property rights and international monetary transfers. Typically, the capacity of a national agency to (financially) support one country's side of a multinational joint venture depends on how countries will share the intellectual property rights. Few cooperation projects reach developing countries (with the exception of East Asia, and China in particular).

COUNTRY PROFILE OF AUSTRALIA

Introduction and country definitions of eco-innovation

Definitions related to eco-innovation used in the Country

Two definitions have been found from Australian institutions, which both refer cleaner production and consumption.

The Victorian Eco-Innovation Lab, when referring to eco-innovation, states that[1]: "We need a paradigm shift in the way that we think about systems of production and consumption, and about quality of life and prosperity. This is what we mean by eco-innovation."

According to Banksia, the Australian environmental Foundation that awards eco-innovation projects, eco-innovation refers to[2]:

- Eco Efficiency, defined as producing more goods and services with less energy and fewer natural resource;
- Cleaner Production, seen a strategy to continuously reduce pollution and waste at the source; and
- Eco-Design, i.e. the re-design of a product or process to reduce its environmental impacts all along its life-cycle.

Institutions playing a major role on eco-innovation

The information provided in this report is mainly based on initiatives taken by the following institutions.

Department of the Environment and Water Resources

The Australian Department of the Environment and Water Resources develops and implements national policies, programmes and legislation to protect and conserve Australia's natural environment and cultural heritage. Some initiatives are related to environment and innovation. (http://www.environment.gov.au/index.html).

The Australian Greenhouse Office (AGO) is part of the Department of the Environment and Water Resources. It delivers the majority of programmes under the Australian Government's climate change strategy. (http://www.greenhouse.gov.au/).

[1] http://www.ecoinnovationlab.com/pages/about.php

2 http://www.banksiafdn.com/index.php?page=242

Department of Industry, Tourism and Resources

The Department of Industry, Tourism and Resources aims to encourage growth and sustainability of Australian industries through innovation, investment and international competitiveness. (http://www.industry.gov.au/)

Office of the Renewable Energy Regulator (ORER)

The ORER is a statutory authority established to oversee the implementation of the Australian Government's mandatory renewable energy target (MRET).

http://www.orer.gov.au/about/index.html

Good Environmental Choice Australia (GECA)

GECA Ltd. (previously known as the Australian Environmental Labelling Association) delivers Australia's national eco-labelling programme, and aims to: provide incentives for suppliers to reduce the environmental impacts of products sold in Australia; provide guidance to consumers and encourage them to purchase green products; recognise genuine moves by companies to reduce the adverse environmental impacts of their products; and improve the quality of the environment and encourage the sustainable management of resources.

http://www.geca.org.au/AELAobjectives.htm

Victorian Eco Innovation Lab (VEIL)

VEIL is a think tank funded by the Victorian government through the Victorian Sustainability Fund as part of the government's Sustainability Action Statement (2006). VEIL is a project of the Australian Centre for Science Innovation and Society at the University of Melbourne. Its aim is to 'change the landscape of expectations of a sustainable future' and 'open-up the eco-innovation space in the Victorian economy'. Among its activities, VEIL carries on interdisciplinary research, tests innovative products and influences investment and social choices to expand the market for eco-innovation. (http://www.ecoinnovationlab.com/)

Banksia Environmental Foundation

The Banksia Environmental Foundation, established in 1989, is a national not-for-profit organisation that promotes environmental excellence and sustainability through awards programme and other associated events. (http://www.banksiafdn.com/index.php)

Policy documents related to eco-innovation

Australia's Climate Change Policy (2007)

Australia's climate change policy framework promotes, among other initiatives, the development of low emissions technologies and the improvement of energy efficiency.

http://www.pmc.gov.au/publications/climate_policy/index.cfm

National Climate Change Adaptation Framework (2006)

The Framework aims to address key demands from business and the community for targeted information on climate change impacts. A key focus is to help decision makers understand and incorporate climate change into policy and operational decisions. The Framework mentions, among other tools, new adaptation technologies.

http://www.coag.gov.au/meetings/130407/docs/national_climate_change_adaption_framework.pdf

Energy White Paper Securing Australia's Energy Future (2004)

The document establishes a long term policy framework for Australian energy. It includes a range of initiatives to fund environmental technology (e.g. GHG reduction technologies, Solar Cities, energy efficiency assessment, etc.)

http://www.dpmc.gov.au/publications/energy_future/index.htm

The Australian National Research Priorities

The Priorities were announced in 2002, and referred to *an environmentally sustainable Australia*. Core objectives include:

- Transforming existing industries; this requires new technologies for resource-based industries to deliver substantial increases in national wealth while minimising environmental impacts on land and sea; and

- Reducing and capturing emissions in transport and energy generation, via alternative transport technologies, clean combustion and efficient new power generation systems, and capture and sequestration of carbon dioxide.

http://www.dest.gov.au/sectors/research_sector/policies_issues_reviews/key_issues/national_research_priorities/

Policies, initiatives and instruments – a national inventory

Given the high number of Australian initiatives on eco-innovation, the report provides some insights on selected instruments, focusing on the most recent national policies, plans and projects. Some examples of regional/local initiatives are provided as well.

Research and Development

Backing Australia's Ability

The programme, announced in 2004, consisted of an AUS$5.3 billion package of funding for science and innovation. The package builds on an initial investment of AUS$3 billion over five years to 2005-06[3]. Overall, the two packages constitute an investment of AUS$8.3 billion over 10 years to 2010-11, and bring the Government's total commitment to science and innovation over the period to about AUS$52 billion. The programme is designed to: strengthen Australia's ability to generate ideas and undertake research; accelerate the commercialisation of ideas; and develop and retain scientific skills. The programme covers environmental innovation.

For instance, the Government has committed $305 million over seven years (from July 2004 onwards) to the *Commonwealth Scientific and Industrial Research Organisation (CSIRO)* National Flagships Initiative. Flagships are large-scale collaborative partnerships which link CSIRO with organisations across Australia to research areas of national need, including 'Water for a Healthy Country' (to achieve a tenfold increase in the social, economic and environmental benefits from water by 2025) and 'Energy Transformed' (to halve greenhouse gas emissions and double the efficiency of the nation's new energy generation, supply and end use, and to position Australia for a future hydrogen economy).

More details on other initiatives and single projects can be found at http://backingaus.innovation.gov.au/.

Renewable Energy Development Initiative (REDI)

REDI was a programme launched in 2004 supporting renewable energy innovation and commercialisation. It provided grant funding up to AUS$100 million in competitive grants to Australian businesses over seven years for research and development (R&D), proof-of-concept, and early-stage commercialisation projects with high commercial and greenhouse gas abatement potential. This programme ceased funding new projects in January 2008. Projects with contracts in place before this will continue until completion.

See: http://www.ausindustry.gov.au/content/level3index.cfm?ObjectID=B7C70A4B-E588-40C9-AD6542408BFD1AAB&L2Parent=AEB901E5-7CB8-4143-A3BF33B2423F9DA6

Performance Targets

The most relevant performance targets in Australia include:

- Mandatory Renewable Energy Target;
- Green Power Scheme;
- Building Code Australia (BCA);
- National Average Fuel Consumption (NAFC) target;
- Green light Australia.

[3] Backing Australia's Ability - An Innovation Action Plan for the Future

Mandatory Renewable Energy Target (MRET) and Clean Energy Target (CET)

The aim of the renewable energy target is to increase the production of renewable energy: all electricity retailers and wholesale buyers have a legal liability to contribute towards the generation of additional renewable energy. They meet their legal obligation by acquiring renewable energy certificates (REC); certificates can be traded in the REC market, at market price. The Australian Government is committed to reach 9,500GWh of renewable energy by 2010.

Furthermore, in 2007 the Australian Government introduced a comprehensive renewable and low-emission energy target, which builds on the market-based framework of the MRET. The new national Clean Energy Target (CET) will be 30,000 gigawatt hours of low-emissions energy generation by 2020[4].

Achievements: the MRET has stimulated AUS$3.5 billion of investment in renewable energy technologies since its introduction in 2001. See: http://www.greenhouse.gov.au/markets/mret/

Green Power Scheme

GreenPower is a national accreditation programme established in 1997, which sets stringent environmental and reporting standards for renewable electricity products offered by energy suppliers to households and businesses across Australia. It aims to increase Australia's capacity to produce environmentally friendly renewable electricity by driving demand for alternative energy generation.

See: www.greenpower.com.au

Achievements: since 1997 more than 590,000 customers bought Green Power, resulting in savings of nearly 4.2 million tonnes of GHG emissions.

Building Code Australia (BCA)

BCA is managed by the Australian Building Codes Board (ABCB, www.abcb.gov.au) on behalf of the Australian Government and State and Territory Governments. Its goal is to enable the achievement of minimum necessary standards of relevant health, safety, amenity and sustainability objectives efficiently. The BCA was revised in 2006 to include new Minimum Energy Performance Standards (MEPS) for all classes of buildings.

The Australian government has agreed to implement a consistent Nation-wide House Energy Rating Scheme (NatHERS - http://www.nathers.gov.au/) to enable households to improve the energy efficiency of their homes and to make more informed choices about housing purchases and renovation.

National Average Fuel Consumption (NAFC) target

In 2003, the Government reached agreement with the automotive industry to progressively reduce carbon dioxide emissions and fuel consumption of new passenger cars and other light vehicles supplied to the Australian market.

The Federal Chamber of Automotive Industries (FCAI) has adopted a Voluntary Code of Practice which includes a target reduction for national average fuel consumption (NAF) for new petrol fuelled

4 http://www.environment.gov.au/minister/env/2007/pubs/mr24sep07.pdf

passenger cars of 6.8 litres per 100 kilometres by 2010, and appropriate targets in greenhouse gases emission reductions for other new light vehicles by 2010.

See: http://www.autoindustries.com.au/code_reducing_fuel.php

Achievements: this is expected to represent an 18% improvement in the fuel efficiency of new vehicles between 2002 and 2010[5].

Greenlight Australia

Greenlight Australia provides a framework for reducing energy consumption from Australian lighting over the ten-year period, following a 2005 commitment of the Australian governments and the Australian lighting industry to reduce the energy consumption of lighting by 20% by 2015. http://www.energyrating.gov.au/library/pubs/200418-greenlight.pdf

Mobilisation of Financing

In addition to the public budget allocated to R&D mentioned above, some important investment programmes exist at both national and local levels. Some cover the whole spectrum of environmental technologies (e.g. Advanced Electricity Storage Technologies), others are domain-specific (Australian Government Water Fund).

National Plan for Water Security

The Australian Government's $10 billion 10-year National Plan for Water Security aims to put rural water use on a sustainable footing. $5.9 billion have been allocated for modernising irrigation, of which $38.1 million is allocated for 2007-08. In particular, $1.5 billion will be spent for the On-Farm Irrigation Efficiency Programme. The funded pilot projects will help fine tune how best to stimulate private investment in efficient on-farm irrigation.

See: http://www.environment.gov.au/water/action/npws.html

Australian Government Water Fund

The Fund, run by the Australian Government, is a $2 billion programme over 2005-2010 funding water infrastructure, improved water management, and better practices in the stewardship of Australia's scarce water resources. The Fund supports field water projects that will improve Australia's water efficiency and environmental outcomes. The Fund comprises three programmes (see: http://www.nwc.gov.au/agwf/index.cfm):

- Water Smart Australia (AUS$ 200 million); it accelerates the development and uptake of smart technologies and practices in water use;
- Raising National Water Standards (AUS$ 1.6 billion from 2005 to 2010); it assists the development of the necessary tools for good water management;
- Community Water Grants programmes (AUS$ 200 million); it promotes community engagement, awareness and investment in saving and conserving water and encourages best practices.

5 http://www.greenhouse.gov.au/transport/env_strategy.html#nafc

Advanced Electricity Storage Technologies (AEST)

The 5 year, AUS$20.5 million programme was launched in June 2004 and is run by the Department of Resources, Energy and Tourism. The programme identifies and promotes strategically important storage technologies in order to increase the share of renewable energy-based electricity generation in the supply system.

See: http://www.ret.gov.au/ Advanced Electricity Storage Technologies

Achievements: By October 2008, five projects have been funded, for an overall investment of about AUS$18.5 million.

Low Emissions Technology Demonstration Fund

The AUS$410 million Fund supports the commercial demonstration of technologies that have the potential to deliver large-scale greenhouse gas emission reductions in the energy sector. It operates from 2005-06 to 2019-20.

Achievements: In 2006 the government committed AUS$ 60 million to develop the then-world's-largest carbon capture and storage (CCS) project in Western Australia.

See: http://www.ret.gov.au/Low Emissions Technology Demonstration Fund

Biofuel Capital Grants

The fund, run by the Department of Industry, Tourism and Resources, was launched in 2003. It provided one-off capital grants to projects providing new or expanded biofuels production capacity. The amount of each grant was calculated on the basis of 16 cents per litre of new or expected production capacity to be built. As of 2007, this program's funds had been entirely disbursed[6].

Local Greenhouse Action

Local Greenhouse Action is an AUS$13.8 million Australian Government initiative which assists local government, communities and individual households in reducing their greenhouse gas emissions, particularly in the areas of energy use, transport and waste. Introduced in May 2004, the measure builds on three initiatives: Cities for Climate Protection (CCP), Travel Demand Management, and Cool Communities.

The CCP programme has been funded by the Australian government for 11 years. CCP is primarily a capacity building programme, encouraging investigation and support for any activity with significant greenhouse gas abatement potential within council operations, the local community and local industry/commerce.CCP is internationally trademarked by the International Council for Local Environmental Initiatives (ICLEI) and has been delivered across Australia by ICLEI-Oceania.

See: http://www.environment.gov.au/settlements/local/ccp/index.html

Achievements: The CCP programme has engaged 233 local governments to work on emission reductions. Together, these councils represent 84% of Australia's population. Total emission

6 http://www.iea.org/Textbase/pm/?mode=re&id=2142&action=detail

reductions by councils over the life of the CCP programme from 1997 to 2008 exceed 18 million tons of CO2 equivalent[7].

Low Emissions Technology and Abatement (LETA)

LETA, launched in 2005, is a AUS$26.9 million measure run by the Australian GHG Office to reduce GHG emissions by supporting the identification and implementation of cost effective abatement opportunities and the uptake of small-scale low emission technologies in business, industry and local communities.

See: http://www.environment.gov.au/settlements/programs/leta/

Measures for a Better Environment

Measures for a Better Environment is a package of five greenhouse gas reduction programmes. It was initiated in 2000, for 4 years; some components have been extended. It is managed by AGO and covers a number of initiatives, including:

- *Solar Homes and Communities Plan (SHCP):* cash rebates are available to households, schools and owners of community buildings to install grid-connected or stand-alone photovoltaic systems. In 2007 the Government announced an AUS$150 million extension to the *Photovoltaic Rebate Programme* over 5 years, bringing the total investment to AUS$211.8 million.

  See: http://www.environment.gov.au/settlements/renewable/pv/index.html

- *Renewable Remote Power Generation Programme (RRPGP):* it provides financial support to increase the use of renewable generation in remote parts of Australia presently relying on fossil fuel for electricity supply. Around AUS$285 million will be available over the life of the RRPGP, extended until 2010-11.

  See: http://www.environment.gov.au/settlements/renewable/rrpgp/index.html

Renewable Energy Equity Fund (REEF)

Launched in 1997, REEF is a government initiative which provides venture capital for small innovative renewable energy companies. This includes companies which are commercialising or producing renewable energy technologies and services, providing there is an innovative development being commercialised. Investments are managed by CVC REEF Investment Managers Ltd.

See: http://www.environment.gov.au/settlements/renewable/reef/index.html

Solar Cities

Solar Cities is an AUS$94 million initiative launched in 2004 and implemented by the Department of the Environment, Water, Heritage and the Arts. It is designed to demonstrate how solar power, smart meters, energy efficiency and new approaches to electricity pricing can combine to provide a sustainable energy future in urban locations. The initiative will provide funding to support

7 http://www.greenhouse.gov.au/local/ccp/index.html

significant penetration of solar technologies and energy efficiency in seven urban areas: Adelaide, Townsville, Blacktown, Alice Springs, Central Victoria, Moreland and Perth.

See: http://www.environment.gov.au/settlements/solarcities/

Ethanol Distribution Programme

The Ethanol Distribution Programme was established by the Australian Government in 2006. The purpose is to increase the number of retail service stations selling 10 per cent ethanol blended petrol (E10); increase the volume of E10 sold; and encourage the sale of E10 at a lower price than regular unleaded petrol. The programme provides grants of up to AUS$20,000 for retail service stations to reduce the cost of installing or converting infrastructure to supply E10.

Example of regional funding: Launceston Clean Air Industry Programme

The programme is a AUS$1 million Australian Government initiative to improve air quality in the Launceston region. It started in July 2005 and ceases in June 2008. It is designed to assist eligible companies to reduce emissions of particles from their facilities through changes to technology or processes (for example, replacement of wood-fired boilers with gas boilers) or through the installation of pollution control equipment.

http://www.environment.gov.au/atmosphere/programs/launceston-caip/index.html

Market-based Instruments

Significant market-based instruments promoting eco-innovation in Australia include:

- Renewable Energy Certificates (RECs, see above),
- Solar Hot Water Rebates Programme,
- National Solar School Programme,
- Fuel Tax Reform,
- Emission trading.

Solar Hot Water Rebates Programme

Rebates of AUS$1,000 are available in eligible circumstances to install solar and heat pump hot water systems to replace electric storage hot water systems in existing privately owned homes. The rebate is offered for systems installed on, or after 18 July 2007 until March 2012. The overall cost of the measure is around AUS$225 million over five years.

See: http://www.environment.gov.au/settlements/renewable/solarhotwater/

National Solar School Programme (formally Green Vouchers for School Programme)

This programme will help primary and secondary schools around the country take practical action to save energy and water while cutting their utility bills. National Solar Schools offers grants to up to AUS$50,000 (GST exclusive) to install solar and other renewable power systems, solar hot water systems, rainwater tanks and a range of energy efficiency measures. The programme runs until 30 June 2015 and AUS$480.6 million will be allocated over 8 years.

See: http://www.environment.gov.au/settlements/renewable/nationalsolarschools/index.html

Fuel Tax Reform

In 2003, the Government introduced an excise tax on ethanol and biodiesel, accompanied by a subsidy that reduces the effective excise for a transitional period. These subsidies are progressively reduced, raising the effective excises for untaxed fuels from zero, before 2011, to their final rates in 2015. The reforms aim to establish a fairer and more transparent fuel excise system, and enable currently untaxed fuels to establish their commercial credentials in the marketplace.[8]

www.pmc.gov.au/publications/energy_future/index.htm#fuel_reform

Emission Trading

In 2007 Australian Government committed to introduce a 'cap and trade' emissions trading scheme (ETS), which will include:

- a long-term emissions abatement goal and an associated emissions pathway;
- the largest coverage of emission sources, compared to other ETS in the world;
- a system of permit allocation that compensates businesses that suffer a disproportionate loss in asset values; ameliorates the carbon-related exposures of existing and new investments in the trade exposed emissions intensive sector until key international competitors face similar constraints; allows for the auctioning of remaining permits; and provides abatement incentives;
- recognition of credible domestic and international carbon offsets; and
- capacity to link to other national and regional schemes.

8 http://www.iea.org/Textbase/pm/?mode=cc&id=1335&action=detail

Trading under the scheme should start in 2012. In 2008, following careful economic modelling, the government will announce a long term emission abatement goal.

See: http://www.pmc.gov.au/climate_change/emissions/index.cfm

Procurement

Australia is part of the *Green Purchasing Network*, an international network which aims to promote the spread of environmentally friendly products and services and green purchasing activities, share information and know-how internationally, and harmonise the efforts on green purchasing.

In addition, a number of initiatives are taken at national and regional level, including:

- Commonwealth Fleet Target
- Green Procurement website
- Local initatives (ECO-Buy, Buy Recycled Alliance).
- Local, national and international policies, regulations and guidelines

Commonwealth Fleet Target

In February 2003 the Government agreed on an environmental target covering approximately 8,000 vehicles within the Commonwealth Tied Contract Fleet based upon the Green Vehicle Guide rating scheme (see chapter 2.6 below). The target aims to increase the proportion of government vehicles with lower pollutant emissions from 18% to 28% by December 2005. The target will be reviewed in 2008[9].

Australian Green Procurement website

The website provides information on best practice Green Procurement research projects, offers a green products database and gives access to guidance materials helping draft terms of reference for green goods or services.

See: http://www.geca.org.au/green-procurement/home-welcome.htm

Local initiatives

According to the 2004 State of Green Procurement report, the progress in green procurement is mainly coming from individual councils and state municipal association. Two local initiatives are briefly described below.

ECO-Buy

ECO-Buy is the Victoria's local government green purchasing programme. It was initiated in 2002 and will last as a free service until 2009, to support the development of supply, demand and expertise. It works primarily with Victorian Councils to increase their purchasing of recycled,

9 http://www.greenhouse.gov.au/transport/env_strategy.html#nafc

greenhouse friendly, water saving, non-toxic and other green products[10]. It provides a range of free services to facilitate green public purchasing, including guidance documents, data bases, training, networking opportunities…

It is being extended to five states and to New Zealand.

See: http://www.ecobuy.org.au/

NSW Buy Recycled Alliance

The aim of the Local Government Buy Recycled Alliance is to encourage and assist local governments to purchasing products containing recycled material. It is a joint undertaking by the Local Government Association of New South Wales (NSW) and Shires Association of NSW, together with the Department of Environmental and Conservation (NSW)[11].

Awareness raising and training

Awareness raising and training programmes include voluntary agreements, labelling and other instruments, which can stimulate demand for eco-innovation.

Voluntary agreements

Voluntary Building Industry Initiatives Programme

The Programme of the Australian Greenhouse Office (AGO) assists the building industry in ensuring the energy-efficient practice of building and construction professionals. Projects developed with the support of the Government include:

- *Window Energy Rating Scheme (WERS)*: in 2001 the window and glazing industry, supported by the Commonwealth government, launched a system of energy performance labelling for window products. The scheme was designed to inform consumers and influence purchase decisions. See: http://www.wers.net/

- *Water Efficiency Labelling and Standards (WELS):* the scheme requires certain products to be registered and labelled on the basis of their water efficiency, in accordance with the standard set under the *Water Efficiency Labelling and Standards Act 2005*. The scheme became mandatory for certain products as of July 2006. See: http://www.waterrating.gov.au/

Generator Efficiency Standards

In 2000 Australia introduced a voluntary measure for fossil fuel electricity generators to reduce the greenhouse intensity of energy supply. The measure is implemented through legally-binding 5-year Deeds of Agreement between the Government and participating businesses. The standards are reviewed every five years.

[10] Good Environmental Choice Australia, 2004: *the State of Green Procurement in Australia*.

[11] Good Environmental Choice Australia, 2004: *the State of Green Procurement in Australia*

See: http://www.greenhouse.gov.au/ges/index.html

Greenhouse Challenge Plus

Greenhouse Challenge Plus enables Australian companies to form working partnerships with the Australian Government to improve energy efficiency and reduce greenhouse gas emissions. It builds on the Greenhouse Challenge programme, combining Greenhouse Friendly™ (http://www.greenhouse.gov.au/greenhousefriendly/index.html) and the Generator Efficiency Standards into a single industry programme.

Through *Greenhouse Challenge Plus*, the Australian Government enters into legally binding Deeds of Agreement with some fossil-fuelled power generating plants, to assess their operations and compare these with best practice bands for their technology classes and fuel types set out in the GES Technical Guidelines. The aim is to achieve movement towards best practice in the efficiency of fossil-fuelled electricity generation. (http://www.greenhouse.gov.au/ges/index.html)

Achievements: The City of Melbourne joined *Greenhouse Challenge Plus* in 2000. It reported 5,448t CO2-e of abatement in the 2002/2003 financial year (i.e. more than 28 per cent of the council's emissions). The city is now aiming for zero net emissions by 2020, through encouraging improvements in energy efficiency, the use of renewable energy and sequestration[12].

Labelling and rating schemes

Energy Rating Label and Minimum Energy Performance Standards

Certain electrical appliances (refrigerators and freezers, washers, air conditioners, etc.) supplied in Australia are requested to carry an approved energy label - the Energy Rating Label. Some appliances are requested to meet minimum energy efficiency levels as well (Minimum Energy Performance Standards - MEPS). A website allows consumers to compare the energy ratings and running costs of appliances. It is a joint initiative of Commonwealth, State, and Territory government agencies. The standards are developed in conjunction with New Zealand.

See: http://www.energyrating.gov.au/

Australian Building Greenhouse Rating (ABGR) scheme

The ABGR scheme, launched in 2001 and managed by the government, provides accredited assessments of the greenhouse intensity of office buildings by awarding a star rating on a scale of one to five. See: www.abgr.com.au/

Good Environmental Choice Label

The Good Environmental Choice Label, developed by Good Environmental Choice Australia, is an environmental labelling program which indicates the environmental performance of a product. The

12 http://www.greenhouse.gov.au/challenge/members/cityofmelbourne.html

label is awarded to products that meet voluntary environmental performance standards which have been created and assessed in conformance to international environmental labelling standards. See: http://www.geca.org.au/homefront.htm

Awards and other instruments

Energy Allstars

Energy Allstars provides consumers with an online database of the most energy efficient appliances and commercial and industrial equipment for sale in Australia.

See: http://www.energyallstars.gov.au/index.html

Green Vehicle Guide

The initiative, launched in 2004 and run by AGO and the Department of Transport and Regional Services, is an internet database providing information on the environmental performance of all new light vehicles supplied in Australia. The GVG provides also an overall environmental star rating reflecting air pollution and greenhouse gas emissions.

See: www.greenvehicleguide.gov.au

Your Home web site

'Your Home' web site is a suite of consumer and technical guide materials and tools developed to encourage the design, construction or renovation of homes to be comfortable, healthy and more environmentally sustainable.

See: http://www.greenhouse.gov.au/yourhome/about/index.htm

Sustainable House Day

The Sustainable House Day is a yearly event entering its 6th year of operation. Its aim is to showcase sustainable design in existing houses, to encourage visitors to adopt sustainable design features.

See: http://www.solarhouseday.com.au/

Top Energy Saving Award Winner (TESAW)

This is an award created by the Australian government to recognise the most efficient star rated products on the market. It applies to both electric and gas products that carry a star rating energy label. It aims to help consumers identify the most efficient products on the market.

See: www.energyrating.gov.au/tesaw-main.html

Banksia Eco Innovation Award

The prize is awarded for outstanding projects, practices and programs that result in significant increases in the efficiency of energy and materials usage and /or significant reduction in resource use, and/or significant reduction in waste generated, from a life-cycle perspective

http://www.banksiafdn.com/index.php?page=242

Acting Globally

Australian Government expenditure on international science and technology, excluding defence and industry-assistance measures, is estimated at AUS$211 million a year. This represents about 6 per cent of the Government's total science and technology expenditure, the same proportion as in the US. Several initiatives promote international collaboration in science and technology, though not specifically targeted to eco-innovation (e.g. the International Science Linkages Programme[13], or the Forum for European–Australian Science and Technology Cooperation[14]).

Bilateral Climate Action Initiatives (CAP) is an international initiative which explicitly refers to environment and technology or innovation.

Bilateral Climate Action Initiatives (CAP)

The Australian Greenhouse Office (AGO) has concluded bilateral climate change partnerships with China, the European Union, Japan, New Zealand, the United States, and South Africa, which provides market opportunities for greenhouse technologies, products and expertise from Australia, and broadens Australian participation in climate change action by encouraging direct involvement by industry, business, scientists and communities.

www.greenhouse.gov.au/ago/background/cap.html

Country Synthesis

Role of globalisation

Australian Government expenditure on international science and technology, is relatively high (AUS$211), although not specifically targeted on eco-innovation.

Bilateral climate action partnerships have been signed with a number of countries to promote market opportunities for greenhouse technologies, products and expertise.

Australia is planning to establish its own emission trading scheme, which is should have the capacity to link to other national and regional schemes.

Lessons

Many initiatives promoting environmental innovation are related to funding –financing not only the R&D phase, but more frequently the general implementation of projects. Many investments are focussed on energy efficiency, renewable energy and emissions reductions. Some funds are also earmarked to water management and technologies, since water scarcity is a burning issue in Australia.

There are also a large number of performance targets, many of which on energy efficiency. Important targets are especially the Mandatory Renewable Energy Target and the Clean Energy Target. A target on vehicle fuel efficiency was also agreed with the automotive industry.

13 http://cordis.europa.eu/erawatch/index.cfm?fuseaction=ri.content&countryCode=AU&topicID=373&parentID=4

14 http://www.feast.org/

Several initiatives are voluntary, like some of the performance targets (e.g. the Generators Efficiency Standards, the Voluntary Code of Practice in the context of the national Fuel Consumption Target, etc.). In addition to these, Australia proposes also a relatively large number of voluntary labels, such as on energy efficiency for electronic products, buildings, vehicle fuels etc.

Among the market based instruments available in Australia, one of the most noteworthy are the Renewable Energy Certificates, which aims to help achieve the national renewable energy target and are tradable. It will also be interesting to see the development of the Australian Emission Trading System, expected to be in place by 2012, and the potential linkages with the European system.

In addition to the national initiatives, there are also a number of regional/state initiatives targeted to local needs and projects – e.g. related to funding and to green procurement. At international level, Australia has concluded a number of bilateral climate change partnerships with developing and developed countries, including the EU.

In general, many initiatives in Australia are focused on promoting energy efficiency, either by setting standards, labels, funding or through awareness rising. Some interesting tools – in particular performance targets and labels - promote energy efficiency in buildings, while other are focussed on improving emission from products – like electrical appliances – and vehicle fuels.

Renewable Energy Development Initiative (REDI)

Mandatory Renewable Energy Target (MRET) and Clean Energy Target (CET)

Low Emissions Technology Demonstration Fund

Renewable Energy Equity Fund (REEF)

Bilateral Climate Action Initiatives (CAP)

Overview of policies and measures

In Australia, the ratio GERD (Gross Domestic Expenditures on Research and Development) over GDP has increased steadily from 1.5 in 1998/99 to 1.76% in 2004/05. As a comparison, his is roughly half the 3 percent target set for European countries by the Lisbon strategy. GERD in Australia reached AUS$16 billion in 2004-05.

The major sources of funds for R&D in 2004-05 were Business (52%) and the Commonwealth government (36%). Policy and funding are not centralised, but depend on Departments and agencies needs, and on States objectives and demands[15].

15 http://cordis.europa.eu/erawatch/index.cfm?fuseaction=ri.content&countryCode=AU&topicID=373&parentID=4

Appendices

Summary table

Actions	Initiatives
Research and Development	Backing Australia's Ability
Performance Targets	Mandatory Renewable Energy Target Building Code Australia (BCA) Australian Building Greenhouse Rating (ABGR) scheme National Average Fuel Consumption (NAFC) target Greenlight Australia Green Power Scheme Standards for Energy Efficiency of Electric Motor Systems (SEEEM) Generator Efficiency Standards Energy Rating Label and Minimum Energy Performance Standards Voluntary Building Industry Initiatives Programme Good Environmental Choice Label Fuel consumption label
Mobilisation of Financing	Advanced Electricity Storage Technologies (AEST) Australian Government Water Fund Biofuel Capital Grants Greenhouse Challenge Plus Local Greenhouse Action Low Emissions Technology and Abatement (LETA) Low Emissions Technology Demonstration Fund Measures for a Better Environment (5 programmes) National Plan for Water Security Renewable Energy Development Initiative (REDI) Renewable Energy Industry Development (REID) Renewable Energy Equity Fund (REEF) Solar Cities Wind Forecasting Capability Ethanol Distribution Program Launceston Clean Air Industry Programme Renewable Energy Funding Package for Victoria
Market-based Instruments and State Aid actions	Renewable Energy Certificates (RECs) Solar Hot Water Rebates National Solar School Programme Fuel Tax Reform
Procurement	Commonwealth Fleet Target Australian Green Procurement website ECO-Buy NSW Buy Recycled Alliance Local, national and international policies, regulations and guidelines
Awareness Rising and Training	Energy Allstars Green Vehicle Guide Your Home web site Sustainable House Day Top Energy Saving Award Winner (TESAW) Banksia Eco Innovation Award
Acting Globally	Bilateral Climate Action Initiatives (CAP) Invest Australia
Others	Emission Trading Legislation related to renewable energy Ban of Incandescent Lightbulbs Ten-year Strategy for Fuel Switching to Natural Gas Ethanol Distribution Program

Eco-industries and innovation

According to the Australian Bureau of Statistics (ABS), the size of the environment industry in 1999-2000 was about AUS$16,700 million, of which almost AUS$1,500 millions coming from cleaner/more efficient technologies and products (see Table 1 below).

Table 1. Estimated distribution of Australian environment industry activities

1999-2000, AUS$m

Environment Industry activities	Production of equipment & materials	Provision of services	Construction & installation of facilities	Total
Pollution Management - of which	3,157	8,168	2,896	14,221
Air pollution control	20	51	18	89
Water & Wastewater management (a)	1,462	3,783	1,341	6,587
Solid waste management	724	1,874	664	3,262
Remediation/Clean-up of soil & water	220	568	201	989
Other services	288	745	264	1,297
Other (Biodiversity & Landscape)	443	1,147	407	1,997
Cleaner & More Efficient Technologies & Products	1 163	0	297	1,461
Resource Management (b)	719	97	208	1,024
TOTAL	5 039	8 264	3 402	16,706

Notes: Based on growth from 1995-96 to 1996-97

(a) Combined water supply and wastewater management

(b) Includes renewable energy industry only.

Source : Compiled from *ABS* 4603.0 and other sources. CSES analysis (from http://www.environment.gov.au/soe/2006/publications/emerging/industry/index.html)

References

Direct links related to each initiative and programmes are noted in the text. Additional sources of information and contact details are listed below:

European Commission, 2006: *ERAWATCH Research Inventory Report for Australia*

http://cordis.europa.eu/erawatch/index.cfm?fuseaction=ri.content&countryCode=AU&topicID=373&parentID=4

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