

NSW GREEN SKILLS STRATEGY IMPLEMENTATION PLAN 2008-2010



State Training Services



TABLE OF CONTENTS

1. INTRODUCTION	3
2. RATIONALE	3
3. PARTNERS	4
4. INDUSTRY PRIORITIES	5
5. FIVE STRATEGY ELEMENTS	6
6. SCOPE	8
7. INDUSTRIES, ENVIRONMENTAL ISSUES, STRATEGIES AND UNITS OF COMPETENCE	9
8. EVALUATION	44
APPENDIX 1. NSW GOVERNMENT INITIATIVES TO IMPROVE ENVIRONMENTAL OUTCOMES AND ADDRESS CLIMATE CHANGE .	45
APPENDIX 2: REFERENCES AND NOTES	48

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1. INTRODUCTION

The aim of the NSW Green Skills Strategy is to help develop the workforce skills necessary for the efficient operation and growth of NSW industry in an environmentally constrained world. All businesses in NSW are experiencing pressures for change as a result of global warming and other environmental challenges. The NSW Green Skills Strategy will help businesses and communities tackle these challenges and support the transition to a lower carbon and more sustainable society.

The Strategy complements other NSW Government action on the environment, including the targets set out under the NSW State Plan's *Environment for Living* priorities and the measures included in the *NSW Climate Action Plan* currently under development. In education, it complements programs to develop sustainable schools, a range of community and professional education activities, the *Learning for Sustainability 2007-2010* Environmental Education Plan and TAFE NSW's *Education for Sustainability* Plan. The Department of Environment and Climate Change and the NSW Board of Vocational Education and Training are partners in the Department of Education and Training's *Green Skills Strategy*.

This Implementation Plan is a working document and is designed to both plan and monitor the progress in implementing the NSW Green Skills Strategy. The separate strands of the Strategy will each have a more detailed project plan to guide their implementation and evaluation.

The Department of Education and Training is conscious that while there is a myriad of directions relevant to green workforce development, it is difficult to identify the most pressing priorities and biggest gaps in our educational response. The authors of a recent CSIRO/Dusseldorp Foundation report recently observed that "...current information [in Australia] on green skills and workforce capabilities is very poor" (2008:18). It is hoped that through direct engagement and practical projects this Strategy will help build the knowledge base in this critical area.

2. RATIONALE

The need to reduce the environmental impact of production and minimise resource use is a major challenge facing the business world. The consequences of global warming are far reaching. It has been predicted that rainfall for most areas of southern and eastern Australia will be reduced and more variable, affecting agriculture as well as commercial and residential users. There will be more very hot days, more droughts, more fires and more extreme weather events. Severe erosion and inundation, with negative property impacts for the 80 per cent of Australians who live on the coast, and threats of major new diseases are predicted. Many species face extinction and the Great Barrier Reef is threatened if global warming is not slowed and eventually stopped.

Governments in Australia and world wide are developing policies to limit the emission of greenhouse gases. These policies will include a form of carbon pricing in Australia with a predicted increase in energy price and flow on to increased transport costs. Market mechanisms will also reflect climate change. For example, water scarcity and market based pricing will lead to increased price for water. Extreme weather events will increase insurance premiums for storm and flood insurance. Already, the energy performance of commercial buildings is a key consideration for investors.

Climate change will have the most immediate effects on industries like agriculture and energy. Rising oil prices impact most directly on the transport industry. However all businesses will be affected to some extent as a result of policy and market responses to climate change and the scarcity of oil, water and other resources. While there will be new cost pressures, firms that are able to adapt early to environmental pressures will be successful. Leading firms are factoring in a shift to sustainability into their strategic planning. There are considerable economic benefits and opportunities arising

from the application of new environmental technologies and practices, and governments are providing increasing incentives to businesses to innovate and adapt to a carbon-constrained future. There is substantial evidence that a 'green' business can make considerable savings from improved energy and water efficiency and reduced waste.

In the world of work, adaptive and innovative responses to climate change will include the growth of 'green collar jobs' in industries which will expand to meet the challenge of climate change. The CSIRO/Dusseldorp (2008) report *Growing the Green Collar Economy* predicts employment growth in high material flow sectors, that is industries with high environmental impact including agriculture, food, energy and mining, recycling, manufacturing, transport and construction. Green job requirements will range from trade skills (green plumbing, construction and retrofitting of energy efficient buildings, renewable energy, and low input horticulture) to planning, management and leadership skills (procurement, fleet management, and innovative practice) and assessment (energy auditing, water efficiency, meeting of environmental specifications).

The CSIRO concludes that between 230,000 and 340,000 new jobs in high environmental impact industries will be added over the next ten years in addition to normal turnover (2008:1). By 2026 the forecast 2.5 percent growth per year will create 425,000 to 558,000 new jobs in these industries. A training response to climate change needs to consider these new workers as well the re-skilling of the 2.9 million workers already employed in high impact industries. A transition to a truly environmentally sustainable society will also require training of more than two million new workers (and more than six million existing workers) in lower impact sectors including business services, communications, retail, hospitality and public service.

More sustainable technologies, such as renewable energy systems, natural refrigerants, absorption chillers, combined heat and power systems, energy efficient lighting, water harvesting and grey water reuse are available and working. A major strategic response to the environmental challenges will be to equip the workforce with the necessary skills to apply and use these new technologies and practices. Examples from best practice companies such as Lend Lease, Fairfax, Diageo and BP demonstrate that sustainable business practices can lead to increased productivity, reduced operating costs, improved worker engagement and enhanced brand loyalty. Further technological advances can be supported by linking parties with strong innovation potential including entrepreneurs, small and medium enterprises and business oriented researchers.

The 2007 United Nations Environment Program report, *Green Jobs: Towards Sustainable Work in a Low-Carbon World* found that the pace of green job creation across many sectors of the economy is likely to accelerate and that the growth in green jobs can become an engine of development. The report notes that: "investment to create green jobs is one side of the jobs coin; training and skill building is the other. Both are necessary to bring green employment to its full potential" (UNEP 2007:30).

As the NSW Board of Vocational Education and Training noted in its path-breaking report, *Skills For Sustainability* (BVET 2007), skills acquired through the vocational education and training system are central in driving and enabling environmental sustainability. Vocationally learned skills in innovation, leadership and project management will help drive and facilitate change, while technical, and trades and service skills are critical to implementing the new techniques and production processes required.

State Training Services has developed the *NSW Green Skills Strategy* to make sure that the NSW workforce has the skills and knowledge to support progress in becoming a more sustainable community, with the business and economic benefits that flow from adaptation to environmental change.

3. COMMUNICATION ON STRATEGY IMPLEMENTATION

State Training Services in the NSW Department of Education and Training is the lead agency for the strategy. The Strategy partners listed below provide funds, in-kind assistance and advice on strategy implementation:

- NSW Board of Vocational Education and Training (BVET) which has funded the Green Workforce Training Guide and other strategy elements
- NSW Department of Environment and Climate Change (DECC) which will take an active part in the industry partnership projects and information and skill strategies to support government programs.

Partners will receive half yearly progress reports on the implementation of the strategy. Summaries of these reports will be publicly available.

Communication with the broader range of Strategy partners and stakeholders will be conducted through consultative meetings as suggested by participants in the first Green Skills consultative forum in August, 2008. In addition, State Training Services will maintain a Green Skills web-page on the Industry Programs web-site at: www.training.nsw.gov.au/programs_services/not_funded/greenskills

4. INDUSTRY PRIORITIES

A number of industries have been given priority in the Strategy. These have been selected on the following basis:

- their potential to contribute to environmentally sustainable industry and commerce
- the potential for the vocational education and training (VET) sector to meet the anticipated skill requirements.

Table 1 Greenhouse Gas (GHG) Emissions, NSW, 2005

Sector	GHG Millions of tonnes	Share of NSW total %	Trend 1990 – 2005 Percentage change in share of GHG emissions
Stationary energy (electricity, heat and industrial uses)	76.0	48.0	increase + 26 per cent
Transport (road, rail, shipping and aviation)	21.6	13.6	increase + 17 per cent
Fugitive emissions (released in the extraction of coal, gas and oil)	14.2	9.0	decrease - 8 per cent
Industrial processes (by-products of metal and chemicals production and minerals processing)	13.1	8.3	decrease - 5 per cent
Agriculture (livestock, manure management, soils and burning of residues)	18.6	11.7	decrease - 20 per cent
Land use, land use change, forestry	8.8	5.6	decrease - 61 per cent (one-off saving from reduced land clearing)
Waste (solid waste disposal on land, waste-water handling, waste incineration)	6.0	3.8	decrease - 4 per cent
Total	158.3	100.0	

Source: Australian Greenhouse Office, Department of Environment and Water Resources, State and Territory Greenhouse Gas Inventories 2005

Table 1 above sets out emissions by source as reported in the National Greenhouse Accounts. It shows that the major contributor to greenhouse gas emissions is stationary energy. The major downstream users of this energy are buildings and manufacturing. The manufacturing sector is estimated to account for 42 per cent of stationary energy use (NSW Greenhouse Plan 2005). Commercial and residential buildings are estimated to account for 23 per cent of stationary energy consumption (ASBEC Climate Change Task Group, 2007) and therefore the property and business services industry also have great potential for implementing actions which reduce energy use.

In addition to the greenhouse gas contribution some of these industries have a major role in developing sustainable water use, for example, agriculture, water, electricity generation, manufacturing, property services and local government.

Based on the level of greenhouse gas emissions, and in some cases water use, the following nine industries have been identified as priorities in the development of the *NSW Green Skills Strategy*: manufacturing, electricity and gas, water, construction, agriculture, forestry, fishing and land management, wholesale and retail trade, transport and storage, property and business services and government administration (especially local government).

However, many elements of the Strategy will be available and relevant to those working in or with other industries.

5. FIVE STRATEGY ELEMENTS

The strategy has five related elements:

- 1. Prioritise funding for training related to environmental sustainability**
- 2. Build the capacity of trainers and training organisations to provide environmentally related training**
- 3. Establish green industry partnerships identifying business and training opportunities in green markets**
- 4. Publish a green workforce business guide containing information and advice for employers and workers on green skills**
- 5. Implement skills strategies for NSW Government environmental programs.**

Each element is interrelated and some projects will cover more than one of the elements. Funding for the Strategy is \$1.1 million for 2008-2010.

5.1 Prioritise funding for training for environmental sustainability

The aim is to increase the availability and uptake of accredited environmental skills training in NSW by applying public funds to purchase training not currently being demanded or delivered in sufficient quantities to meet emerging needs. The existing trades workforce is a key target group, although the ongoing consultation under the Strategy will also be used to identify ways to foster inclusion of environmental units of competence into entry-level training for apprentices and trainees.

Units of competence for environmental sustainability relevant to the priority industries have been identified for funding through the Strategic Skills Program. This element will be managed through State Training Services. Training will be coordinated by regional State Training Services and delivered by Registered Training Organisations which are on the NSW Approved Provider List.

Although the Strategy identifies specific units of competence for purchase, we recognise that environmental and sustainability issues may be embedded in a number of units, and that stand alone units may often need to be delivered in conjunction with other units to ensure practical relevance to the workplace. Consultation with Skills Councils and Training Boards and industry will continue on how units should be clustered and the need for resources to develop new courses or guidance for trainers (see 5.2).

5.2 Build capacity in Registered Training Organisations

This element aims to increase the number and range of registered training organisations in NSW that are ready and able to deliver environmental skills training. Training organisations need to know how to position and market environmentally related training, how to integrate it into mainstream delivery, and how to identify the different employability skills that may be needed for sustainability. Up-to-date resources, workshops and professional development opportunities will be offered for interested training providers.

Funding may be considered for innovative forms of delivery and/or the development of additional material to support existing units of competence, like study guides and training resources.

5.3 Green business partnerships

A series of projects will be developed with industry partners and used to explore the skill and workforce issues associated with environmental challenges. Green business partnerships will show how green workforce capability can improve environmental outcomes and productivity in key industries. In addition, these projects will offer the opportunity to explore the skill development implications of new technologies, production processes, and consumer demand and will investigate how the training system can respond to emerging needs.

The Department will identify project options from its research and consultations with stakeholders. Strict criteria will be used to select projects for funding and partner organisations will be asked to complete an application form which addresses the following:

- the potential for achieving environmental gain
- to what extent the project addresses gaps in the education and training system
- the demand from industry
- industry participation in the project
- the capability of the project proponent
- achieving a spread of projects across different industries and educational sectors.

Projects could include a mix of industry diagnostics, consultation, training, and knowledge dissemination through forums or workshops.

5.4. Publish a green workforce business guide

The web-based green workforce business guide will contain information and tools to assist businesses to assess environmental training needs and opportunities, including links to licensing and regulatory requirements. It will provide ready access to information about learning opportunities for employers and individuals and offer the capacity for training organisations to upload information about their programs.

5.5 Implement skills strategies for NSW Government environmental programs

The NSW Government has developed programs aimed at improving environmental outcomes. Details about these programs can be found at Appendix 1. Their environmental objectives and targets are outlined in the NSW State Plan.

Of particular importance is the *NSW Climate Change Fund* established in July 2007, which includes:

- The *Residential Rebate Program* which encourages energy and water savings by offering a rebate to householders for solar hot water systems, insulation and rainwater tanks
- The *NSW Green Business and Public Facilities Programs* which provide funds for projects that will save water and energy in NSW business operations, and schools, community buildings, sporting facilities, museums and art galleries respectively.
- The *Renewable Energy Development Program* which supports projects that lead to large scale greenhouse gas emission savings by implementing renewable energy technologies which will generate electricity or displace grid electricity use in NSW for stationary energy purposes.
- The *Schools Energy Efficiency and Rain Water Tanks in Schools Programs* which help reduce greenhouse emissions and water wastage, including funds for lighting refits, technical support and energy savings projects.
- The *Recycling and Stormwater Harvesting Program*.

Other NSW government programs which address environmental sustainability include:

- Energy Future (announced June 2008) which offers auditing and retrofitting assistance to small businesses and low income households
- BASIX (Building Sustainability Index)
- Biodiversity Banking
- Every Drop Counts
- Government Energy Management Policy
- Greenhouse Gas Reduction Scheme.
- GreenPower
- Land Alive
- National Australian Built Environment Rating System
- Native Vegetation Reforms
- Sustainability Advantage.

The *NSW Green Skills Strategy* is designed to support the implementation of these programs through suitable training and ensuring the timely availability of a skilled workforce. In addition, the programs will be examined to identify ways that they can support the Strategy by creating greater

demand for quality training. For example, some programs may be able to quarantine a proportion of total resources for training. Further, the requirement for people or organisations benefitting under a program to engage appropriately trained and accredited workers may be introduced where it does not already exist.

6. SCOPE

6.1 Accredited training for vocational purposes

The *NSW Green Skills Strategy* is focussed on the delivery and embedding of accredited sustainability training in NSW to support industry needs. Funding and projects are therefore focused on the needs of job-seekers, trainees and apprentices, and the existing workforce for whom up skilling and new learning opportunities are required. The Strategy focuses on the skills and knowledge learned through the vocational education and training system only.

6.2 Environmental gains

The strategy aims to develop skills in existing industries which will directly contribute to improved environmental outcomes, for example, building skills which lead to improved energy efficiency. The strategy also aims to support the development of skills in newer and emerging industries, such as renewable energy and biodiversity banking.

Because the funds are limited, strict criteria will be used to select projects for funding. These criteria will include: the potential of the project for environmental gain; to what extent the project addresses existing gaps in the training system; the demand from industry and the capability of the project proponent.

7. INDUSTRIES, ENVIRONMENTAL ISSUES, STRATEGIES AND UNITS OF COMPETENCE

Three tables have been developed for each of the priority industries. The first table outlines the key environmental challenges and opportunities, key VET-related occupations and related government environmental targets. The second table records the actions and planned actions for the five strategy elements and will be populated overtime as the strategy is being implemented. The third table contains Units of Competence relating to environmental sustainability in a number of Training Packages. When designing specific courses please note:

- These tables are designed to guide - but not limit - the selection and purchasing of environmental units.
- The National Centre for Sustainability (Swinburne University) has developed Guideline Competency Standards for sustainability which can be customised for each training package. These are included for the industry sectors where they are currently being used, that is manufacturing, business services and seafood.
- Many units are transferable across industries and training packages; the importing of units when designing suitable courses is encouraged.
- Some general and innovation units have been included for customisation, allowing course designers and training providers to add sustainability content in response to market changes.
- Not all of the identified units are currently being delivered and we encourage Registered Training Providers to add these to their scope of registration.
- Please contact your local State Training Services centre on 13 28 11 refer to [Strategic Skills Program](#) criteria for further details about DET-funded training delivery.

7.1 Manufacturing

Importance to the economy (2006-7): Manufacturing is the second largest industry contributor to total factor income at 11.1 per cent. It has 9.8 per cent of the total NSW employed workforce, but employment has fallen by a quarter since 2002.

Key environmental challenges	Key environmental opportunities	Key VET-related occupations	Government targets
<p>Water scarcity and cost increases for water</p> <p>Increased energy and transport costs</p> <p>Improving energy efficiency in production processes</p> <p>Use of renewable energy sources</p> <p>Rising costs of raw materials as a result of minerals and metals scarcity and increased transport costs</p> <p>Manufacturing is estimated to account for 42 per cent of NSW stationary energy emissions of greenhouse gases</p>	<p>Large potential for cost and energy savings for manufacturers from;</p> <ul style="list-style-type: none"> ▪ Energy efficiency measures in the production process ▪ Waste management in the production process ▪ Reduced use of raw materials <p>New manufacturing business opportunities and employment generation from:</p> <ul style="list-style-type: none"> ▪ Production, installation and maintenance of renewable energy technologies. For example, solar hot water, photovoltaics and wind generating equipment. ▪ Manufacture and installation of rain water tanks, pumps, and control technology. ▪ Construction and maintenance of technologies for storm water and grey water reuse. <p>Large potential cost and energy savings through changes to existing buildings or new buildings</p> <ul style="list-style-type: none"> ▪ Improve thermal efficiency of buildings by design and material 	<p><u>Operator</u></p> <p>Trades assistant/Insulation installer</p> <p>Batch Plant Operator (premix concrete)</p> <p>Leading Hand Machine Operator</p> <p>Manufacturing Process Operator (Competitive Manufacturing)</p> <p><u>Trades/ Technicians</u></p> <p>Plumber</p> <p>Electrician</p> <p>Batch Plant Technician (premix concrete)</p> <p>Fitter/mechanic</p> <p><u>Supervisors</u></p> <p>Manufacturing Team Leader (Competitive manufacturing)</p> <p>Production supervisor (Food Processing)</p> <p><u>Managers/ Professional</u></p> <p>Electrical Engineer</p> <p>Mechanical Engineer</p> <p>Production managers</p> <p>Project managers</p>	<p>E1 (a): Increase water recycling: increase the volume of water recycled from 15 billion litres per year to 70 billion litres of water per year by 2015</p> <p>E1(b): Improve efficient water use: save 145 billion litres of water per year by 2015, representing almost a 25 percent reduction from Sydney's projected water demand in that year</p> <p>E3 Meet national air quality goals in NSW for the six key pollutants, carbon monoxide, lead, nitrogen dioxide, sulphur dioxide, ozone and particulates</p> <p>E3 A return to year 2000 greenhouse gas emission levels by 2025 and a 60 per cent cut in greenhouse emissions by 2050. This would mean net CO₂-equivalent greenhouse gas emissions of 15.5 million tonnes in 2025 and 62.2 million tonnes in 2050</p> <p>National Environment Protection Measure (NEPM) and the National Packaging Covenant for the systematic recovery of packaging of products sold to consumers</p>

	<p>choices</p> <ul style="list-style-type: none">▪ Minimise embodied energy in materials▪ Install solar hot water/photovoltaics▪ Improve efficiency of individual components and appliances▪ Use of water saving technologies▪ Rainwater collection and grey water re-use▪ Maximise use of natural light and ventilation▪ Recover resources and minimise waste▪ Use National Australian Built Environment Rating System (NABERS)	
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Strategy element (Manufacturing)

Training	RTO Capacity	Green business partnerships	Skill strategy to support government program
<p><i>Fund Delivery of Green Units of Competency</i></p> <p>Inclusion of relevant units (listed in table below) in the NSW Strategic Skills Program 2009 -2010</p>	<p><i>Green Skills for Vocational Training Providers</i></p> <p>Embedding sustainability in training package outcomes. This project will deliver a “sustainability forum” program and “sustainability toolbox” eLearning resource for use by selected RTOs</p> <p>Stage 1 April 08 – August 08</p>	<p><i>Green Skills for Emerging Markets (Bathurst)</i></p> <p>Partnership project with three employers to explore business opportunities and related training gaps in green markets</p> <p>Stage 1 April – July 08</p>	
<p>Guideline competency standards have been developed and are being trialled together with NSW DECC</p>			

Relevant Units (Manufacturing)

Industry/ Training Package	Code	Unit Name	Unit Code
Food Processing	FDF03	Implement environmental policies and procedures	FDFOPTENV2A
Food Processing	FDF03	Monitor the implementation of environmental management policies and procedures	FDFOPTENV3A
Food Processing	FDF03	Manage the implementation of environmental management policies and procedures in the workplace	FDFTECENV4A
Food Processing	FDF03	Manage utilities and energy for a production process	FDFTECUTE5A
Food Processing	FDF03	Manage water treatment process	FDFTECUTP4A
Competitive Manufacturing	LMT07	Use sustainable energy practices	MCMT270A
Competitive Manufacturing	LMT07	Use sustainable environmental practices	MCMT271A
Competitive Manufacturing	LMT07	Develop and manage sustainable energy practices	MCMT670A
Competitive Manufacturing	LMT07	Develop and manage sustainable environmental practices	MCMT671A
Manufacturing	MSA07	Participate in environmentally sustainable work practices (Guideline Competency Standard)	MSAENV272A
Manufacturing	MSA07	Implement & monitor environmentally sustainable work practices (Guideline Competency Standard)	MSAENV472A
Manufacturing	MSA07	Develop workplace policy and procedures for sustainability (Guideline Competency Standard)	MSAENV672A
Manufacturing	MSA07	Identify and minimise environmental hazards	MSAPMSUP172A
Meat Processing	MTM07	Apply environmentally sustainable work practices	MTMPSR202A
Chemical, Hydrocarbons and Oil	PMA02	Follow environmental work practices	PMASUP120A
Chemical, Hydrocarbons and Oil	PMA02	Monitor and control environmental hazards	PMASUP220A
Chemical, Hydrocarbons and Oil	PMA02	Implement and monitor environmental policies	PMASUP320A
Chemical, Hydrocarbons and Oil	PMA02	Minimise environmental impact of process	PMASUP420A
Chemical, Hydrocarbons and Oil	PMA02	Review procedures to minimise environmental impact of process	PMASUP520A
Chemical, Hydrocarbons and Oil	PMA02	Manage environmental management system	PMASUP620A
Plastic, Rubber and Cablemaking	PMB07	Respond to environmental hazards	PMBENV200A
Plastic, Rubber and Cablemaking	PMB07	Minimise environmental impact of process	PMBENV300A
Laboratory Operations	PML07	Implement and monitor OHS and environmental management systems	PMLORG601A
Laboratory Operations	PML07	Prepare plans and quality assurance procedures for environmental field activities	PMLTEST602A
Sugar Milling	SUG02	Dispose of waste	SU2332A

7.2 Electricity and Gas Supply/Generation

Importance to NSW economy (2006-7) Employment in the electricity supply and gas industry is 0.5 per cent of the total NSW employed workforce, and the industry accounts for 2 per cent of total factor income. The primary source of electricity in NSW is from coal fired power stations.

Key environmental challenges	Key environmental opportunities	Key VET-related occupations	Government targets
<p>Greenhouse gases from coal fired generators. Electricity generation from power stations was responsible for 37per cent of NSW greenhouse gas emissions in 2005</p> <p>Water scarcity for some coal fired power stations</p> <p>Use of recycled water for coal fired power generation</p>	<p>As power generation moves to a greater proportion of electricity from renewable energy sources there will be an increased demand for skilled workers in this sector. For example, additional skills will be needed for builders, electricians and plumbers to install and maintain renewables such as wind power, photovoltaics, solar thermal and geothermal.</p> <p>Significant reductions in electricity use are possible from solar hot water in all commercial and domestic buildings; further substantial reductions are possible by replacing electricity with gas</p> <p>Carbon capture and sequestration technologies may become available in the medium term. This area will require skilled workers in civil and mechanical engineering</p> <p>Opportunities for energy efficiency gains to reduce demand for coal fired power stations</p> <p>Opportunities for coal fired power stations to also use solar thermal energy</p>	<p><u>Operator</u></p> <p>Power station operator</p> <p>Renewable Energy Assistant</p> <p>Electrical Trades Assistant</p> <p><u>Trades/Technical</u></p> <p>Builders</p> <p>Electricians, including specialists installing and maintaining renewable power sources</p> <p>Fitter/mechanic</p> <p>Plumbers</p> <p>Renewable Energy Installer</p> <p>HVAC installers</p> <p>Welder/sheet metal worker</p> <p>Energy efficiency auditors and performance manager</p> <p><u>Supervisors</u></p> <p>Engineers</p> <p><u>Managers</u></p> <p>Project managers</p> <p>Systems designers and managers</p>	<p>Add new NSW Greenhouse Gas Abatement Targets</p> <p>E2. Achieve electricity reliability for NSW of 99.8per cent by 2016</p> <p>E2. By 2010, 10per cent of electricity consumed in NSW will be from renewable sources, rising to 15per cent by 2020. NB MRET has 20per cent target</p> <p>E3. Cut green house gas emissions by 60per cent by 2050 and return to year 2000 greenhouse gas emission levels by 2025</p> <p>The existing MRET and the various state-based targets will be brought into a single, expanded national MRET scheme by early 2009</p> <p>The NSW Energy Future action plan sets new efficiency targets for energy retailers in 2009.</p>

Strategy element (Electricity and Gas Supply/Generation)

Training	RTO Capacity	Green business partnerships	Skill strategy to support government program
<p><i>Green Cooling for the Regions</i> Training for refrigeration technicians in the use of natural refrigeration technology. Joint federal/state funding approved for training delivery across regional NSW for 2008-2010</p>	<p><i>Green Skills for Vocational Training Providers</i> See page 12</p>	<p><i>Green Skills for Emerging Markets (Bathurst)</i> See page 12</p>	
<p><i>Renewable Energy Skills for Electricians</i> Training program to encourage accreditation of electricians by the Clean Energy Council as renewable energy installers. Funded through Industry and Enterprise Skills Program; completion due mid 2008.</p>			
<p><i>Fund Delivery of Green Units of Competency</i></p>			
<p>Gaps and options Develop RTO capacity to offer Solar Power Grid Connect qualifications (required for installers to certify the installed photo voltaic system)</p>			

Relevant Units (Electricity and Gas Supply/Generation)

Industry/ Training Package	Code	Unit Name	Unit Code
Electrotechnology/Wholesale/Retail	UEE07	Receive and store materials and equipment for electrotechnology work	UEENEEC008B
Electrotechnology/Wholesale/Retail	UEE07	Deliver a service to customers	UEENEEC010B
Electrotechnology/Wholesale/Retail	UEE07	Direct technical and non-technical enquiries to appropriate personnel	UEENEEC012B
Electrotechnology/Construction	UEE07	Develop and validate basic integrated systems	UEENEED031B
Electrotechnology/Construction	UEE07	Design integrated systems	UEENEED032B
Electrotechnology/Construction	UEE07	Design complex integrated systems	UEENEED033B
Electrotechnology	UEE07	Write specifications for renewable energy engineering projects	UEENEEE074B
Electrotechnology/Construction	UEE07	Install and set up interval metering	UEENEEG071B
Electrotechnology/Construction	UEE07	Monitor and adjust energy management systems on refrigeration systems	UEENEEJ021B
Electrotechnology/Construction	UEE07	Evaluate and report on energy management	UEENEEJ036B
Electrotechnology/Construction	UEE07	Audit energy use for a commercial HVAC/R systems	UEENEEJ047B
Electrotechnology	UEE07	Evaluate alternative and new technologies applicable electrotechnology applications	UEENEEJ050B
Electrotechnology	UEE07	Conduct periodic maintenance of remote area power supply (RAPS) photo voltaic arrays	UEENEEL005B
Electrotechnology	UEE07	Conduct periodic maintenance of remote area power supply (RAPS) wind generators	UEENEEL006B
Electrotechnology	UEE07	Conduct checks in the demand side use of remote area power supplies	UEENEEL007A
Electrotechnology	UEE07	Plan periodic maintenance schedules of remote area power supplies	UEENEEL008A
Electrotechnology	UEE07	Coordinate maintenance of renewable energy apparatus and systems	UEENEEL010B
Electrotechnology	UEE07	Provide basic sustainable energy solutions for energy reduction in domestic premises	UEENEEL012A
Electrotechnology	UEE07	Apply sustainable energy practice in daily activities	UEENEEL013A
Electrotechnology	UEE07	Promote sustainable energy practice in the community	UEENEEL014A
Electrotechnology	UEE07	Verify compliance and functionality of renewable energy installations	UEENEEL015B
Electrotechnology	UEE07	Manage renewable energy projects	UEENEEL021B
Electrotechnology	UEE07	Plan renewable energy projects	UEENEEL022B
Electrotechnology	UEE07	Carry out basic repairs to renewable energy apparatus by replacement of components	UEENEEL023A
Electrotechnology	UEE07	Assemble and set up photovoltaic apparatus in domestic dwellings	UEENEEL024A
Electrotechnology	UEE07	Solve basic problems in photovoltaic energy apparatus	UEENEEL025A
Electrotechnology/Construction	UEE07	Install and set up grid connected photovoltaic power systems	UEENEEL026B
Electrotechnology	UEE07	Diagnose faults in renewable energy control systems	UEENEEL027A
Electrotechnology	UEE07	Solve problems in stand-alone renewable energy systems	UEENEEL028A
Electrotechnology/Construction	UEE07	Design renewable energy heating systems	UEENEEL029B
Electrotechnology	UEE07	Solve basic problems in wind energy conversion systems	UEENEEL030A
Electrotechnology	UEE07	Design wind energy conversion systems rated to 10 kW.	UEENEEL031B
Electrotechnology	UEE07	Develop strategies to address sustainability issues	UEENEEL032A
Electrotechnology	UEE07	Design set up hybrid power systems	UEENEEL033B
Electrotechnology	UEE07	Install standalone photovoltaic power systems	UEENEEL034B
Electrotechnology/Water/Construction	UEE07	Design grid connected power supply systems	UEENEEL035B
Electrotechnology	UEE07	Prepare grid connected photovoltaic power systems for LV connection	UEENEEL036B

Electrotechnology/Water	UEE07	Install and set up micro-hydro systems	UEENEEK037B
Electrotechnology/Water	UEE07	Design micro-hydro systems	UEENEEK038B
Electrotechnology/Water	UEE07	Design stand-alone renewable energy systems	UEENEEK039B
Electrotechnology	UEE07	Develop engineering solution to renewable energy problems	UEENEEK040B
Electrotechnology/Construction	UEE07	Develop strategies for effective energy reduction in buildings	UEENEEK041B
Electrotechnology	UEE07	Participate in environmentally sustainable work practices (Guideline Competency Standard)	UEENEEK042A
Electrotechnology	UEE07	Install small wind energy conversion systems for stand-alone applications	UEENEEK043A
Electrotechnology	UEE07	Implement and monitor policies and procedures for environmentally sustainable electrotech work practice	UEENEEK045A
Electrotechnology	UEE07	Design energy management controls for electrical installations in buildings	UEENEEK046A
Electrotechnology	UEE07	HC Awareness	UEENEJ074A
Electrotechnology	UEE07	HC Service	UEENEJ075A
Electrotechnology	UEE08	HC Installation and commissioning	UEENEJ076A
Electrotechnology	UEE07	CO2 Awareness	UEENEJ084A
Electrotechnology	UEE07	CO2 Service	UEENEJ085A
Electrotechnology	UEE07	CO2 Installation and commissioning	UEENEJ086A
Energy Management	UEE07	Manage gas system environmental compliance	UEGNSG120A
Energy Management	UEP06	Operate and monitor a wind Generator	UEPOPS334A
Electrotechnology/Transport/Logistics	UEE07	Apply environment and sustainable energy procedures	UETTDREL01A
Electrotechnology/Transport/Logistics	UEE07	Comply with environmental and incidence response procedures	UETTDREL03A
Electrotechnology/Construction/ Transport/Logistics	UEE07	Implement and monitor environmental and sustainable energy management polices and procedures	UETTDRLS23A
Electrotechnology	UEE07	Provide basic sustainable energy solutions for energy reduction in domestic premises	UTENES061A
Electrotechnology	UEE07	Apply sustainable energy practice in daily activities	UTENES062A
Electrotechnology	UEE07	Promote sustainable energy in the community	UTENES065A
Electrotechnology	UEE07	Install micro-hydro systems	UTENES113A
Electrotechnology	UEE07	Install wind energy systems	UTENES114A
Electrotechnology	UEE07	Implement environmental and sustainable energy procedures	UTTNTD321A
Electrotechnology	UEE07	Comply with environmental and sustainable energy procedures	UTTNTD321B
Electrotechnology	UEE07	Implement and monitor environmental and sustainable energy management policies and procedures	UTTNTD414A

7.3 Water

Importance to NSW Economy (2006-7) Employment in the water industry is 0.2 per cent of the total NSW employed workforce, and together electricity, water and gas industry account for 2 per cent of total factor income.

Key environmental challenges	Key environmental opportunities	Key VET-related occupations	Government targets
<p>Meeting water needs in the face of drought, climate change and population growth requires a sustained effort to balance supply and demand, increase recycling and improve efficiency of water use.</p> <p>Many cities and towns are at or above the maximum available water yield. Severe reductions in water availability are causing hardship in a number of agricultural areas</p> <p>Need to balance demands for human use with the need to maintain sufficient environmental flows</p>	<p>Significant opportunities for water recycling and reuse</p> <p>Stormwater and rainwater collection opportunities are extensive</p> <p>Improved water sharing plans should lead to increased environmental flows</p> <p>There will be a need for land owners to maintain biodiversity, riparian and ecosystem health in catchments. This will increase the demand for workers with land and river management skills</p> <p>Water plans will include markets for water trading in some areas</p>	<p><u>Operator</u></p> <p>Save Water Assistant</p> <p><u>Trades/Technical</u></p> <p>Auditors</p> <p>Hydrographer</p> <p>Irrigation operator</p> <p>Plumber</p> <p>Remote sensing technician</p> <p>Save water officer</p> <p>Save water controller</p> <p>Trade waste controller</p> <p><u>Supervisors</u></p> <p>Site supervisor at dams</p> <p>Site supervisor at hydro-electric sites</p> <p><u>Managers</u></p> <p>Project Managers</p> <p>Environmental Water Managers</p> <p>Irrigation manager</p>	<p>E1 (a): Increase water recycling: increase the volume of water recycled from 15 billion litres per year to 70 billion litres of water per year by 2015.</p> <p>E1(b): Improve efficient water use: save 145 billion litres of water per year by 2015, representing almost a 25 percent reduction from Sydney's projected water demand in that year.</p> <p>E1(c): Meet reliability performance standards for water continuity and quality.</p> <p>E1 (d): Meet reliability performance standards for water continuity and quality.</p> <p>E1 (e): Improve efficiency and recycling in regional centres.</p> <p>E1 (f): Across NSW meet the commitments under the National Water Initiative to restore water extraction from rivers to sustainable levels.</p> <p>The National Water Initiative includes the directive to invest significantly in the expansion and development of our national skill base in water resource management through targeted research, education, training and skilled migration programs.</p>

Strategy element (Water)

Training	RTO Capacity	Green business partnerships	Skill strategy to support government program
<i>Fund Delivery of Green Units of Competency</i>	<i>Green Skills for Vocational Training Providers</i> See page 12		Identify training to support <i>Every Drop Counts</i> and other watersaving initiatives
<p>Gaps and options</p> <p>Current skills development shortfalls exist across the whole industry (waste water treatment, leak detection, alternative water supply). Water spans across many sectors (supply/government skills, irrigation/agricultural, domestic/plumbing etc) making targeted skills development complex.</p> <p>New skills in river management, wetland design, water sensitive urban design, water trading have been identified in the Environmental Scan for Government Skills 2008</p> <p>Seek input into water industry skill strategies, e.g. through the Water Industry Capacity Development (WICD) taskforce.</p>			

Relevant Units (Water)

Industry/ Training Package	Code	Unit Name	Unit Code
Electrotechnology/Water/Construction	UEE07	Design grid connected power supply systems	UEENEK035B
Electrotechnology/Water	UEE07	Install and set up micro-hydro systems	UEENEK037B
Electrotechnology/Water	UEE07	Design micro-hydro systems	UEENEK038B
Electrotechnology/Water	UEE07	Design stand-alone renewable energy systems	UEENEK039B
Water	NWP07	Contribute to effective water cycle management	NWP101A
Water	NWP07	Apply environmental and licensing procedures	NWP202B
Water	NWP07	Implement, monitor and co-ordinate environmental impact practices	NWP301A
Water	NWP07	Coordinate and monitor the application of environmental plans and procedures	NWP401A
Water	NWP07	Implement and manage environmental management policies, plans, procedures and programs	NWP505A
Water	NWP07	Develop environmental management policies and plans	NWP506A
Water	UEP06	Operate and Monitor Site Water Systems	UEPOPS244A
Water	UEP06	Operate Waste and Contaminated Water Plant	UEPOPS246A
Water	UEP06	Operate and Monitor Boiler Steam/Water Cycle	UEPOPS316A
Water	UEP06	Operate and Monitor Water Treatment Plant	UEPOPS321A
Water	UEP06	Operate and Monitor Alkalinity Reduction Plant	UEPOPS322A
Water	UEP06	Operate and Monitor Reverse Osmosis Plant	UEPOPS323A
Water	UEP06	Operate and Monitor Brine Concentrator Plant	UEPOPS324A
Water	UEP06	Undertake Dam Safety Surveillance	UEPOPS328A
Water	UEP06	Operate and Monitor Water Systems (Condensate and Feedwater)	UEPOPS331A
Water	UEP06	Operate and Monitor Condensing and Cooling Water System	UEPOPS332A
Water	UEP06	Conduct Water Conveyance and Control	UEPOPS344A
Water	UEP06	Implement Dam Safety Surveillance Procedures	UEPOPS345A
Water	UEP06	Apply Environmental and Sustainable Energy Procedures	UEPOPS356A
Water	UEP06	Monitor and Implement Environmental Plans and Procedures	UEPOPS417A
Water	UEP06	Plan a Scheduled Outage	UEPOPS423A
Water	UEP06	Collect and Analyse Hydrological and Meteorological Data	UEPOPS431A
Water	UEP06	Develop and Monitor Environmental Management Systems	UEPOPS504A
Water	UEP06	Control Hydro Generation/pumping	UEPOPS514A

NB. The National Water Package NWP07 contains over one hundred units of competence most which have direct implications for providing sustainable water supplies.

7.4 Construction

Importance to NSW Economy (2006-7) Construction contributes 9.9 per cent of NSW's total factor income; since 2002-3, its share has grown more than other industries except mining. Employment is 8.5 per cent of the NSW total employed workforce and has grown by 20 per cent since 2002.

Key environmental challenges	Key environmental opportunities	Key VET-related occupations	Government targets
<p>All new commercial buildings should meet environmental performance standards specified in the NABERS</p> <p>All new domestic buildings and alterations should meet the BASIX standard</p> <p>Reduce waste and energy use during construction</p> <p>Retrofit existing buildings to improve energy efficiency by improving insulation, use of natural light and passive solar heating.</p>	<p>Improve energy efficiency in construction process and of finished buildings</p> <p>There will be an increasing demand for auditors and certifiers to assess environmental performance against benchmarks established by ratings schemes such as BASIX and NABERS</p> <p><u>Buildings</u></p> <ul style="list-style-type: none"> ▪ Improve thermal efficiency of buildings by design and material choices ▪ Minimise embodied energy in materials ▪ Install solar hot water/photovoltaics ▪ Improve efficiency of individual components and appliances ▪ Use of water saving technologies ▪ Rainwater collection and grey water re-use ▪ Maximise use of natural light and ventilation ▪ Reduce waste generated 	<p><u>Trades/Technical</u></p> <p>Auditors for water and energy use</p> <p>Building designer/ specifier</p> <p>Carpenter</p> <p>Demolisher</p> <p>Electrician</p> <p>Interior designer</p> <p>Painter and Decorator</p> <p>Plumber</p> <p>Refrigeration and air conditioning technician</p> <p><u>Supervisors</u></p> <p>Site supervisors</p> <p><u>Managers/professionals</u></p> <p>Project managers</p> <p>Quantity surveyor</p> <p>Construction Trades</p> <p>Users of BASIX (specific training required for laypersons and owner builders, professional users, installers and certifiers)</p>	<p>E1.Improve efficiency of water use</p> <p>E3 Meet national air quality goals in NSW</p> <p>E3. Cut green house gas emissions by 60per cent by 2050 and return to year 2000 greenhouse gas emission levels by 2025</p> <p>The NSW Energy Future action plan includes a small business energy efficiency program and energy efficiency audits for 6000 small businesses</p> <p>The NSW Energy Future action plan includes a low income households refit program and energy efficiency audits for 220,000 households</p> <p>The NSW Climate Change Fund provides financial assistance for the installation of energy and water saving technologies for domestic dwellings and business. The Climate Change Fund includes the Residential Rebate Program, the NSW Green Business Program, the Public Facilities Program, the Renewable Energy Development Program, and the Schools Energy Efficiency Program.</p>

Strategy element (Construction)

Training	RTO Capacity	Green business partnerships	Skill strategy to support government program
<i>Fund Delivery of Green Units of Competency</i>	<i>Green Skills for Vocational Training Providers</i> See page 12	<i>Green Skills for Emerging Markets (Bathurst)</i> See page 12	Design training strategy to support NSW Government energy efficiency program announced May 08
	<i>EnviroPainter course – under consideration</i> A project to develop a short accredited course covering environmental aspects of painting and decorating, include water and waste management.		Identify training to support solar cities program in NSW
<p>Gaps and options</p> <p>Investigate capability of trainers to deliver green plumbers course in NSW</p> <p>Users of BASIX (specific training required for laypersons and owner builders, professional users, installers and certifiers)</p> <p>Environmental awareness across the workforce (operator, supervisor and manager level) and community (specifiers, drafters and residents/users)</p>			

Relevant Units (Construction)

Industry/ Training Package	Code	Unit Name	Unit Code
General Construction	BCG03	Apply sustainability building design principles to water management systems	BCGBC4019A
General Construction	BCG03	Build thermally efficient and sustainability structures	BCGBC4020A
General Construction	BCG03	Minimise waste on the building and construction site	BCGBC4021A
General Construction	BCG03	Manage building or construction, environmental management practices and processes	BCGBC5011A
General Construction	BCG03	Manage the application and monitoring of energy conservation and management practices and processes	BCGBC5012A
General Construction	BCG03	Develop, plan and implement building or construction, environmental management practices and processes	BCGBC6007A
General Construction	BCG03	Plan, develop and implement building or construction, energy conservation and management practices and processes	BCGBC6010A
General Construction	BCG03	Apply principles of energy efficient design to buildings	BCGSV5013A
General Construction	BCG03	Install acoustic and thermal environmental protection systems	BCGWC3006B
Plumbing	BCP03	Design solar water heating systems	BCPPS5003A
Plumbing	BCP03	Conduct a water audit and identify water-saving initiatives	BCPPS5004A
Plumbing	BCP03	Design grey water re-use systems in sewerred areas	BCPPS5005A
Plumbing	BCP03	Design rainwater collection, storage and distribution	BCPPS5006A
Construction, Plumbing and Services	CPC08	Apply sustainable building design principles to water management systems	CPCCBC4019A
Construction, Plumbing and Services	CPC08	Build thermally efficient and sustainable structures	CPCCBC4020A
Construction, Plumbing and Services	CPC08	Minimise waste on the building and construction site	CPCCBC4021A
Construction, Plumbing and Services	CPC08	Manage environmental management practices and processes in building and construction	CPCCBC5011A
Construction, Plumbing and Services	CPC08	Manage the application and monitoring of energy conservation and management practices and processes	CPCCBC5012A
Construction, Plumbing and Services	CPC08	Develop, plan and implement appropriate building or construction environmental management practices and processes	CPCCBC6007A
Construction, Plumbing and Services	CPC08	Plan, develop and implement building or construction energy conservation and management practices and processes	CPCCBC6010A
Construction, Plumbing and Services	CPC08	Work effectively and sustainable in the construction industry (based on Guideline Competency Standard)	CPCCCM1002A
Construction, Plumbing and Services	CPC08	Install acoustic and thermal environmental protection systems	CPCCPB3015A
Construction, Plumbing and Services	CPC08	Handle painting and decorating materials	CPCCPD2001A
Construction, Plumbing and Services	CPC08	Apply principles of energy efficient design to buildings	CPCCSV5013A
Construction, Plumbing and Services	CPC08	Design solar water heating systems	CPCPPS5003A
Construction, Plumbing and Services	CPC08	Conduct a water audit and identify water-saving initiatives	CPCPPS5004A
Construction, Plumbing and Services	CPC08	Design grey water re-use systems in sewerred areas	CPCPPS5005A
Construction, Plumbing and Services	CPC08	Design rainwater collection, storage, distribution and re-use systems	CPCPPS5006A
Construction, Plumbing and Services	CPC08	Collect and store roof water	CPCPRF2003A

Construction, Plumbing and Services	CPC08	Implement and monitor environmentally sustainable work practices (Guideline Competency Standard)	CPCSUS4001A
Construction, Plumbing and Services	CPC08	Develop workplace policies and procedures for sustainability (Guideline Competency Standard)	CPCSUS5001A
Asset Maintenance/Construction, Plumbing and Services	PRM04	Prevent ozone depleting substance and synthetic greenhouse gas emissions	PRMPFES43A
Electrotechnology/Construction	UEE07	Develop and validate basic integrated systems	UEENEED031B
Electrotechnology/Construction	UEE07	Design integrated systems	UEENEED032B
Electrotechnology/Construction	UEE07	Design complex integrated systems	UEENEED033B
Electrotechnology/Construction	UEE07	Install and set up interval metering	UEENEED071B
Electrotechnology/Construction	UEE07	Monitor and adjust energy management systems on refrigeration systems	UEENEEDJ021B
Electrotechnology/Construction	UEE07	Evaluate and report on energy management	UEENEEDJ036B
Electrotechnology/Construction	UEE07	Audit energy use for a commercial HVAC/R systems	UEENEEDJ047B
Electrotechnology/Construction	UEE07	Install and set up grid connected photovoltaic power systems	UEENEEDK026B
Electrotechnology/Construction	UEE07	Design renewable energy heating systems	UEENEEDK029B
Electrotechnology/Water/Construction	UEE07	Design grid connected power supply systems	UEENEEDK035B
Electrotechnology/Construction	UEE07	Develop strategies for effective energy reduction in buildings	UEENEEDK041B
Electrotechnology/Construction/Transport/Logistics	UEE07	Implement and monitor environmental and sustainable energy management policies and procedures	UETTDRIS23A

7.5 Agriculture, forestry, fishing, land management

Importance to the NSW economy (2006-7): Agriculture contributes 1.3 per cent of total factor income and its share has fallen sharply over the last four years as a result of the drought. Employment is 2.9 per cent of total NSW employed workforce and has fallen by 14 per cent since 2002.

Key environmental challenges	Key environmental opportunities	Key VET-related occupations	Government targets
<p>Agriculture is estimated to be responsible for 11.7 per cent of greenhouse gas emissions</p> <p>Land use, land use change and forestry is estimated to be responsible for 5.6per cent of greenhouse gas emissions in NSW</p> <p>Reduced rainfall due to climate change</p> <p>Increasing salinity in some areas</p> <p>Maintenance of biodiversity</p> <p>Protection of native vegetation</p> <p>The elimination of agricultural land close to urban centres</p>	<p>Potential for increased carbon sequestration in soil through low till/no till</p> <p>Possible income for landholders from environmental services and non traditional sources, e.g. carbon credits and biodiversity banking</p> <p>Improved productivity from soil conservation and conservation farming</p> <p>Biofuel production, especially from agricultural waste streams</p>	<p><u>Operator</u></p> <p>Farm worker</p> <p>Forestry worker</p> <p>Forest establishment and re-vegetation worker</p> <p>Natural land management operator</p> <p>Pesticide operator</p> <p>Plant/machine operator, including bio-fuels generator</p> <p><u>Trades</u></p> <p>Sustainable horticulture/vegetation tradesperson</p> <p><u>Supervisors</u></p> <p>Land care coordinator, Land manager</p> <p><u>Managers</u></p> <p>Farmer / farm manager</p>	<p>E1. Across NSW, meet the commitments under the National Water Initiative to restore water extraction from rivers to sustainable levels.</p> <p>E3 A return to year 2000 greenhouse gas emission levels by 2025 and a 60 per cent cut in greenhouse emissions by 2050. This would mean net CO2-equivalent greenhouse gas emissions of 155.5 million tonnes in 2025 and 62.2 million tonnes in 2050.</p> <p>E4 Meet NSW Government targets for protection of our natural resources. State Plan targets apply to biodiversity, water, land, and community (see note 1).</p>

Strategy element (Agriculture, forestry, fishing, land management)

Training	RTO Capacity	Green business partnerships	Skill strategy to support government program
<i>Fund Delivery of Green Units of Competency</i>		Green roofs and vertical gardens with Australian Institute of Horticulture TBC	Support for DECC Land Alive Aboriginal land management for biodiversity
		Indigenous Land Management with EnVite and ACE North Coast TBC	Possible training for land owners who plan to join biodiversity banking

Relevant Units (Agriculture, forestry, fishing, land management)

Industry/ Training Package	Code	Unit Name	Unit Code
Forest and Forest Products	FPI05	Follow environmental care procedures	FPICOR2203A
Forest and Forest Products	FPI05	Implement safety, health and environment policies and procedures	FPICOR3201A
Forest and Forest Products	FPI05	Monitor safety, health and environment policies and procedures	FPICOR4201A
Forest and Forest Products	FPI05	Implement sustainable forestry practices	FPICOT5201A
Conservation and Land Management	RTD02	Observe environmental work practices	RTC2702A
Conservation and Land Management	RTD02	Implement Revegetation Works	RTD3034A
Conservation and Land Management	RTD02	Develop a pest management action plan within a local area	RTD4403A
Rural Production	RTE03	Maintain and monitor environmental work practices	RTE3714A
Rural Production	RTE03	Implement an irrigation related environmental protection program	RTE4603A
Rural Production	RTE03	Plan on-site irrigation system installation & construction works	RTE4607A
Rural Production	RTE03	Develop a whole farm plan	RTE5516A
Rural Production	RTE03	Develop climatic risk management strategies	RTE5523A
Rural Production	RTE03	Develop and implement sustainable land use strategies	RTE5524A
Seafood Industry	SFI04	Maintain water quality and environmental monitoring	SFIAQUA208B
Seafood Industry	SFI04	Coordinate sustainable aquacultural practices	SFIAQUA407B
Seafood Industry	SFI04	Plan ecologically sustainable aquacultural practices	SFIAQUA504B
Seafood Industry	SFI04	Promote sustainable use of local marine and freshwater environments	SFICOMP203A
Seafood Industry	SFI04	Participate in environmentally sustainable work practices (Guideline Competency Standard)	SFIEMS201A
Seafood Industry	SFI04	Implement and monitor environmentally sustainable work practices (Guideline Competency Standard)	SFIEMS301A
Seafood Industry	SFI04	Act to prevent interaction with protected species	SFIEMS302A
Seafood Industry	SFI04	Conduct an internal audit of an environmental management system	SFIEMS401A
Seafood Industry	SFI04	Develop workplace policy for sustainability (Guideline Competency Standard)	SFIEMS501A
Sport/Land management	SRS003	Conserve and re-establish natural systems	SRXRES008B
Sport/Land management	SRS003	Achieve sustainable land management	SRXRES009B

7.6 Wholesale and Retail

Importance to NSW economy (2006-7) These industries together contribute 11 per cent of total factor income and their combined employment is 18.9 per cent of the total NSW employed workforce.

Key environmental challenges	Key environmental opportunities	Key VET-related occupations	Government targets
<p>Improve energy efficiency in buildings</p> <p>Select and promote products and services that are energy efficient</p> <p>Select and promote products and services that are water efficient</p>	<p>The wholesale and retail industry has a significant potential to provide a range of sustainable products for trade and retail consumers. In particular consumers need energy efficient appliances and lighting.</p> <p>The wholesale and retail industry is a major source of advice to tradespersons and the general public on sustainable products. It provides significant opportunities to increase the environmental skills and knowledge of workers in the building industry to:</p> <ul style="list-style-type: none"> ▪ Improve thermal efficiency of buildings by design and material choices ▪ Minimise embodied energy in materials ▪ Install solar hot water/photovoltaics ▪ Improve efficiency of individual components and appliances ▪ Use water saving technologies ▪ Collect rainwater and re-use grey water ▪ Maximise use of natural light and ventilation ▪ Reduce waste generated ▪ Use NABERS 	<p><u>Operator</u></p> <p>Sales assistant including specialists in hardware and electrical wholesale/retail sector</p> <p><u>Trades/Technical</u></p> <p>Plumbers</p> <p>Electricians</p> <p><u>Supervisors</u></p> <p><u>Managers</u></p> <p>Facilities manager</p> <p>Building manager</p>	<p>E1.Improve efficiency of water use</p> <p>E1.Increase water recycling both in Sydney and regional centres</p> <p>In Sydney, increase the volume of water recycled from 15 billion litres per year to 70 billion litres per year by 2015</p> <p>In regional centres increase the volume of water recycled</p> <p>E3. Cut green house gas emissions by 60per cent by 2050 and return to year 2000 greenhouse gas emission levels by 2025</p>

Strategy element (Wholesale and Retail)

Training	RTO Capacity	Green business partnerships	Skill strategy to support government program
<p><i>Fund Delivery of Green Units of Competency</i></p> <p>Many business services units also transfer easily into other industries</p>		Green customer service pilot with TAFE NSW and major hardware supplier	

Relevant Units (Wholesale and Retail)

Industry/ Training Package	Code	Unit Name	Unit Code
Electrotechnology/Wholesale/Retail	UEE07	Receive and store materials and equipment for electrotechnology work	UEENEEC008B
Electrotechnology/Wholesale/Retail	UEE07	Deliver a service to customers	UEENEEC010B
Electrotechnology/Wholesale/Retail	UEE07	Direct technical and non-technical enquiries to appropriate personnel	UEENEEC012B
Retail Services	SIR07	Develop innovative ideas at work	SIRXQUA001A
Retail Services	SIR07	Create an innovative work environment	SIRXQUA003A
Retail	WRR02	Set up systems that support innovation	WRR011A
Retail	WRR02	Lead a team to foster innovation	WRR09A
Retail	WRR02	Recommend specialised products and services	WRRSS20A
	SIR07	Recommend specialised products and services	SIRRRPK014A
Retail	WRR02	Recommend hardware products and services	WRRSS7B
	SIR07	Recommend home and home improvement products and services	SIRRRPK010A

7.7 Transport and Storage

Importance to NSW economy (2006-7) Transport and storage contributes 4 per cent total factor income. Employment is 5.1 per cent of the total NSW employed workforce.

Key environmental challenges	Key environmental opportunities	Key VET-related occupations	Government targets
<p>Transport accounts for 15per cent of NSW greenhouse gas emissions</p> <p>In addition to greenhouse gas emissions transport also is a major contributor to air pollution.</p> <p>Waste, fuel spills and leakage, used tyres, used oil</p>	<p>Improvement in energy efficiency for vehicles, including hybrids</p> <p>Use of alternative fuels</p> <p>Increase use of public transport</p> <p>Improved urban planning to reduce vehicle trips</p> <p>More efficient freight transport in terms of energy and emissions, through improved supply chain management and greater use of rail and shipping as opposed to road transport.</p>	<p><u>Operator</u></p> <p>Truck drivers</p> <p>Automobile drivers</p> <p>Bus and tram drivers</p> <p>Storeperson</p> <p><u>Trades/Technical</u></p> <p>Logistics Officer</p> <p>Rail traction and signalling electrician</p> <p><u>Supervisors</u></p> <p>Transport supervisor</p> <p>Logistics supervisor</p> <p><u>Managers</u></p> <p>Fleet supervisors/managers</p>	<p>E3. Cut green house gas emissions by 60per cent by 2050 and return to year 2000 greenhouse gas emission levels by 2025</p> <p>E3 Meet national air quality goals in NSW for the six key pollutants, carbon monoxide, lead, nitrogen dioxide, sulphur dioxide, ozone and particulates</p>

Strategy element (Transport and Storage)

Training	RTO Capacity	Green business partnerships	Skill strategy to support government program
<i>Fund Delivery of Green Units of Competency</i>		Green skills development project by Transport and Logistics training advisory board TBC	
Gaps and options Environmental awareness across the whole workforce (including supply chain and fleet management, efficient driving, pollution awareness etc)			

Relevant Units (Transport and Storage)

Industry/ Training Package	Code	Unit Name	Unit Code
Automotive	AUR05	Apply environmental regulations and best practice in a workplace or business	AURC272003A
Automotive	AUR05	Plan and manage compliance with environmental regulations in a workplace or business	AURC472082A
Automotive	AUR05	Apply environmental regulations in the marine service industry	AURR271103A
Automotive	AUR05	Implement and monitor environmental regulations in the marine repair industry	AURR371181A
Automotive	AUR05	Plan and manage compliance with environmental regulations in the marine service and repair industry	AURR471182A
Automotive	AUR05	Implement and monitor environmental regulations in the automotive mechanical industry	AURT271781A
Automotive	AUR05	Plan and manage compliance with environmental regulations in the mechanical repair industry	AURT471782A
Automotive	AUR05	Apply environmental regulations and best practice in the body repair industry	AURV271403A
Automotive	AUR05	Implement and monitor environmental regulations and best practice in the body repair industry	AURV371481A
Automotive	AUR05	Plan and manage compliance with environmental regulations in the body repair industry	AURV471482A
Logistics	TLI07	Implement and monitor environmental protection policies and procedures	TDTU101A
Logistics	TLI08	Care for the environment	TDTU701A
Electrotechnology/Transport/ Logistics	UEE07	Apply environment and sustainable energy procedures	UETTDREL01A
Electrotechnology/Transport/ Logistics	UEE07	Comply with environmental and incidence response procedures	UETTDREL03A
Electrotechnology/Construction/ Transport/Logistics	UEE07	Implement and monitor environmental and sustainable energy management polices and procedures	UETTDRLS23A

7.8 Property and Business Services

Importance to NSW economy (2006-7) Property and business services is the largest industry contributor to total factor income at 16.3 per cent. It has also grown more than average, with 7 per cent growth since 2002-3. Employment is 12.6 per cent of the total NSW employed workforce

Key environmental challenges	Key environmental opportunities	Key VET-related occupations	Government targets
<p>The built environment contributes to 40per cent of Australia's greenhouse gas emissions</p> <p>Improve energy efficiency in commercial buildings</p> <p>Improving efficiency of HVAC systems</p> <p>Use of cogeneration</p> <p>Improve efficiency of water use</p> <p>Reduce solid waste</p>	<p><u>Buildings</u></p> <p>Improve thermal efficiency of buildings by design and material choices</p> <p>Use of natural light</p> <p>Install solar hot water/photovoltaics</p> <p>Improve efficiency of individual components and appliances</p> <p>Improve efficiency of heating, cooling and ventilation (HVAC) systems</p> <p>Use of water saving technologies</p> <p>Rainwater collection and grey water re-use</p> <p>Waste avoidance, waste recycling</p> <p>Use NABERS</p>	<p><u>Operator</u></p> <p>Cleaner (Sustainable Practices)</p> <p><u>Trades/Technical</u></p> <p>Electrician</p> <p>Painters</p> <p>Plumbers</p> <p>Refrigeration and air conditioning technicians</p> <p><u>Supervisors</u></p> <p><u>Managers</u></p> <p>Facilities managers</p> <p>Cleaning Manager (Sustainable Practices)</p> <p>Asset manager</p>	<p>E1.Improve efficiency of water use</p> <p>E1.Increase water recycling both in Sydney and regional centres</p> <p>In Sydney, increase the volume of water recycled from 15 billion litres per year to 70 billion litres per year by 2015</p> <p>In regional centres increase the volume of water recycled</p> <p>E3. Cut green house gas emissions by 60per cent by 2050 and return to year 2000 greenhouse gas emission levels by 2025</p>

Strategy element (Property and Business Services)

Training	RTO Capacity	Green business partnerships	Skill strategy to support government program
<i>Fund Delivery of Green Units of Competency</i>	<i>Green Skills for Vocational Training Providers</i> See page 12	<i>Green Skills for Emerging Markets (Bathurst)</i> See page 12	
<p>Gaps and options</p> <p>Environmental sustainability needs to be embedded and continuously enhanced in all relevant competencies and qualifications to ensure this high environmental impact sector meets compliance requirements, especially emissions trading.</p> <p>Some of the areas and competencies covered under construction also apply to property management, e.g. thermal efficiency.</p>			

Relevant Units (Property and Business Services)

Industry/ Training Package	Code	Unit Name	Unit Code
Business Services	BSB07	Follow environmental work practices	BSBCM109A
Business Services	BSB07	Participate in environmental work practices	BSBCM215A
Business Services	BSB07	Maintain environmental procedures	BSBCM313A
Business Services	BSB07	Coordinate business resources	BSBCM407A
Business Services	BSB07	Promote innovation and change	BSBCM412A
Business Services	BSB07	Implement and monitor environmental policies	BSBCM413A
Business Services	BSB07	Lead innovative thinking and practice	BSBIN801A
Business Services	BSB07	Manage environmental performance	BSBMGT507A
Business Services	BSB07	Manage innovation and continuous improvement	BSBMGT608A
Business Services	BSB07	Manage environmental management systems	BSBMGT610A
Business Services	BSB07	Participate in environmentally sustainable work practices (Guideline Competency Standard)	BSBSUS201A
Business Services	BSB07	Implement and monitor environmentally sustainable work practices (Guideline Competency Standard)	BSBSUS301A
Business Services	BSB07	Develop workplace policy and procedures for sustainability (Guideline Competency Standard)	BSBSUS501A
Property Services	CPP07	Participate in environmentally sustainable work practices (Guideline Competency Standard)	CPPCMN3001A
Property Services	CPP07	Implement and monitor environmentally sustainable work practices (Guideline Competency Standard)	CPPCMN4002A
Property Services	CPP07	Implement asset management plan	CPPDSM5022A
Property Services	CPP07	Implement facility management plan	CPPDSM5023A
Property Services	CPP07	Develop lifecycle asset management plan	CPPDSM6007A
Asset Maintenance/ Construction, Plumbing and Services	PRM04	Prevent ozone depleting substance and synthetic greenhouse gas emissions	PRMPFES43A
Asset Maintenance	PRM04	Plan waste audit	PRMWM01B
Asset Maintenance	PRM04	Develop waste management strategies	PRMWM04B
Asset Maintenance	PRM04	Implement waste management plan	PRMWM07B
Asset Maintenance	PRM04	Inform and educate clients on waste management issues	PRMWM32B
Asset Maintenance	PRM04	Educate public on waste management issues	PRMWM33B
Asset Maintenance	PRM04	Develop an environmental management strategy	PRMWM43B
Asset Maintenance	PRM04	Carry out waste assessment	PRMWM59A
Asset Maintenance	PRM04	Apply waste avoidance techniques	PRMWM62B
Sport/Property Services	SRS003	Improve client awareness and implementation of environmental management practices	SRXRES002B
Sport/Property Services	SRS003	Contribute to the planning, monitoring and control of resources	SRXRES003B
Sport/Property Services	SRS003	Minimise waste and pollution and their environmental impact	SRXRES004B
Sport/Property Services	SRS003	Achieve an efficient use of resources	SRXRES005B
Sport/Property Services	SRS003	Establish policies and strategies to manage and maintain resources	SRXRES006B
Sport/Property Services	SRS003	Apply environmental principles in the design and maintenance of the built environment	SRXRES011B
Sport/Property Services	SRS003	Develop a comprehensive and integrated environmental management strategy	SRXRES012B

7.9 Government

Importance to NSW economy (2006-7): Government administration (including defence) contributes 3.9 per cent of total factor income in NSW and shown an above average growth rate of 7 per cent since 2002-3. Employment is 3.9 per cent of the total NSW employed workforce.

Key environmental challenges	Key environmental opportunities	Key VET-related occupations	Government targets
<p>Water scarcity. In non-metropolitan areas of NSW, urban water is supplied by 107 local council operated water utilities (LWUs). These utilities supply water to 35 per cent of the State's population.</p> <p>Local government is a large user of power and fossil fuels and consequently will need to reduce greenhouse gas emissions</p> <p>Local government owns a large percentage of building stock and consequently will need to increase energy and water efficiency in the built environment</p>	<p>Implement BASIX</p> <p>Reduce solid waste from domestic premises</p> <p>Increase use of public transport</p> <p><u>Buildings</u></p> <p>Improve thermal efficiency of buildings by design and material choices</p> <p>Use of natural light</p> <p>Install solar hot water/photovoltaics</p> <p>Improve efficiency of infrastructure, components and work practices</p> <p>Use of water saving technologies</p> <p>Rainwater collection and grey water re-use</p> <p>Waste avoidance, waste recycling</p> <p>Use NABERS</p>	<p><u>Operator</u></p> <p>Ground keeper</p> <p><u>Trades/Technical/ Officer</u></p> <p>Health, safety and environment officer</p> <p>Town Planner/Planner/ Planning officer</p> <p>Construction trades</p> <p>Landscapers</p> <p><u>Supervisor</u></p> <p>Works supervisor</p> <p>Sustainability Manager/Officer</p> <p><u>Manager</u></p> <p>Chief Planner</p>	<p>E1.Increase water recycling both in Sydney and regional centres</p> <p>In Sydney, increase the volume of water recycled from 15 billion litres per year to 70 billion litres per year by 2015</p> <p>Improve efficiency and recycling in regional centres.</p> <p>E1. Meet reliability performance standards for water continuity and quality.</p> <p>E3. Cut green house gas emissions by 60per cent by 2050 and return to year 2000 greenhouse gas emission levels by 2025</p> <p>Under the NSW Government's Sustainability Policy, government buildings need to reach NABERS 4½ star rating by 2011. There are also requirements for water savings, cleaner car fleets and waste and resource reductions.</p>

Strategy element (Government Administration)

Training	RTO Capacity	Green business partnerships	Skill strategy to support government program
<i>Fund Delivery of Green Units of Competency</i>			
Gaps and options Explore how local government skills and knowledge can support the development of sustainable communities.			

Relevant Units (Government Administration)

Industry/ Training Package	Code	Unit Name	Unit Code
Local Government	LGA04	Apply the principles of ecologically sustainable development to council decisions	LGALAND401A
Local Government	LGA04	Achieve an efficient and sustainable use of natural resources	LGAPLEM501A
Local Government	LGA04	Apply ecologically sustainable development principles to the built environment	LGAPLEM502A
Local Government	LGA04	Improve community knowledge and skills in environmental management practices	LGAPLEM506A
Local Government	LGA04	Develop ecologically sustainable land management systems	LGAPLEM606B

8. EVALUATION

The Strategy will be evaluated both in terms of its outputs (such as hours of accredited training delivery, capacity of the training system or alignment of training with other government objectives) and outcomes (such as change in business knowledge and awareness of green training options, or employer willingness to invest in green skills training).

Specific measures for the success of the strategy are outlined below for each strategy element.

Training

For training delivery the percentage increase in the number of workers undertaking DET-funded accredited courses related to sustainability will be measured against the base year of 2007. The increase in the level of training can be benchmarked against current level of training taken up by business through the Strategic Skills Program and the extent to which sustainability-related units of competency are funded for apprenticeship and traineeship training.

The uptake of accredited training in the target occupations for demonstration projects will also be measured. It is expected that the delivery of accredited courses will be a component of any green business demonstration project.

Registered Training Organisation (RTO) capacity

The strategy element which aims to build capacity in training organisations can be measured by the increase in the availability of accredited environmental training for business. The measure on which to base the evaluation would be the increase in the number of training organisations offering environmental training through the Strategic Skills Program with 2007 as the benchmark. This number should be reported annually and count the specific units and the RTOs that can deliver them.

The increase in the number (and proportion) of trainers on the NSW Approved Provider List who have underpinning environmental knowledge will also be measured by obtaining feedback from RTOs participating in capacity building workshops.

Green business partnerships

Each of these projects will have inbuilt evaluation and critical success factors. Overall these projects can be evaluated on the basis of how well they meet their stated objectives. In addition each project should provide more general information about things that worked well and what barriers need to be overcome to increase the uptake of green skills training.

Green workforce business guide and website

Increasing awareness of green skills issues will be measured by the user statistics and hits on the green skills website, including downloads and feedback obtained through the interactive component of the site. Another measure of success is to measure the number of times this website was included as a link on other websites.

The number of items in state and regional media which mentioned the *Green Workforce Business Guide* will also be used as a measure of how well the guide was promoted. The extent to which stakeholders are involved in promoting the guide is a measure of successful promotion.

APPENDIX 1. NSW GOVERNMENT INITIATIVES TO IMPROVE ENVIRONMENTAL OUTCOMES AND ADDRESS CLIMATE CHANGE

The following programs and initiatives have been developed in NSW to help business and communities meet greenhouse gas reduction targets, conserve water and move towards a more sustainable society.

Biodiversity Banking

The Biodiversity Banking and Offsets Scheme enables landholders in NSW to establish biobank sites to secure conservation outcomes and offset impacts on biodiversity from developments in areas with a similar ecology. Recent reforms to threatened species legislation have paved the way for two new approaches to threatened species conservation: biodiversity certification and biodiversity banking. Biodiversity certification and biodiversity banking will, in some instances, offer developers and local governments an alternative path to the current threatened species assessment (assessment of significance) required under the [Environmental Planning and Assessment Act 1979](#). Both approaches require an 'improve or maintain' outcome for biodiversity values, and remove the need for an assessment of significance.

The Minister for the Environment can now confer biodiversity certification on an Environmental Planning Instrument (EPI) (which include local environmental plans, state environmental planning policies and regional environmental plans) if satisfied that there will be an overall improve or maintain outcome for biodiversity values. Granting of certification is most likely to be based on local environmental plans (LEPs).

The Biodiversity Banking and Offset Scheme (BioBanking) will provide a systematic and consistent framework for counterbalancing (offsetting) the impacts of development to improve or maintain outcomes for biodiversity values. The scheme is intended as an addition to the tools that are available for biodiversity conservation. The scheme will recognise that viable, high conservation value areas must be protected to meet an improvement or maintenance outcome. The scheme will also recognise that biodiversity loss should be avoided and/or minimised before considering the use of offsets. <http://www.environment.nsw.gov.au/biobanking/infosheet06135.htm>

Building Sustainability Index (BASIX)

BASIX, the Building Sustainability Index, ensures homes are designed to use less potable water and be responsible for fewer greenhouse gas emissions by setting energy and water reduction targets for house and units. BASIX is one of the most robust sustainable planning measures in Australia, delivering equitable and effective water and greenhouse gas reductions across NSW. BASIX is an online program that is free and accessible to anyone. The user (usually the building designer) enters data relating to the house or unit design - such as location, size, building materials etc - into the BASIX tool. BASIX analyses this data and determines how it scores against the Energy and Water targets. The design must pass specific targets (which vary according to location and building type) before the user can print the BASIX Certificate.

<http://www.basix.nsw.gov.au/information/about.jsp>

Climate Change Fund

The NSW Climate Change Fund was established in July 2007. This new program is currently being developed. It includes:

- \$100 million [Residential Rebate Program](#) providing rebates for [hot water systems](#), [insulation](#) and [rainwater tanks](#)
- \$30 million [NSW Green Business Program](#)
- \$30 million [Public Facilities program](#)
- \$40 million [Renewable Energy Development Fund](#)

- \$20 million [School Energy Efficiency program](#)
- \$100 million Recycling and Stormwater Harvesting Program
- \$20 million Rainwater Tanks in Schools program

In addition, the Climate Change Fund provides \$2 million a year for the [Central Coast Water Savings Fund](#). The Climate Change Fund was established under the [Energy and Utilities Administration Act 1987](#). It incorporates the Water and Energy Savings Funds, the [Climate Action Grants Program](#) and funding from the [Environmental Trust](#).

The NSW Green Business Program provides \$30 million over five years for projects that will save water and energy in business operations in NSW. Round 1 of the Green Business Program allocated \$11.7 million to 24 water and energy projects, saving an estimated 164 million litres of drinking water and 36,000 tonnes of greenhouse gas emissions a year.

The Renewable Energy Development Program under the NSW Climate Change Fund is open for Expressions of Interest until Wednesday, February 13, 2008. It provides \$40 million over five years to support projects which are expected to lead to large scale greenhouse gas emission savings in NSW by demonstrating renewable energy technologies in NSW and supporting the early commercialisation of renewable energy technologies in NSW.

The Schools Energy Efficiency Program under the NSW Climate Change Fund provides \$20 million to help reduce greenhouse gas emissions from NSW public high schools.

Energy Future 6 Step Action Plan

This action plan is the NSW government strategy to help families and businesses save money and help the environment. The 6 step package is designed to reduce the growth in energy use and in greenhouse gas emissions. The six steps are; assistance for low income families to introduce energy savings measures, assistance for business to improve energy efficiency, provide training for trades and professional people to install and maintain energy efficiency technologies, setting emission targets and providing information.

<http://www.environment.nsw.gov.au/resources/households/decc20080300energyfuture.pdf>

Every Drop Counts

The Business Water Saver Grant is a pilot program for small to medium sized businesses using between 20 and 80 kilolitres of water a day. Sydney Water will refund half the cost of retrofitting existing equipment, buying and installing new equipment to replace existing equipment and changing business operations. Businesses can apply for funding for half the costs of projects valued between \$4,000 and \$40,000 – up to a total of \$20,000.

Government Energy Management Policy

The Government Energy Management Policy (GEMP) is NSW's response to the [National Greenhouse Strategy](#) requirement for all Australian governments to reduce greenhouse gas emissions from their own operations. Improving the energy efficiency of government buildings is one important measure in the strategy. Announced in November 1998, GEMP established targets to reduce state-wide total energy consumption in Government buildings by 15% by 2001/02 and 25% by 2005/06 (from 1995/96 levels), where cost-effectively feasible. Additional related targets have been set since 1998. Buildings owned or tenanted by Government are to achieve certain star ratings under the [Australian Building Greenhouse Rating \(ABGR\)](#) Scheme and all Schedule 1 agencies must purchase electricity with at least 6% accredited GreenPower™ i.e. power from renewable

energy sources. Under the [Cleaner NSW Government Fleet](#), agencies must progressively reduce annual greenhouse gas emissions from vehicles to achieve a 20% reduction by 2007/08 (based on 2004/05 performance).

GreenPower™

Established in 1997, [GreenPower™](#) is a national accreditation program that sets stringent environmental and reporting standards for renewable electricity products offered by energy suppliers to households and businesses across Australia. GreenPower™ aims to increase Australia's capacity to produce environmentally friendly renewable electricity by driving demand for alternative energy generation.

Since 1997, more than 748,000 residential and commercial customers Australia wide have contributed to reducing greenhouse gas emissions by buying GreenPower™, resulting in savings of over 4.9 million tonnes of greenhouse gas emissions.

The New South Wales Government first established the GreenPower™ Accreditation Program to accredit electricity retailers' renewable energy products in that state. The program was developed in consultation with the energy industry, and various non-government organisations including the Australian Consumers Association, Greenpeace, the Australian Conservation Foundation and WWF.

National Australian Built Environment Rating System (NABERS)

NABERS is a performance-based rating system for existing buildings. NABERS rates a building on the basis of its measured operational impacts on the environment, and provides a simple indication of how well environmental impacts are being managed. NABERS now incorporates the Australian Building Greenhouse Rating (ABGR). NABERS is a national initiative managed by the [NSW Department of Environment, Climate Change and Water](#)

Sustainability Advantage

Good environmental performance reduces risk, lowers costs, improves productivity and enhances reputation. Over 200 companies are currently working with the Sustainability Advantage program to manage environmental risk and ensure compliance, use resources more efficiently, integrate environmental strategies with business planning, enhance customer, supplier and community relationships, and engage and train staff to become an employer of choice. Sustainability Advantage makes sense of sustainability, pinpoints how business can benefit and provides a clear path for action. A feature of Sustainability Advantage is that businesses clusters meet and share regional, industry or supply chain interests. Cluster meetings held 3-4 times a year provide an opportunity to draw on the ideas and experiences of like minded companies.

An initial management diagnostic evaluates current environmental performance and ranks possible initiatives. Over 18 months, or longer companies can implement tailored, flexible projects selected from Sustainability Advantage modules:

- [Vision, Commitment and Planning](#) - develop a sustainability road map, including goals and the plans to deliver them
- [Environmental Risk and Responsibility](#) - undertake risk assessment, education and training to help ensure compliance with environmental law.
- [Resource Efficiency](#) - reduce waste and use less raw materials, energy and water to improve your bottom line
- [Supply Chain Management](#) - work with key suppliers and customers to get the best environmental results from products and services
- [Staff Engagement](#) - engage and train your staff to implement your sustainability plans
- [External Stakeholder Engagement](#) - build stronger relationships with your community, government, shareholders, suppliers and customers
- [Climate Change](#) - identify risks and opportunities, and develop a greenhouse gas inventory

APPENDIX 2: REFERENCES AND NOTES

Australian Bureau of Statistics (ABS) 2008 *NSW in Focus*, Cat no. 13381, released 13 June 2008. Employment data is from 2007, except in for electricity and gas, and water where 2006 Census data were used (Cat. No. 2068).

Australian State of the Environment Committee, 2001 State of the Environment Report, CSIRO Publishing.
<http://www.environment.gov.au/soe/2001/index.html>

Energy Future 6 Step Action Plan, DECC, <http://www.environment.nsw.gov.au/resources/households/decc20080300energyfuture.pdf>

Energy Savings Fund, NSW Department of Energy utilities and Sustainability (DEUS)
<http://www.deus.nsw.gov.au/Energy/Energy%20Savings%20Fund/Energy%20Savings%20Fund.asp>

Gap Analysis of Energy Efficiency Training and Accreditation for Australian Trades and Professionals and other reports, 2006 National Framework for Energy Efficiency, http://www.nfee.gov.au/trade_professional_training.jsp?xcid=140

Greenhouse gas estimates from State and Territory Greenhouse Inventories 2005, Australian Government 2007, www.greenhouse.gov.au

Growing the Green Collar Economy, 2008 Report to the Dusseldorp Skills Forum, www.csiro.au

'Go-Green' Australian Apprenticeship Industry Pathfinder Project
<http://www.cpsisc.com.au/Default.aspx?query=/projects/Go%20Green%20Stage%202> Sample Training Programs for Apprentices are available for these jobs.

NABERS National Australian Built Environment Rating System <http://www.nabers.com.au/page.aspx?code=ABOUTUSandsite=2> NSW Department of Environment and Climate Change

NSW Skills Council Paper proceedings 28 November 2007: Developing Skills for a Sustainable NSW

National Environment Protection Measure (NEPM) and National Packaging Covenant <http://www.packagingcovenant.org.au>

NSW TAFE Commission 2002 cited in Moore K (2004) Report into Curriculum and Delivery Implications for TAFE NSW to Comprehensively Deliver Building and Construction Training that Promotes Sustainable Building Practice, TAFE NSW-Western Sydney Institute.

NSW Greenhouse Plan 2005 <http://www.environment.nsw.gov.au/resources/climatechange/2811FINALNSWGHPlanweb.pdf>

Mandatory Renewable Energy Target (MRET) <http://www.greenhouse.gov.au/renewabletarget/index.html>

Solis H L, 2007 Media Release *Solis' Green Jobs Act signed into law as part of historic energy reform bill*,
http://solis.house.gov/list/press/ca32_solis/wida6/greenjobslaw.shtml

United Nations Environmental Programme (UNEP), ILO, ITUC Green Jobs Initiative (2007) Green Jobs: Towards Sustainable Work in a Low Carbon World, Preliminary Report. www.unep.org/civil_society/publications/index.asp

NSW State Plan 2006, www.nsw.gov.au/stateplan

NOTE 1. E4 Meet NSW Government targets for protection of our natural resources. Targets apply to biodiversity, water, land, and community, page 120, 121 State Plan

Biodiversity

By 2015 there is an increase in native vegetation extent and an improvement in native vegetation condition

By 2015 there is an increase in the number of sustainable populations of a range of native fauna species

By 2015 there is an increase in the recovery of threatened species, populations and ecological communities

By 2015 there is a reduction in the impact of invasive species.

Water

By 2015 there is an improvement in the condition of riverine ecosystems

By 2015 there is an improvement in the ability of groundwater systems to support groundwater dependent ecosystems and designated beneficial uses

By 2015 there is no decline in the condition of marine waters and ecosystems

By 2015 there is an improvement in the condition of important wetlands, and the extent of those wetlands is maintained

By 2015 there is an improvement in the condition of estuaries and coastal lake ecosystems.

Land

By 2015 there is an improvement in soil condition

By 2015 there is an increase in the area of land that is managed within its capability.

Community

Natural resource decisions contribute to improving or maintaining economic sustainability and social well-being

There is an increase in the capacity of natural resource managers to contribute to regionally relevant natural resource management.

