Environmental Sustainability:

An Industry Response

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Executive Summary

As a collective, Industry Skills Councils are concerned at the absence of an overarching picture and broad understanding of how the skills relating to sustainable practice are being developed and embedded within industry.

The issue is clearly complex.

But good policy formation is evidentiary based and must consider not only the written word but the unwritten sensitivities which will ultimately determine its success.

It is in this context - amid a growing debate on 'green skills' and a worrying plethora of accredited courses and policy - that the ISCs have commissioned this report into the drivers and sensitivities of industry's shift towards sustainable practice, and what work is already in place by ISCs to support the shift.

The wave of change is clearly upon us. Enterprises, industries, communities and governments are all looking, testing and thinking about solutions to reduce Australia's carbon footprint. In some areas there is clear progress but for many, this process is just beginning. Many of the high emissions industries are still to establish the implications of the Carbon Pollution Reduction Scheme (CPRS); others are focused on delivering government initiatives such as the installation of solar panels, insulation and smart meters. There is an overwhelming amount of information and opinions, and proliferation of initiatives that range from the sublime to the ridiculous. It is in this climate that the VET sector must provide a practical and effective way to develop and disseminate the skills and knowledge required to fuel an environmentally sustainable economy.

It is the role of the Industry Skills Councils (ISCs) to identify and respond to the skilling needs of their industries. To achieve this, they must be well connected to their stakeholders, develop Training Packages that accurately reflect industry needs and provide leadership in workforce development that is based on

the latest industry intelligence. From this position, the ISCs have examined the current impacts of environmental sustainability on their industry sectors and implemented a range of initiatives to address current and emerging priorities. In addition, they have collectively developed a range of principles to ensure that their activities are well targeted and effective.

Firstly, the ISCs have agreed on a definition to clarify the challenge for their industries. It is important to note that the ISCs do not support the current popularity of 'green' terminology as they believe it promotes a message that can exclude some industry sectors and is quite often used incorrectly or in a misleading manner. Many of the products and services currently deemed 'green' quite simply, are not. In addition, the ISCs acknowledge that a truly 'sustainable' outcome is one that achieves a balance between social, financial and environmental outcomes. The current challenge however is focused on the environmental aspects of this equation and so the ISCs define 'environmental sustainability' to accurately direct these priorities. Environmental sustainability is defined as:

Environmental sustainability requires the design and provision of products and services that incorporate and promote waste minimisation and the efficient and effective use and reuse of resources.

The overall goal of achieving environmental sustainability incorporates a wide range of practices. These include personal responsibility, analysis skills, for example product lifecycle analysis, transparency, including compliance auditing and reporting, conservation, and waste management. It requires a climate of innovation, collaboration and leadership. Ultimately, it must support the deployment of technologies and work practices and build Australia's workforce capacity to achieve environmentally sustainable outcomes.

In order to achieve this, the ISCs propose three essential guiding principles to underpin all VET activity.

1. **Industry specific** - *Environmental sustainability must be approached in a manner that is specific to the needs of the job and the industry within which the employee works. Skill needs will differ from industry to industry and job to job and must be addressed in a meaningful and relevant way to ensure the appropriate deployment of new technologies and work practices.*

2. **Appropriately timed** - *Environmental sustainability skill needs will emerge in an incremental way and at different rates from industry to industry. The drivers for each industry are different and priorities for change will vary accordingly. Those sectors affected by compliance requirements will be primary instigators for new developments in technology and work practices.*

3. **Adds value** - *Workforce skill requirements to support environmental sustainability objectives must be carefully assessed to determine the need for new skills and the appropriateness of existing skills. It is important that skill development adds to workforce capacity in a meaningful way and does not add unnecessarily to the burden faced by enterprises in meeting the new focus of environmental sustainability.*

The ISCs are concerned that a 'blanket' or fixed process that treats each industry in a similar fashion, or results in a standardised process of incorporating environmental sustainability skills into Training Packages, would work against these important principles and be highly detrimental to achieving the skill outcomes that industry needs.

There is extensive evidence of work completed and current initiatives to ensure that Training Packages support workforce development in environmental sustainability. In line with the principles outlined above, the ISCs have been actively engaging their stakeholders to determine how Training Packages can best serve industry in this agenda. The responses are as varied and diverse as the industries themselves.

There are a significant number of skills currently being used that will support environmental sustainability. In general, the majority of skills will not be entirely new. Many units of competency and

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qualifications already cover these skills adequately as they are; others are being revised to add specific and relevant skill or knowledge to actively incorporate or strengthen components such as waste management and efficient use of resources.

Many Training Packages, such as the Competitive Manufacturing, Water and Rural Production Training Packages, have always had environmental sustainability; resource efficiency and waste management; as central principles of competency.

ISC research has identified a range of new skills that have or are emerging as a result of environmental sustainability drivers. For industries likely to be affected by the CPRS, emissions monitoring, auditing and reporting skills are high on the list as are design and development strategies to improve energy efficiencies and design technology improvements. Risk management and environmental market research are also important new areas. Work is underway to define the new skills and knowledge requirements for these. For those affected by government initiatives, there is an immediate call for specific technical skills. EE-Oz has developed new units and Skill Sets in the installation of grid connected photovoltaic systems and smart meters to ensure skills are available to realise these government initiatives.

The forestry industry is in a unique position in that its net effect is to create a reduction in Australia's carbon footprint. However, restrictions on the use of chemicals, impacts of climate change such as bush fires and opportunity for

new markets in biofuels, are driving new skill imperatives in this industry. Many industries are looking for ways to capitilise on the opportunities that environmental sustainability brings and wanting to expand their technical competence and capacity.

Where new skills and knowledge needs are clearly identified, the ISCs have developed and endorsed new units to target specific skills. A new sustainability pathway is being developed for the Manufacturing Technology qualification; higher level units and qualifications are targeted for trade waste and hydrography. A mandatory unit of competency has been introduced across construction qualifications to ensure that this workforce incorporates environmental sustainability practice. Units of competency are being mapped to key government land care initiatives. The sustainability guideline units are widely incorporated into qualifications across Training Packages.

Nearly all ISCs have designated a staff member to oversee environmental sustainability activity and extensive work is in process for the development of new units and qualifications. All Training Package reviews currently underway or planned, now incorporate an analysis of environmental sustainability considerations for skill and knowledge development. Extensive stakeholder consultation mechanisms are in place across the board to ensure that ISCs have the latest industry intelligence to inform a strategic response.

The ISCs are confident that effective measures to address environmental

sustainability in the workplace are well in hand when it comes to Training Packages. There are still however many hurdles for the VET sector as a whole and, as we move into a more 'interconnected tertiary sector', the urgent need to address how research findings and new knowledge generated by universities can be effectively disseminated through VET pathways.

Training Packages rely on effective implementation. As the ISCs look to their industries and research to inform Training Package development, trainers and assessors will need access to targeted professional development to ensure they can deliver on the new skills and knowledge that are needed with environmental sustainability.

Environmental sustainability is an evolving field of expertise. This means that trainers and assessors will need access to ongoing professional development to ensure they are up to date with the changes. In many circumstances this will be within the capacity of trainers, especially where new practices are an extension of established skills. However for many areas, especially those at higher levels or in new areas such as sustainable design, emissions auditing, or renewable energy, this will pose a serious capacity challenge. This is not only in accessing the necessary skill and knowledge but also in the ongoing investment required in research and updating of teaching resources. Environmental sustainability outcomes are also likely to require trainers to

engage a range of delivery techniques to ensure that key learnings are achieved. Experiential learning, action research, project based learning and other learner-directed processes will be required to navigate a domain that in many cases is relatively unknown. This will be part of fostering a climate of innovation and problem solving, central practices to achieving environmental sustainable outcomes.. However these are techniques that may need to be improved for many trainers and represent an area where professional development is required

Trainers will often be facilitating skill development, rather than sharing their own skills; the trainers will need to be adept learners themselves. This means that they will need a range of educational and consultative skills to work with industry to develop training programs that add value in the environmental capacity of the workforce.

RTOs are already facing skill shortages and these will be further strained by industries wanting to implement responses to climate change. In addition, many struggle to access resources and up to date equipment to deliver on current skills. RTOs wanting to deliver training in grid connected solar systems will need to invest approximately $100,000 per campus to establish suitable training infrastructure. This will be out of reach for many, especially smaller (and rural) facilities. This limitation alone could significantly affect the ability of providers to deliver the skills required after July 1 when the Government

expands its installation scheme. The capacity of the VET sector to deliver will need further examination to determine how it needs to prepare for an environmentally sustainable economy.

VET implementation programs will need to be innovative and developed in ways that draw upon the expertise of industry, involve various stakeholders and create new networks of collaboration and sharing of resources. Centres of Excellence and best practice models will be important resources to ensure that trainers and industry have access to the most current information and industry specific tools.

Environmental sustainability presents a host of challenges, at all levels. The VET sector must stay focused on its role to support the deployment of technologies and work practices that will enable industry to embrace environmental sustainability in a manner that is effective and meaningful. The higher education sector has a major role in the development and dissemination of new knowledge and research. This report provides many examples of the VET sector at work to equip the future workforce. It is essential that this important work continues to grow and evolve as the concepts and learnings about environmental sustainability evolve. It will be a long road, but this is the VET sector's core business and the ISCs are committed to ensuring that industry has the right skills, at the right time in the right place.

Defining The Issues

Section 1:

Section 1 of this report defines the issues of environmental sustainability, a general description of how the ISCs are responding and explores some of the capacity issues for the VET sector.

Sustainability
- a definition to direct ISC activity

Introduction

Globally, we are at a challenging time in the development of humanity; we have learnt that our current way of living is not sustainable and that unless we make radical changes, future, even current generations, will be significantly and adversely affected. As we grapple with the implications of this situation throughout our societies, we find ourselves today with a myriad of terms and concepts to express a vast array of perspectives, priorities and approaches to address this critical issue.

The Industry Skills Councils acknowledge that solutions lie in all aspects of society and from many directions. In order for the Vocational Education and Training (VET) sector to generate focused and meaningful sustainability outcomes, the ISCs have established an agreed definition to underpin their activities.

Definition

In order to target the priorities of ISCs, and provide meaningful direction for their industry stakeholders, the ISCs define 'Environmental Sustainability' as having a focus on the environmental aspects of sustainability, rather than 'sustainability' per se which is generally recognised as incorporating environmental, social and economic factors. The agreed definition therefore states:

Environmental sustainability requires the design and provision of products and services that incorporate and promote waste minimisation and the efficient and effective use and reuse of resources.

Environmental sustainability practices

Environmentally sustainable practices then are those that target:

● **PERSONAL RESPONSIBILITY:**
The skill and knowledge to reflect on and manage one's own actions to ensure that they:

- *comply with and demonstrate an understanding of established environmental standards,*
- *procedures and compliance requirements*
- *reflect awareness of the environmental impact of their actions*
- *contribute to decision making and continual improvement processes targeting personal and organisational efficiencies in the use of resources, reduction of waste and in the improvement of products and processes to reduce their environmental impact*
- *embrace continual improvements and lifelong learning to improve environmental conditions now and for the future*

● **ANALYSIS:**
Analysis of the environmental impact of products and processes – this includes lifecycle analysis from creation to disposal, development and implementation of testing processes, comparative and critical analysis, environmental risk analysis

● **TRANSPARENCY:**
Determination of environmental monitoring and reporting requirements and the subsequent development and implementation of monitoring and

reporting procedures – this includes identifying and reporting on regulatory and compliance requirements relevant to organisational operations, environmental audits, environmental accounting

• INNOVATION:
Technical development – research, design and development of new and improved materials, products and processes that result in the reduction of waste, increases in energy and resource efficiencies, recycling

• CONSERVATION:
Management of existing resources – determination of protection requirements, efficient and selective use of resources

• WASTE MANAGEMENT:
Reduction of waste, increased reuse and recycling – the skills and knowledge to improve efficiencies in current technologies and processes, control pollution and manage waste by-products

• COLLABORATION:
Cross disciplinary collaboration – including cooperative research and development, brokerage of ideas and developments across traditional industry boundaries, collaborations throughout supply chains, capacity building

• DEPLOYMENT:
Commercialisation – economic, social and environmental analysis of initiatives, national and international deployment into markets, procurement decisions, provision of advice to consumers

• LEADERSHIP:
Leadership – including modeling personal responsibility and developing it in others, creating an environment of cooperation and flexibility in order to facilitate ongoing changes and improvements to technology and processes, value based leadership

• WORKFORCE CAPABILITY:
Building the cultural maturity and skills capability of the Australian workforce to recognise and engage in appropriate environmental sustainability practices.

Rationale and background

To determine the suitability of this definition, it has been important to examine some of the current terminology and perspectives.

The evolution of sustainability.
The sustainability 'movement' can be defined as having evolved through a series of key stages[1]. The first 'wave' being the 'green movement' in the 1960s and 70s which pushed for government change and corporate regulation, often working in opposition to business interests. Then in the 1980s and 90s, fueled by highly publicised social and environmental disasters, sustainability concepts expanded to target corporate responsibilities. The new millennium saw a significant shift of focus to globalisation and with it demands for responsible globalisation and the rise of anti-globalisation. Today we are experiencing a wave that is seeking sustainability at the individual, industry, community, government and international levels. What is exciting about this new era is that it is focused more on generating collaborative

solutions based on creativity and innovation, than on naming and blaming; after all, we are all now part of the problem. With this in mind, it is important that current definitions of sustainability uphold a vision that is inclusive in its application across all industries and all participatory levels and that it avoids marginalising any particular group.

How green is sustainability?
This brings us to the current popularity of the term 'green'. It is clear that this term is generating widespread support and usage; it's catchy, affirmative and media friendly. However identifying sustainability as being 'green' has a number of potential problems and limitations. Firstly, the 'green' movement has a history of being confrontational, often interpreted as challenging the interests of industry and without arguing the merits of this, there are many sections of our communities and industries that still harbor a negative view about the term green and green campaigners. Using 'green' terminology risks alienation of a wide range of people and may limit support of genuine sustainability discussions and solutions.

Secondly, it is incorrect to assume that 'green' and 'sustainable' have the same meaning or indeed the same outcome. There is a growing misunderstanding about this. Green can indicate a preference for natural rather than man-made materials/products/processes etc. Where in reality, given factors such as population, climate, lifestyle, economics and resource availability, the most environmentally friendly and sustainable solutions are quite likely

1. Sustainability **http://www.sustainability.com/insight/trends-and-waves.asp**

Defining The Issues

to involve extensive use of man-made technologies. Alternatively, green implies that the outcome of the product or service will in some way benefit the environment. Again, this is more often than not inaccurate and risks sending confusing messages to consumers. For example, while solar panels are considered to be 'green' technology, the process of replacing a functioning electric hot water system that has 10 years life left, with a new solar system could result in a net loss to the environment when the use of resources and generation of waste are taken into consideration. While solar clearly offers significant options in renewable energy, the example is given merely to illustrate the simplicity of the green branding approach. Efforts to carry out recycling of many of the products used by our society may sound like a "green" initiative; however in reality some recycling activities create more carbon emissions than would simple disposal of the original product. Recycling may allow people to feel as though they are behaving in a "green" fashion, however reducing the use of products that create pollution in their manufacture, distribution and use, is far more important than recycling. Sustainability and carbon pollution are complex issues and not adequately represented by a general populist term such as "green".

Finally the 'green' terminology is difficult for many industries to relate to. Industries such as community services, cultural services, entertainment and financial services would all consider their role in sustainability to be a valuable contribution, however may not easily package their products as green. Accounting skills will be integral to reporting for the Carbon Pollution Reduction Scheme, but are not necessarily 'green skills'.

The popularity of green branding is undisputable, but we are still in early days of this social change and already there is significant risk that the plethora of claims that range from scientifically proven to marketing driven, will dilute and cliché this important process that needs to integrate communities at a very practical level.

The ISCs are reluctant to enter the current proliferation of claims about the 'green' merits of initiatives and are more concerned with the development and deployment of skill and knowledge required to achieve practical, long term, sustainable outcomes. To support this position, the ISCs need an interpretation of 'sustainability' that is relevant to its workforce development responsibilities.

The most well known and accepted definition of sustainability is:

'Development that meets the needs of the present without compromising the ability of future generations to meet their own needs'
(World Commission on Environment and Development 1987)[2].

This definition contains within it two key concepts:

1. *the concept of 'needs', in particular the essential needs of all communities which can take into account equality issues across communities and countries; and*
2. *the idea of limitations imposed by the state of technology and social organization on the environment's ability to meet present and future needs.*

What is noticeable about this definition is that it allows for a multi-dimensional approach to sustainability that incorporates environmental, social, economic and potentially more aspects for consideration. It implies that sustainability is the achievement of a balance between these values that can be maintained over the long term, even indefinitely. The focus of today's priorities is on addressing an imbalance in the environmental aspects of sustainability and a focus per se on 'sustainability' risks underplaying the critical focus now required on environmental values. In order to ensure that the environment is central to current sustainability efforts; although not to the exclusion of social and economic factors; the ISCs have adopted the terminology of 'environmental sustainability' as the target for definition, to clearly identify this new directive and help to focus workforce development in this area. This will also assist to identify skilling gaps from the other extensive sustainability skills already firmly integrated into training initiatives.

2. The Report of the Brundtland Commission, Our Common Future, published by Oxford University Press, 1987

Industry approach to environmental sustainability

The ISCs are keenly aware of the growing focus on environmental sustainability and the important role that the tertiary sector will play in disseminating the skill and knowledge necessary to achieve improved environmental outcomes. They are also very much in touch with the drivers and challenges that each of their industry sectors are facing with regards to adoption and compliance of sustainable practice. Extensive work has already been completed by the ISCs to prepare the workforce to install, operate, maintain and apply sustainable technologies and work practices. For most, environmental sustainability is not a new concept and a variety of approaches to addressing these skill needs have been in place for some time. This section of the report provides an overview on how the ISCs are approaching environmental sustainability issues and workforce development needs.

Section 2 provides a more detailed description of the drivers and sensitivities for the various industry sectors and the ISC specific responses.

The impacts and timing of environmental sustainability agendas on the workforce are still being identified. Industry is still sifting through the mountain of new information and opinions to determine what environmental sustainability means for them, what are the new technology needs and how will workplaces be affected? Also, many question – what actually will make a difference?

At this stage, many new initiatives are based on solutions that are ready to implement. For example, Government funding for installation of solar panels, insulation and smart meters have allowed these industries an immediate response to environmental objectives. EE-Oz has had Certificate II – IV qualifications in Renewable Energy for some time, however the ISC has now also developed new units and Skill Sets in the installation of grid connected photovoltaic systems and smart meters to ensure skills are available to realise these initiatives. The Certificate IV in Renewable Energy provides a specialised pathway for both qualified electricians and apprentices in the design and installation of these new technologies.

For some industries, environmental sustainability is nothing new. Forestry already provides a carbon capture capability which is well recognised, while agriculture has been struggling with water and land sustainability issues for many years. Accordingly, the Rural Production Training Package already has extensive coverage of environmental sustainability at both the unit and qualification level.

For other industries, change will be a much slower process. Coal mining for example is an infrastructure intensive industry which will still remain a primary energy resource, despite its emissions. Details and scope of the Carbon Pollution Reduction Scheme and other government imperatives are not yet available, and so the immediate implications and priorities are still to be determined at an enterprise level, for those industries that will be affected.

Industry Skills Councils' Response

In an industry driven system such as Australia's VET system, the onus is on the ISCs to ensure their contact with industry is able to effectively identify and respond to the new skill needs that emerge, promptly and accurately. The ISCs see this level of contact to be essential to their core business and all have extensive strategies in place to achieve this outcome. Their approach to environmental sustainability skills is as it is for any emerging technology, skill or process: i.e. industry specific, relating to specific workforce development needs, and based on industry directives. This makes the ISC response to environmental sustainability two-fold. Firstly ensuring that Training Packages are responsive to workforce development needs, and secondly providing leadership on workforce development that is informed by the latest industry intelligence.

A stocktake of current coverage within Training Packages demonstrates that even at this formative stage of the debate, environmental sustainability is already covered at a number of levels:

1. **Within existing skills and qualifications in their current format.** *This reflects the reality that many skills used to produce, apply and use new technologies and processes are the same. For example fundamental manufacturing skills such as quality checking, measuring, machine operations etc. can be applied in a similar way, regardless of the product. This also acknowledges*

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'Work effectively and sustainably'

that central issues such as waste management and energy efficiency are often already addressed, for example within Competitive Manufacturing, Water and Rural Production Training Packages. Where specific additional knowledge is required to support the application of skills in a new environmentally sustainability context, this is being incorporated into existing units.

2. **Within newly developed units.** Where new skills and knowledge needs are clearly identified, the ISCs have developed and endorsed new units to target specific skills. This is especially the case where government initiatives or new regulatory requirements have driven change in work practices.

3. **Within Sustainability Guideline Units.** Most qualifications in Training Packages now incorporate or have access to the sustainability guideline units. Many ISCs are currently reviewing the appropriateness of these units for their industry sectors.

As illustrated in Section 2 of this report, the ISCs are engaged in extensive research to continually identify the implications and needs that result from environmental sustainability drivers. In addition, most have also completed or are currently engaged in further initiatives that are reviewing and strengthening Training Package coverage of environmental sustainability skills. Almost all ISCs have designated a staff member to oversee environmental sustainability developments across their Training Packages.

A wide range of projects are being undertaken (or completed) to address environmental sustainability in Training Packages. Examples include:

- Inclusion of a new unit 'Work effectively and sustainably in the construction industry' as mandatory for all those working in the construction industry.

- Industry consultation to determine workplace impacts in the mining industry.

- Development of a sustainability pathway within the Manufacturing Technology qualification.

- Development of higher level units and qualifications for trade waste and hydrography for the Water Training Package.

- Rework on Competitive Manufacturing units to incorporate environmental sustainability more specifically.

- Updating of fire protection units, and drafting of new units to meet ozone depletion compliance regulations.

- Rework of units within the Plumbing Training Package to more specifically target waste management.

- Identification of Rural Production units that support implementation of Government Natural Resource Management programs.

- Incorporation of performance criteria in complying with workplace environmental standards, in the Food Processing Training Package.

- Development of photovoltaic installation and smart meter units and Skill Sets within the Electrotechnology Training Package.

Guiding principles for workforce development in environmental sustainability

The ISCs agree on three guiding principles to address environmental sustainability in Training Packages. These support appropriate and effective workforce development strategies. Essentially, Training Package developments for environmental sustainability should be industry specific, implemented as required by industry in a way that adds value to workforce outcomes.

1. **Industry specific** - Environmental sustainability must be approached in a manner that is specific to the needs of the job and the industry within which the employee works. Skill needs will differ from industry to industry and job to job and must be addressed in a meaningful and relevant way to ensure the appropriate deployment of new technologies and work practices.

2. **Appropriately timed** - Environmental sustainability skill needs will emerge in an incremental way and at different rates from industry to industry. The drivers for each industry are different and priorities for change will vary accordingly. Those sectors affected by compliance requirements will be primary instigators for new developments in technology and work practices.

3. **Adds value** - *Workforce skill requirements to support environmental sustainability objectives must be carefully assessed to determine the need for new skills and the appropriateness of existing skills. It is important that skill development adds to workforce capacity in a meaningful way and does not add unnecessarily to the burden faced by enterprises in meeting the new focus of environmental sustainability.*

Is the VET workforce up to the challenge?

The VET sector, and increasingly, the notion of a broader tertiary sector will play a critical role in achieving Australia's carbon reduction goals. It will diffuse the skills and knowledge needed to deploy new technologies and work practices across entire industries. It will act as a major agent in organisational and technological change.

The effectiveness of this sector depends on the quality and relevance of Training Packages and their implementation. This section of the report looks at the training delivery issues and implications of the environmental sustainability agenda.

The ISCs have established that the skill needs, environmental drivers, priorities and national policy initiatives vary from sector to sector. In order to respond accordingly to this variety of conditions, the ISCs have established three guiding principles for the inclusion of sustainable practice: that Training Package developments

are industry specific; they are timed appropriately; and that they add value. These principles need to be maintained at the delivery level in order to support industry to meet the new environmental challenges. A standardised approach to delivering training in environmental sustainability will not be effective in generating the long-term changes that are needed.

This presents a range of issues for delivering training in environmental sustainability:

1. Environmental sustainability is an evolving field of expertise.

While Training Packages themselves will provide guidance in this area, learning strategies and training resources will need to stay current, incorporate new work practices and technologies as they emerge and apply them to a range of work contexts. In many circumstances this will be within the capacity of trainers, especially where new practices are an extension of established skills. However for

many areas, especially those at higher levels or in new areas such as sustainable design, emissions auditing, or renewable energy, this will pose a serious capacity challenge. Embedding the required skills within the tertiary workforce, and crucially, maintaining the currency of those skills, will not be achieved through a limited investment model. The speed with which technology, practices and knowledge will continue to evolve in this area must be met with a matching commitment from government and providers alike

2. Environmental sustainability requires a range of learning outcomes.

This includes receiving new knowledge and developing new skills, but also developing problem solving ability, selecting particular behaviours and applying an attitude that supports sustainable actions. Getting learners to fully appreciate the environmental implications of their actions and to then choose sustainable actions,

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presents a difficult challenge. Environmental sustainability also calls on expertise from a range of disciplines, requiring collaborative work practices and an environment of innovation. In all, gaining 'competency' in environmental sustainability is likely to require a range of learning experiences and require trainers to use a variety of non-traditional educational models such as experiential learning, action research, and other learner-directed education techniques.

A study conducted by Clayton and Blom (2004), found that teacher confidence in applying these kinds of learning models is actually quite low. Only 50% of teachers indicated that they felt they had the skills in 'enhancing learner autonomy, negotiated learning, collaborative assessment, implementing innovative approaches and using problem-based learning approaches.'[3]

3. Teachers will also be students.

Trainers will need to provide customised skill solutions for clients that may be performing beyond their own skill and knowledge. Rather than provide a known solution, trainers will need to work collaboratively with their clients to develop meaningful training programs. This requires trainers to have consultative skills to determine delivery options and also to distill their own learning into training resources.

The implementation of the Competitive Manufacturing Training Package also requires this kind of consultative process where the trainer's own knowledge and skill may be less than their client's. This has resulted in many RTOs engaging third party experts to achieve effective delivery of Competitive Manufacturing programs. It is possible that this strategy may be required for some of the training in environmental sustainability (dependent on the availability of these skills). Alternatively, additional professional development for trainers will be required.

4. New technologies will need new learning resources and facilities.

The ability of training organisations to provide a learning facility that includes the latest technologies has long been a concern for industry, with many believing that RTOs are struggling to keep up with current technologies. Lack of access to equipment not only affects a trainer's ability to deliver skills, but also to develop their own. The budget constraints of many public (and private) providers are likely to hinder training initiatives. For example, RTOs wanting to deliver training in grid connected solar systems will need to invest approximately $100,000 per campus to establish suitable training infrastructure. This will be out of reach for many, especially smaller (or rural) facilities. This limitation alone could significantly affect the ability of providers to deliver the skills required after July 1 when the Government expands its installation scheme. Government commitments such as the *'Skills for the Carbon Challenge'* initiative need to identify and target skills issues like this in order to effectively move forward with its carbon reduction objectives.

In addition to equipment, a suite of new learning resources will be required to support new environmental sustainability skilling goals, as well as rework of existing resources to incorporate new information. A review of sustainability resources for industry conducted in 2004 found that "The majority of the products reviewed are guides, providing background information and/or listing requirements. The approach is usually prescriptive and therefore not always relevant to the audience."[4] "The products are generally better at describing the 'what' than the 'how'". While there may well be improved resources now available, it is likely that continual improvements will be necessary to support quality training outcomes in environmental sustainability.

3. Finding the common ground: Is there a place for sustainability education in VET? 4. Industry Sustainability Toolkit Project: A review of sustainability resources for industry. Australian Research Institute in Education for Sustainability and Arup Sustainability for the Department of the Environment and Heritage, Australian Government. 2004. Canberra Publishing and Printing.

5. The VET sector already faces a skill shortage.

A shortage of qualified trainers and an aging workforce are a capacity issue across most industries. Environmental sustainability training will require teaching staff in both generic sustainability skills (such as change management, supervision, problem solving, leadership etc.) and their application as well as technical, industry specific skills. In addition, these trainers will need to understand environmental sustainability issues and be able to instill in others, a supportive attitude to the changes required. The shortages are cause for concern, as the technical teaching workforce will be under increasing pressure to help industries respond to energy efficiency and carbon reduction initiatives in coming years.

The tertiary sector as a whole will require serious and long term investment to increase its capacity to deliver skills that will fuel an environmentally sustainable economy.

Professional Development Strategies

With environmental sustainability one of the key priorities for governments and communities, VET is under pressure to address its capacity issues. While some of these can be managed through financial investment, many point to a critical need for professional development support to enable trainers and assessors to deliver an effective service.

Up skilling opportunities

Opportunities for trainers from both RTOs and enterprises to develop their environmental sustainability skills, need to be as wide and varied as the application of new skills demand. Areas of particular need for professional development are those that mirror the new sustainability skills that are emerging so far. For example:

- *Compliance strategies and management including environmental auditing and environmental impact statements*
- *Pollution control and waste prevention and management*
- *Risk management and sustainability*
- *External/community liaison*
- *Environmental and sustainability management systems*
- *Cleaner production*
- *Environmental markets (carbon trading implications)*

In addition, professional development in learner-directed education strategies, industry consultative techniques and interdisciplinary, collaborative work practices could also support the dissemination of sustainability skills.

Skill development for trainers and assessors could be facilitated through a range of up-skilling opportunities such as specialised courses, engagement of experts, mentoring programs, research projects, use of e-learning resources etc. Project based activities and partnerships are also considered to be valuable in generating collaborative skill and knowledge transfer. There are many highly successful school-based examples of this at work. For example, Coffs Harbour High School engages Coffs Harbour Jetty DuneCare Inc, Coffs Harbour & District Local Aboriginal Land Council and local government to provide support and mentorship in its environmental repair and education program.

One ISC is currently exploring an industry proposal for the development of specialist qualifications to provide pathways for up-skilling existing workers so they can take on training roles. These qualifications include technical skills as well as program development and delivery skills underpinned by the existing Certificate IV in Training and Assessment.

Ongoing analysis will be required to identify emerging skill gaps in trainers and assessors.

Defining The Issues

Australia faces a range of challenges in order to equip the workforce with skills

A life-long learning approach to professional development

In order to evolve with new technologies and practices, it is essential that trainers and assessors continually evolve themselves. Currently, registration requirements for RTOs do not include professional development expectations, and RTOs vary in their own mandates. It is acknowledged that, especially with skill shortages as they are, trainers are sorely missed (and expensive to replace) when they return to industry or attend development programs. However, the current variations in approach to professional development do not support a strong culture and system of skill development for trainers and assessors.

At the same time, it was apparent through the assessment program implemented recently by the Institute of Trade Skills Excellence (ITSE) that there are many RTOs that have excellent arrangements with industry that support the professional development of their trainers. This type of relationship must be encouraged and supported in order to stay close to industry developments and applications for environmental sustainability. Partnerships with government agencies, research organisations, industry, other institutes, professional networks and industry associations are also essential in maintaining professional currency.

Quality implementation resources

The provision of high quality training resources to support environmental sustainability will not only support the quality of training delivery, but also provide a valuable learning resource

for trainers themselves. Advice for the need for updates will also help to keep RTOs informed and their delivery, current.

Sharing and promotion of best practice models, delivery resources, activities, simulations and case studies will help to equip RTOs with industry relevant information and tools to develop their capacity in the area of environmental sustainability. It is probable that additional support will be required to ensure that delivery meets the needs of industry.

Whole of sector approach: Centres of Excellence

The needs of industry are specific and different. At the same time they may cross sectors and disciplines, up and down the skills hierarchy. New jobs are being created and career pathways are changing. New technologies are emerging and work practices being applied in different ways. There is an imposing amount of information, some accurate, some not. It's hardly surprising that determining best practice environmental sustainability is out of reach for many enterprises and RTOs.

The notion of Centres of Excellence offers a way forward for overwhelmed industries. They provide a forum for research, analysis, dissemination and development of best practice models and resources. They offer a bird's eye view with a global perspective and provide an opportunity to forge partnerships with research centres, universities and other development organisations. Centres of Excellence

can provide an RTO context and information hub for professional development opportunities. They also ensure that those less well resourced, still have access to quality information and resources.

The Swinburne Institute's National Centre for Sustainability provides a range of resources that support learning for sustainability. More supports like this and with greater scope, must be available to help facilitate this significant change process.

Centres of Excellence could be industry focused or issue focused (for example renewable energy, waste management) but should be developed as central resources that build capacity, link and strengthen private and government resources, and result in skills for industry.

Australia faces a range of challenges in order to equip the workforce with the skills needed for a future that will largely be determined by its environmental sustainability. VET's core business is supporting the major strategic shifts in the skills profile of Australia's workforce needed to meet Australia's economic and social policy. We will know we have succeeded when sustainable practice is embedded to the point of being invisible; when our practices are so smart that they are synonymous with and drive productivity growth; that as a country, we are seen as cutting edge not just in the skills of our people but in the system that builds our workforce.

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AgriFood Australia

This section examines the key drivers for the ISC industries. It provides a picture of how environmental sustainability is currently impacting the different industries and how the ISCs are responding. This section includes description of current coverage within Training Packages and outlines the ISC initiatives that are designed to increase the ability of Training Packages to support the deployment of environmental sustainability solutions through the workforce.
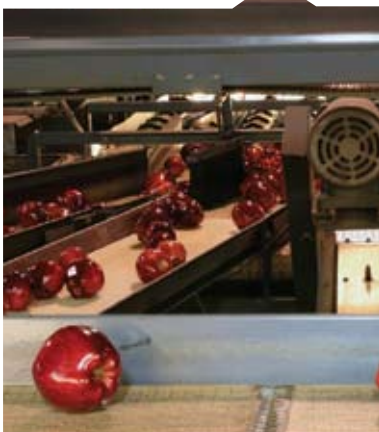
The AgriFood industries cover rural and related industries, food processing (including beverages, wine and pharmaceuticals), the meat and seafood industries and racing. Together these industries generate more than $200 billion a year, which represent 46 per cent of retail sales and roughly 20 per cent of exports. Up to 880,000 people work in the AgriFood sector, comprising some 140,000 separate enterprises.

AgriFood Skills Australia is responsible for the following ten Training Packages.

AGF07
AgriFood Training Package

FDF03
Food Processing Industry Training Package

MTM07
Australian Meat Industry Training Package

RGR08
Racing Training Package

RTD02
Conservation and Land Management Training Package

RTE03
Rural Production Training Package

RTF03
Amenity Horticulture Training Package

RUV04
Animal Care and Management Training Package

SFI04
Seafood Industry Training Package

SUG02
Sugar Milling Training Package

AgriFood industries are responsible for nearly two thirds of Australia's landmass and natural resources. Sustainability of these resources has long been fundamental to their ongoing viability. However, these industries are under extreme strain when it comes to environmental sustainability.

On the one hand, agriculture is responsible for 17 per cent of Australia's total carbon emissions and as such may come under scrutiny to improve its carbon performance. Irrigation techniques and water usage, use of fertilizers and land management processes are all under examination to find more efficient strategies.

On the other hand, agriculture, food production and seafood all stand to bear in full, the impacts of climate change. Conditions such as drought, dryland salinity, warming sea temperatures and changing ocean chemistry will potentially have devastating effects on these industries. AgriFood industries have always been conscious of improving environmental performance as their very existence is dependant on the sustainability of land and sea.

The food industry is also seriously concerned that it will incur additional costs generated by the Carbon Pollution Reduction Scheme, which will reduce the competitiveness of Australian products against imported products that do not incorporate carbon costs. The food processing industry is one of the largest users of water, drawing on approximately 28 per cent of the total water used in manufacturing nation wide.

At the same time, the AgriFood industries are engaged in multiple strategies to address environmental issues. Agriculture now plants over 20 million trees a year, with the concept of carbon farming and

sequestration becoming a serious option for farmers wishing to diversify income streams.

The Australian Government has implemented a range of initiatives that target environmental sustainability such as Farm Ready and Caring for our Country. It has allocated $26.5 million over four years to boost training opportunities for primary producers, and to enable industry, farming groups and natural resource management groups develop strategies to adapt and respond to the impacts of climate change These programs draw on fundamental skills within AgriFood Skills Australia's workforce development focus.

There are a myriad of other programs at a national, regional and local level that target environmental sustainability objectives. It is clear that climate change, seasonal variability and the environment remain overriding issues for these sectors. Sustainable use and management of natural resources (land, water and vegetation) are now fundamental skills required at all levels of the workforce. Alongside sit the skills and knowledge to understand and support climate change mitigation and adaptation strategies, much of which will draw on the industry's capacity to attract and interact with scientists and researchers.

Skills in water management, information technology, natural resource management, risk management and in the use of increasingly sophisticated equipment are all paramount to enhancing productivity and sustainability in these industries.

Key drivers for AgriFood industries

Viability. The ultimate viability of many of the AgriFood industries depends on highly efficient systems that are environmentally sustainable. Chronic water shortages demand that farmers are able to identify, access and implement water management strategies and technologies that support long term productivity. Farm planning and selection of appropriate agricultural processes will be critical skills to ensure maximum gains are achieved with minimal resources. Farming communities are looking for ways to improve the condition of their working environment, not just to reduce the environmental impact of practices. In many cases, farmers are already combating environmental degradation.

Coordination of strategic programs

Land management practices are widely recognised as primary influences on environmental conditions. A range of programs have been implemented in order to facilitate the best possible outcomes. A large proportion of these initiatives relies on dissemination of skills and new knowledge to large numbers of people who live and work in agricultural sectors. The 'Caring for our Country' initiative targets 42,000 farmers to increase their uptake of sustainable farm and land management practices. AgriFood Skills Australia plays an essential role to ensure that the required skills and knowledge are available to support these critical initiatives.

Sustainability in AgriFood Skills Australia Training Packages

Environmental sustainability has been central to skill and knowledge covered within AgriFood Skills Australia's Training Packages for many years and is considered to be 'good practice' by all its stakeholders. The ISC takes environmental sustainability drivers very seriously and has engaged extensively with stakeholders and strategic programs to ensure that its training products support continuous improvement in this area.

Training Packages include a large number of units that specifically address environmental sustainability skills. A small sample includes:

RTE4203A
Implement a property improvement program

RTE5524A
Develop and implement sustainable land use

RTE4603A
Implement an irrigation related environmental protection program

RTD2202A
Conduct erosion and sedimentation control activities

RTC2401A
Treat weeds

RTD4504A
Monitor biodiversity

RTD5003A
Manage natural area restoration programs

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RTC5504A
Develop a management plan for a designated area

RTE4814A
Provide information and referrals on environmentally responsible fertiliser and ameliorant use

RTC4513A
Supervise acid sulphate soil remediation and management projects

RTD2502A
Maintain wildlife habitat refuges

RTD3034A
 Implement revegetation works

RTD3132A
Survey pest animals

RTD3205A Construct conservation earthworks

RTD3212A
Implement erosion control and sedimentation measures

AgriFood Australia sustainability initiatives

AgriFood Skills Australia plays an important support role in the implementation of programs that target environmental sustainability, especially in rural communities. A significant number of government programs are aligned to national units of competency. The ISC has conducted extensive research to determine the skill implications of initiatives and to ensure that Training Packages are able to meet skill needs.

Initiative 1: Incorporation of environmental considerations within the Evidence Guide of each unit of competency within the Rural Production (RTE03) and Amenity Horticulture (RTF03) Training Packages.

Initiative 2: Research of government land care and farming initiatives and the role of national Training Packages in their implementation. The ISC has identified a range of opportunities to improve the outcomes of initiatives using the national VET system.

Initiative 3: Mapping of units of competency from the Rural Production, Amenity Horticulture and Conservation and Land Management Training Packages to the NRM and ESD programs to help facilitate their deployment.

Initiative 4: Development of a range of Skill Sets targeting operational functions and industry programs including: Sustainable Agriculture Training Plan, Fertilizer Industry Accreditation Program (Fertcare), Cotton Advanced and Cotton Seed (Cotton Australia) and chemical user accreditation programs.

Initiative 5: The Rural Training Package has been used to support a range of training initiatives for conservation programs such as Green Corps and Greening Australia.

Initiative 6: Analysis of key learning and skill objectives of the Farm Ready program and mapping of units of competency which improve the capacity of primary producers and land managers to adapt to climate change and increase their self reliance and preparedness.

Initiative 7: Development of a pre-vocational Weed Management Skill Set which incorporates safe chemical application and general education components.

Initiative 8: Incorporation of performance criteria requiring application of skill according to workplace environmental standards, within operational units in the Food Processing Training Package.

Initiative 9: Provided input to Irrigation Australia in the Development of a Skill Set that achieves the industry Certified Irrigation Manager (CIM) certification.

Initiative 10: Incorporation of guideline sustainability units into the Food Processing Training Package.

Initiative 11: AgriFood Skills Australia is working collaboratively with many of the Research Development Cooperations (such as cotton) to incorporate VET in their research and development opportunities.

The community services and health industries are the third largest employer in Australia, employing 1,134,200 people across an extraordinarily diverse range of occupations.

Community Services and Health Industry Skills Council

The ISC cover services in aged care, mental health, children, youth and family, disability, and drug and alcohol, and a comprehensive range of health services such as nursing, ambulance care, dental, optical, alternative health etc.

The Community Services and Health ISC is responsible for the following Training Packages:

CHC08
Community Services Training Package

HLT07
Health Training Package

Environmental sustainability in these industries is predominantly aligned to issues of procurement, waste management and the design and energy efficiency of the buildings in which they operate. With hygiene and safety requirements resulting in extensive use of disposable products, these industries face a difficult dilemma in improving their waste performance. Clearly it is dependant on technological improvements in the biodegradability of materials and disposal processes to make a significant impact, at the same time, strict budgets will determine an organisation's ability to participate in initiatives. Only with cost effective alternatives, will purchasers be able to support environmentally sustainable outcomes.

This sector also faces regulations with regards to the use of water and chemicals used in cleaning and sanitation. These impact on work practices and procurement decisions.

Community services are increasingly participating in environmental sustainability initiatives such as volunteer tree planting, rubbish removal and environmental repair programs. This requires some additional skills and knowledge to facilitate and organise this type of community project.

An important feature of the community services and health sector is that it is predominantly dependant on government funding, and faces substantial cost constraints in meeting its extensive social responsibilities. As such, these organisations have applied extensive effort in reducing costs, including waste, and increasing efficiencies. Any environmental sustainability initiatives that would incur additional expense would probably be beyond the reach of most organisations without additional and designated funds. Environmental sustainability is unlikely to become a high priority in this sector while access to health services is still a serious issue in Australia.

Key drivers for the CS&H industries

Drivers for an increased focus on environmental sustainability include improved waste management, more efficient design and construction of buildings and sustainable practices with regard to the use of hazardous substances and disposable products.

Government Policy. This sector will respond to environmental sustainability issues with a policy directive from government, accompanied with appropriate funding. A serious investment into analysis of work practices, energy efficiency of operations and design of community and health facilities, is unlikely to become a priority without a government imperative.

Community values. Participating in environmental projects may become an increasing priority for communities to allow individuals opportunity to actively reduce their environmental footprint.

Waste management. The reduction of waste is a driver for new developments in practices and products which also meet hygiene and safety standards.

Sustainability in CS&H Training Packages

At this stage, environmental sustainability as a specific skill is not widely targeted through the CS&H Training Packages. Many of the drivers for this industry will in fact relate to other ISC sectors such as manufacturing and building design and construction.

Some of the key environmental sustainability skills in this sector will most likely relate to capturing information, interpreting government policy and disseminating and implementing change.

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There are a small number of units that relate specifically to environmental process, for example:

HLTPOP216B
Monitor and maintain septic or on-site systems

HLTPOP217B
Monitor and maintain sewerage or effluent systems

HLTPOP218B
Monitor and maintain water supply

HLTPOP220B
Monitor and maintain rubbish collection and disposal systems

HLTPOP319B
Conduct testing and interpretation of results of community water supply

The guideline sustainability units have not been imported at this stage, but will be assessed for their usefulness to this sector.

CS&H Sustainability Initiatives:

The CS&H ISC is currently undertaking industry research and calling on industry input to determine what the environmental sustainability issues are in this sector and how they can best be addressed in Training Packages. The ISC is sensitive to imposing any additional requirements on this sector in the name of environmental sustainability, which result in an increase in its financial stress.

Initiative 1: Industry consultation conducted as part of Training Package reviews and continuous improvement works, will seek to gain information about the environmental sustainability skill needs of this sector.

Initiative 2: Invitation to industry to participate in environmental sustainability research.

Construction and Property Services Industry Skills Council

CPSISC represents the workforce training and skills development needs of the construction and property services industries which employ more than 1.6 million Australians in approximately 500,000 enterprises.

The industry coverage of this Skills Council includes property development, sales and management (covering commercial property management, real estate services, community and strata management, stock and station agency); spatial information services; security (including investigative services, security operations, control room operations, risk management services and installing and providing security monitoring services); residential, commercial and industrial cleaning; specialist carpet cleaning; installing, inspecting and maintaining fire protection equipment and fire safety systems; pest management and waste management services. The construction industry incorporates residential and commercial building and support services such as surveying, building planning and aspects of design, off-site construction such as shopfitting, sign manufacture and all plumbing and services roles such as general plumbing, roofing, mechanical services and fire protection.

CPSISC is responsible for the following three Training Packages:

CPC08
Construction, Plumbing and Services Integrated Framework Training Package

CPP07
Property Services Training Package

PRM04
Asset Maintenance Training Package

The Construction and Property Services industries face a number of challenges with regard to improving environmental outcomes.

Residential and commercial buildings are responsible for a significant proportion of Australia's greenhouse emissions, an outcome influenced by their construction and energy efficiency. There are various estimates of the amount of greenhouse emissions that are attributable to energy use in buildings. The Centre for International Economics (2007) estimates that buildings are responsible for around 23 per cent of Australia's greenhouse gas emissions, although this figure excludes emissions from the construction, renovation and demolition of buildings, and non-CO2 emissions such as refrigerants. The Centre for International Economics has also projected that emissions attributable to energy use in buildings will grow in both the residential and commercial sector. The emissions generated in the construction and refurbishment of buildings and appliances is also significant.[5]

Key drivers for the CPS industries

Key drivers for an increased focus on environmental sustainability include better work practices and more efficient use of human and other resources, improved waste management, more efficient design and construction of buildings and sustainable practices with regard to the use of hazardous substances.

Waste management. Reduction of waste is seen as a primary driver for achieving improved environmental sustainability outcomes and this sector will be affected by increases in disposal charges and taxes. This will strengthen a focus on skills and processes in sorting, recycling and reuse. Landfills are also undertaking new processes such as being developed to generate their own energy which can be harvested for local recycling purposes or distributed. Pressures on waste management will require research and development skills for more environmentally sustainable solutions throughout the waste supply chain.

Building design and construction. The design and construction of energy efficient buildings will increasingly be a driver for skills and services in the construction industry. This includes the design of new buildings and components as well as installation of new technologies, and retrofitting or upgrading of current or old technologies. Government incentives, directives and stimulus spending programs have already seen a spike in demand for skilled workers to install technologies such as water-saving

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and storage equipment, insulation products and solar panels, aimed at improving the environmental sustainability of domestic housing. With growing government commitment to environmental programs such as these, demands on skills will only increase.

The skill demands will include a mix of well established skills with some new skills and knowledge relating especially to the new technologies and processes, and meeting compliance requirements specific to the construction industry. As consumer awareness increases, this sector will also experience increasing demand to provide meaningful information and advice for customers wanting to reduce their carbon footprint.

Use of chemicals and ozone depleting substances

The fire protection sector has growing regulatory and (Commonwealth) environmental protection requirements such as licenses associated with the use of Synthetic Greenhouse Gasses and Ozone Depleting Substances. It is critical that licensing and legislative requirements are known and applied.

Cleaning agents, pest controls, paints and other environmentally hazardous products will come under greater scrutiny with the selection and procurement of more environmentally friendly products, a growing requirement of decision makers in these industries. Techniques in using and disposing of these products according to strict environmental guidelines will also be a more fundamental expectation of properly completing work requirements.

Sustainability in CSPISC Training Packages

Environmental sustainability has been incorporated within the CPSISC Training Packages at many levels and has been seen as central to job competencies for years.

Examples of stand alone units addressing environmental sustainability include:

CPCCBC4019A
Apply sustainable building design principles to water management systems

CPCCBC4020A
Build thermally efficient and sustainable structures

CPCCBC4021A
Minimise waste on the building and construction site

CPCCPB3015A
Install acoustic and thermal environmental protection systems

CPPCMN4001A
Develop workplace policy and procedures for sustainability

CPPCMN4002A
Implement and monitor environmentally sustainable work practices

PRMPFES43A
Prevent ozone depleting substance and synthetic greenhouse gas emissions

PRMPFES50A
Monitor storage operations for ozone depleting substances and synthetic greenhouse gases

PRMWM01B
Conduct a waste management audit

PRMWM04B
Develop waste management strategies

PRMWM57A
Develop landfill rehabilitation plan

The guideline units have also been incorporated for selection:

CPPCMN3001A
Participate in environmentally sustainable work practices

CPCSUS4001A
Implement and monitor environmentally sustainable work practices

CPCSUS5001A
Develop workplace policies and procedures for sustainability

The ISC recently developed and endorsed the following unit which is now compulsory in all qualifications for those working in the construction industry:

CPCCCM1002A
Work effectively and sustainably in the construction industry

Units of competency covering skills in the painting industry have also undergone review and rework as required. In addition, substantial numbers of other units incorporate environmental sustainability skill and knowledge as an aspect of competency, generally in specific performance criteria and range statement references.

The ISC began identifying 'green' jobs and apprenticeship pathways over three years ago. More recently the ISC engaged the Business Skills Victoria's Go-Green Project to further identify a range of environmentally sustainable Australian Apprenticeships across all Training Packages. Advice on 93 environmental / sustainable jobs and apprenticeship pathways is now widely available to support industry in designing and training for environmentally sustainable outcomes. What is noticeable about these pathways is that they highlight the current capacity of Training Packages to provide meaningful skill outcomes for this new context of environmental sustainability.

CPSISC Sustainability Initiatives

The CPSISC is undertaking a range of initiatives to examine and improve on industry specific environmental sustainability inclusions across its Training Packages.

Initiative 1: Further analysis of plumbing units to assess suitability for current environmental sustainability expectations in the plumbing industry.

Initiative 2: Examination of the need for a qualification on assessing home sustainability.

Initiative 3: Development of competency based training resources to support Government stimulus initiatives, specifically in the installation of home insulation.

Initiative 4: Asset Maintenance Training Package Review which will examine current coverage of sustainability skills within this Training Package and make industry appropriate additions.

Initiative 5: Work has already been carried out in updating fire protection units, and drafting of new units to meet ozone depletion substance and synthetic greenhouse gases compliance regulations. Further work is underway.

Initiative 6: An upgrade of painting units (completed) to incorporate sustainability skills in water use, selection of paints and disposal and development of training resources in partnership with TAFE NSW.

Initiative 7: Review and customisation of guideline sustainability units to make them more relevant to the CPS industries.

Initiative 8: Examination into the need for a Certificate IV in 'Green' Plumbing.

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Electrocomms and Energy Utilities Industry Skills Council

ElectroComms and Energy Utilities Industry Skills Council, trading as EE-Oz Training Standards, is the Industry Skills Council for the Electrotechnology, Communications, Electricity Generation, Transmission and Distribution, Rail Traction and Gas Supply Industries.

The ISC is responsible for the following four Training Packages.

UEE07
Electrotechnology Training Package

UEG06
Gas Industry Training Package

UEP06
Electricity Supply Industry
- Generation Sector Training Package

UET06
Transmission, Distribution
and Rail Sector Training Package

The ElectroComms and Energy Utilities industries will play a significant role in the development and deployment of new technologies that provide renewable and efficient energy solutions to combat carbon pollution. New energy markets are developing worldwide; nations are realigning in new ways; corporations are adjusting their priorities, changing how they do business and making investments to secure market opportunities to address rising energy costs; and climate change mitigation policies are driving research and investment into new energy sources and technologies. Energy consumption is a primary target of the Carbon Pollution Reduction Scheme and the Federal and State Governments have announced a suite of programs to accelerate the

large scale development, adoption, demonstration and deployment of new, clean energy technologies. Examples include:

- *the Mandatory Renewable Energy Target, which will require 20 per cent of Australia's electricity to be generated from renewable sources (i.e. solar, wind and geo-thermal) by 2020;*
- *the introduction of new Solar Credits, which will provide incentives for consumers to install micro-generation units, primarily household solar photovoltaic systems, and;*
- *bringing forward the $500 million Renewable Energy Fund, that supports the development and commercialisation of advance renewable energy technologies.*

Key Drivers for the EE-Oz industries

Energy Efficiency. Government initiatives will drive a heavy focus on energy efficiency solutions in this sector and the Australian energy industries will be vital to the success of the Federal and State climate change strategies. The Government's goal is to achieve a 20 percent share of renewable energy in Australia's electricity supply by 2020. Current measures are already significantly increasing the demand for trained and accredited renewable energy system designers, installers and technicians. Targets for the roll out of 'smart meters' aim to achieve more than 50% of meters being replaced by 2017 and incentives for grid connected solar energy systems are seeing production of photovoltaics (solar cells) double every two yeas. In Queensland, where 90% of current electricity supply is fuelled
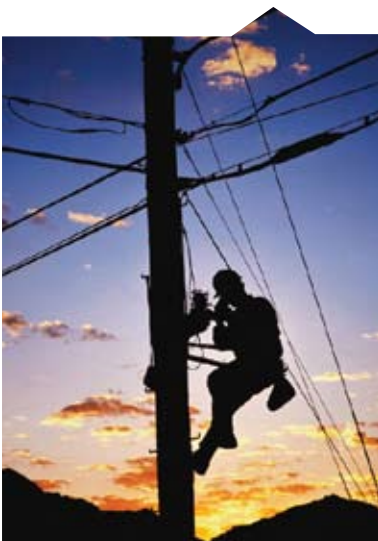
by coal, electricity generators have adopted the more efficient supercritical boiler technology. In NSW, the 'Owen Report' recommended $A3-4 billion be spent on retrofitting existing power stations to meet carbon reduction targets. Similarly, biomass energy contributed 3% to the electricity generated in Queensland in 2003-04 and the Victorian Government has established a biofuels target of 5% of all fuel consumption by 2010.

Government policies will also accelerate the implementation of natural gas technologies, which have lower carbon emissions than other fossil fuels. Future technologies will include carbon capture and storage, and more economical nonfossil fuel electricity generation (ie; wind, water, solar).

Technicians and tradespeople in this industry will also need to be able to offer informed advice about energy solutions to help consumers achieve greater efficiencies.

Clearly there are significant skilling challenges for this sector. There are already skills shortages in these areas and consultations with industry have identified growing concern that the skills shortages in the energy sectors will intensify as the nation begins to transform itself to realise a reduced carbon footprint.

The challenge for training in the ElectroComms and Energy Utilities industries is to increase the number of new entrants and up-skill existing workers whilst simultaneously maintaining industry, regulatory, safety and quality standards.

Organisational and operative mobility. The ElectroComms and Energy Utilities industries will require maximum organisational and operative mobility to deliver on national directives and respond to calls for new technologies that may cross traditional work boundaries. While the Commonwealth Government is committed to work with State and Territory Governments and the energy sector to improve the consistency of state-based regulations that apply to the energy sector, there are still practical barriers to achieving a seamless service in this respect. The industries are comfortable with national consistency provided by the Training Packages, however there are still aspects of industry work practice, training and regulation that are not nationally consistent and this inconsistency affects the ability of workers in one organisation to collaborate with those in another.

This has already hindered some efforts in recent years when energy industry organisations have been called upon to assist each other in times of crisis (e.g. in the aftermath of storms, floods and bushfires). The expected rise of extreme weather events and potential natural disasters as a result of climate change, combined with the severity of skills shortages may present further skilling challenges for this sector.

Sustainability in EE-Oz Training Packages

EE-Oz sees its role in environmental sustainability as central to ensuring the availability of skills in order to meet the extensive demands of carbon reduction targets through the design,

development and dissemination of new and improved technologies and changes to work practices.

The ISC has undertaken extensive work in its Training Packages to address these pressing skill issues.

The rate of emergence of new job roles and the AQF level of these roles across various industry sectors is seen as an important aspect which indicates the diversity of skills for environmental sustainability that are required.

Where significant technological change is introduced new job roles will emerge across the range of AQF levels where as in areas less impacted by technological change new job may emerge less frequently and only at higher AQF levels e.g. new management roles.

The EE-Oz Training Packages contain a number of stand alone units targeting environmental sustainability work practices. These include:

UEENEEK012B
Provide basic sustainable energy solutions for energy reduction in domestic premises

UEENEEK013B
Apply sustainable energy practice in daily activities

UEENEEK014B
Promote sustainable energy practice in the community

UEENEEK032B
Develop strategies to address sustainability issues

UETTDRIS23A
Implement and monitor environmental and sustainable energy management

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policies and procedures

UEGNSG104A
Comply with environmental policies and procedures

UEGNSG120A Manage gas system environmental compliance

UEPOPS246A Operate Waste and Contaminated Water Plant

UEPOPS325A
Operate and Monitor Water Quality Control Systems

In addition to these, the guideline sustainability units have been incorporated across all qualifications.

UEENEEK042A
Participate in environmentally sustainable work practices

UEENEEK045A
Implement & monitor, policies & procedures for environmentally sustainable electrotech work practice

UEPOPS356A
Apply Environmental and Sustainable Energy Procedures

UETTDREL01A
Apply environmental and sustainable energy procedures

UEPOPS356A
Apply Environmental and Sustainable Energy Procedures

UEPOPS417A
Monitor and Implement Environmental Plans and Procedures

UEPOPS504A
Develop Implement and Monitor Environmental Management Systems

In addition, substantial numbers of other units incorporate environmental sustainability skill and knowledge as an aspect of competency, generally in specific performance criteria and range statement references.

EE-Oz Sustainability Initiatives:

EE-Oz is undertaking a range of projects to examine and improve on industry specific environmental sustainability inclusions across its Training Packages.

Initiative 1: Alignment of nationally endorsed competencies and industry accreditations for sustainable energy systems, particularly the Clean Energy Council accreditation for Grid connected photovoltaic systems and the National Electrical and Communications Association Eco-smart electrician.

Initiative 2: Review and updating of units that target skills required to deliver on Government incentive schemes, such as the Renewable Energy Certificates Incentive Scheme.

Initiative 3: Development of new units to cover skill needs in new technologies such as smart meters and integrated data systems, energy efficient illumination systems, integrated energy management systems and more.

Initiative 4: Development of new units to cover skill needs in energy auditing and performance monitoring, assessing and providing advice on energy efficiencies, monitoring and reporting energy usage and more.

Initiative 5: Development of existing workers to address skill gaps, through the Productivity Placement Program. The ISC is currently lobbying for more places to be allocated to meet the needs for tradespeople skilled in grid connected solar energy systems.

Initiative 6: Development of Skill Sets linked to current Business Centre for Sustainable Energy (BCSE) Accreditation levels to support installation of new technologies such as grid connected photovoltaic systems and smart meters.

Initiative 7: Review of the Certificate III in Renewable Energy (ELV) and renewable energy units with a view to ensuring it meets the needs of current and emerging applications.

Initiative 8: Develop a new Certificate IV in Renewable Energy to include revised and additional units to support the development of skills for the design and installation of grid connected solar arrays and provide a specialisation pathway for both qualified electricians and apprentices.

Initiative 9: Research 'Clean Energy' technologies and requirements for units and qualifications addressing the same.

Initiative 10: Engagement of international research on renewable/sustainable energy systems and training. EE-Oz currently has an industry delegation in Europe and works closely with New Zealand on relevant training standards including Renewable/sustainable energy.

Government Skills Australia

As the industry skills council responsible for government and community safety, Government Skills Australia (GSA) monitors factors that shape workforce development and associated training imperatives in the correctional services, local government, public safety, public sector and water industries.

GSA is responsible for the following five Training Packages:

CSC07
Correctional Services Training Package

LGA04
Local Government Training Package

PUA00
Public Safety Training Package

PSP04
Public Sector Training Package

NWP07
Water Training Package

Of significance to the industry sectors that GSA services is the considerable structural change required to ensure that service provision meets changing environments and their evolving demands. The evolution of environmental sustainability expectations and requirements will demand that these sectors assess the environmental implications of their work and look to ensure they are in line with the latest research and government directives.

Many of the impacts of climate change affect these sectors directly. Severe weather events and increasing intensity of fires will draw heavily on public safety skills, while drought conditions will make effective water management increasingly critical.

Bushfires must now be fought with a range of environmental imperatives such as selective use of chemicals, new, more efficient technologies and changed water collection practices. There is an increasing need for coordinated, national deployment of workers to respond to natural disasters and emergency situations. Increasing fire intensities and duration of emergencies mean that fire and emergency services are seeking increased capability and capacity through the sharing of resources and knowledge. Fire and emergency service agencies will carry greater accountability to the community for the protection of the environment, particularly forest plantations as 'carbon sinks'.

In the local government arena, public works, waste management and recycling, energy efficiency initiatives, public transport, development planning and implementation, and environmental corridors are all responsibilities that must be undertaken with a keen understanding of the environmental implications of work.

Across Australia severe drought, the security of water supplies and the sharing of limited water resources are a national concern for the water industry, with the demand for water in many places outstripping supply and a need to distribute and use water more efficiently and conservatively, as well as to seek more innovative methods to meet current and future demand. This situation serves to highlight the importance of consumer/market demand administration along with the management and engineering of water cycles.

An additional skilling challenge faced by GSA in addressing these environmental issues, is the attitude of the current workforce. The vast majority of government employees in these areas are approaching retirement age, many characterised by a set of values that do not highly prioritise environmental sustainability.

Key drivers for the GSA industries

Government policy. Local councils will be at the forefront of implementing government policy and regulations in communities. Planning, development and implementation of local projects and services will not necessarily require new skills, as environmental protection has long been a local government agenda. However information on new technology options and requirements as they emerge will guide ongoing improvements to environmental sustainability outcomes. Councils will need to be innovative about suitable local environment solutions such as those that promote recycling and reuse or initiatives that use new water management technologies.

Future training of workers at the operational level may need to incorporate environmental sustainability skills and knowledge in order to improve understanding of work implications in achieving improved environmental efficiencies. This is especially important as operators are often a visible

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demonstration of the council's performance in sustainability.

Resources management. Water management rates as one of the most significant challenges for business and communities across Australia. Capture, storage, treatment and distribution of water to meet essential needs of households, businesses and agriculture will determine the ultimate viability of these entities. All stakeholders will also need clear and accurate communication about environmental impacts, sustainability options and government initiatives.

Management of bushfires and other natural disasters is already requiring new practices and some new coordination skills. The impact of other government programs will also require further analysis and possible operational changes. For example, the impact of Defence training on designated landscapes must now be addressed with environment regeneration activities.

Sustainability in GSA Training Packages

Environmental sustainability has been a skill requirement in these sectors for many years and is consequently incorporated within the GSA Training Packages to target both specific job roles and as a component of skill competence.

For example, the water industry already employs specialists such as hydrographers, environmental advisers, water quality officers, systems designers and managers, remote essential services operators,

trade waste operators and dam safety operators. As such, environmental sustainability is already well targeted within the Water Training Package.

Examples of stand alone units across GSA Training Packages include:

NWP101A
Investigate sustainable water cycle management

NWP202B
Apply environmental and licensing procedures

NWP315B
Investigate and report breaches of water industry legislation

NWP706A
Review and evaluate water and wastewater sustainability objectives

NWP707A
Analyse and review water treatment plant technology

LGAGOVA410B
Monitor council procedures to ensure compliance with relevant legislation

LGAEHRH305A
Present environmental health education information

LGAEHRH403A
Operate waste transfer, collection station or landfill facility

LGAEHRW505B
Implement strategies to minimise the impact of waste on the environment

LGALAND401A
Apply the principles of ecologically sustainable development to council decisions

LGAPLEM606B
Develop ecologically sustainable land management systems

LGAPLEM501A
Achieve an efficient and sustainable use of natural resources

PSPSCI701A
Create innovation and change through extension

PSPLAND506A
Identify and manage contaminated sites

The guideline units have also been incorporated for selection:

NWP301B
Implement, monitor and coordinate environmental procedures

NWP401B
Coordinate and monitor the application of environmental plans and procedures

NWP505B
Implement and manage environmental management policies, plans, procedures and programs

In addition, substantial numbers of other units incorporate environmental sustainability skill and knowledge as an aspect of competency, for example in range statement references.

GSA Sustainability Initiatives:

The GSA is undertaking a range of initiatives to examine and improve on industry specific environmental sustainability inclusions across its Training Packages.

Initiative 1: Development of the technical and para-professional components within the Water Training Package for water and wastewater operators.

Initiative 2: Development of higher level units and qualifications for trade waste and hydrography (field hydrology).

Initiative 3: Implementation of a Workplace Innovation Project to develop skills for the national coordination of natural disaster, emergency response teams that incorporate services across sectors.

Initiative 4: Analysis of cross sector skill requirements for safety officers called to respond to incidents involving radiation.

Initiative 5: Examination of environmental sustainability coverage within the Defence Training Package, as part of a review process.

Initiative 6: Examination of environmental sustainability coverage within the Public Safety Training Package, as part of a review process.

Initiative 7: Development of two new units to cover the new National Standards for Water Metering.

Initiative 8: Examination of Training Package coverage in the areas of compliance law and brief preparation.

Initiative 9: Examination of Training Package coverage of new technologies in water resource management such as desalination and on-site treatment and re-use.

Initiative 10: Development of skill sets to address new work areas associated with Murray Darling catchment management.

Initiative 11: Examination of Training Package coverage of auditing, for example green audits, resource and carbon audits, working in a carbon neutral environment and energy management.

Initiative 12: Analysis of all components of the Water Training Package and further incorporation of environmental sustainability skills.

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ForestWorks Industry Skills Council

ForestWorks represents the workforce training and skill development needs of some 120,000 people who work in the forest, wood, paper and timber products industry. The industry comprises forest growing and management, harvesting and haulage, sawmilling and processing timber product manufacturing (predominantly building and packaging products), wood panel/board production, pulp and paper manufacturing and timber merchandising. In some cases operations from a number of these sectors occur at the one site, in the one company.

ForestWorks is responsible for the following two Training Packages:

FPI05
Forest and Forest Products Training Package (which includes 6 discrete industry sectors)

FPP01
Pulp and Paper Manufacturing Industries Training Package

The forestry industry is in a unique position in the environmental sustainability debate in that it is one of the only industries that reduces the amount of carbon that Australia produces via the storage of carbon in growing wood. The government's commitment to reducing Australia's carbon footprint and its proposed Carbon Pollution Reduction Scheme engender a level of optimism for the industry as it works to ensure that forestry is part of the economic solution to a sustainable economy. Growing trees, the planet's natural carbon processors, is after all forestry's core business.

Australia has a total forested area of around 150 million hectares - covering around 21% of the continent. Approximately 1.903 million hectares are plantation forests[6]. Forest products are derived from renewable plant material, and grown and managed with sustainable natural resource management outcomes.
The manufacture of wood products requires less energy to produce than aluminium, steel and concrete[7], with the valuable carbon resource embedded into the final product.

However this industry still faces many challenges presented by climate change and environmental sustainability agendas. Recent bush fires in Victoria illustrate its vulnerability in a warming climate predicted to see increased ferocity and regularity in bush fires unless the industry is allowed to carry out fuel reduction strategies to reduce fire risk. The Victorian fires saw mills lost, native forest and plantation timbers lost, timber workers loose their homes and for many, their community, friends and family. The capacity of the industry to implement sound forest management practices will be critical in protecting these resources and communities.

The ongoing drought in many areas continues to impact on tree growth, and in northern Australia, with the predicted increase in cyclone activity and severe weather, there may also be an increase in the amount of timber that will be felled via timber salvage as a result of these events.

Industry practices are highly regulated with work practices continually evolving to improve environmental outcomes. New methods in logging and haulage aim to increase recovery and reduce

waste, while harvesting operations are being assessed to design techniques that further reduce the impact of logging on the environment. The impact of changes in the use of different timber species, biofuels and biomass will greatly impact on sawmilling and processing. Timber preservation practices have been changed to eliminate the use of Copper Chromium Arsenate (CCA). The call for energy efficiency in home design will drive the development of new types of engineered timber products.

The pulp and paper sector is a significant user of energy, particularly in mechanical pulping processes. It is also a major producer of renewable energy by processing waste such as black liquor from chemical pulping. This energy is often used on site or supplied to the electricity supply grid. Wood wastes also generate a considerable part of the energy used for the kiln drying of timber.

Key drivers for ForestWorks industries

Key drivers for an increased focus on environmental sustainability include harnessing the opportunities available to support carbon reduction strategies and the efficient management of resources.

Carbon reduction strategies.
The forestry industries are in a strong position to provide a range of strategies for industry, communities and Australia to reduce the impact of carbon emissions. Wood by-products of timber harvesting, processing and recycling offer 'one of the largest

sources of biomass in Australia'[8] potentially making this industry a significant contributor to achieving Australia's mandatory renewable energy targets while still leaving sufficient residues in the forest to maintain biodiversity and sustain nutrient replacement. The National Association of Forest Industries (NAFI) predicts that by 2020 forest industries will contribute an estimated 81 million tonnes of carbon abatement each year.

These strategies will require additional investment into resources and skills in order to fully capitalise on these opportunities.

Forest management and protection.
The efficient management of forest resources is essential to maintaining their ongoing availability. This will include a continual improvement of practices to ensure resources are protected as much as possible from the impacts of climate change and that they meet an increasingly regulated environment.

Sustainability in ForestWorks Training Packages

Environmental sustainability has long been incorporated as a central skill and practice within ForestWorks Training Packages. This reflects the reality that viability of the industry relies on a productive and well managed environment.

ForestWorks Training Packages and qualifications incorporate two units which have been made generic for application in all sectors. These units need to be customised to ensure that

the specific requirements of sectors are targeted. For example hazards of one sector will differ from another and need to be addressed in the unit delivery. These units are:

FPICOR2203A
Follow environmental care procedures

FPICOR3201A
Implement SHE policies and procedures (SHE: safety, health and environment)

Examples of other stand alone units that support environmental sustainability include:

FPIFGM4205A
Monitor regeneration rates

FPIFGM5206A
Develop a native forest regeneration plan

FPICOT5201A
Implement sustainable forestry practices

FPICOR3203A
Evaluate fire potential and prevention

FPICOR4201A
Monitor SHE policies and procedures

FPICOR4202A
Monitor and review forestry operations

FPIFGM4201A
Implement a forest establishment plan

FPIFGM5202A
Manage tending operations in a native forest

FPIHAR4204A
Plan and coordinate fire salvage operations

6. National Association of Forest Industries (NAFI) **http://www.nafi.com.au** 7. National Association of Forest Industries (NAFI) **http://www.nafi.com.au**
8. Australia's State of the Forests Report (Department of Agriculture, Fisheries and Forestry, 2008, p. 120)

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FPIWPP3217A
Process production effluent

In addition, many units contain performance criteria that require work to be performed according to environmental standards. For example:

Work area is cleared and materials disposed of or recycled in accordance with site environmental management plan. (FPIHAR3204A: Conduct skidder operations)

ForestWorks Sustainability Initiatives:

ForestWorks is undertaking a range of projects to examine and improve on industry specific environmental sustainability inclusions across its Training Packages.

Initiative 1: Research into the need for Skill Sets in the areas of Timber manufactured products (targeting licensing requirements for installation in the frame and truss industry), Sawmilling and processing (drying timber), Wood panel products (resource efficiency), Harvesting and haulage (fire salvage) and others.

Initiative 2: Research into skill needs to support product development of by-products and waste in order to more efficiently and completely use forest resources.

Initiative 3: Research into skill implications of new types of timber treatment and preservation approaches (for example non-formaldehyde glues).

Initiative 4: Analysis of upskilling requirements for new harvesting techniques designed to further reduce the impact of logging operations on the environment.

Initiative 5: Analysis of upskilling requirements for new forest management techniques such as the Products certification system which affects the way forests are managed, and the way in which logs in the forest and downstream are handled and processed, with a focus on sustainability, maximum recovery and maximum usage for the product.

Initiative 6: Analysis of unit level requirements to target changed work practices.

Initiative 7: Analysis of skill needs to support the growth of short rotation hardwood plantations.

Innovation & Business Skills Australia (IBSA)

Innovation & Business Skills Australia has responsibility for activities across six industry sectors encompassing business services, cultural and related industries, education, financial services, information and communications technologies (ICT) and printing and graphic arts.

IBSA is responsible for the following eleven Training Packages:

BSB07
Business Services Training Package

CUE03
Entertainment Training Package

CUF07
Screen and Media Training Package

CUL04
Museum and Library/Information Services Training Package

CUS01
Music Training Package

CUV03
Visual Arts, Craft and Design Training Package

FNS04
Financial Services Training Package

ICA05
Information and Communications Training package

ICP05
Printing and Graphic Arts Training Package

ICT02
Telecommunications Training Package

TAA04
Training and Assessment Training Package

The IBSA sectors are diverse, although they share an important enabling role within the Australian economy. The impact and influence may be somewhat "hidden" and not quite so obvious because of the enabling nature of these industries. While the sectors can be seen as industries in their own right, skills that are aligned with IBSA sectors are frequently used across many parts of the economy. The following provides examples of the need for these skills in other industries:

- *business services skills include customer service, administration and management*
- *cultural and related industries skills are used by education providers, hospitality businesses and tourism*
- *education skills are used by workplace assessors, trainers and consultants*
- *finance skills are required in the management of all organisations, including in all forms of small businesses*
- *ICT skills are required for the information and communication infrastructure and systems that all businesses depend on to function effectively*
- *printing and graphic arts skills are required by many businesses including advertising agencies, larger law firms and government.*

When it comes to addressing environmental sustainability, IBSA's responsibility covers and influences all industries. Achieving environmental sustainable outcomes relies on: the skill and understanding of management; employee awareness; organisational leadership; establishing criteria for decision making and procurement; and meaningful environmental monitoring and reporting. At the heart of sustainability is an atmosphere of innovation, skills to commercialise innovation and cultural change.
Without the effective implementation of these skills, progress in environmental sustainability will be significantly hampered.

In addition, the deployment of new skills and knowledge required to develop and implement new practices and technologies will rely heavily on training and assessment programs, especially those that target training of existing workers (the majority of environmental sustainability skill and awareness needs will be an addition to existing jobs), onsite delivery and targeted skill outcomes.

Key drivers for the IBSA industries

Environmental sustainability in IBSA industries will primarily be part of a slower movement than those directly targeted by compliance directives. However, IBSA skills are essential to achieving industry wide improvements and facilitating the changes that environmental sustainability priorities will generate.

Voluntary action. Issues of global warming are impacting everyone, at all levels, at all workplaces. For some, it will mean major changes to their daily work, for others, impacts may be

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unnoticeable. Either way, there are two important factors that now must be considered in all workplaces. Firstly, that environmental sustainability will require leadership and organisational change processes. While these skills are not new, they will be essential to ushering in a new era of sustainable organisations. Secondly, the environment is an issue that affects people personally; many will be looking to their employers to make meaningful and visible contributions to climate change. This will be an issue for management in many organisations.

Compliance. While environmental sustainability initiatives covered within the IBSA roles will mostly be driven by voluntary action, Government compliance directives will increase the demand for auditing, monitoring and reporting. Sectors affected by compliance requirements will rely on a mix of financial, accounting, management and operational skills to assess impacts to their bottom line, compare the impacts of new processes and technologies, and seek ways to reduce the financial costs of compliance. Compliance will require targeted IT systems to collect data and inform reporting and decision making. Procurement may now require environmental sustainability to be a consideration of purchasing decisions. Workplace training programs will be essential to ensure that all employees in organisations affected by compliance are aware of their responsibilities and the impacts on their own work.

Clear communications. There is a strong and emotive groundswell of opinion, fact, half truths and inaccuracies heralding in issues of climate change and it is against this backdrop, that enterprises must position their sustainability credentials. Shareholders, employees, customers, supply chains and all other stakeholders will need clear communication to accurately understand the enterprise's initiatives, priorities and success stories. Organisations will come under a much stronger focus from the general public when it comes to participating in environmentally damaging processes.

All this will require some additional knowledge in this area to ensure the reliability of information and that it is used to support the positive opportunities for enterprises that result in climate change initiatives.

Sustainability in IBSA Training Packages

IBSA is working closely with industry to ensure that the skills and knowledge required for emerging environmentally sustainable jobs, and for re-designed job roles, are met and are embedded within the workforce. Currently, many of the skill requirements of new initiatives and directives are already covered well within IBSA Training Packages. For example, IBSA has substantial coverage of skills in management, leadership, innovation, creativity, design, compliance, communication, marketing, education and training etc.

Examples of some IBSA units that specifically support environmental sustainability, including guideline units, include:

BSBSUS201A
Participate in environmentally sustainable work practices

BSBSUS301A
Implement and monitor environmentally sustainable work practices

BSBSUS501A
Develop workplace policy and procedures for sustainability

BSBEBUS508A
Build a virtual community

Additionally, some of IBSA's Training and Assessment units may also broadly contribute to the reduction of resources required for training delivery, for example:

TAADES503B
Research and design e-learning resources

TAADES504B
Develop and evaluate e-learning resources

TAADEL405B
Coordinate and facilitate distance-based learning

TAADEL501B
Facilitate e-learning

Within the Printing and Graphic Arts (ICP05) Training Package, there are two units of competency on waste disposal and management which incorporate reusable and recycled waste and the disposal of waste according to regulatory requirements and enterprise procedures.

ICPSU222B
Pack and dispatch solid waste

ICPSU323B
Dispose of waste

IBSA Sustainability Initiatives:

IBSA is undertaking (or has completed) a range of improvements to its Training Packages that will support environmental sustainability outcomes in industry.

Initiative 1: Examination of environmental sustainability coverage within the Telecommunications Training Package as part of a review process, and identification of technical and generic skill requirements to support energy efficiency drivers in the telecommunications industry.

Initiative 2: Examination of environmental sustainability coverage within the Financial Services Training Package as part of review processes.

Initiative 3: Review of the Certificate IV in Training Assessment to remove confusion associated with the use of 'environment' terminology in the light of new interpretation priorities.

Initiative 4: Examination of NCVER data to determine the take up of the three BSB07 environmental sustainability units. IBSA is maintaining a watching brief on take up data.

Initiative 5: Examination of environmental sustainability coverage within the Printing Training Package as part of review processes.

Initiative 6: Examination of environmental sustainability skill needs within the IT sector with a "technology" bias for potential application across all industries.

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Manufacturing Skills Australia

Manufacturing industries are significant contributors to the Australian economy. They employ almost one million Australians in 75,000 businesses and account for approximately 10% of the GDP. Manufacturing Skills Australia covers an extensive range of industries and sectors across manufacturing and will now also be responsible for the automotive industry training needs.

The ISC is responsible for the following eleven Training Packages.

LMF02
Furnishing Training Package

LMT07
Textiles, Clothing and Footwear
Training Package

MEA07
Aeroskills Training Package

MEM05
Metal and Engineering Training Package

MSA07
Manufacturing Training Package

PMA08
Chemical, Hydrocarbons and Refining

PMB07
Plastics, Rubber and Cablemaking
Training Package

PMC04
Manufactured Mineral Products
Training Package

PML04
Laboratory Operations Training Package

AUM08
Automotive Manufacturing

AUR05
Automotive Industry Retail, Service and
Repair Training Package

Addressing climate change and meeting compliance requirements of a Carbon Pollution Reduction Scheme present major challenges for manufacturing which rates as Australia's third highest emitter of greenhouse gases. Manufacturing companies will not only need to integrate processes for measuring, assessing and improving their environmental performance throughout their operations, but also develop new products and technologies that meet a variety of social, environmental and economic imperatives.

Manufacturing will be impacted by climate change effects on both power generation and power use. The impact of emissions trading on manufacturing will not be equal across sectors. Many Emissions Intensive, Trade Exposed Industries (EITE) are in MSA's coverage. Sectors identified by Garnaut include iron and steel, alumina, aluminium, chemicals, cement, non-ferrous metals, metals processing and liquefied natural gas processing.

MSA anticipates an increasing blurring of traditional skill boundaries to accompany the push for environmental sustainability, especially in the EITE industries, as advancing technologies and processes develop. A classic example is underground coal seam gasification (UCSG). Normally coal gasification would be expected to fit within the PMA08 Chemical, Hydrocarbons and Refining Training Package. However, normally all underground operations within a coal mine would be expected to be covered by a SDMC Training Package.

This presents new challenges for skill development in environmental sustainability.

Key drivers for manufacturing industries

Harnessing opportunity.
Manufacturing has experienced challenging times over recent years. Fierce global competition, skill shortages and continual change have demanded that innovation and efficiencies are central to any manufacturing business model. Topped with the current global financial crisis, manufacturing is in a struggle for survival in Australia. The new drivers for environmental sustainability pose both opportunity and threat to enterprises and the need to harness the positives is essential to ensuring that Australia can both support the innovation and development required to address its climate change issues, as well as continue to maintain the essential skill base and workforce in Australia.

Key MSA stakeholders expressed positions similar to that of MSA. For example, the Australian Manufacturing Workers' Union (AMWU) and the Ai Group stress the need for a strong focus on skills development to support environmental sustainability.

With the right investment strategies, environmental sustainability has the potential to reinvigorate manufacturing and generate significant markets for Australian enterprises.

Emissions trading and compliance costs. Manufacturing will be significantly affected by an emissions price on a number of counts. It features high emissions intensity, has few current substitutes and limited capacity to pass on costs to customers ((firms trading in the domestic sector will generally be able to pass through costs, while firms producing traded goods and services—with overseas competitors not subject to a commensurate emissions price—may not)[9]. Some sectors will also be affected by the impact of their industrial process emissions - emissions from chemical reactions (other than fuel combustion) that include synthetic greenhouse gases. Industries identified as the largest individual sources of industrial process emissions are iron and steel making, cement and lime making and aluminium smelting.

Manufacturing enterprises also anticipate increased costs associated with monitoring and reporting on emissions. The impact of an emissions tax on manufacturing will be partly determined by how emissions are measured. One of the important issues is how far along the value chain emissions will be measured when determining liability for an enterprise. Emissions from many sectors are relevant manufacturing if a full value chain approach is taken to measuring emissions. For example if a food manufacturing company had to include emissions from the agriculture, land use and land use change categories inherent in the manufactured food product. Similarly if a timber furniture had to include forestry based emissions.

Cost implications of emissions schemes will become a critical factor to Australia's ability to compete in a global market.

On the skill development side, manufacturing will need to ensure it has the skills to:

- *Maximise efficiencies and minimise waste at all levels of production*
- *Innovate new, more energy efficient and environmentally sustainable products, processes and technologies*
- *Establish efficient international supply chains and*
- *Monitor and report on emissions.*

Sustainability in MSA Training Packages

MSA acknowledges that work functions and skill requirements will need to change in response to climate change and is committed to providing flexible training pathways and up-skilling options to help facilitate this movement.

MSA initiated the development of units of competency that target sustainability skills to measure, analyse, improve and develop resource use and work practices to reduce negative environmental impacts of work. Three guideline units can now be customised for industry application and packaged and incorporated into qualifications and training plans for workers across all industries.

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MSA's units available specifically for manufacturing industries include:

MCMT272A
Participate in environmentally sustainable work practices

MCMT472A
Implement and monitor environmentally sustainable work practices

MCMT672A
Develop workplace policy and procedures for sustainability

Central to MSA's strategy for developing the manufacturing workforce in environmental sustainability skills, is the implementation of its Competitive Manufacturing units and qualifications. One of MSA's flagship products, this increasingly popular resource is designed to facilitate waste reduction and increasing efficiencies, two critical aspects of achieving environmental sustainability outcomes.

Manufacturing enterprises look to competitive or lean manufacturing principles as a fundamental business methodology and as such, this provides a very compatible vehicle to support the deployment of environmental sustainability skills.

Competitive manufacturing units can be included in any of the MSA qualifications.

Other units and qualifications throughout MSA Training Packages also incorporate extensive environmental sustainability skills as stand alone skills or as aspects of skill competence.

MSA Sustainability Initiatives:

MSA has been undertaking a range of environmental sustainability initiatives over the past year and is committed to further work in this area.

Initiative 1: Establishment of an environmental sustainability position paper to communicate issues and initiatives to support best practice to MSA stakeholders.

Initiative 2: Development of an extensive and comprehensive learning and assessment support resource in partnership with the Swinburne University National Centre for Sustainability, the NSW Department of the Environment and Climate Change and the Victorian Department of Sustainability.

Initiative 3: Development of Competitive Manufacturing Vocational Graduate qualifications to target the skill requirements at higher levels of the organisation which include the alignment of a whole organisation to competitive and sustainable way of practice.

Initiative 4: Development of a sustainability pathway within the Manufacturing Technology qualification.

Initiative 5: Analysis of all MSA units of competence to determine their suitability to support sustainable manufacturing practice and identification of skill gaps and modification requirements for existing units.

Initiative 6: Analysis of boundaries between Skills DMC and MSA to determine implications for new technologies and skill needs.

Initiative 7: Analysis of non MSA units that contain sustainability to ascertain their relevance to manufacturing.
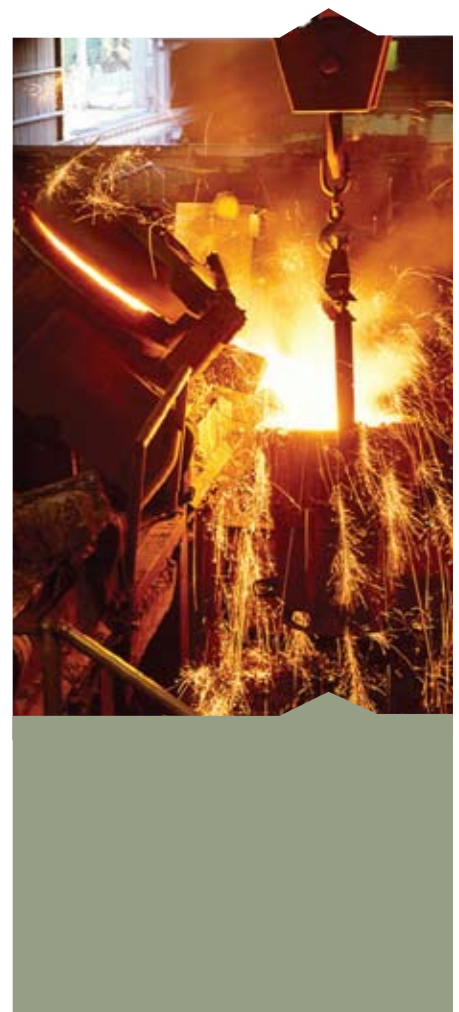
SkillsDMC (Resources and Infrastructure Industry Skills Council)

The resources and infrastructure industries include mining, quarrying, drilling, civil infrastructure and construction materials. These sectors employ approximately 530,000 people in a highly regulated work environment.

SkillsDMC is responsible for the following six Training Packages:

BCC03
Civil Construction Industry Training Package

DRT03
Drilling Training Package

MNC04
Coal Training Package

MNM05
Metalliferous Mining Training Package

MNQ03
Extractive Industries Training Package

RII06
Civil Construction Training Package

With an Emissions Trading Scheme still to be negotiated, the impacts of environmental sustainability on these industries are yet to be determined. It is clear that the success of Australia's Emissions Trading Scheme will be inextricably intertwined with the future of the coal industry. Coal, oil and gas; fossil fuels used to generate power; are estimated to account for approximately a third of all greenhouse gas emissions. In Australia, the coal industry underpins domestic electricity supply, and is by far our biggest export commodity.

Finding cost effective alternatives for safe, reliable and more environmentally friendly energy sources is one of the challenges in today's emissions reduction agenda. Coal and gas is readily available to meet Australia's energy needs and in reality, our dependence on these is unlikely to change for a long time. Other energy sources such as solar, wind, renewable energy etc. will be important developments to help reduce emissions and as options for the future but essentially, Australia's use of fossil fuels will continue to add to global warming without technologies that improve processing techniques.

The Federal Government has initiated a range of measures to stimulate development in new processes and technologies to reduce the environmental impact of coal use. These include the Federal Government Low Emission Technology Development Fund (LETDF), National Clean Coal Fund, the Coal21 Program and the Emissions Trading Scheme.

Carbon capture and geosequestration or biosequestration processes used to capture carbon released into the atmosphere and store it underground or convert it through managed ecosystems (for example marine), are target areas for new technology developments. Coal seam gas is another resource that will be increasingly developed over the next few years.

Key drivers for the DMC industries

Key drivers for environmental sustainability developments for the DMC industries are centralised around the Emissions Trading Scheme and new technologies for carbon capture and storage.

Emissions Trading Scheme. When details of this Scheme are available, the DMC industries will examine the skill implications for their workforce. Dependence on this sector, as well as the substantial investments into infrastructure, makes it difficult to preempt skill needs apart from measuring, monitoring and reporting on emissions.

Carbon capture and storage. These strategies are the most likely options at this stage for addressing emissions and in supporting growth in these industries. Additional skills will be required in the development and deployment of new technologies and processes as they emerge.

Sustainability in SkillsDMC Training Packages

The SkillsDMC approach to addressing environmental sustainability is to address new skill needs as they emerge. As regulations and changes to the workforce gather pace, SkillsDMC expects a range of existing workers requiring up-skilling relative to changed position descriptions, technology and skills related to gas sequestration, clean coal, emission reductions and other emerging skills sets. The changes will occur overtime and in

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an incremental flow as industry adapts to new processes and procedures.

Given that most DMC occupations rely on safe environmental conditions, many DMC skills already target skill and knowledge in relation to the environment. The Training Packages include a range of stand alone units that specifically target environmental issues. For example:

MNCO1120A
Establish waste and by-product management system

MNCO1121A
Implement site waste and by-product management plan

MNCO1122A
Apply and monitor site waste and by-products management plan

MNMMEN304A
Take environmental samples and measurements

MNMMEN501A
Develop site environmental policy

MNMMEN502A
Undertake process or project environmental impact assessment

MNMMEN503A
Implement mining operations environmental management system

MNMMEN505A
Monitor and correct activities having impact on the environment

MNMMEN506A
Review environmental management system performance

MNMMSM601A
Establish and maintain the environmental management system

MNQOPS402A
Apply site water management plan

MNQOPS403A
Apply site plant and resource management plan

MNQOPS405A
Supervise site rehabilitation operations

MNQOPS424A
Apply site waste and by-products management plan

MNQOPS426A
Supervise recycled materials operations

SkillsDMC Sustainability Initiatives

SkillsDMC is undertaking a range of strategies that will inform and support the development of Training Package components to cover emerging environmental sustainability needs. The ISC sees that this will be a process that results in incremental change according to the pace and imperatives of its industries, in the same manner that ISCs approach all emerging skill needs. The following SkillsDMC initiatives are key industry resources that strengthen the ISC's ability to respond efficiently to changes in industry requirements.

Initiative 1: Implementation of SkillsDMC's 'systems approach' to using empirical and anecdotal information to identify emerging skill needs.

Initiative 2: Deployment of SkillsDMC officers in each state and territory to assist stakeholders and identify workforce development needs.

Initiative 3: Implementation of the Future Workforce Manager workforce planning tool to assist companies to predict future workforce needs against business demands.

Initiative 4: Application of the Skills Maximiser™ software program which can be used to add enterprise specific value to units of competency.

Initiative 5: Collapsing of five Training Packages into one Resources and Infrastructure Package to support flexibility and portability of skills.

Initiative 6: Development of training resources to improve uptake of Resources and Infrastructure Training Packages.

Service Skills Australia Industry Skills Council

Service Skills Australia (SSA) represents a range of industries, including retail and wholesale, sport, fitness, community recreation, outdoor recreation, travel, tours, meetings and events, accommodation, restaurants and catering, caravans, hairdressing, beauty, floristry, community pharmacy and funeral services.

The service industries are dominated by small business with 70% of companies employing less than 20 people. There are approximately 344,655 businesses in this sector which employ almost 2.5 million people (representing almost a quarter of Australia's workforce), with an additional 1.7 million volunteers engaged (mainly within the sport and recreation sectors).

SSA is responsible for the following eleven Training Packages:

SIF08
Funeral Services Training Package

SIR07
Retail Services Training Package

SIT07
Tourism, Hospitality and Events

SRC04
Community Recreation Industry Training Package

SRF04
Fitness Industry Training Package

SRO03
Outdoor Recreation Industry Training Package

SRS03
Sport Industry Training Package

THC04
Caravan Industry Training Package

WRB04
Beauty Training Package

WRF04
Floristry Training Package

WRH06
Hairdressing Training Package

Environmental sustainability in these industries is intricately linked with procurement and with this, issues of consumer choice, product knowledge and provision of information and advice.

Australians are becoming increasingly aware of environmental sustainability issues such as water and energy efficiencies, and waste and toxicity implications of products and production processes, and are using this knowledge to make purchasing decisions.

At both a business and individual level, purchasing power is being used to support better environmental outcomes. These decisions are however, influenced by the consumer's budget and in an absence of affordable options, may quite often be compromised.

In addition, this is a sector that is bombarded with mixed messages about the 'green' credentials of products and services and quite often the 'educated' buyer may not actually have accurate information. In order to achieve real improvements to the environmental bottom line, the service sector must be well informed and able to provide accurate advice.

The service sector plays an important role in the dissemination of environmentally sustainable products and services as well as influencing purchasing behaviour through initiatives such as the provision of sustainable shopping bags, carbon footprint labelling and carbon offsetting schemes, as well as promoting locally grown and produced products.

ISC Response

Key drivers for the SSA industries

Key environmental sustainability drivers for the service industries include purchasing power, business and individual, and maintenance of lifestyle options.

Purchasing power. With increasing concern for the environmental impact of products, many consumers and businesses will seek out the most sustainable, cost effective options. Often it will be the role of those in the services industries to make these options available and provide the information to accurately support purchasing decisions.

Purchasing influences for environmental sustainability are likely to include waste, energy efficiency, manufacturing source (relating both to oversees standards and transportation), water use, toxicity, use of fertilisers or chemicals (the growth of the organic produce market testifies to an increasing market here), biodegradability, use of materials (e.g. recycled) and of course, cost.

Lifestyle impacts. The impacts of climate change threaten Australia's flora and fauna, and losses of wildlife, landscapes and marine environments may have detrimental outcomes for the tourism sector. Furthermore, extreme weather events such as floods and bushfires can have short-term impacts on sporting events. Environmental sustainability practices are increasingly required when engaging lifestyle activities such as sports, outdoor recreation, travel and tours etc.

Ultimately, the results of environmental sustainability initiatives, products and processes will depend on the impact they have on lifestyle. While there are many lifestyle implications of climate change in the long term, short term gains will depend on the availability of cost effective solutions that allow or improve on the lifestyle benefits that consumers are accustomed to.

Sustainability in SSA Training Packages

At this stage, environmental sustainability is included in the more recently reviewed Training Packages. SSA is committed to ensuring sustainable work practice is appropriately included in all Training Packages, which will be covered through upcoming continuous improvement projects.

Many of the skill requirements for this sector will relate to product knowledge, purchasing criteria and business practice as well as imparting sustainability information to customers.

Examples of stand alone units addressing environmental sustainability include:

SISOOPS201A
Minimise environmental impact

SISOOPS304A
Plan for minimal environmental impact

SISOOPS506A
Manage natural resources

SITTPPD004A
Plan and implement minimal impact operations

SITTPPD006A
Plan and develop ecologically sustainable tourism operations

A range of units also include environmental sustainability concepts embedded through the unit. For example:

SISOOPS202A
Use and maintain a temporary overnight site

SIBBSPA001A
Work in a spa therapies framework

SIFBGM006A
Evaluate building and grounds maintenance and development needs

Guideline sustainability units are also available for packaging into SSA qualifications:

BSBSUS201A
Participate in environmentally sustainable workplace practices

BSBSUS301A
Implement and monitor environmentally sustainable workplace practices

SITXENV001A
Participate in environmentally sustainable work practices

SITXENV002A
Implement and monitor environmentally sustainable work practices

SITXENV003A
Develop workplace policy and procedures for sustainability

Service Skills Sustainability Initiatives:

The SSA is undertaking research projects to examine and improve on industry specific environmental sustainability inclusions across its Training Packages.

Initiative 1: Examination of environmental sustainability skill and technology requirements for the hairdressing industry, through continual improvement processes.

Initiative 2: Examination of environmental sustainability skill and technology requirements for the retail industry, through continual improvement processes.

Initiative 3: Development of professional development workshop with Sydney Water for trainers in hospitality. This will provide RTOs with awareness of Sydney Water programs and resources that they can take advantage off and use directly in their training programs.

ISC Response

The Transport and Logistics Industry Skills Council (TLISC) covers Road Transport, Rail, Warehousing & Storage, Maritime and Aviation in Australia, a sector that employs an estimated 500,000 individuals directly and over 1 million people in both direct and associated roles. The sector contributes $90 Billion to the Australian economy annually (14.8% of GDP). Notwithstanding a number of large national transport organisations the road transport sector is dominated by small to medium sized businesses, 65% with fewer than 100 employees.

The Transport and Logistics Industry Skills Council is responsible for the following three Training Packages:

AVI08
Aviation Training Package Version 1

TDM07
Maritime Training Package

TLI07
Transport and Logistics Training Package

The road, transport and aviation sectors of the industry provide significant challenges around fuel usage which is a central theme for industry initiatives designed to limit its environmental impacts. Transport contributes around 14 per cent of Australia's emissions and is the second fastest growing source of emissions. Emissions from transport have increased by 27 per cent since 1990.[10]

Achieving more environmentally sustainable outcomes will require research, development and deployment of new technologies to increase fuel efficiencies, control pollution and provide alternative fuel options, as well as assess current transport and logistics practices to improve work practices and maximise energy efficiency.

While rail offers significant environmental savings over road; transporting bulk freight by rail instead of road has been identified as offering a reduction of carbon emissions and fuel by 60% and up to 6 times for the average passenger commute[11]; and could be considered a primary strategy for addressing carbon pollution, there are still systemic barriers to rail providing a seamless transport system in Australia. As such, environmental sustainability strategies for the transport sector must still target fundamental use of fuel consumption.

Other environmental sustainability considerations for this sector include waste management practices and the efficient use of vehicles and other technology to meet the freight task.

Many environmental challenges for the transport sector will be accommodated within current training resources and skilling strategies. Increased consumer patronage of public transport to reduce personal carbon footprints will see an increase in demand for workers in the public transport systems which will also provide opportunities for environmental practice to be applied to entry level training. A strategic initiative between TLISC, Defence Force Australia and the humanitarian aid sector has seen the development of two new qualifications in deployment logistics which will undoubtedly support responsiveness to natural disasters predicted as a result of global warming, however, these will not necessarily require specific 'environmental sustainability' skills. Increased public awareness will increase a consumer focus of this highly visible sector which will add to pressures from the broader community for cleaner and more efficient national transport systems.

The industry is beginning to see the development of new and converging roles that have a focus on environmental sustainability; this is most prevalent in larger companies, especially in areas such as transport planning, management and leadership. Specialist roles are also emerging to address compliance and carbon reduction initiatives across the business. It is expected that these roles will increase through the implementation of an Australian Carbon Emissions Trading Scheme.

Key drivers for the T&L industries

Key drivers for environmental sustainability developments for the T&L industries are centralised around the Emissions Trading Scheme and public perception.

Emissions Trading Scheme. When details of this Scheme are available, the T&L industries will examine the skill implications for their workforce. The transport industry will need to address its increasing emissions through the development and deployment of new technologies and carbon abatement initiatives. The impacts of the ETS are also likely to instigate a cost impost which will drive exploration

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10. *Climate Change Green Paper Fact Sheet 4- Transport Industry*. The Australian Government. July 2008. 11. The Garnaut Climate Change Review

for opportunities to improve work practice efficiencies. For example, the use of different class vehicles able to transport more cost effectively. Planning, management and leadership will be important skills to ensure that the transport industry is equipped to drive innovative practice and achieve environmentally sustainable outcomes.

Public perception. The transport industries are highly visible. It is common for accidents, spills or other incidents to become major news items with a critical eye on the environmental impacts of these events. As public awareness of and concern for environmental issues grows, this will increasingly become a concern for transport enterprises. Improved workplace practices to prevent and manage such incidents will be important to maintain the environmental track record, as well as public support for the transport industry.

Sustainability within TLISC Training Packages

T&L Training Packages currently include three units that specifically target environmental sustainability. These are:

TLIU707B
Care for the environment – this unit is available for all Certificate II level qualifications

TLIU107B
Implement and monitor environmental protection policies and procedures – this unit is available for all Certificate IV qualifications

TLIU607B
Conduct environmental audits – this unit is available for all Diploma qualifications

TLISC Sustainability initiatives

The TLISC is currently undertaking a range of initiatives to research the needs of industry for an increase in focus on environmental sustainability coverage within its Training Packages.

Initiative 1: Analysis of the delivery of key units that target environmental sustainability to determine which work roles are targeted, how they are incorporated into training strategies and their suitability to the transport industries.

Initiative 2: Identification of skill gaps for emerging environmental sustainability work roles covered within TLISC Training Packages in collaboration with the National Centre for Sustainability and Environment. This work will inform further Training Package developments.

Initiative 3: Consultation with NSW Road Transport sector as part of the 'Green Skills Initiative' to determine and appropriate training and delivery strategy for the implementation of sustainability knowledge and skill development aligned to T&L Training Packages.

Initiative 4: Examination of environmental sustainability coverage within the road transport and warehousing sectors as part of review processes.

Initiative 5: Industry consultation to determine environmental priorities. To date this identifies a priority to integrate environmental sustainability in a holistic manner with existing skills.

An Industry Response

INDUSTRY SKILLS COUNCILS

Creating Australia's Future

AgriFood Skills Australia
http://www.agrifoodskills.net.au
02 6163 7200

Community Services and Health Industry Skills Council
https://www.cshisc.com.au
02 9270 6600

Construction and Property Services Industry Skills Council
http://www.cpsisc.com.au
02 6253 0002

ElectroComms and EnergyUtilities Industry Skills Council
http://www.ee-oz.com.au
02 6241 2155

Forestworks
http://www.forestworks.com.au
03 9321 3500

Government Skills Australia
http://www.governmentskills.com.au
08 8410 3455

Innovation and Business Skills Australia
http://www.governmentskills.com.au
03 9815 7000

Manufacturing Skills Australia
http://www.mskills.com.au
02 9955 5500

Skills DMC
http://www.skillsdmc.com.au
02 9299 3014

Service Skills Australia
http://www.serviceskills.com.au
02 8243 1200

Transport and Logistics Industry Skills Council
http://www.tlisc.com.au
03 9604 7200