

Skills Australia's Submission to the Inquiry into the Effects of Climate Change on Training and Employment Needs

Sue Beitz, Head of Secretariat, Skills Australia
GPO Box 9880
Canberra Act 2601
Ph: 02 6240 5784

Introduction

Recent reports on the effects of climate change highlight the size of the challenge that climate change adaptation and mitigation pose to public policy. Publications such as the Stern Review, reports by the Intergovernmental Panel on Climate Change (IPCC), and now the Garnaut Review, have made it clear that climate change requires a significant response from government, business and individuals. Furthermore, the Government has clearly indicated that it is committed to meeting the challenge, and that the cost of inaction far outweighs the cost of action.

The task for government is to develop an environmentally sustainable economy that maintains Australia's high standard of living, and is able to create decent and well paid jobs for all Australians. Skills training and workforce development will play an important part in achieving this. As an independent advisory body that provides advice directly to the Minister for Education, and with a focus on future skills and workforce development needs, Skills Australia is well placed to contribute advice that can help address the effects of climate change on training and employment needs. In this way, Skills Australia can help ensure that Australia's training effort is directed towards supporting the skills required of a modern sustainable economy.

To outline the part that Skills Australia can play, this submission includes:

- background information on Skills Australia and its key roles and functions;
- an outline of Skills Australia's broad understanding of the effects of climate change on employment and training;
- an outline of Skills Australia's current work in engaging with industry to assess current and future skills and workforce development needs associated with the shift to a low-carbon sustainable economy;
- an assessment of the current response from training providers; and
- indications of where Skills Australia sees further work is needed in the future.

Skills Australia's role

Skills Australia was established in May 2008 as part of the Australian Government's *Skilling Australia for the Future* policy. As such, Skills Australia has a key role to play in the Government's plan to overcome skills shortages and ensure a prosperous future for all Australian's through higher and more productive workforce participation.

Skills Australia's primary function is to provide advice to the Minister for Education on Australia's current, emerging and future workforce development and workforce skills needs. In this capacity, consideration of the skills and training requirements of a 'green economy' is consistent with the objectives of Skills Australia's remit.

Skills Australia is comprised of seven members, drawn from a range of backgrounds including economics, industry, academia and training providers. This ensures that Skills Australia's

advice is informed by a range of experience and expertise, and will help provide the training system that a modern Australian economy needs.

The effects of climate change on employment and training

Skills Australia acknowledges that climate change will affect employment and training needs in a variety of ways. Understanding just precisely how and what those effects will be will require consideration of the implications of current and future government policy, associated price shifts, and changes in consumer choice and behaviour.

As the Australian Government's Carbon Pollution Reduction Scheme is developed and implemented, there are likely to be effects on existing jobs and creation of new jobs which will lead to changes in training needs. These effects will be felt across many areas of employment, including professional, para-professional and the trades.

As Government policy is still being developed, it is not entirely clear how jobs will be affected. However, reports in the media and from industry already hint at demand in areas such as green accounting, carbon footprinting consultants and emissions assessors. Skills Australia is also aware of immediate needs in accounting and management consulting due to increased reporting requirements associated with the National Greenhouse and Energy Reporting Act (NGERA), and industry demand for strategic advice and assessment of current practices. Likewise changes in employment in the energy industry have been well documented, and there is a reported need to develop new qualifications in areas such as energy performance auditing and work has already begun in this area.

For example, EE-Oz Training Standards (EE-Oz), the ElectroComms and Energy Utilities ISC, is actively engaged with industry identifying training requirements for techniques and technologies which will be required in the move to a low carbon economy. This includes areas such as smart metering technologies, energy management and control, energy efficiency and auditing, energy performance management and Natural Refrigerant use. Likewise, Manufacturing Skills Australia (MSA) is developing a skills response to address the impacts of climate change on manufacturing. One aspect of this is to develop units of competency to extend existing qualifications and where necessary, new qualifications, to deal with new skills for manufacturing workers. This will, for example, include those workers involved in the manufacture and servicing of devices that will be used to reduce energy and other resources consumption (eg water), and devices and products that will be used to produce alternative energy systems for transport (hybrid drives, CNG, fuel cells etc) as well as electricity generation through wind, solar, wave and geothermal power.

Other forms of government environmental policy and regulations will affect employment and training needs. For example, the effect of government policy in the water industry has resulted in an immediate need for water auditors, hydrologists and water engineers. Furthermore, environmental regulations in the commercial and residential building industry have already had an impact on training and workforce development needs in the traditional trades. The educational requirements of 'green plumbing' are just one example of such effects.

Changes in prices as a result of government policy and regulations are also likely to have implications for employment and training. Price shifts associated with carbon reduction initiatives, for example, will cause adjustments in consumer demand, and thus industry response. Likewise, greater consumer uptake of green products, as a result of government incentives or increased environmental consciousness, may reduce the price of such products

and further increase demand. Further research and industry consultation is needed to adequately assess the training requirements associated with such changes.

As well as the effects of government regulation, employment and training needs may be affected by moves to more sustainable business practices as a result of individual companies' corporate responsibility policies. Likewise, recognition of the profitability of 'green technologies' may drive business to innovate, and as a result, stimulate employment and training.

To ensure that these current and future training requirements are met, the training system, industry and enterprises will need to work together to plan for the future and develop the training to realise these future job opportunities.

As discussed in more detail, the broad tertiary sector, including universities and vocational educational and training providers, is already responding in innovative ways. However, further efforts and a more coordinated response are needed.

Adequately meeting the training needs of a shift to a low carbon economy requires accurate information on areas of need. In this regard, Skills Australia notes the findings of a recent report to the Dusseldorp Skills Forum. The report finds that achieving the mobilisation of skills and training required of a 'green economy' is seriously hampered by a lack of data on skill requirements and shortfalls.¹ Skills Australia agrees with the report's finding that gathering data in these areas is an urgent priority.

Industry views of future skills needs and Skills Australia

Skills Australia's current work has been focused on engagement of industry at the state and national level to obtain quantitative and qualitative input from industry on current and emerging skills needs, and to better understand the drivers of those needs. This engagement with industry has been managed through Skills Australia working with the eleven Industry Skills Councils (ISCs).

As part of these consultations, industry representatives and ISCs were asked to provide information on skill and labour requirements related to the 'green economy'. This was to obtain information about the potential new areas of employment arising from climate change policy, and to gauge industry response to changes in consumer preferences.

Indications from the recent forums are that industry is aware of the issues and is beginning to develop a response. However, in the main there is currently a lack of comprehensive data from an industry perspective, and therefore the direction of the response is limited. A greater knowledge of the implications of future efforts to move to an environmentally sustainable economy is needed. Nevertheless, there are a number of examples beginning to emerge from industry consultations, such as:

- EE-Oz has identified an urgent need for training places in the energy sector. This is due to changes associated with current and emerging technological responses to climate change, energy efficiency and energy management. Government incentives to encourage the adoption of renewable power systems are having a particularly strong effect. Programs such as the Australian Government's National Solar Schools Program and Solar Homes and Communities Plan, as well as associated state and territory bonuses and 'feed-in' tariff schemes, are expected to create large scale demand for grid connected solar electricity generation. To meet the demand for

¹ Hatfield-Dodds, S., G. Turner, H. Schandl and T. Doss, 2008, *Growing the green collar economy: Skills and labour challenges in reducing greenhouse emissions and national environmental footprint*. Report to the Dusseldorp Skills Forum, June 2008. CSIRO Sustainable Ecosystems, Canberra.

domestic dwellings alone, EE-Oz has predicted an urgent need for post-trade (Certificate IV – Diploma) qualified electricians to meet the design, installation, integration and maintenance requirements of such systems.

- EE-Oz has also identified the potential need to develop new qualifications in areas such as energy performance auditing, and there is industry support to do so. Furthermore, to adequately respond to climate change, EE-Oz have suggested potential changes in training, such as redesigning the structure of qualifications within Training Packages to allow the development of post-trade specialisations through skills sets or higher level qualifications. These new qualifications and specialisations can be readily developed through the existing ISC mechanisms.
- MSA is developing a skills and workforce development response to greenhouse gas reduction and sustainability. This response is to be outlined in MSA's strategy, *Manufacturing Skills for Sustainability*, due to be released on 29 October 2008.
- In the area of transport and logistics, the maritime industry predicts an increase in shipping as it becomes more cost effective relative to the cost of road transport, which is predicted to escalate. Training options to meet this predicted increase can be adequately supported by the new qualifications in the Maritime Training Package (TDM07)
- Similarly, the forest industry anticipates an increase in skill and labour requirements due to increasing demand in certain sections of the industry. For example, if forests and plantations are to be included in a carbon pollution reduction scheme then there will be a significant number of forestry workers required to plant, maintain and harvest these forests. Increase in forestry industry skill and labour requirements is being addressed by ForestWorks ISC's Climate Change Information Sheets. This initiative focuses on the opportunities that climate change creates for employment and training growth in 'green jobs'.

While some parts of industry are able to clearly identify need, other areas are relying on anecdotal evidence. This suggests that industry anticipates changes to training and skills requirements, as well as business opportunities and challenges in the shift to a low carbon economy. However, at this stage, this does not appear to have translated to a clear plan for industry. Industry as a whole is unlikely to respond until it is fully aware of the extent and effect of government policy.

Skills Australia considers that further research including a comprehensive, whole-of-government approach and engagement of industry is needed to assess the impact of future government policies and shifts in consumer demand to effectively inform and address the workforce development and skills needs of industry.

Assessment of the current response of training providers

Skills Australia acknowledges that there is an important role for both universities and vocational education and training in developing the knowledge and skills needed in the move to a more sustainable economy. In this regard, we would like to highlight examples where institutions are already responding in interesting and innovative ways.

The VET Sector

As the main provider of industry and workforce skills, the vocational education and training (VET) sector has a crucial part to play in the mobilisation of skills that is required to adapt to the effects of climate change. For example, Ninety-five percent of homes in NSW are designed and built by TAFE graduates, and the construction and running of buildings produces approximately 50 percent of greenhouse emissions in NSW.

Training organisations are already developing the ability to respond to such needs of a low carbon economy. For example, TAFE NSW is positioned to quickly develop short sharp commercial courses for delivery in Semester 1, 2009 for:

- Assessors of organisational carbon foot prints; and
- Sustainability Officers for employment in industry.

TAFE is also running specific courses in the areas of renewable energy, organic farming, environmental and land management and sustainability, water operations and water quality assessment and monitoring.

Skills Australia is broadly aware of other responses already being made in the VET sector. Some of these initiatives are in the formative stages, but nonetheless, represent a move to address green skills. For example:

- To enhance the delivery of education for sustainability practices and processes in VET in NSW, TAFE NSW has developed the *Education for Sustainability Action Plan 2007-2010*. The Plan adopts a systemic approach that builds scientific literacy, links ecological, social and economic sustainability through education and encourages new ways of thinking and behaving in response to complex sustainability challenges. The Plan is a good example of what is required to ensure system-wide adoption and sharing of good practice in education for sustainability.
- TAFE NSW is also engaged in a diverse range of partnerships with enterprises. For example, in partnership with the NSW Department of Environment and Climate Change, TAFE NSW is running a program on sustainable practices in manufacturing using resources developed by Swinburne University of Technology. This is a good example of the collaborative approach that is necessary to provide the training required of a green economy.
- TAFE SA recently announced the opening of the Renewable Energy Centre of Excellence at their Regency campus. The centre is an initial step toward providing tradespeople with the skills to install renewable energy systems.
- The Victorian government, in conjunction with key unions and industry bodies, has also recently announced the creation of the Plumbing Industry Climate Action Centre. The centre is designed to train plumbers in sustainable, energy saving, waste reducing and water saving plumbing techniques.

It is important to support this kind of innovation in training delivery as a necessary step in meeting the 'green skills' needs of the economy. In addition, further work to develop a national approach is needed as was noted by the National Centre for Vocational Education Research (NCVER) which calls for creation of a national vision for implementing education for sustainability in VET policy and programs.² In this respect, Skills Australia recognises the work being undertaken by the Ministerial Council for Vocational Education and Training's (MCVTE) National VET Sector Sustainability Action Group. The Action Group has been tasked with developing and presenting a Draft National Policy and Action Plan for Sustainability in the VET Sector to MCVTE by May 2009. Developing and implementing the plan will be an important step in providing the national approach that is needed to meet the training requirements of a sustainable economy.

The Higher Education Sector

The higher education sector also plays an important role in meeting the employment and training needs associated with the effects of climate change. Australian University academics

² David Goldney, Tom Murphy, John Fien and Jenny Kent, *Finding the common ground: Is there a place for sustainability education in VET?*, NCVER, June 2007.

have played an important part, both domestically and internationally, in developing our understanding of and capacity to respond to climate change. This is true of both the research work being undertaken at universities, and the education of undergraduate and postgraduate students which plays a vital role in meeting the current and future demand for climate change professionals.

Universities Australia, in its submission to this inquiry, has noted that universities are already developing specific degrees with a focus on climate change adaptation and mitigation, as well as course units and course material in wider degrees addressing climate change related subjects. Likewise, Skills Australia acknowledges that adequate numbers of higher degree by research students will be critical in meeting skills needs in climate change research and innovation.

While the tertiary sector is already responding in a number of ways, a greater level of coordination of effort at the national level is needed to ensure that Australia has the knowledge and skills required of a low carbon sustainable economy.

Work for the Future

As Skills Australia's work plan evolves, it intends to refine its methodology for assessing future skills needs. Gaining more detailed evidence about future jobs prospects arising from the green economy will require commissioning specific research.

A useful starting point would be to look at countries such as the United States and members of the European Union that have already begun to implement the kind of policy changes currently being considered in Australia. Examination of the experiences of these countries could provide a better understanding of the implications for Australia in terms of employment and training requirements.

In addition, a comprehensive and systematic research effort is required to fill the 'data gap' that currently exists in the areas of 'green skills' and workforce capabilities. This must be across all areas of employment, and not just those of obvious importance such as the renewable energy sector. In particular, work is required in the areas of:

- the scale of already existing skills shortages and training requirements associated with the effects of climate change;
- emerging and future skills and workforce development needs associated with proposed government policies and regulations; and
- current and future consumer demand for green products and services.

In the future, Skills Australia would want to work closely with the Department of Environment and the Department of Climate Change as well as Industry representatives to properly assess the consequences of both government policy and industry initiatives.

Conclusion

Skills Australia recognises and strongly concurs with the Australian Government's commitment to tackling the problem of climate change. Given the range of experience and expertise of its members, connections to industry and direct line of advice to the Minister for Education, Skills Australia is well placed to investigate and advise on the effects of climate change in regard to future workforce requirements.

Skills Australia has already begun to engage with industry in an attempt to identify some of the skills requirements of a move to a low carbon sustainable economy. While industry is broadly aware of the challenges and opportunities associated with climate change, a comprehensive

response is yet to emerge. Likewise, training providers have begun to respond in interesting and innovative ways, however, a more complete national vision is still required.

Skills Australia believes that if the effects of climate change on employment and training needs are to be adequately addressed, a comprehensive, national whole-of-government approach is needed in the future. This will require close consultation between industry and government, and a more extensive research effort to provide the evidence base that is crucial to making informed decisions on skills and workforce development.