Unpacking the Green Skills Challenge

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It may come as a surprise to some that both the current Australian Government and the coalition Opposition share a bipartisan goal of achieving a 5% reduction in GHG emissions by 2020 on 2000 levels, which amounts to a 25% reduction in today’s terms. This is a significant challenge for the country, and a huge challenge for the tertiary education sector. We have nine years to provide professions and trades, particularly within the existing workforce, with the knowledge, skills and personal commitment to decarbonise society by 25%. To help to address this challenge the national Green Skills Agreement (GSA) was endorsed by the Council of Australian Governments in 2009.

This paper uses a basic taxonomy to explain green skills and the challenges of their delivery within our TAFE system.

Green jobs and green skills

The GSA defines green skills, also known as skills for sustainability, as the technical skills, knowledge, values and attitudes needed in the workforce to develop and support sustainable social, economic and environmental outcomes in business, industry and the community.

Despite the GSA, there has been ongoing confusion and debate about green jobs and green skills; how do we define them and are they really different to any other skills and jobs anyway? But we risk wasting valuable time and opportunity in debating the semantics and overlooking the substance of the issue, education for a sustainable future. A less confounded approach, therefore, is to think of green jobs and skills as those that directly or indirectly reduce carbon emissions, reduce environmental impacts or that produce broader sustainability outcomes within business or the community. Along the dark green to light green spectrum, these jobs include:

- Jobs in front line, often emerging, green industries such as Electric & hybrid car design, manufacture and operation; Development, assessment and installation of low energy lighting; Carbon Farming; Wind, solar, geothermal energy generation; and Water recycling
- Jobs in existing industries that contribute to improved environmental outcomes such as building retrofits to increase energy efficiency, construction of 6&7 star houses, Installation, upgrade and maintenance of HVAC & space heater systems; reforestation; gas fired power station system operators; lean manufacturing, and...
- All other professions and trades such as barristers, hairdressers, sport & recreation managers, fine artists, finance, hospitality, etc, in which sustainable, resource efficient and socially responsible practices are equally important.

The Green Skills Agreement

To assist with the transition to a low carbon, sustainable economy, the GSA was developed with a central framework of 4 elements. In many respects, these elements compliment the other key national policy initiative, the National VET Sector Sustainability Policy and Action Plan (2009–2012).
1. embedding skills for sustainability practice and teaching in vocational education and training, within the requirements of the national regulatory framework
2. the review of Training Packages to embed sustainability knowledge, skills and principles
3. the up-skilling of VET practitioners to deliver skills for sustainability
4. implementing a transition strategy to re-skill vulnerable workers.

For the purposes of this paper, I focussed on the second and third elements.

**Training Packages review: education about sustainability**

As a direct consequence of the GSA, Australia’s 11 Industry Skills Councils (ISCs) each undertook a strategic review of the Training Packages to embed sustainability knowledge, skills and principles. This work is now completed and has resulted on changes to Training Packages at different levels.

a) Green technical skills: Many of the units of competency involving the specific technical skills required to undertake jobs in category 1 or 2 above (eg renewable energy installations, green plumbing, LED lighting) have been progressively added to Training Packages as the packages have been reviewed. Clearly, this process will need to be ongoing to take account of new technologies and emerging industries or services..

A complexity is that some green skills, particularly those involved in energy efficient outcomes, are not just technical but require energy literacy and a systems understanding across trades or disciplines. For example, constructing or retrofitting an energy efficient building requires an understanding of and collaboration between all professions and trades that contribute to the building. Similar principles apply across a manufacturing line, or within a business operation.

b) Skills for Sustainability ‘bolted on’: In themselves, green technical skills do not necessarily deal with sustainability principles. In 2006, three (guideline) competency standards for sustainability were noted by the National Quality Council as appropriate units for training packages:

- Develop workplace policy and procedures for sustainability (AQF V & VI)
- Implement and monitor environmentally sustainable work practices (AQF IV)
- Participate in environmentally sustainable work practices (AQF II)

These units provide skills related to planning for, implementing, or acting on the need for resource efficiency improvements in a generalised workplace or community, respectively. Sector contextualised versions of these have now been introduced as core (eg MSA, CPSISC, EEOz) or elective units into most training packages. The units are equally relevant to all qualifications in preparation for all jobs. This is affectionately regarded as the “bolt-on” option, where a single unit is or can be added to a qualification in the expectation that the principles infuse across all learning.

c) Sustainability embedded: A more effective method of ‘teaching’ the principles and skills of sustainability is to embed them into the fabric of all relevant units of competency. This is achieved by identifying potential or implicit sustainability skills in the training specification, and documenting these skills as part of the learning and assessment strategy. The IBSA TAE10 unit and part sustainability skill set, TAESUS01a Analyse and apply sustainability skills to learning programs, has been developed to assist VET practitioners to achieve this.
d) Qualifications in sustainability: Since 2005, at least two dedicated qualifications have been available nationally, the *Diploma of Sustainability* and the *Vocational Graduate Certificate in Sustainability*, both designed to provide learners with a deeper understanding of how sustainability might be applied to work and community environments. In August 2011, Manufacturing Skills Australia (MSA) launched a new Sustainability Training Package with a *Certificate IV, Diploma and Vocational Graduate Certificate in Sustainable Operations*, largely targeting the manufacturing sector.

**Up-skilling of VET practitioners: education for sustainability (EfS)**

It is self-evident that the introduction of ‘new’ concepts and content into the training system, such as those associated with green skills, necessitates the provision of both relevant teaching and learning resources, and professional development (PD) for VET practitioners involved in training. With respect to PD, there are two challenges for practitioners: the need to become vocationally competent and the need to use pedagogical practices which engage students to reflect on their own ‘values and attitudes’ towards sustainability (EfS).

a) Green Skills vocational competence: Difficulties in recruiting or developing vocationally competent teachers in the (green) technical skills being taught, often in nascent or emerging technologies, reflects the classic skills shortage challenge. There is an acute shortage of many of these specialists, and many are not attracted to the typically lower salaried positions of the VET sector. As a priority, our sector needs to identify the most critical green technology streams and find system level approaches to creating pools of specialist teachers (eg lighting design, electric cars, carbon farming, etc).

b) Education for Sustainability. Teaching the technical knowledge and skills about sustainability design, materials and technologies does not necessarily bring about change in itself. EfS is shorthand for learning-based strategies to stimulate change towards sustainability, and is recognised internationally as the educational and pedagogical platform for teaching in sustainability. It encourages systems thinking, problem solving, critical thinking and reflection, allowing the learner to not only acquire knowledge and skills, but to develop a personal perspective and commitment toward action on sustainability. This approach is entirely consistent with best practice in VET teaching as a whole.

In 2010, a new post graduate qualification was developed and accredited by Swinburne University and NSW Department of Education and Community, the *Vocational Graduate Certificate in Education and Training for Sustainability*. The qualification is a 12 month part time course aimed at sustainability champions within education, training and community-based institutions. Additionally, a second unit to the TAE10 Sustainability skill set is likely to be endorsed in September 2011: *TAESUS502a Identify and apply current sustainability education principles and practice to learning programs*

**Conclusion**

As Australia transitions towards a less carbon and resource intensive economy, the VET and TAFE challenge is to equip learners with the critical knowledge, skills, values and attitudes to actively work towards this transition. The GSA sets a framework to enable this, the ISCs have gone some way to embedding green skills in all training packages, but the greatest challenge sits with TAFEs and other RTOs. We need to have our teachers skilled in sustainability, education for sustainability, energy
literacy and specific green technical skills. And we need to reach out to the existing workforce, and maximise training to those that are most empowered to drive change now.