

Green Jobs and Skill Development in NSW (Australia)

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Note: this is not an official NSW Government presentation

Introduction

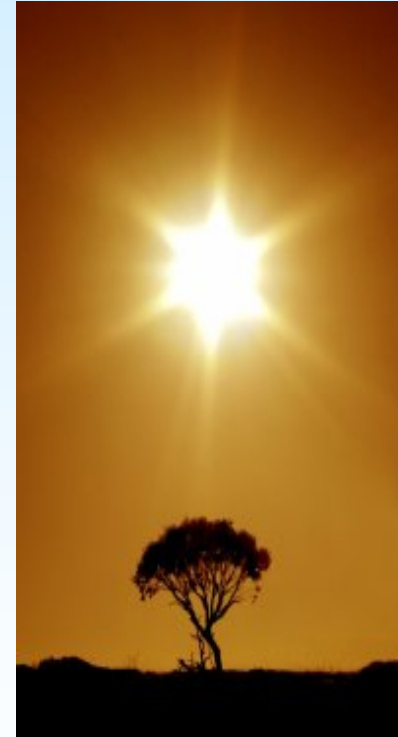
- Climate change is going to drive a global transition to a low-carbon economy: skill and labour development key component of any restructuring
- Australian transition: 'rogue nation' => comprehensive suite of market-based instruments (emissions trading scheme, renewable energy & energy efficiency) by 2010
- NSW perspective on skills, innovation and labour market development:
 - Mapping out key challenges (qualitative)
 - Lessons from NSW experiences

NSW Inventory (2006 data)

Emission Source	Annual emissions of greenhouse gases (mega tonnes of CO-2 equivalent)	% of total NSW emissions
Stationary Energy	77.9	48.6
Transport	21.9	13.7
Agriculture	18.2	11.4
Fugitive Emissions	15.8	9.9
Industrial Process emissions	11.4	7.1
Land Use, Land Use change, Forestry	9.0	5.6
Waste	5.8	3.6
TOTAL	160	100

Key Skill Challenges

- a) Training for 'Green Jobs' e.g. renewable energy**
- b) 'Greening of Brown Jobs' e.g. building trades**
- c) Developing training and work systems for the 'emergence of knowledge workers in unexpected places' e.g. facility managers**
- d) Structural adjustment & retraining in industries/regions which lose jobs e.g. coal**



Training for Green Jobs

- Barriers to skill development:
 - lumpy, stop-start market demand & thin markets => boom-bust cycles
 - Firms use 'coping strategies' (e.g. working long hours) instead of engaging/training labour
 - Too many training institutes competing to service thin market => low students => lost training capacity as courses cancelled and trainers exit sector
- vicious circle: major skill shortages limiting industry development e.g. solar water installers, wind site designers



Greening Brown Jobs – Green Jobs or Jobs for a Low-Carbon Economy?



- 'Green jobs' a small portion of future demand
 - e.g. CSIRO modelling on emissions cut scenario : 230-340,000 new jobs in 'high environmental impact sectors' vs 2.9m workers who require retraining.
- Key priority: built environment
 - Retraining aging trades
 - Building training/work systems for new knowledge workers e.g. facility managers



Facility Managers and Building Energy Performance

Measure	Building Star Impact
Building technology	1.4 stars
In-sourced management	1.3 stars
Management with high level of energy efficiency knowledge	1.3 stars
Managers able to directly affect efficiency	0.9 stars
Buildings with an efficiency training program	0.5 stars

Note: 2.5 stars = median; 5 stars = best practice

Source: the Warren Centre, University of Sydney

Developing skills & jobs for a low-carbon economy: lessons from NSW experiences

- a) Demand-side instruments: context is everything – skills policy cannot do it alone
- b) Supply-side: greening the training system
- c) Innovation and skill beyond the workplace: skill-ecosystems and networks
- d) Innovation and skill in the organisation/workplace: design-led change vs workforce skilling

a) Context is everything: incentives for green jobs & skill development

- Greenhouse emissions are an externality: in the absence of systemic incentives, market demand will be too uneven/low
 - direct impacts of climate change, pockets of green consumers, firms using green branding strategies
- Best skills policy can aim for is 'islands of excellence' amidst skill gaps/shortages
 - NSW experience: some innovative firms and programs – but significant skill shortages and limited development of training capacity until recently

Creating demand for Green skills

Instrument	Australian cases
Market-based instruments	<p>National emissions trading scheme (Carbon Pollution Reduction Scheme, CPRS): economy-wide incentive for low-carbon markets</p> <p>Renewable energy target (20%, 2020): demand for near-to-market renewable energy technologies</p> <p>Energy efficiency trading: financial incentive for solutions to barriers to cost-effective energy efficiency</p> <p>Feed-in tariff: solar PV</p> <p>Waste levy (NSW): levy on landfilled waste driving development of recycling industry</p>
Market standards/regulation	<p>Minimum energy performance standards</p> <p>Basix (NSW): all new residential buildings/major renovations must reduce greenhouse gas emissions by 40% => jobs/skills in cutting edge building design</p> <p>Phase-out old technologies e.g. electric hot-water, CFL lightbulbs</p>
Public investment	<p>Infrastructure</p> <p>R&D in renewable energy technologies</p>

National emission trading scheme

- CPRS is the key agent of change in Australian policy mix – but some issues with emission trading schemes for skill development:
 - price collapses common to date: these can undermine green businesses and investment in green skills
 - other complementary measures (e.g. regulation, other MBIs on renewable energy & energy efficiency) more effective in driving innovation and change in some contexts
 - transitional measures e.g. on-going need for thin market strategy (esp. to develop renewable energy) by pooling demand, flexible delivery
 - coordinated/planned training (e.g. renewable energy centres) – competition between training providers has led to excessive fragmentation in immature green skill markets
 - flexible delivery e.g. on-line, on-site, mobile units

NSW Energy Savings Scheme

- Major source of negative-cost/low-cost abatement: key priority for NSW
- Obligation on electricity retailers to surrender certificates from accredited energy efficiency projects = 4% of sales (generated directly or purchased)
- Impacts on jobs & skills:
 - **Indirect:** demand for energy efficient technologies and skills
 - **Direct:** financial incentive for development of 3rd-party energy efficiency labour market
 - Energy service contractors/auditors
 - Green businesses which develop business models for the mass roll-out of energy efficient technologies
 - e.g. CFL light-bulbs under the NSW Greenhouse Gas Abatement Scheme
- Centrepiece of wider energy efficiency strategy - and supplemented by major direct investment in energy efficiency skills: priority courses for trades and professionals, training capacity, partnerships/demonstration projects

b) Greening the Training System

- Greening curricula process beginning e.g. no new courses accredited unless they have incorporated sustainability criteria, embedding sustainability criteria in existing course
- Developing training capacity e.g. training the trainers
- Partnerships and demonstration projects
- Beyond the 'school on the hill' – strategies for retraining existing workers
 - e.g. building trades/aging workforce not 'going back to school'
 - short courses through industry associations (e.g. Enviro-plumber, Eco-electrician) widely used to good effect – albeit with some limitations
- Greening the training system part of the solution ... BUT focus has to also be beyond training system on workforce development and networks

c) Climate change, innovation + skills

- Innovation: key to greenhouse mitigation and competitiveness in a carbon-constrained economy
- Two models
 - Traditional (linear) – conceptualisation => R+D => prototypes=> commercial application => adoption and diffusion=> scale economies
 - Learning/knowledge economy – continuous improvement involving users, suppliers, researchers and producers interacting
 - ⇒ key: learning by doing and learning by using – feedback throughout networks of production/service provision vital to improvements

c) Innovation and skill beyond the workplace: building clusters to diffuse innovation, skills and knowledge

- Place based networks of learning emerging - driven by benefits such as:
 - Sustainable solutions often require local variations on standardised systems based on local ecologies, industrial profiles etc.
 - Experiential learning – learning through practical examples
 - Knowledge transfer, problem-solving & codifying solutions
- Take at least four different forms:
 - Lead organisation and supply chain model: e.g. Toyota, Landcom
 - Brokered, highly focused firm to firm learning network: 3CBDs, Smithfield-Wetherill Park Clean Production Partnership
 - Multi-sectoral region-wide learning network: e.g. Sustainable Newcastle
 - Brokered, regional integrated sector learning model: e.g. Liverpool Industry Network Construction (LINC).

c) Innovation and Skill beyond the Workplace: Clusters

- Challenges for policy
 - How can formal system link better with these networks?
 - Who should drive this?
 - Can public policy nurture and improve operation of such networks?
- Two examples of policy innovation (NSW)
 - Skill Ecosystems
 - Sustainability Advantage



Sustainability Advantage

The Process

- 1. Commitment - 18 months & up to \$3,000 (+GST)**
- 2. Diagnostic**
- 3. 18 month – 2 year action plan (inc. ‘sustainability champions’)**
- 4. Projects with specialist support (e.g. resource efficiency, supply-chain management, employee engagement)**
- 5. Clusters – sector or geographic (2-3 times a year)**
- 6. Document and report results**
- 7. Plan, new projects and continuous improvement**

Sustainability Advantage: the Clusters

- **3 types of cluster**
 - **Industry clusters e.g. property, poultry**
 - **Regional Industry Clusters e.g. Western Sydney manufacturing**
 - **Multi-industry clusters e.g. Riverina, Newcastle (e.g. 32 businesses inc. shopping centre, steelworks, diary farming, printers, training institute)**

Sustainability Cluster: Riverina

12 wineries and agribusiness

Casella, Debortoli, McWilliams, Orlando, Westend, Bartter, Rockdale Beef, National Foods, Murrumbidgee Irrigation, Real Juice, Chicken Income Fund, PHL Surveyors

- **Electricity** **1,600 MWh**
- **Gas** **9,600 GJs**
- **Kilometres** **100,000 + (truck movements)**
- **Waste** **150 tonnes**
- **Water** **150 ML p/a**
- **Vegetation** **27,000 trees**

Saving - \$2.36 million pa in 07/08 (payback < 2 years)

Expected to double in 08/09

Skill Ecosystems (www.skillecosystem.net)

- Definition: clusters of workforce skills located in particular regions or sectors e.g. silicon valley
- Demonstration projects
 - Government brokered/funded networks across supply-chains or sectors
 - Originate from insight 'skill shortages' often mis-diagnosed as under-supply – when actually the product of other factors (e.g. labour turnover, poor job design, casual employment)
 - Holistic focus by stakeholders taking responsibility for workforce development across their ecosystem:
 - Supply of labour
 - Supply of skills
 - Utilisation of skills



Green skill development in the workplace

- Different models: design-led approach vs general workforce skilling
 - Benefits of general workforce skilling
 - Employee engagement
 - Efficiency gains through continuous improvement – significant gains in NSW demonstration projects for sustainability teams/training
 - Combination best approach: feedback loops
- Sustainability ‘champions’
- Network of ‘sustainability delegates’ – like union OHS delegates

Conclusion

- Importance of demand-side instruments: very challenging developing green skills in their absence
- Coordinated reorganisation of training system/skill supply: necessary but not sufficient precondition
- Engage/nurture vehicles for delivering skills & transferring knowledge outside institutes (e.g. clusters, industry associations, teams)