

Green Jobs 2009

**Richard Walker, Executive Director
Economic Development Australia**

Climate Change

- **The threat posed by climate change remains the greatest challenge facing our planet**
- **“Climate change will undermine the quality of life for every person on this planet and eventually imperil life on earth itself” (Milton Friedman)**
- **“The issue of climate change is one that we ignore at our own peril... We are condemning future generations to global catastrophe” (Barak Obama)**
- **In order to respond to the threat, it will require an unprecedented level of collaboration and co-operation amongst all levels of government and business around the world**

Economic Growth & the environment

- **Increase in income per person and total value of economic activity are strongly associated with increased pressure on the environment**
- **Changes in policy settings & institutional arrangements can moderate these pressures**
- **Changes won't occur automatically through market processes but will require government & citizen intervention**

However with Great Challenges comes great opportunities.

Climate change presents a significant change to our economies

Models to explore potential green collar employment future

- **CSIRO Australian Stocks & Flows Framework [ASFF] – a technological based ‘physical economy’ approach**
- **Monash University - Multi regional computable general equilibrium [CGE] model – price based ‘monetary economy’ approach**
- **Compare employment consequences of reduction in net emissions of 60-100% by 2050**
- **Projections developed share substantial areas of agreement**

Outcomes of modelling

- **Well designed policies can substantially decouple economic growth from environmental pressure**
- **Achieving a rapid transformation to sustainability would have little or no impact on national employment**
- **Projected increase in employment 2.5 – 3.3 million jobs over next 20 years**
- **However this will require a massive mobilisation of skills & training**



Impact of Low Carbon Economy

The low carbon sustainable economy will impact on all jobs

- **Additional jobs will be created in present and new industries**
- **Employment will be substituted**
- **Certain jobs will be eliminated without direct replacement**
- **Many existing jobs will be transformed & redefined
This will cause changes in both processes and products**

Opportunities

- **Development of green jobs**
- **For period 1998 to 2007 the clean energy economy grew at a rate of 9.1% versus 3.7% in traditional jobs**
- **UK Government in 2009 identified world's low carbon environmental goods & services industry to be worth \$6 trillion**
- **Australia has the potential to create up to 500,000 additional green collar jobs by 2030**

Green jobs - Definition

- **Green jobs are defined as work in agricultural, manufacturing, research & development, administrative and service activities that contribute substantially to preserving or restoring environmental quality.[UNEP]**
- **Green-collar jobs range from low-skill, entry-level positions to high-skills, higher-paid jobs, and include opportunities for advancement in both skills and wages [ACTU]**

Green industries

- **Renewable energy [wind,solar,geothermal]**
- **Energy efficiency**
- **Sustainable water systems**
- **Biomaterials**
- **Green buildings – new & retrofitting**
- **Waste & recycling**
- **Sustainable transport systems**

Demand for new products/services

- **Increased demand for power generation will create demand for new products and services**
 - Renewable power generation supply chain
 - Services for renewable power
 - Research and development
- **The impact is already happening across the world**
 - \$1 Billion Wacker Chemie Polysilicon refinery in Tennessee
 - LDK Solar completes first Polysilicon production in Xinyu City China
 - First solar building film production facility [100MW] in France
 - Spire delivers turnkey solar module production line to Sova in India
 - SolarWorld expands solar module production in Freiberg Germany

Solar Power in Germany

- To date Germany has installed 5,300 MW of PV solar generation [largest of any country]
- Germany is currently the technology and production leader in PV Solar
- Solar supports currently 40,000 jobs across the economy
- Germany also has the largest amount of wind generation capacity in the world [currently 70,000 jobs]
- Government initiated a feed in tariff in 1991, creating a new demand for renewable energy

The Ripple Effect of Renewable Energy

Direct Impacts

(On site and off-site wind farm workers)

More than \$2.5 million annually in payments to landowners and \$4.6 million in annual property tax revenue

Construction created 912 jobs and provided \$133.6 million to local economies

Operation of the plant provides 181 long term jobs, and \$19.3 million a year to local economies

Indirect Impacts

(Equipment and service providers for direct workers)

Construction provided 382 jobs and \$43.3 million to local economies

Operation of the plant provides 46 local jobs and \$5.9 million annually to local economies

Induced Impacts

(Spending by direct and indirect workers on local goods and services)

Construction provided 425 jobs and \$49.4 million to local economies

Operation of the plant provides 83 local jobs and \$9.7 million annually to local economies

Results of 1,000 MW of Wind Energy Development in Colorado

Source: S. Reategui and S. Tegen, "Economic Development Impacts of Colorado's First 100 Megawatts of Wind Energy"



Further examples of Green Jobs

- **Business services: Carbon auditing, advisory, legal, risk management**
- **Carbon trading: carbon registry, carbon market**
- **Energy efficiency technologies: building materials, lighting [eg LED], heating and cooling, “green collar” building services**

E.g. *Green plumbers*. In 2007 8,500+ plumbers have received *National GreenPlumber* accreditation with an expected 30,000 + over next 3 years

Supporting initiatives

- **Appropriate government policy initiatives**
e.g. Alternate energy legislation, CPRS [an ETS]
leading to strong domestic market
- **Up-skilling program, as new environmental jobs**
need highly skilled and trained people
- **The greatest job growth will be in ancillary roles**
supporting these industries

As practitioners, what can we do?

Cluster and economic development practitioners have the opportunity to prepare communities for a low carbon economy

- It is important to consider green jobs and how a low carbon economy will impact on present jobs, when planning for your area**
- There is a need to educate the community on the opportunities arising from a low carbon economy**
- Practitioners need to be proactive to counter erroneous claims of catastrophic job losses from industry lobbyists**

A list of reference materials to assist with Economic Development practice in Climate Change

UNEP *Green Jobs: Towards decent work in a sustainable, Low-Carbon world*

International Economic Development Council **The Climate Prosperity Handbook** - *Green Savings, Green Opportunities, Green Talent*

ACTU/ACF/ACOSS/Climate Institute 2008 - **Green Gold Rush**

CSIRO – report to the Dusseldorf Skills Forum: **Growing the green Collar Economy**

Community Colleges: **Growing the green workforce**

Local Government Climate Change Adaptation Toolkit

Opportunities beyond Carbon – looking forward to a sustainable world Ed John O'Brien MUP 2009