



Principles and Priorities of an Industry Policy for Climate Change

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1. INTRODUCTION

The scientific evidence is clear. The present and future rise in global temperatures is significant and today's emissions will affect the climate for decades to come. There is an environmental imperative to act but there is also an economic and social imperative. Current economic growth patterns that are dependent on fossil fuels are environmentally unsustainable. Our pollution levels will continue to rise unless decisive action is taken to drive long-term change in the way we produce and use energy. So that our long-term development is sustainable and that Australia plays its role in an international agreement to reduce emissions to 450 parts per million or better (in line with the recommendations of the UN International Panel on Climate Change), a range of market and non-market measures are needed to change how we produce and use energy.

Delay and unclear signals on climate change policy will increase the cost of acting later, postpone long overdue investment in essential infrastructure and risk missing opportunities in the emerging clean technology industry.

A price on pollution that covers all major polluting sectors of the economy is the most effective mechanism for driving the adoption of clean energy technologies and improvements in energy efficiency. Acting without a price on pollution will require more real resource expenditure to achieve the same pollution reduction objectives.

A suite of complementary measures is also needed to address a range of market and non-market barriers to the adoption of clean energy technologies and energy efficiency measures. Priority should be given to complementary measures that support the adoption of energy efficiency measures in the commercial and residential sectors, clean technology innovation, promote emissions and performance standards, and emission reduction efforts in sectors not covered by the pollution price.

1.1 Principles for a Price on Pollution

Unions have two priorities in the transition to a low pollution economy: job security and unlocking clean energy jobs. In this context, the ACTU strongly recommends the development of a pollution price and accompanying package of measures that:

- Reduce net emission levels
- Covers a broad section of the economy;
- Are legislated in 2011 with commencement in 2012;
- Provide a transparent framework with clear rules and governance;
- Safeguard workers in, and communities and regions dependent on, emissions-intensive industries by supporting industries to adopt best practice emissions-intensity and energy demand management;
- Provide support to emissions-intensive trade exposed (EITE) industries that seeks to mitigate the risk of carbon leakage by EITE industries in the absence of a global agreement and recognising the contribution of the workers in these industries in supplying the materials for building a low carbon economy;

- Provide generous assistance for affected workers and their communities to ensure just and fair conditions including the development of economic diversification plans and support to gain the skills and knowledge needed to access employment opportunities in a low carbon economy;
- Include complementary measures that support industries to improve current practices through the adoption of low carbon and energy efficient processes and products while also supporting Australian industries to maximise the opportunities that the transition to a low pollution economy presents;
- Allocate revenue to fund investment in low carbon technologies and clean energy options in an industry policy framework which supports the development of domestic industry supply capabilities;
- Support low income households; and
- Be accompanied by further progress towards achieving a global agreement on climate change

1.2 Sustainable Jobs, Sustainable Communities

During the CPRS debate modelling by Treasury and the Garnaut Review estimated that with a price on pollution and a suite of complementary measures real GDP per capita would continue to grow at an average annual rate of 1.2 to 1.3 percent, compared to 1.4 percent in the reference scenario.

Table 1: National Indicators (Reference, CPRS-5, CPRS-15, Garnaut-10, Garnaut-25)

	Reference	CPRS-5	CPRS-15	Garnaut-10	Garnaut-25
Commencement at 2010 or 2013					
Emissions price, real, \$/tCO ₂ -e	n/a	20	28	24	43
Medium term – at 2020					
Emission allocation, change from 2000 level, %	n/a	-5	-15	-10	-25
Emission price, real, \$/tCO ₂ -e	n/a	35	50	35	60
GNP, change from reference, %	n/a	-1.3	-1.7	-1.5	-2.0
GDP, change from reference, %	n/a	-1.1	-1.5	-1.1	-1.6
Long term – at 2050					
Emission allocation, change from 2000 level, %	n/a	-60	-60	-80	-90
Emission price, real, \$/tCO ₂ -e	n/a	115	158	114	197
GNP, change from reference, %	n/a	-5.1	-6.0	-5.4	-6.7
GDP, change from reference, %	n/a	-3.7	-4.9	-3.7	-5.8
Overall impact, 2010-2050					
Real GNP per capita, average annual growth, %	1.2	1.1	1.1	1.1	1.1
Real GDP per capita, average annual growth, %	1.4	1.3	1.3	1.3	1.2

Note: All Australian dollars, 2005 prices. Source: Treasury estimates from MMRF.

Although economy wide growth remains positive in the modeling, there will be demand shifts at a sectoral level as energy sources change, energy efficiency and clean energy technology are adopted, the transport modal mix changes, and so forth. We also know from previous economic

restructures that reform affects particular industries and is likely to be geographically concentrated. The response to these structural changes must focus on sustainable jobs and industries.

There will be significant opportunities as the market in clean energy technology matures in the transition to a global low pollution economy. In 2009, worldwide investment in clean energy totaled \$US162 billion. By 2020, the clean energy technology industry is projected to be one of the world's largest industries, totaling as much as \$US2.3 trillion. Australia can become a leader in renewable and clean energy technologies, and benefit from the associated job creation. To benefit, though, prompt and decisive action must be taken. This includes an enabling framework for industry to maximise opportunities.

To ensure job security as industries respond to a price on pollution and to maximise job creation opportunities in emerging clean technology industries, unions see an important role for comprehensive industry policy that ensures current and future industries are competitive in a low carbon economy.

In short, comprehensive and active industry policy designed through tripartite processes provides the framework for:

- Maintaining economic growth and strengthening competitiveness while providing decent work opportunities;
- Identifying the specific policies and interventions needed to support industry to overcome barriers to the adoption of clean energy technologies and energy efficiency measures;
- Driving investment in innovation, infrastructure, and skills needed to remain competitive in a low-carbon economy; and
- Adopting a whole-of-government approach that captures the broad range of policy responses needed to support industry to remain competitive in the transition to a low pollution economy.

Industry policy that places workers at the centre is essential for achieving environmental outcomes as well as sustainable jobs and communities as the economy responds to change brought about by a price on pollution. In this document we outline the principles and priorities of sustainable industry policy for climate change.

2. INDUSTRY ASSISTANCE

The MPCCC principles recognise the importance of maintaining the competitiveness of Australian industries:

The overall package of carbon price design and associated assistance measures should take appropriate account of impacts on the competitiveness of all Australian industries, having regard to carbon prices in other countries, while maintaining incentives to reduce pollution.

For the limited number of emissions intensive industries that are also trade exposed, assistance is required to retain and grow sustainable production and associated jobs. Appropriate short-term assistance to emissions-intensive trade exposed (EITE) industries must:

- Balance the allocation of assistance to EITE industries with the ongoing need to allocate revenue to support workers, low income households and communities during the transition to a low pollution economy, as well as supporting clean technology innovation and other complementary measures;
- Adopt a principled policy approach that includes regular reviews of new international policy developments, with assistance removed as the real and implicit pollution prices increase in competing countries;
- Ensure assistance is designed to maximise ongoing incentives for low pollution investment and help ensure that all parts of the economy contribute equitably to reducing pollution;
- Maintain investment signals for low pollution technologies, activities and behaviours and drive structural and technological changes in high emitting industries consistent with world's best practice;
- Target the trade-exposed and emission intensive elements of a company's operation;
- Tie assistance to demonstrated energy efficiency and clean energy technology changes consistent with world's best practice; and
- Be publically and transparently reported in terms of the allocation and quantity of permits, and the value of assistance.

While industry assistance provided through a proportion of the pollution price revenue is needed to meet the immediate impact of a pollution price on EITE industries, a longer term, more comprehensive and whole-of-economy approach is needed to promote decent employment opportunities in the transition to a low pollution economy.

3. SUSTAINABLE INDUSTRIES

In the transition to a low carbon economy, decent work must be a priority. We must ensure fair outcomes for workers as the economy restructures. Fostering growth and competitiveness is essential for ensuring job security and unlocking jobs in a low pollution economy. This requires an approach that places workers at the centre so that governments, industry and unions work together to maintain long-term investments in workers and secure and safe employment in the transition to a low pollution economy.

The approach is twofold. First, it is necessary to promote the clean energy technology opportunities and the associated jobs by supporting industries to maximise the opportunities that the transition to a low pollution economy presents; particularly in the research, development and deployment of energy efficiency and clean energy technologies.

Second, the policy response must safeguard workers in, and communities and regions dependent on, emissions-intensive industries by supporting industries to adopt best practice energy efficiency and emissions-intensity technologies, processes, products and behaviours as well as best-practice energy demand management.

This requires a suite of policy responses designed to maintain and sustain growth, boost productivity, and identify and resolve the blockages to new economic activities. During the 1980s and 1990s, this was the role of industry policies known as the Button Plans.

In the response to climate change, sector specific responses will be important for tailoring solutions to the circumstances of each sector as they seek to remain competitive. However, a price on pollution and the suite of complementary measures will have an impact across the economy. The response, therefore, must also adopt a horizontal approach to ensure coherence and coordination across sectors and industries.¹

3.1 Comprehensive Industry Policy

A sustainable industry policy for climate change is not separate from existing and proposed policies focused on clean energy technologies and energy efficiency; or the complementary measures that will be introduced alongside a price on pollution. Rather, it is a frame that captures the suite of policy measures that maximise competitiveness and job growth in the transition to a low pollution economy.

Industry policy also requires a whole-of-government approach to promote sustainable and competitive industries. This includes a broad range of policy areas including skills, procurement, and trade.²

There must be commensurate commitments by employers to maximise competitiveness opportunities within this framework, including investment in capital infrastructure, innovation and skill development.

Sustainable industry policy must:

¹ See Annex One for examples of sector specific and horizontal approaches

² In this paper the policy areas of skills, procurement and trade are discussed in more detail. See Annex One for an example of how the National Ports Strategy and coastal shipping policy can be part of a whole-of-government approach.

- Provide decent employment opportunities in the transition to a low carbon economy by promoting economic growth and competitiveness through a whole-of-government approach;
- Unlock the opportunities of a low pollution economy by driving investment and innovation in clean energy technology;
- Support emissions-intensive industries to adopt best practice energy efficiency and low emissions technologies;
- Include a regional focus, with workers and communities at the centre, that promotes collaborative planning with a focus on the development of clean technology industrial clusters that draw on the existing industrial fabric and economic diversification;
- Maintain long-term investments in work and training opportunities so there is secure and safe employment in the transition to a low carbon economy, that workers gain the skills to access emerging employment opportunities, and skills shortages that may emerge as a barrier to investment in new industries are minimised; and
- Identify linkages between industries, coordinate investments, share best practice and remove economy wide barriers to the take up of energy efficient and clean energy technology.

To do so, industry policy, should provide the framework for industry to remain competitive by:

- Comprehensively analysing the economic and social impact of a carbon price on the industry, taking into account the adoption of best practice emissions-intensity and energy demand management opportunities through the adoption of energy efficiency and clean energy technologies;
- Identifying capital and infrastructure investments needed for industry to remain competitive in a low pollution economy;
- Identifying domestic and international opportunities that the transition to a low pollution economy presents, including green procurement and export enhancement opportunities;
- Mapping skills needs and employment opportunities and investing in skill development accordingly; and
- Identifying assistance for affected workers and communities to fairly transition and gain employment opportunities, including access and support to up-skill and re-train.

3.2 Social Dialogue

A commitment to social dialogue³ is essential for the development, implementation and monitoring of policy that considers the impact of policy on workers, communities and industry. Effective social dialogue structures and processes support: transparent decision-making processes, identification and anticipation of potential situations of socio-economic and environmental conflicts; and adoption of solutions and measures that respond to the concerns of interested parties.

³ Social dialogue is defined by the International Labour Organisation as 'all types of negotiation, consultation or simply exchange of information between, or among, representatives of governments, employers and workers, on issues of common interest relating to economic and social policy'.

4. ENERGY INTENSIVE COMMUNITIES

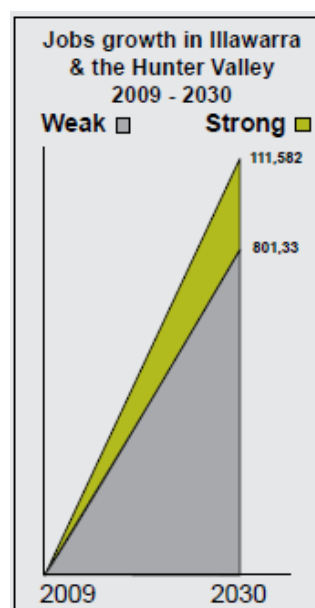
Regions with energy intensive industrial concentrations will face particular challenges as the economy restructures in response to a price on pollution. Action must, therefore, contain a regional focus to support communities to forecast and plan for change.

In many regional communities dependent on energy intensive industries, the conversation has already started. In the Illawarra, for example, stakeholders are collaborating to identify the key elements of a strategy to promote the region's competitiveness in a low carbon economy. The focus is on transforming and developing industrial processes while returning maximum benefits to the community through sustainable employment. This involves the adoption of energy efficiency measures and a refocusing of production on infrastructure for clean energy technologies.

Experience from Europe demonstrates that this is possible. Industrial clusters for a low pollution economy are not emerging independent of the existing industrial fabric, but rather clean technologies are emerging from the skills and R&D of existing industries and value chains.

Modelling commissioned by the ACTU and ACF supports this. With strong action on climate change all regions but one see higher employment outcomes.⁴

In the Illawarra and Hunter Valley, for example, the modelling shows an additional 30,000 jobs under strong action (18 percent more jobs in 2030). Job growth is across mining, manufacturing, construction and services.⁵ Job growth is associated with household and industry energy efficiency improvements, transport infrastructure investment and benefits, industry policies to maximise local content, and employment created from higher living standards.



However, we also know that economic diversification plans that support workers will be needed as economies shift away from dependence on fossil fuel generated electricity. Informed and well-designed planning, that takes into account the existing skills profile of the workforce, is needed to minimise the negative impact of economic restructuring.

4.1 Supporting Carbon Intensive Communities in the Transition

The response needed in carbon intensive communities is one that places workers at the centre, promotes the competitiveness of existing industries, identifies economic diversification opportunities that promote competitive advantages and adopts a holistic approach to

⁴ Strong action is defined as a price on pollution, complementary measures that support a pollution price to generate economic activity, and targeted industry development policies. In the far west of NSW, there will be 13 percent fewer jobs. This reflects a continuing structural decline in the region for the wool and mining industries. Importantly, the modeling helps to highlight where government action should be directed to mitigate the decline, in particular through the support of renewable energy or biofuel production if appropriate.

⁵ Additional jobs created from *strong action* compared to *weak action* in 2030: agriculture, mining, forestry and fisheries, 1577; manufacturing, 6257; construction, 6795; and services 16821. A total of 31450 additional jobs.

community planning including public spaces, social infrastructure, education, health and so forth. It must:

- Adopt strong and transparent governance structures that enable collaboration and consultation (adopting a tripartite 'plus' structures that provide industry, trade unions, the higher and further education sectors, academics, and other experts with a voice) on the prospects for, nature of and responses to anticipated impacts and opportunities as a result of a pollution price;
- Map existing industry infrastructure and skills which are suited or can be adapted to capitalise on emerging clean technology opportunities;
- Identify opportunities to promote sustainable industry through the adoption of clean technology and energy efficiency technologies that strengthen the competitiveness of existing industries and associated employment;
- Analyse community infrastructure investments needed for communities to remain competitive in a low carbon economy;
- Identify assistance needed to minimise social and regional disruption including support for workers to transition into new employment as a result of the portability of skills, to access appropriate retraining and re-skilling, and enhanced retirement packages;
- Resource an education and awareness campaign to build support in communities from transition and to minimise vulnerability; and
- Continue to monitor the impacts of structural adjustment on industries, workplaces, workers and communities.

But to effectively plan, an in-depth understanding of energy intensive economies and the workforce is essential. Comprehensive mapping of local economies is needed. Mapping should identify:

- Relationships between existing industries and sectors;
- Existing drivers of change in the local economy;
- Changes in relationships and drivers of change brought about by the introduction of a price on pollution, including innovation in and adoption of clean energy and energy efficiency technologies within the existing industry infrastructure and the contraction of some sectors;
- The existing skills base, both formal qualifications but also competencies; and
- The impact change will have on the workforce and skill demands

4.2 Resourcing Support for Carbon Intensive Communities

It is essential that adequate resources are provided to support workers and communities in carbon intensive communities. It is important that the assistance package sit within the broader industry policy framework.

Under the CPRS, there was consensus between the Productivity Commission, Garnaut Review and Government that a proportion of the carbon price revenue should be allocated to structural adjustment assistance for workers and communities disproportionately impacted by the introduction of the CPRS.

We support the position outlined in the White Paper that specific assistance for workers in the transition to a low carbon economy must be underpinned by existing social protection measures. This includes social security benefits and active labour market policies that support individuals to access employment programs.

In our view, however, assistance should begin to be provided well in advance of any change. As proposed above, governments, business and unions need to work together to identify trends in the economy and implement support plans that begin to transition workers into new employment opportunities well in advance of economic restructuring. This includes retraining and reskilling, if needed, so that workers are well-placed to smoothly transition.

In current negotiations on a carbon price scheme, unions are seeking \$1 billion to directly support affected workers and communities. A proportion of this would resource the mapping needed to plan effective support for workers.

Access to re-skilling and re-training is an essential aspect of support for carbon intensive communities but also more broadly for skilling the workforce of the future as industry responds to action on climate change. Resourcing skill development and training for a low carbon economy should be in addition to the resourcing allocated to carbon intensive communities.

5. JOBS, SKILLS AND TRAINING

The transition to a low pollution economy will have implications on the demand for jobs and skills within and between sectors of the economy. Changes in the workforce will not occur immediately or across all sectors at the same time; most labour market changes are expected to occur in the medium run. Nor will change occur in a vacuum. Many sectors are experiencing ongoing change in response to globalised production, technological developments, and so forth.

Effective planning that is resourced adequately will minimise uncertainties, maximise opportunities and take into account ongoing developments.

5.1 Mapping the Skill Requirements of a Low Pollution Economy

Although there are limitations to long-term modelling, an important first step is medium-term mapping that identifies emerging workforce trends and the impact on employment; changing skills and training priorities; and skill priorities by geographic location. Monitoring of trends and responding accordingly is necessary for:

- Informing industry-wide responses to skills planning which is essential for minimising skills shortages which can act as bottlenecks for the adoption of clean energy technologies;
- Enabling a cross-industry approach that supports the identification of opportunities to transfer skills and move across sectors as opportunities emerge;
- Providing adequate notice to plan for change, including supporting workers to access employment opportunities in expanding sectors or by identifying opportunities where skills are directly – or through some up-skilling and re-training – transferable; and
- Ensuring workers are up-skilled and re-trained in clean energy technologies in order to effectively and safely adopt new technologies.

Where mapping indicates significant shifts, economic diversification plans must support workers to access new employment opportunities in the transition to a low carbon economy that also protects their wages and working conditions. The needs of workers will most likely fit within three streams: assistance that matches the existing skill set of the worker in a new employment opportunity; access to re-training and re-skilling; and access to enhanced retirement packages. We propose the development of worker transition plans that:

- Detail the skills profile for the worker;
- Identify employment opportunities based either on the worker's existing skill set or similar skill set if retraining and up-skilling opportunities are provided to support the portability of existing skills; and
- Provide re-skilling and re-training opportunities (and provisions of paid leave for re-training if necessary); and
- Access to enhanced retirement packages, if appropriate.

5.2 Resourcing a Highly Skilled Workforce: Training Programs, Courses, Apprenticeships

For new clean energy and energy efficiency technologies to be adopted and for there to be investment in the clean energy technology sector there needs to be an appropriately skilled workforce. This includes up-skilling within existing jobs as well as training for the new jobs of a low pollution economy.

Some work has begun to identify environmental sustainability content for current and new training and education packages.⁶ However, a significant investment is needed in training programs and course curricula, apprenticeships, and training places to support the development of a highly skilled workforce. This includes:

- University and TAFE courses in clean energy technologies and the incorporation of low carbon economy skills and knowledge in existing curricula;
- Apprenticeships that incorporate skills and knowledge development in energy efficiency and clean energy technologies;
- Bridging courses that assist workers with existing skills and qualifications to gain knowledge on energy efficiency and clean energy technologies;
- Short courses that support workers with skill portability;
- In-house industry courses (that meet standard requirements) that incorporate the specific skills of that workplace; and
- Up-skilling of trainers and teachers with suitable qualifications to conduct training.

Training must be accessible to all workers, including workers who live in regional and remote areas. The extensive regional network of TAFEs can support the delivery of training in regional areas.

The response to emissions from the land sector presents real opportunities to develop economically viable industries and employment 'on country' while respecting and maintaining customary land management activities. It is essential that Aboriginal and Torres Strait Islander peoples are supported through appropriate training and development opportunities to participate in any carbon farming scheme.

5.3 Decent Work

There is no automatic link between jobs in the low pollution economy and decent work. There is an important role for unions and social dialogue in the transition to a low pollution economy to ensure working conditions in new sectors are secure and well paid, there are opportunities for advancement, and the rights of workers are respected. It is also essential that jobs meet best practice occupational health and safety standards. This requires a commitment by workplaces, and enforcement of standards in workplaces, but also access to adequate training for workers so that minimum standards and safety requirements are understood and implemented.

⁶ For example, training for electricians through the Global Green Electricians accredited training course, provides electrical workers with the skills and knowledge to implement energy efficiency measures. Industry level analysis has also begun with a number of the eleven Industry Skills Councils identifying skills and training priorities and identifying environmental sustainability content for current and new training packages. In some industries there are opportunities to build on current work integrating environmental sustainability into existing programs. In other industries there is a need to prioritise this work in order to better anticipate and manage change.

6. CAPITAL INVESTMENTS

Traditional industries will continue to play a vital role in the Australian economy as key drivers of economic growth, as exporters and as employers. In the transition to a low carbon economy, it is essential that the policy and regulatory framework incentivise investment by Australian industries in energy efficiency and clean energy technologies.

This includes technologies such as cogeneration and carbon, capture and storage (CCS) which have application across a number of sectors. Cogeneration offers a cleaner alternative to traditional centralised power generation, relief to network capacity constraints and significant abatement opportunities across power generation, industry and building sectors. CCS is a collection of technologies that can decouple emissions from fossil-fuel based energy production, minimise emissions at industrial facilities and reduce fugitive emissions.

6.1 Driving Capital Investment

A price on pollution will be the key driver of investment in energy efficiency and clean energy technologies. However, in the short-term and in response to non-market barriers, complementary measures will also be needed to drive the adoption of energy efficiency and clean energy technologies by industry. There is also an important role for business to take a leadership role in incentivising the adoption of energy efficiency and clean energy technologies.

National Energy Savings Initiative

We strongly recommend the introduction of a transitional National Energy Savings (NESI) Initiative, as proposed by the Prime Minister's Task Group on Energy Efficiency, to support investment in energy efficiency measures across the economy. The NESI would replace existing and planned state energy efficiency schemes and be phased down as a carbon price matures. It should apply to commercial, industrial and residential electricity and gas use; and place the point of obligation on energy retailers, with voluntary opt-in for large energy users.

Regulatory Frameworks

A significant barrier to the take up of energy efficiency measures, including cogeneration, is the current National Electricity Market (NEM). Reform is needed to support the take-up of demand-side measures and to shorten, simplify and reduce the cost of connection processes.

The take-up of CSS can be supported by a regulatory framework for all new fossil fuel power plants which includes an emissions performance standard and a requirement that all new fossil fuel power plants be retrofitted with CCS once commercially available. The 'CCS-ready' requirement should also extend to major new industrial facilities that have direct emissions above a minimum level. It is a regulatory framework that can be implemented immediately and at no major cost to the government.

Supply Chain Management

There are significant opportunities within the supply chain to improve energy consumption practices with research indicating that between forty and sixty percent of a company's carbon footprint resides in its supply chain. For retailers it can be up to eighty percent.

Large firms are well placed to drive the adoption of best practice energy efficiency and clean energy technologies in their supply network. Through purchasing power, large firms can influence the adoption of energy efficient and clean energy technologies throughout their supply chains. Large firms also tend to be large emitters. As such they have existing obligations under the *Energy Efficiency Opportunities* program to undertake detailed energy assessments in order to identify energy use improvement opportunities. As a result, they have the codified and tacit knowledge to develop the operations and procedure manuals for reporting and improving energy use through their supply chain.

Work to 'green' supply chains can build on existing lean manufacturing practices designed to improve the efficiency and productivity of supply chains to remain competitive. This requires 'Primes' to work with suppliers to improve the efficiency and quality of the supply chain. For example, Toyota is well known for working with its suppliers for vehicle models manufactured at its Altona assembly plant. Similarly, defence supplier Thales is involved in Supply Chain 21, a continuous improvement program operated by the Defence Industry Innovation Council. The program focuses on lifting the productivity of the whole supply chain of small and medium size enterprises in Australia and globally that provide parts, engineering services and other inputs to Thales' Bushmaster vehicles (used by Australian armed forces in Afghanistan) assembled in Bendigo. It does so by focusing on one standardised productivity improvement program rather than numerous and disparate initiatives focused on individual firms in isolation.

7. PROMOTING INNOVATION

Unlocking innovation in clean energy technologies is essential for effectively transitioning to a low carbon economy while promoting the investment and associated jobs in Australia. So that the full dimension of technological applications for Australia's transition to a low pollution economy is taken into account and supported, the definition of clean energy technology should incorporate a broad range of technologies including renewable energy, energy efficiency technologies, technologies related to both the reduction and capturing of emissions, enabling technologies and systems, and alternative fuels and transport systems,

For Australian manufacturing, which performs one third of business R&D in Australia, the emerging clean energy technology sector presents significant opportunities.⁷ Also, much of the fabrication work and machinery and equipment production work for a clean energy technology is or can be done in Australia, and by traditional manufacturing firms. The trend internationally is for existing manufacturing firms seeking to diversify and fundamentally re-tool and change to move into clean energy technologies rather than new 'start-ups'. This may require significant investment. There is a role for the national innovation system in supporting innovation in clean energy technology. It is also important that regional development plans incorporate a focus on innovation.

The national innovation system must support innovation in each phase of the innovation and commercialisation process, with a specific focus on:

- Funds for basic and applied research by leading agencies and universities and fostering collaboration and partnerships between industry, government and the research community on research, development and demonstration of new products and services;
- Targeted funds to overcome market barriers and leverage private investment in clean energy innovation throughout commercialisation, trialling, demonstration at proof of concept stage, and early stage commercial development;
- The development of a strong venture capital market that supports the commercialisation of clean technology development and manufacturing of those products in Australia; and
- Investment in training and skill development to increase the absorptive capacity of businesses to change, adopt and innovate.

It is also essential that a number of regulatory and investment barriers that inhibit the deployment of clean energy technologies and low cost pollution abatement opportunities are addressed. This includes reform of the National Electricity Market to support investment in demand-side measures and to provide greater fiscal investments in energy efficiency, distributed generation and demand management.

⁷ For a more detailed position see AMWU position paper, *Clean Tech 21: Low Emission Action Fund (LEAF)*, June Quarter 2011.

7.1 Suite of Mechanisms

The scale of investment in innovation needed is well beyond the financing capacity of the public sector. It is important that a suite of mechanisms are introduced to leverage private sectoral capital off public funding. Public funding in the order of \$2-3 billion per annum, as recommended by Garnaut, could leverage at least \$10 to \$15 billion in private sectoral capital for projects over the next ten years. The suite of mechanisms should include: partial loan guarantees; seed funding and/or co-investments, (similar to the model of Commercialisation Australia); climate bonds to raise further capital as required; tax credits; and grants.

Loan Guarantees

Many large scale projects are unable to attract traditional bank finance without a Government guarantee. Loan guarantees should be included in the suite of measures to support large scale projects that are early movers in a clean energy technology and require long-term financing. A similar approach has been adopted by the Department of Energy in the US. In less than two years the program has provided over \$26 billion in loan guarantees to twenty-five clean energy projects with over \$42 billion in project cost and reported to have created or secured almost 60,000 jobs across twenty States.

We recommend that the US program is considered but with some improvements including maintenance of due diligence in project approval processes while improving turnaround times; involvement of expertise from the private finance sector, and the location of the facility appropriately within Government.

R&D Tax Credit

It is essential that Australia's principle R&D tax concession – that close to 8,000 firms are currently registered for – provides clear, consistent and appropriate incentives to encourage investment in R&D. The R&D tax concession should reduce the risk of undertaking R&D in Australia by:

- Providing a clear signal of the goal of encouraging international competitiveness and that R&D focused on clean energy technologies should be considered eligible expenditure as it is a key component of achieving international competitiveness in a low carbon economy;
- Adopting definitions of core and supporting R&D and the 'dominant purpose test' that support experimental development of energy efficient and low emission products and processes; and
- Supporting firms in all sectors and of all sizes to research and develop energy efficiency and low emissions technology, consistent with achieving international competitiveness in a low carbon economy.

8. WHOLE-OF-GOVERNMENT APPROACH

A sustainable industry policy for climate change must adopt a whole-of-government approach to promote sustainable and competitive industries which includes a broad range of policy areas. In this section we identify procurement and trade policy as two areas that are important to maintaining and growing jobs by supporting industry to remain competitive in the transition to a low pollution economy.

8.1 Procurement

Procurement policies of Federal and State governments should have as one of its core objectives the retention and creation of jobs and the development and support of local industry. Procurement policy can positively impact on employment with research showing that for every \$1 billion spent on goods manufactured in Australia, 17 000 full time equivalent jobs (4 000 direct and 13 000 indirect) are created and/or sustained. Furthermore, \$600.8 million extra in government revenue is raised and nearly \$1.8 billion value added.

In the context of a transition to a low pollution economy, green procurement policy (that also takes account of transport costs and energy inputs) is 'an important tool available to governments to push the economy in a greener direction while supporting local industry and jobs'. This is because green procurement 'can exert a powerful influence on how products are designed, how efficiently they function, how long they last, and whether they are handled responsibly at the end of their useful life'.⁸

In turn this can support the creation of economies of scale reducing the cost of green goods and services and making them a more viable option; strengthening 'green' markets and industries. Green procurement also supports the establishment of competitive clean energy technology markets, which helps drive technological innovation.

Therefore, government policy that requires successful tenders to use locally manufactured green goods is good environment policy and good industry policy. We recommend Government at a local, state and federal level adopt best practice 'green' procurement requirements for goods and services on new tenders, policies and roll outs.

We note that the Industry Capability Network (ICN) is an effective tool available to governments and the private sector to find competitive and capable domestic suppliers.

8.2 Trade

The transition to a clean energy economy is creating a global market for low carbon and energy efficiency technologies, products and services. In 2009, worldwide investment in clean energy totalled \$US162 billion.

In 2009, the Government announced a three year clean energy trade and investment strategy valued at \$14.9 billion. Since 2009-2010, Austrade efforts have focused on attracting new technologies, expertise, capital and potential partnerships for Australian companies from offshore market. The strategy has helped attract \$120 million of inward investment, worked

⁸ United Nations Environment Program, *Green Jobs: Towards decent work in a sustainable, low carbon world*, September 2008.

with over 200 energy and environment firms, and assisted approximately 100 clean technology businesses with nearly \$70 million of exports and outward investment.

Renewal and expansion of Austrade's work in clean energy export and investment promotion is needed to continue and increase efforts assessing the market opportunities for Australian suppliers and the development of strategies to harness these opportunities. Support must be provided to medium to large clean technology companies as well as small to medium size enterprises which tend not to have the resources or finances to identify and capitalise on export opportunities.

Work over the last several years to develop better synergies and collaboration between Austrade, ICN and Enterprise Connect is a good example of 'work in progress'. Without active strategies that promote collaboration between Austrade, Enterprise Connect and ICN to promote the international as well as domestic opportunities emerging through the introduction of a pollution price alongside the renewable energy target, the opportunities of many clean technology firms will be limited.

It is important that the clean energy trade and investment strategy sits within a broader trade agenda that sees reductions in barriers to trade investment as a means of increasing economic cooperation and integration in a manner consistent with principles of sustainable development.

Part of the broader trade agenda is the issue of dumping and countervailing duties. Dumping is an issue that illegally affects the competitiveness of Australian businesses.

Unions agree that dumping is an ongoing concern for a number of industries including steel, pulp and paper, plastics, and cement; and that it is an issue that affects the wider public interest of sustainable employment and continued investment in the Australian economy.

Unlike business, however, unions do not accept the argument presented by some that dumping warrants exclusion or receipt of excessive assistance through pollution price revenue because dumping excessively weakens the position of business to manage rising costs from a price on pollution. This is not because unions do not accept that dumping is of concern but because we believe that business has a responsibility to do their fair share as Australia cuts pollution.

Instead, unions are calling for a strong anti-dumping and countervailing measures regime that ensures Australian industries can fairly compete in the domestic market. This is important not only for industries focused primarily on the domestic market but also for those seeking to consolidate a strong domestic base as a platform for exporting.

9. CONCLUSION

Unions support a price on pollution and complementary measures that is fair on workers, fair on families, fair on the community and effective in achieving environmental outcomes. It must be a package that reduces Australia's emissions while supporting industry to remain competitive in the emerging global low pollution economy.

The priority of unions in the debate is job security and decent job creation as the economy undergoes the most significant economic restructure in a generation. Workers must be at the centre. There must be support for workers to gain the skills and knowledge needed in a low carbon economy. Jobs in emissions intensive industries that are also trade exposed must be safeguarded by providing assistance in the short term but by also supporting industry to adopt best practice energy efficiency and clean energy technologies.

We must also drive investment and innovation in energy efficiency and clean energy technologies and the development of clean technology industrial clusters that draw on the existing industrial fabric so that the job opportunities of a low pollution economy are unlocked.

Central to achieving a transition to a low carbon economy that is fair on the environment and workers, their families and communities is comprehensive and active industry policy that adopts a whole-of-government approach to promoting job security and job creation.

10. Annex One

10.1 Example of a Sector Specific Response: Transport – Road Freight

Total freight cost for all modes of transport is just 7.7 percent of the value of imports. With the introduction of a price on pollution, this will increase. For the sector to manage rising costs, and minimise the rising costs of freight passed on to industries moving freight, the response must include improvements in fuel and engine efficiency of vehicles and a reduction in the pollutants in vehicle exhaust.

Old and inefficient vehicles contribute a disproportionate amount to total carbon emissions from freight. Heavy vehicle fleet modernisation is needed to improve the efficiency of engines and conversion to alternative fuels. A fleet modernisation plan – similar to the Clean Trucks Plan introduced in Southern California which will remove 16,000 of the highest pollution trucks from the roads and reduce diesel pollution from trucks by 80 percent over the next five years – should be developed in Australia.

A change in driving practices can also improve energy efficiencies. On average trucks spend 20.7 hours a week idling in queues to be loaded and unloaded. Over a year, this is estimated to equate to approximately 8.6 tonnes of unnecessary carbon emissions. This practice often profits clients as trucks sit as unpaid mobile warehouses.

The introduction of paid waiting times can drive efficiency improvements in distribution centre and warehouse practices, corrects infrastructure bottlenecks, and supports more predictable scheduling. Practice has demonstrated that paid waiting times reduce weekly waiting periods by 7.9 hours on average. Paid waiting times have been introduced in Botany Bay. The practice should be rolled-out across the country.

10.2 The Importance of a Horizontal Approach

Retrofitting and recycling are two examples that demonstrate the need for a horizontal approach to promote environmental, social and economic outcomes.

Retrofitting

With commercial and residential buildings accounting for at least 23 percent of Australia's greenhouse gas emissions each year, a concerted effort to reduce emissions from the built environment is needed. The Intergovernmental Panel on Climate Change identified buildings as holding the single largest potential of any sector to reduce emissions using existing technologies while achieving net economic benefits. In Australia, existing building stock (approximately 97 percent of commercial floor space) has the greatest potential within the building sector for reducing emissions. The opportunities for job creation are also significant.

There is a broad range of stakeholders engaged in 'green' construction and retrofitting; from low carbon designers to the green building materials industry (to meet the demand for green construction and retrofitting) to building assessors and management to the recycling industry (for a disciplined approach to recycling in deconstruction processes).

To effectively reduce emissions throughout the construction cycle, and to minimise barriers in the adoption of low pollution technologies, there is a need to incentivise the adoption of clean technology knowledge and products in all stages of the construction cycle. This includes:

- The introduction of a national energy savings initiative to support investment in energy efficiency measures;
- Forward-looking and strong energy performance standards to provide a clear and unambiguous signal for 'green' construction; this is important as new constructions will remain part of the existing building stock until at least 2050;
- Mandatory disclosure requirements that encourage greater energy efficiency in new buildings but also encourage retrofitting of existing building stock by reducing information asymmetries;
- Government leadership through the adoption of best practice green building standards and maintenance across local, state/territory, and federal government buildings that drives change as a result of major property ownership and leasing by governments;
- Responses to non-market barriers to investment in 'green' retrofitting including lack of information, bounded rationality and split incentives; and
- Investment in skills training and retraining to ensure the workforce is adequately skilled to install, adopt and maintain energy efficient and clean energy technologies.

Recycling

Shifting dependence away from the use of raw materials by reusing materials is not only important for waste management reasons but for reducing energy use in production processes. For example, manufacturing aluminium from recycled aluminium requires only 5 percent of the energy required to produce aluminium from raw material. And the use of steel blast furnace slag as a cement substitute in concrete making reduces the emissions from the manufacturing of cement.

There are opportunities for growth in recycling but a coordinated process that develops cross-sectoral linkages is required to support the take-up of these opportunities. The response should include:

- The progressive phasing out categories of waste to landfill;
- The adoption of Extended Producer Responsibility to hold manufacturers accountable for the goods they produce over the product's entire lifetime;
- Design standards, for the development of products that enable end-of-life reuse;
- Recycling systems that efficiently collect and re-process used goods and find markets for their further use; and
- Innovative use of by-products from industry as an input in the production of another.

10.3 A Whole-of-Government Approach

An example, of a whole-of-government approach is Shipping Policy. While focused on improving productivity and competitiveness, it can also support sound environmental outcomes. Shipping is a very efficient form of transport yet only carries 22 percent of domestic freight. If coastal

shipping is to play a more significant role in the future freight transport modal mix, there is a need for a strong coastal shipping policy; a policy that creates the conditions for innovation and collaboration in manufacturing supply chains that secure utilisation rates.

An increase in coastal shipping will create the conditions for securing long term contractual relationships that are the foundation for investment in modern, advanced technology ships. This will help with the take up of low sulphur fuels (and phase out of bunker fuels which are highly pollutant) and the instalment of abatement systems.⁹

The associated National Ports Strategy will also play an important role in supporting increases in coastal shipping by maintaining priority capacity for existing domestic shipping services, prioritising stevedoring capacity responses to any domestic container shipping operations, and port pricing schemes that increase the efficiency in the sea leg of the supply chain (which also increases the overall competitiveness of a supply chain that includes a sea leg). The Strategy which is designed to improve the productivity at Australian ports by improving the capacity and productivity of existing port land side operations¹⁰ will also have a direct positive impact on freight waiting times; a good environmental outcome.

⁹ Progress on an international sectoral agreement for 'bunker fuels' is also essential for driving the development and adoption of less polluting fuels but a strong coastal shipping policy also has a role to play in this regard.

¹⁰ Including improvements in land side removal speeds and back loading through reforms involving both the road and rail interface with shipping, the introduction of pre-arranged continuous flow container movement processes, and improvements in the capability, performance and reliability of terminal loading/unloading equipment)