



A Literature Review of Australian Structural Change Mechanisms used to respond to Climate Change

*A Sustainable Built Environment National
Research Centre (SBEnc) Literature Review*

University Research Team

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Abstract

Structural change is discussed within the context of the domestic economy since the 1970s in order to determine what lessons can be learnt from Australia's experience of adapting to structural change. The knowledge and lessons gained through experience are examined for merit toward informing future structural reforms – in particular, a transition to a low carbon economy. Structural change in an economy occurs in response to significant changes to the foundations of an economy and is an inevitable process resulting from government or market-related sources of change. Market-related influences include the introduction of new technologies; government-related influences include trade and investment liberalization, and new reforms and regulations.

The outcomes of previous microeconomic reform and policy implementation demonstrate that associated socio-economic costs and benefits can vary in their distribution, provoking criticism and scepticism regarding justification for reform. Despite this, the process of structural change is seen to provide opportunities and benefits at an aggregate level which cannot be dismissed. Therefore, a robust policy evaluation framework is required in order to drive effective structural change without sacrificing on other important objectives. Flexibility, ongoing evaluation and the identification of extenuating circumstances which may warrant compensation or additional adjustment assistance are key factors in policy consideration. These factors assist in dealing with inherent uncertainty and knowledge constraints in the policy development process.

One of Australia's response to the climate change challenge has been the policy reform package, '*Securing a Clean Energy Future*'. The plan builds on previous experience from the Australian approach to structural reform and incorporates lessons learnt through other market-based policy instruments designed to reduce carbon intensity. The key pillar of the package is the carbon price which was designed to transition into an emissions trading scheme in 2015. The comprehensive policy response addresses market failures and incorporates complementary initiatives to ensure the full mitigation potential of the scheme is realised. The policy includes additional assistance and compensatory measures to assist those most vulnerable to price impacts and safeguards jobs and industry in strongly affected regions.

1. Introduction

In recent years there has been growing recognition of the imminent threat posed by the impacts of climate change and of the need to respond with urgency to the challenge of reducing greenhouse gas (GHG) emissions. In order to achieve a reduction in emissions of the magnitude necessary to make a reasonable attempt to contribute to the global mitigation effort, significant adjustments will need to be made across all facets of the Australian economy. Substantial policy reform is required in order to respond to the increasing domestic and global pressures for action and facilitate an effective transition to a low-carbon economy. In order to inform such an adjustment, it is pertinent to learn from previous experience in the processes of initiating and adjusting to considerable structural change. Australia has demonstrated extensive experience in the implementation of substantial reform and managing the associated structural change.

The following literature review presents structural change in terms of the Australian experience and recent policy environment (prior to the 2013 elections) in relation to responding to the challenge posed by climate change. First, the main components of structural adjustment are outlined. Second, the main drivers of structural change within Australia from the 1970s onwards are discussed, including government and market related sources of change. Next the lessons learnt from the Australian experience of structural change are considered. Finally, Australia's recent policy responses are analysed and recognised as having built on previous experience by incorporating the knowledge gained through prior attempts at implementing significant reform and responding to considerable change.

2. Structural Adjustment

The term 'structural adjustment' typically refers to programs of policy reforms implemented in developing countries as part of programs with the World Bank and International Monetary Fund (IMF).¹ Since the 1980s, these institutions have used Structural Adjustment Programs (SAPs) as part of provisional lending agreements to require the uptake of the economic reforms.² The World Bank and IMF offered these conditional loans with the intent of restructuring recipient economies in order to improve performance and accelerate economic growth, therefore securing future debt repayment.³ The typical mechanisms included in SAPs include:

- currency devaluation,
- managed balance of payments,
- reduction of government services – through public spending cuts/budget deficit cuts,
- reducing tax on high earners,
- maintaining a low rate of inflation and price stability,
- wage suppression,
- privatisation,
- lower tariffs on imports,
- tighter monetary policy,
- increased free trade,
- cuts in social spending, and
- business deregulation.⁴

In addition, SAPs encourage or force reduced government intervention in the economy through the privatisation of state-owned industries and exposing the economy to foreign competition.⁵ In a broader context, structural adjustment refers to '*compositional shifts in the economy... changes in the relative size of industries, in the characteristics of the workforce and in the size and mix of activities within regions*'.⁶ Adjustment is required in order to respond to changed circumstances.⁷ If new technologies or a decline in the availability of a natural resource are driving down production, it is inevitable that adjustment must occur and best that the process be as efficient as possible.⁸

3. Drivers of Structural Change within Australia

Since the 1970s, the Australian economy has undergone extensive structural adjustment stemming from the implementation of microeconomic reforms in response to reduced productivity and internal and external drivers affecting specific industrial sectors and regional communities.⁹ The economic downturn of the 1970s following the post-war boom resulted in the beginning of decades of comprehensive microeconomic reform designed to rectify the legacies of British welfare state politics and protectionist policies.¹⁰ In addition to embracing the neo-liberal economic policies advocated by SAPs, the 1980s onwards also saw substantial labour market reform in terms of changes to wage-setting regulation, wage-bargaining practices, and the influence of trade union activity.¹¹ In terms of economic structure, there has been significant adjustment in response to the decline of manufacturing and agriculture and increase in the services sector.¹²

3.1 Microeconomic Reform

Historically, Australia's structural economic policies were influenced by the British interventionist style of governance and were characterised by:

- Trade barriers erected to protect the domestic manufacturing sector and allow for the employment of immigrant labour with wages and conditions dictated by the Industrial Relations Commission;
- Compensation for disadvantaged states through fiscal redistribution by the Federal Government; and
- The creation of statutory government monopolies to provide public utilities and services at 'fair prices'.¹³

This 'highly regulated, anti-competitive and redistributive' regime held bi-partisan and wide community support for most of the last century.¹⁴ However, during the 1970s it became apparent that the policy environment fostered by a protectionist government was inefficient and hindering economic growth and prosperity.¹⁵ Until this point, the economic costs of these policies were hidden by the success of booming broad-acre agricultural and mining industries, afforded by generous natural resource reserves.¹⁶ Australia's relative decline in productivity following the post-war boom is demonstrated in Figure 3.1.1 below.

In response to falling productivity, the first significant microeconomic reform was implemented in 1973 with the 25 per cent across-the-board tariff reduction on manufacturing imports and related cuts in agricultural assistance.¹⁷ However, these cuts prompted a backlash against reform and there were subsequently only minimal tariff reductions for the next decade.¹⁸ Whilst the distorting economic effects of tariff protectionism were gradually acknowledged and advocates of free-market neoliberal economic reform were gaining ground, further policy success was limited.¹⁹ It was not until the 1980s that the imperative for reform could no longer be ignored as poor productivity and diminishing terms of trade resulted in a drop in living standards.²⁰

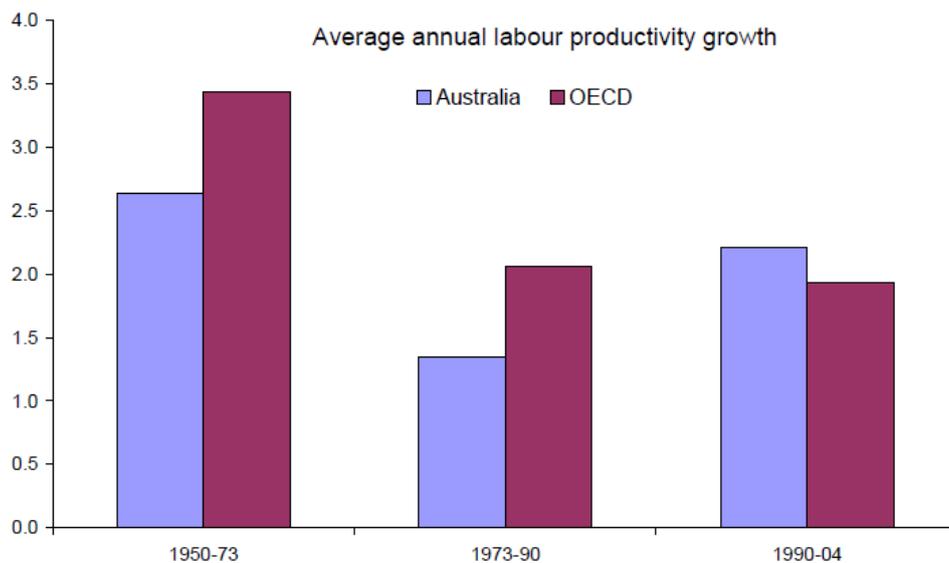


Figure 3.1.1 Australia's Relative Productivity Performance

Source: Productivity Commission (2005)²¹

Landmark reforms followed the recognition of decline as the domestic economy was exposed to global competition with the floating of the dollar and removal of foreign exchange controls.²² The comprehensive policy reforms of the 1980s were progressively implemented and continued through the 1990s.²³ The reforms which were implemented throughout this period reflect the policies advocated by the IMF and World Bank through the administration of SAPs. The reforms included:

- deregulation of access to finance,
- floating the currency,
- marked reductions in barriers to trade and foreign direct investment,
- commercialisation and some privatisation of government business enterprise,
- strengthening domestic competition, and
- changing institutional arrangements to allow greater labour market flexibility.²⁴

Following the period of substantial policy reform, the 1990s reflected increased productivity and this is considered to be largely a consequence of the microeconomic restructuring.²⁵ The 1990s saw increased multilateral state and territory cooperation to overcome barriers to further reform as a result of the federal structure of government.²⁶ These efforts culminated in the National Competition Policy (NCP) of 1995 which consolidated a focussed approach to continued regulation review and infrastructure reform at the level of the aggregate economy.²⁷

3.2 Labour Market Reform

It was also during the 1990s that developing more appropriate labour market regulations to increase efficiency became a key focus.²⁸ Changes to the regulation of labour markets involved the following reforms:

- Reduced role of the Industrial Relations Commission in wage-setting - primarily due to the Workplace Relations Act 1996 which restricted the role of the Commission to adjudicating over safety-net wage adjustments;
- Wage-bargaining shift from a national to enterprise level between unions and employers - due to reform of industrial relations legislation dictating that agreements must be made at the enterprise level in order to receive legal protection;
- Changes to the regulation of trade unions restricting strike action and reducing the extent of compulsory membership – due to state legislation reform and the introduction of the Workplace Relations Act 1996; and
- Removal of entry barriers to labour supply – for example, award restructuring which resulted in the expansion of activity which could be performed by certain groups of workers.²⁹

The Prices and Incomes Accord was administered from 1983 to 1996, and it was not until the late 1980s that there was a shift away from centralised wage-fixing to enterprise bargaining and award restructuring.³⁰ The introduction of the Workplace Relations Act of 1996 and Australian Workplace Agreements further accelerated labour market reform in the mid-1990s.³¹

3.3 Structural Change

In addition to the sweeping microeconomic reforms discussed above, the structure of the Australian economy has also undergone significant changes since the 1970s. The manufacturing and agriculture sectors have steadily declined, whilst the services sector has expanded considerably.³² The changes in output by sector are demonstrated in Figure 3.3.1. These structural changes are the result of a number of drivers, including a rising demand for services, the industrialisation of East Asia, technical change, and economic reform.³³ In terms of economic reform, policies involving the restructuring and deregulation of a variety of service industries have been major contributing factors to the expansion of the services sector.³⁴ In particular, greater competition has resulted in the utilities, communications, and transport industries as a result of the restructuring of services previously provided by government monopolies.³⁵ Further significant reforms relate to the reduction of protective tariffs afforded to the manufacturing industry, and reduced agricultural assistance.³⁶

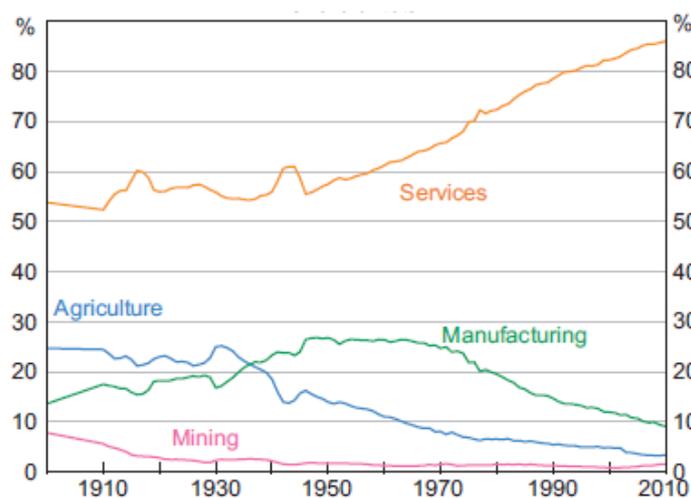


Figure 3.3.1 Employment by Industry

Source: Reserve Bank of Australia (2010)³⁷

The phased reduction of assistance and protective tariffs which were bolstering inefficient manufacturing and agricultural sectors has had a substantial impact on structural change within the Australian economy. The effective rate of assistance (ERA), which conveys relative net protection levels, can be used as an indicator which effectively demonstrates the extent of structural reform in Australia since the 1970s. Figure 3.3.2 displays the falling ERA for the manufacturing and agricultural sectors, driving significant change in the structure of the domestic economy.

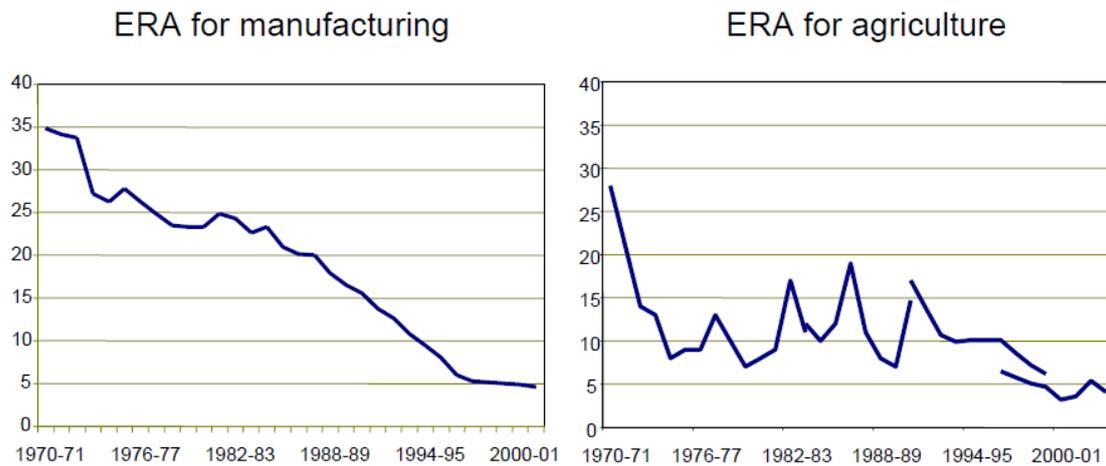


Figure 3.3.2 *Falling effective protection*

Source: Productivity Commission (2005)³⁸

The Productivity Commission points to the coincidental rise in the trade intensity of the Australian economy and the sharp increase in business research and development (R&D) spending as a share of gross domestic product (GDP) as evident structural and behavioural change in response to the decline in ERA.³⁹ This link is demonstrated below in Figure 3.3.3.

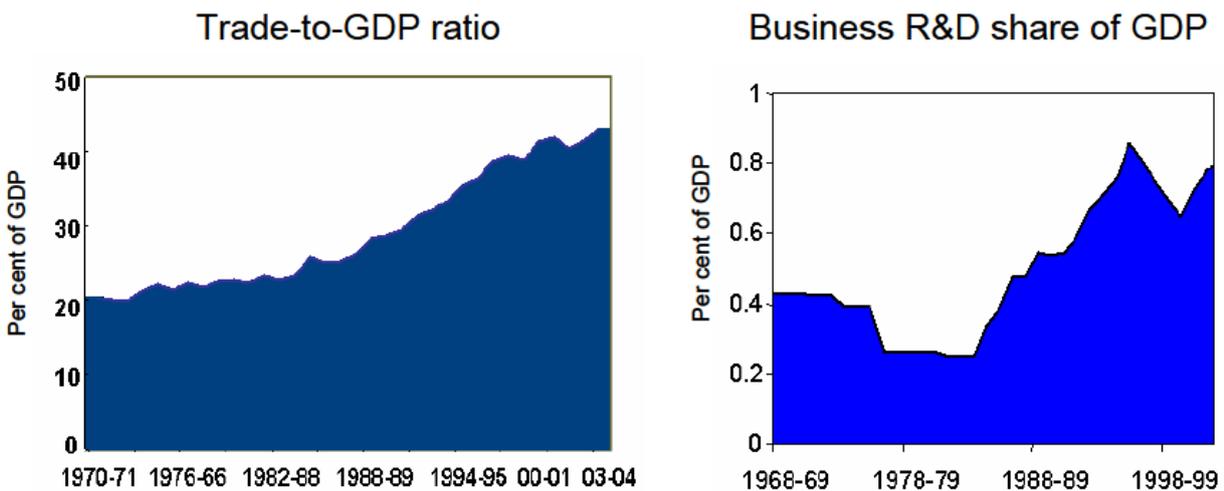


Figure 3.3.3 *Increased trade and R&D intensity*

Source: Productivity Commission (2005)⁴⁰

4. Lessons from Australia's Structural Adjustment Experience

4.1 Benefits of Structural Adjustment in Australia

The structural reforms within Australia since the 1970s intended to improve productivity and raise living standards.⁴¹ These policy reforms have been major drivers and enablers - enhancing competition, opening the economy to trade, investment, and technology and allowing flexibility to adjust in all facets of production, distribution, and marketing.⁴² By liberalising the economy, business has been both 'forced and allowed' to modernise and opportunities to take advantage of technological advancements have been highlighted.⁴³ The Productivity Commission identifies three main sources of benefit to the community arising from policy changes:

- By ensuring that prices promote an allocation of resources between different activities which yields the greatest return from available resources;
- By providing incentives for firms and service providers to keep their costs down; and
- By encouraging better and more innovative ways of producing goods and services as well as flexibility in adapting to changing circumstances.⁴⁴

These benefits are evidenced in the creation of employment opportunities and rising levels of national income.⁴⁵

4.2 Criticisms of Structural Adjustment in Australia

Whilst it is evident that the economic reforms discussed above have produced significant benefits at an aggregate level, there is concern regarding the extent of associated adjustment costs and distributional impacts.⁴⁶ Costs associated with policy reform include the time and resources used to help displaced workers regain employment and the adjustment required by the providers and recipients of social services in response to changes to the financing and delivery of these services.⁴⁷ Labour market adjustment costs refer to the costs of retraining workers that will need to change jobs as a result of structural reform, and the costs of time spent out of employment due to retrenchment.⁴⁸ These costs can be substantial but are generally considered to be outweighed by increased productivity and output.⁴⁹

However, critics have asserted that the gains afforded through reform do not justify the adjustment costs involved and that those impacted negatively have not received just compensation.⁵⁰ In addition, the adjustment management process has been perceived by some as being inadequate and questions have been raised as to whether ordinary Australians are sharing equally in the gains produced through reform.⁵¹ Individuals may experience transient unemployment or redundancy, reduced value of assets, relocation costs and fewer opportunities.⁵² In contrast, others may benefit in receiving greater asset values, higher incomes and better employment opportunities.⁵³ In addition, due to differences in the spread of economic activities across Australia rates of structural change are often higher and more varied in rural and regional areas, further complicating issues of equity in policy considerations.⁵⁴

The Productivity Commission has identified five political obstacles to structural reform which can impede the (often necessary) adjustment process:

- The costs of reform are concentrated on particular groups whereas the benefits are more diffuse.

- The potential winners from reform tend to be (rationally) poorly informed about the tradeoffs.
- Bureaucratic structures are typically aligned with particular sections of the economy or community.
- The costs of reform tend to be front-loaded, whereas the benefits arise over time.
- Multiple jurisdictions increase the difficulty of achieving nationally consistent approaches.⁵⁵

4.3 Policy Evaluation and Development

According to the Productivity Commission the Australian experience of undertaking structural change underlines two challenges which must be addressed in order to address these difficulties:

- First, the development of an appropriate evaluative framework which adequately measures the costs, benefits, and distributional effects of a proposed policy change and an effective approach to dealing with policy tradeoffs; and
- Second, the development of implementation strategies which identify circumstances where additional measures beyond the scope of standard social security are required and the relative merits of the additional measures in assisting implementation.⁵⁶

Despite these recommendations, it is acknowledged that policy evaluation is constrained by limited knowledge and uncertainty related to the effect of different incentives on the behaviour of firms, employees and consumers and the distribution of activity and income.⁵⁷ Therefore, in consideration of inherent uncertainty and knowledge availability, it is only possible to provide general and 'qualified' advice as to the potential costs, benefits and distributional impacts of new reforms.⁵⁸ The importance of both flexibility and appropriate supporting measures to accompany significant policy change needs to be recognised in order to have effective safeguards in place to mitigate both expected and unforeseen consequences.

The Australian experience has demonstrated that policy reforms should be considered as a package due to potential interaction effects, and because distributional impacts should not be examined in isolation.⁵⁹ Whilst distributional considerations should be central in the policy development stage, it is acknowledged that it is not always possible for governments to intervene ex ante, especially when dealing with market based change.⁶⁰ Therefore it is not only acceptable but often necessary and sometimes desirable for governments to intervene ex post in order to address equity issues.⁶¹ However, there is debate regarding the necessity or appropriate level of government intervention in providing compensation or assistance to those negatively impacted by structural reform.⁶²

Dealing with issues of uncertainty and constrained knowledge are particularly relevant to the challenge facing governments when attempting to regulate the environmental externality posed by climate change.⁶³ Difficulties specific to the challenge of policy making related to climate change which need to be considered include:

- The extended timeframe the policy response needs to encompass,
- The global nature of the problem,

- The high level of uncertainty related to the potential impacts of climate change and consequences of associated policy responses,
- The extent of societal transformation which is required to adequately mitigate emissions, and
- The multitude of inter-related economic, environmental and societal factors which need to be considered, such as economic development, energy security and equity concerns.⁶⁴

These challenges again highlight the importance of a robust policy evaluation process combined with flexibility in ongoing policy development due to the high level of uncertainty involved.

Other factors can also complement the reform implementation process and ease tensions surrounding the transition. These involve encouraging community support to increase receptivity for the changes, particularly through the effective dissemination of knowledge and information regarding the requirement for reform. Conditions identified by the Productivity Commission which have been identified as conducive to reform include:

- a strong and well-motivated political leadership,
- 'technocratic' capability within government,
- 'good timing'; and
- the emergence of pro-reform lobbies.⁶⁵

Australia has attempted to overcome barriers and foster optimal reform conditions by 'fashioning domestic institutional arrangements expressly to promote and sustain reform by, in part, neutralising the power of vested interests and building wider political and community support'.⁶⁶

4.4 Compensation and Additional Assistance

There are differing views on whether there is moral obligation involved in compensating those made worse off through structural reform.⁶⁷ However, if the source of change is policy-induced and there are substantial impacts, compensation is generally regarded as necessary.⁶⁸ In terms of additional adjustment assistance, The Productivity Commission suggest circumstances where it is considered appropriate to provide some form of additional assistance:

- If the reform imposes substantial costs on the relatively disadvantaged or provides considerable benefits to the relatively advantaged,
- If a minority of individuals is subjected to a great and/or unexpected loss in income or wealth; or
- If the policy deviates considerably from the 'established rules of the game' – that is, there could be an infringement of property rights or the policy may exceed 'legitimate expectations'.⁶⁹

Social security, tax systems, and generally available adjustment measures are considered the most efficient means of moderating distributional impacts and assisting the adjustment process.⁷⁰ In situations which warrant additional assistance measures, compensation or specific adjustment assistance is best administered through separate complementary policies and provided through the traditional welfare institutions.⁷¹

5. Securing a Clean Energy Future for Australia

The previous Australian Government's policy response to meeting the challenges of climate change and transitioning to a low carbon economy was the clean energy legislative package announced on 10 July 2011.⁷² The climate change plan, '*Securing a Clean Energy Future*', outlines Australia's position regarding climate change, asserting that no responsible authority could ignore the risk posed by high levels of carbon pollution and acknowledging that Australia generates more pollution per capita than any other developed country, and significantly more pollution per capita than India or China.⁷³ The plan affirms the government's immediate commitment to moving towards a clean energy future, as it is believed that 'acting now is cheaper than acting later'.⁷⁴ In recognition of these facts, and in response to international pressures for combined action to mitigate greenhouse gas emissions, the Australian government has committed to reduce Australia's emissions by 5 to 15 per cent or 25 per cent below 2000 levels by 2020.⁷⁵ The 5 per cent target is an unconditional commitment, whereas the additional targets of 15 - 25 per cent are conditional on the extent of action demonstrated by others.⁷⁶

Four policies are central to the Clean Energy Future plan – the introduction of a carbon price, promoting innovation and investment in renewable energy, encouraging energy efficiency and creating opportunities in the land sector to reduce pollution and increase productivity, sustainability and resilience.⁷⁷ These policy measures take advantage of market mechanisms which have been shown to provide the most cost-effective, expedient and substantial emission reductions.⁷⁸ Knowledge of the success of market mechanisms comes from the experience of three such measures Australia has previously administered: the Renewable Energy Target (RET), the New South Wales and ACT Governments' Greenhouse Gas Abatement Scheme (GGAS) and the Queensland Government's Gas Electricity Target (GET).⁷⁹ The clean energy policy reforms incorporate knowledge gained through previous mitigation attempts and build upon the experience of past structural adjustment.

5.1 Carbon Pricing Mechanism

On 1 July 2012, the Australian Government introduced the carbon pricing scheme under which 500 of the largest carbon-emitting companies are obliged to pay a price for each tonne of carbon produced.⁸⁰ The carbon price is the primary mechanism through which the government aims to reduce pollution and drive investment in clean energy sources. The controversial move has sparked much public debate and resistance, highlighting both the inherent public opposition to any proposed 'tax' and also confusion regarding the nature of the policy. Under the plan, the carbon price will be set for the first 3 years like a tax, however will move to an emissions trading scheme in 2015.⁸¹ During the 2012-13 financial year the carbon price is set at \$23/tonne, after which it will increase by 2.5% a year in real terms.⁸² This scheme combines the benefits of a carbon price, particularly the initial advantages of relative simplicity of administration and implementation, with a view of transitioning to an emissions trading scheme in 2015.⁸³ This would set a total cap on emissions and also allow scope for connecting with the emerging international carbon market.⁸⁴ During the emissions trading phase, a transitional price ceiling and floor will be implemented for the first three years to address market volatility and protect Australian business in the event of excessive initial pricing.⁸⁵

The carbon pricing mechanism directly addresses the market failure caused by the negative externality of greenhouse gas production.⁸⁶ It is largely recognised that market mechanisms are

required in order to counteract inherent market failures concerning environmental issues and to provide the appropriate economic conditions and incentives to encourage the reduction of carbon emissions and investment in clean technologies.^{87,88} The carbon price utilises the capacity of the market to enforce structural change within an economy, providing the incentive for investors and business to respond appropriately to restructured commercial circumstances.⁸⁹ The scheme encourages prudent decision making that takes into account the consequences of carbon emissions which are integrated into the costs of goods and services.⁹⁰ Following in the steps of traditional SAPs, the mechanism promotes rapid economy wide adjustment through the imposition of top down government policy. In addition, similar to SAPs, following the initial imposition of macroeconomic reform the carbon price mechanism advocates reduced government intervention by allowing investors and firms flexibility in adapting to the new market conditions. It is an example of a structural adjustment mechanism that encourages autonomous adjustment during a transition to low carbon operations which does not conceal vital information signalling the need for urgent adaptation.⁹¹

As discussed previously, significant economic reform can involve difficult adjustments and for this reason government assistance may be required to help those sectors of the community most impacted by the changes.⁹² The provision of assistance during periods of structural adjustment can be a contentious issue due to the debate regarding whether it is appropriate to cushion the blow or to simply let the necessary changes occur, however brutal the consequences may be.⁹³ However, where social welfare is concerned it is generally deemed necessary to provide assistance as required to those negatively impacted by structural reform.⁹⁴ ⁹⁵ The carbon pricing scheme includes complementary measures which address the criticisms typically associated with structural adjustment policies that point toward the negative socio-economic impacts resulting from the rapid imposition of structural reforms.⁹⁶ Section 5.4 discusses the additional transitional assistance measures which accompany the carbon price. The Australian Government has also compensated those most affected by price impacts – pensioners and low and middle income households – through payment increases or tax cuts.⁹⁷

Concerning industry assistance, less intervention is generally considered most suitable as it provides the market conditions for flexibility and competition during adjustment.⁹⁸ Despite this, in the case of carbon structural adjustment, industry assistance is necessary in order to ensure affected sub-sectors of the economy have the capacity to survive the restructuring and remain competitive in a global context, and importantly to manage the effects on employment caused by the structural reform. In recognition of these concerns, industry assistance is being provided in the form of a \$9.2 billion Jobs and Competitiveness Program (refer to Section 5.4.2) and the Clean Energy Skills package, discussed in further detail in Section 5.6.1. The Jobs and Competitiveness Program provides support to the most emissions-intensive trade-exposed industries which are unable to pass on costs effectively through global markets.⁹⁹ The Clean Energy Skills and other related packages focus on capacity building, to ensure that an appropriate workplace skill set is developed that will become increasingly valuable during the transition to a low carbon economy.¹⁰⁰

The carbon price is also complemented by other measures designed to protect the security of electricity supplies and the stability of energy markets during the renewal of the energy sector.¹⁰¹ These measures are outlined below in Figure 5.1.1, and include the \$5.5 billion Energy Security Fund and the Energy Security Council. The Energy Security Fund is discussed below in section 5.1.2. The Energy Security Council will advise the Government on emerging risks to energy

security and communicate potential risk prevention strategies.¹⁰² The Australian Energy Market Operator (AEMO) will be responsible for expanding its planning scenarios regarding the national electricity transmission grid to prepare for the implications of increasing use of renewable energy.¹⁰³



Figure 5.1.1 Overview of measures to support energy markets

Source: Clean Energy Future Plan (2013)¹⁰⁴

5.1.1 The Energy Security Fund

The Energy Security Fund is responsible for administering two main initiatives – negotiating payments for the closure of approximately 2000 megawatts (MW) of the most highly emissions-intensive generation capacity by 2020, and the provision of assistance to generators that will be strongly affected by the introduction of the carbon price.¹⁰⁵ The planned closure of existing generation capacity will be staged in an orderly progression with realistic timeframes, and will encourage investment in lower-pollution generation technologies.¹⁰⁶ This initiative will promote energy security by providing valuable information to investors regarding when existing capacity will be shut down, allowing investors to plan with confidence.¹⁰⁷ This knowledge reduces uncertainty, which is a factor that hinders investment in new technologies.¹⁰⁸

In addition to the safeguarding measures which are in place to support those negatively affected by the carbon price and to ensure the security of future energy supplies, the carbon pricing scheme also incorporates complementary measures which are fundamental to ensuring that the full mitigation and economic potential of the mechanism is realised. These additional policy measures and initiatives address barriers to the full realisation of emissions reduction opportunities such as market structure and supply issues (high transaction costs, split incentives), information gaps and capital constraints.¹⁰⁹ In addition to investor uncertainty regarding the renewable energy sector, there is also an identified policy shortfall in the lack of financial incentive to invest in energy efficiency.¹¹⁰ The following section discusses initiatives designed to remove market barriers and encourage investment in renewable energy. Additional policy measures which support the implementation of energy efficient technologies and practise are considered in section 5.5. Complementary initiatives which further support the transition to a low carbon future are discussed in section 5.6.

Despite the opportunities for clean energy investment and carbon abatement afforded by the financial incentive created through the introduction of a carbon price, it is widely recognised that a multilateral approach to the mitigation of GHG emissions is required. Such an approach would encourage economically viable investment in renewable energy technologies and harness the

mitigation capacity of energy efficiency through new building regulation standards, retrofitting existing building stock and encouraging behaviour change towards best practise energy efficient activity across households and business. The comprehensive clean energy legislative package represents an attempt to address carbon abatement through all possible avenues – rectifying market failures, supporting investment in renewable energy and encouraging the uptake of energy efficient technologies and behaviour.

5.2 Renewable Energy

In addition to the carbon price, the second pillar of the *Clean Energy Future* plan involves promoting innovation and investment in the renewable energy sector. The Australian Government asserts that the transformation of the energy sector will drive approximately \$100 billion of investment in the renewable energy sector by 2050.¹¹¹ The Government is supporting this investment through the Clean Energy Finance Corporation, the Australian Renewable Energy Agency, the Clean Technology Innovation Program and the Renewable Energy Target.

5.2.1 Clean Energy Finance Corporation (CEFC)

The Government's \$10 billion Clean Energy Finance Corporation has been established as part of the Clean Energy Future program and is due to commence operations from 2013-14.¹¹² The main objective of the corporation is to support private investment by helping to overcome capital market barriers which act as deterrents against the financial endorsement, commercialisation and introduction of renewable energy, energy efficiency and low emissions technologies.¹¹³ Importantly the CEFC does not supply grants, instead offering investment in firms and projects which employ appropriate technologies and financial support for manufacturers which provide the inputs that are necessary for these technologies.¹¹⁴ The intention of the CEFC's investment is to generate positive returns, and is designed to act in concert with, rather than competing with, the private sector in the provision of finance for clean energy.¹¹⁵

5.2.2 Australian Renewable Energy Agency (ARENA)

The Australian Renewable Energy Agency (ARENA) was established on 10 July 2011 as a key component of the Clean Energy Future plan, and commenced administration on 1 July 2012. Acting as an independent statutory authority, ARENA's primary objectives are to improve the competitiveness of renewable energy technologies and to increase the supply of renewable energy within Australia.¹¹⁶ ARENA has incorporated the activities of the Australian Centre for Renewable Energy, is responsible for the continued administration of projects and initiatives previously governed by the Department of Resources, Energy and Tourism (RET) and as of the 1 January 2013, also incorporated the activities of the Australian Solar Institute (ASI).¹¹⁷

ARENA is responsible for streamlining and coordinating the administration of \$3.2 billion in funding for research and development, demonstration and commercialisation of renewable energy technologies. This financial support is guaranteed through legislation until 2020, a significant factor that improves long-term funding and provides policy certainty for industry.¹¹⁸ In addition, ARENA has significant independence and flexibility in terms of allocating funding to the renewable energy sector. However, as the agent responsible for the expenditure of a substantial amount of public funding, safeguards are in place to ensure accountability and transparency.¹¹⁹ The Minister for Resources and Energy is legally required to approve funding for significant program guidelines and projects in instances where program guidelines permit grants for

projects totalling in excess of \$15 million, or grants are to be awarded to projects totalling greater than \$50 million.¹²⁰

5.2.3 Clean Technology Program

The Clean Technology Program is comprised of three separate components - the \$800 million Clean Technology Investment Program, the \$200 million Clean Technology Food and Foundries Investment Program, and the \$200 million Clean Technology Innovation Program.¹²¹ The Investment Programs are competitive merit-based grant programs designed to support manufacturers and Australian food and foundry manufacturers to maintain competitiveness in a low-carbon economy.¹²² Successful applicants will receive grants to invest in energy efficient capital equipment and low pollution technologies, processes and products.¹²³ The Innovation Program provides financial support for research, development and commercialisation of clean technology products, processes and services.¹²⁴

5.2.4 Renewable Energy Target (RET)

The RET scheme is designed to complement the carbon price and ensure that 20 per cent of Australia's electricity will come from renewable sources by 2020.¹²⁵ The RET is an extension of the previous Mandatory Renewable Energy Target (MRET) which was introduced in 2001.¹²⁶ The RET has operated as two separate components since 1 January 2011 – the Large-scale Renewable Energy Target (LRET) and the Small-scale Renewable Energy Scheme (SRES).¹²⁷ The Clean Energy Regulator is the independent Financial Management and Accountability (FMA) agency responsible for the administration of the RET scheme, and the Department of Climate Change and Energy Efficiency manages national policy and the legal framework.¹²⁸

5.2.4.1 Large-scale Renewable Energy Target (LRET)

The LRET encourages the establishment and growth of renewable energy power stations, including wind and solar farms and hydro-electric power stations.¹²⁹ Through legislating demand for Large-scale Generation Certificates (LGCs), the LRET creates a financial incentive for the development of large-scale renewable energy.¹³⁰ LGCs are created by eligible power stations based on how much renewable electricity they produce above their baseline, which is determined by the Regulator during the accreditation process.¹³¹ RET liable entities are subject to a legal requirement to purchase a set number of LGCs annually, and these must be surrendered to the Regulator.¹³² The price of LGCs is determined by the market and therefore subject to supply and demand, and historically the price per LGC has fluctuated between \$10 and \$60.¹³³ Failure to meet obligations for the surrender of LGCs results in a shortfall charge currently set at \$65 per LGC.¹³⁴

5.2.4.2 Small-scale Renewable Energy Scheme (SRES)

The SRES encourages the installation of eligible small-scale renewable energy systems such as solar water heaters, heat pumps, solar panel systems, small-scale wind systems, or small-scale hydro systems.¹³⁵ The SRES scheme operates similar to the LRET. The SRES legislates demand for Small-scale Technology Certificates (STCs), thereby creating a financial incentive for owners to install small-scale systems.¹³⁶ STCs are created by eligible small-scale systems based on how much electricity is produced or displaced by the system.¹³⁷ Like the LRET, under the SRES liable entities are legally required to purchase a set number of STCs annually and

these must be surrendered to the Regulator.¹³⁸ Failure to meet obligations for the surrender of LGCs results in a shortfall charge currently set at \$65 per STC.¹³⁹

The rights to STCs are usually vested by the owner of the installed system, however STCs can be assigned to a third-party agency - providing the agency is registered with the Regulator.¹⁴⁰ A 'Registered Agent', such as a retailer or installer, co-ordinates the purchase and installation of small-scale systems for the owners and provide a financial benefit in exchange for the right to ownership of the STCs.¹⁴¹ This financial benefit encourages the installation of small-scale systems and guarantees that the price of the systems remains affordable for householders.¹⁴² Two schemes, the Renewable Energy Bonus Scheme (REBS) and the Solar Credits scheme, which previously promoted the installation of small-scale solar systems, were discontinued in June 2012 and January 2013 respectively.^{143 144} The discount offered by Registered Agents and enabled through the SRES provides continued support for the installation of small-scale systems in households.¹⁴⁵

5.3 Energy Efficiency

Through the combined action of Government, business and households improving energy efficiency, significant reductions of carbon emissions can be made as well as considerable financial savings.¹⁴⁶ The third major component of the Clean Energy Future program focuses on encouraging energy efficiency through a number of measures, in order to harness this capacity for cost-effective abatement of carbon emissions. These measures include the investigation of a national Energy Savings Initiative (ESI) proposal, the Living Greener website, the Low Carbon Communities program and the Clean Technology Program.¹⁴⁷

5.3.1 National Energy Savings Initiative (ESI)

The Government has committed to researching the viability and potential benefits of a national Energy Savings Initiative (ESI).¹⁴⁸ The ESI would provide an economic incentive for energy retailers to encourage energy savings in households and business, similar to the LRET and SRES. The initiative places a legal obligation on retailers to obtain and surrender a set amount of certificates which represent units of avoided energy consumption.¹⁴⁹ As the scheme promotes the identification and implementation of energy efficient technologies, it could provide financial savings for the end consumers of energy.¹⁵⁰ Examples of these initiatives are already in operation in New South Wales, Victoria and South Australia.

The final report issued by the Prime Minister's Task Group on Energy Efficiency recommended the 'introduction of a transitional national energy saving initiative to replace existing and planned state energy efficiency schemes'.¹⁵¹ In response to the recommendations outlined in this report, the Government has established an Energy Savings Initiative Working Group and Advisory Group which will perform cost-benefit analysis of integrating existing schemes into a national initiative, and investigate this integration would assist consumers in states without these initiatives in place and reduce the complexity and duplication of multiple schemes.¹⁵² An ESI is another example of a structural adjustment mechanism which carries the possibility of driving economy-wide advancements in energy efficiency.

5.3.2 Living Greener

The government has created the informative Living Greener website which is supporting households to become energy efficient through providing accessible advice on sustainable living

and information regarding the rebates and assistance available to households that adopt home improvements to save energy and water.¹⁵³ The provision of a user-friendly gateway to relevant, straightforward and easy-to-understand information that is easily accessible in the one site is a fundamental step towards informing the community and encouraging behaviour change in a practical manner.

5.3.3 Low Carbon Communities (LCC)

In addition to the Living Greener website, the Australian Government is providing \$330 million in funding streams through the expansion of the Low Carbon Communities program.¹⁵⁴ This project aims to support local councils, community organisations and low income households to improve energy efficiency.¹⁵⁵ To meet these goals five programs have been established through the Low Carbon Communities initiative. The \$200 million Community Energy Efficiency Program, the \$100 million Low Income Energy Efficiency Program, the \$30 million Home Energy Saver Scheme, The Charities Maritime and Aviation Support Program and the \$24 million Local Government Energy Efficiency Program.¹⁵⁶

The Community Energy Efficiency Program (CEEP) and the Low Income Energy Efficiency Program (LIEEP) are both competitive merit-based grant schemes.^{157 158} The CEEP supports local governing bodies and non-profit community organisations through the provision of co-funding to finance energy efficient improvements to council and community owned buildings, facilities, sites and lighting.¹⁵⁹ The program is currently focused on supporting projects which benefit low socio-economic and disadvantaged communities, and regional and rural councils.¹⁶⁰ The LIEEP finances the trial and analysis of various energy efficient methods in different locations aimed at enabling low income households to improve their energy consumption.¹⁶¹ The results of the program aim to inform future policy and approaches for energy efficient programs.¹⁶²

The Home Energy Saver Scheme will provide \$30 million in funding to support 19 non-profit organisations in the delivery of energy efficient services to an anticipated 100,000 low income households.¹⁶³ In addition, householders will be encouraged to make long-term energy efficient improvements through the provision of advice and referral to programs offering financial support, such as the No Interest Loans Scheme.¹⁶⁴ The Local Government Energy Efficient Program (LGEEP) is a non-competitive grant program which supports smaller-scale energy efficient projects, such as the installation of solar and heat pump hot water systems.¹⁶⁵ The LGEEP co-funds projects in conjunction with local governments, predominantly in low socio-economic or disadvantaged areas¹⁶⁶. The smaller-scale emphasis of the LGEEP complements the other programs operating under the LCC umbrella program.

5.4 Adjustment Assistance

5.4.1 Regional Australia

The government acknowledges that structural adjustment assistance has been central to the Australian approach to policy reform over the past three decades.¹⁶⁷ Treasury modelling has suggested that the Clean Energy Future legislative package is likely to have different state and regional impacts due to variations in emission intensity and diversification opportunities.¹⁶⁸ In recognition of these facts, the government has committed to providing transitory structural adjustment assistance to communities and regions that are significantly affected through the reform package.¹⁶⁹ Additional policy measures to support jobs with a strong regional presence

include the Jobs and Competitiveness Program discussed below and tailored programs totalling \$500 million designed to support the steel industry, food processors and metal foundries and forgers.¹⁷⁰ The \$1.3 billion Coal Sector Jobs Package will support workers and local communities who are reliant on mines which have high levels of fugitive emissions and may be affected more severely through the carbon price.¹⁷¹

5.4.2 Jobs and Competitiveness Program

The Clean Energy Future package safeguards jobs in emissions-intensive trade-exposed industries (steel, aluminium, cement and zinc manufacturing) through the provision of free carbon permits under the \$9.2 billion Jobs and Competitiveness Program.¹⁷² Under the program, the most emissions-intensive trade-exposed activities will receive assistance to cover 94.5 per cent of industry average carbon costs and less emissions-intensive trade-exposed activities will receive assistance to cover 66 per cent of industry average carbon costs during the first year of the carbon price.¹⁷³ The program supports jobs and production and also encourages investment in cleaner technologies through the annual 1.3 per cent reduction in assistance.¹⁷⁴

5.4.3 Regional Structural Adjustment Assistance package

In addition to the Jobs and Competitiveness Package, the Coal Sector Jobs Package and the \$500 million allocated to support steel manufacturers, food processors and metal foundries, the Government has allocated \$200 million for the Regional Structural Adjustment Assistance package.¹⁷⁵ The Department of Regional Australia, Local Government, Arts and Sport will be responsible for monitoring the effects of the carbon price on regions in order to identify when structural adjustment assistance may be necessary.¹⁷⁶ The Regional Structural Adjustment Assistance funding is available as required to finance assistance measures which may support displaced workers and their families, small businesses, community development and economic diversification.¹⁷⁷

5.4.4 Remote Indigenous Energy Program (RIEP)

The \$40 million Remote Indigenous Energy Program aims to supply remote Indigenous communities with 24-hour supplies of reliable, clean and affordable energy.¹⁷⁸ The program will educate communities on managing energy efficiently and provide funding for the installation of renewable energy systems such as solar panels and wind turbines.¹⁷⁹ The RIEP builds upon the success of the Bushlight program and the Renewable Remote Power Generation Program which closed in 2009.^{180 181} The Bushlight program works with Indigenous people to support the implementation of renewable energy systems, to educate the community about energy efficient practices and to support local enterprise through the Community Livelihoods Project.¹⁸² The Renewable Remote Power Generation Program resulted in the installation of over 170 renewable generation systems for Indigenous communities and significant savings of diesel fuel through the financing of residential and medium-scale projects in remote and regional areas.¹⁸³ In addition, financial support is available to Indigenous Australians through the Household Assistance Package.

5.5 Additional Policy Measures

5.5.1 Council of Australian Governments (COAG)

The Council of Australian Governments is an intergovernmental forum chaired by the Prime Minister, with membership comprised of State and Territory Premiers, Chief Ministers and the President of the Australian Local Government Association (ALGA).¹⁸⁴ In 2008, the Council committed to the implementation of regulation and competition reforms through the National Partnership Agreement to Deliver a Seamless National Economy.¹⁸⁵ In 2012, modelling by the Productivity Commission suggested that the 17 reforms assessed could yield an increase in GDP of 0.4 per cent per year (over \$6 billion) and reduce business costs by approximately \$3 billion per year.¹⁸⁶ COAG agreed to the design of the expanded national Renewable Energy Target, and on 2 July 2009 signed the National Partnership Agreement on Energy Efficiency which includes the National Strategy on Energy Efficiency and the National Framework for Energy Efficiency.¹⁸⁷

5.5.2 National Strategy on Energy Efficiency

The National Strategy on Energy Efficiency (NSEE) is a comprehensive 10-year plan to accelerate energy efficiency improvements across all sectors of the Australian economy.¹⁸⁸

The Strategy and associated measures are based around four key themes:

- Assisting households and businesses to transition to a low-carbon future;
- Reducing impediments to the uptake of energy efficiency;
- Making buildings more energy efficient; and
- Government working in partnership and leading the way.¹⁸⁹

5.5.3 National Framework for Energy Efficiency

The National Framework on Energy Efficiency (NFEE) focuses on maximising the potential economic benefits of utilising energy efficient technologies and processes across the Australian economy.¹⁹⁰ Through a range of policy measures the NFEE aims to overcome impediments that hinder the market delivering economically viable energy efficiency.¹⁹¹ The NFEE is geared toward improving demand-side energy efficiency, focusing on the residential, commercial and industrial sectors.¹⁹² In addition, the Framework addresses energy retailers, builders, financiers and appliance suppliers who play an indirect role in influencing energy efficiency.¹⁹³

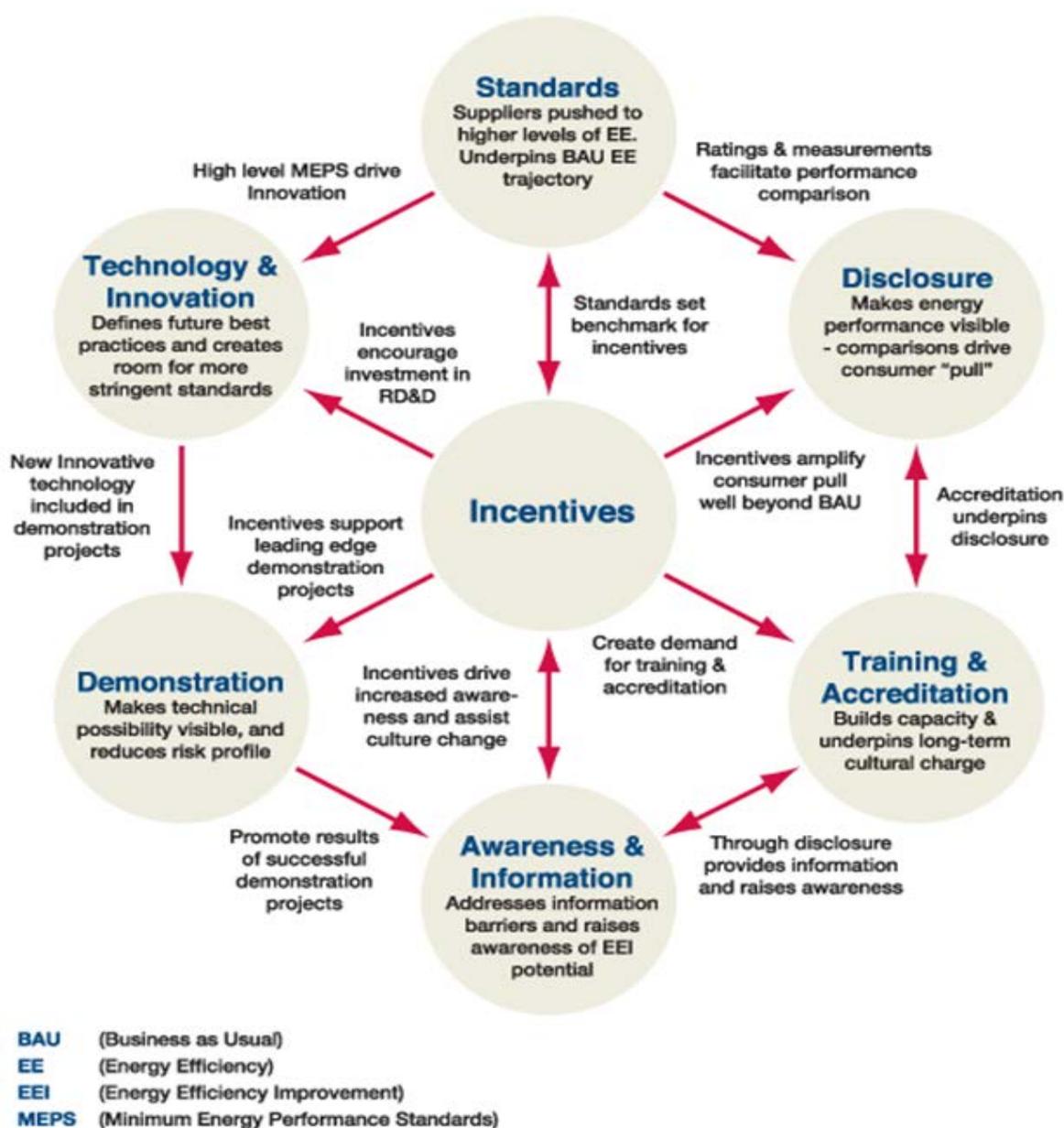


Figure 5.5.3.1 NFEF Policy Dimensions

Source: Department of Resources, Energy and Tourism¹⁹⁴

5.6 Complementary initiatives

5.6.1 Clean Energy Skills Program

The Clean Energy and other skills package is administered by the Department of Education, Employment and Workplace Relations (DEEWR) and will invest up to \$32 million over four years in order to up-skill tradespeople and professionals in key industries to enable the delivery of clean-energy services, products and advice.¹⁹⁵ Targeted occupations include electro-communications, facility managers, engineers and financial managers.¹⁹⁶ There are four elements to the package: a baseline mapping project, trades training, professional training and the integration of energy efficiency skills.¹⁹⁷ Priority skills sets for tradespeople in the built

environment industry will be developed through consultation with Industry Skills Councils (ISCs), to facilitate energy efficiency training.¹⁹⁸ DEEWR will finance the development of an energy efficiency teaching module designed for undergraduate engineering university students.¹⁹⁹ The module will focus on developing technical skills in the delivery of energy efficient outcomes and will complement a non-technical module developed by the Australian Research Institute for Macquarie University.²⁰⁰

5.6.2 Low Carbon Australia

Low Carbon Australia has been established with a \$100 million investment from the Australian Government to support energy efficiency by businesses.²⁰¹ The company's principle focus is the Energy Efficiency Program, which is an \$84.6 million investment fund dedicated to promoting energy efficiency and GHG abatement in commercial buildings and industry processes.²⁰² The Energy Efficiency Program provides initial funding and advice for the retrofitting of commercial buildings, in order to showcase leading edge approaches to energy efficient investment.²⁰³

5.6.3 National Green Leasing Policy

The National Green Leasing Policy (NGLP) represents a coordinated effort by the Australian, State and Territory governments to reduce the environmental impact of buildings through improved operational performance.²⁰⁴ The Policy has been developed by the Ministerial Council on Energy (MCE) and the Australasian Procurement and Construction Council (APCC), and sets performance targets and requirements for building owners and government tenants.²⁰⁵ The Policy is facilitated by the use of a Green Lease Schedule, which is a contract attached to a base lease which outlines the mutual obligations of the tenant and building owner to achieve energy efficient targets.²⁰⁶

5.6.4 Select Council on Climate Change

COAG established the Select Council on Climate Change (SCCC) in February 2011, in order to overcome policy issues regarding climate change that are of national significance and to provide a forum for all levels of Australian government and New Zealand to discuss program implementation issues.²⁰⁷ The responsibilities of the SCCC include overseeing the National Partnership Agreement on Energy Efficiency (including the NSEE and NFEE), providing an intergovernmental forum regarding the implementation of the Clean Energy Future program, developing national adaptation strategies, assessing the effectiveness of the carbon price in conjunction with existing and anticipated initiatives, and to relate the COAG Review of Specific Renewable Energy Target Issues to the Climate Change Authority (CCA).²⁰⁸

5.6.5 Solar Cities

The Australian Government's Solar Cities program conducts trials of sustainable energy models for electricity supply and consumption in order to inform public policy.²⁰⁹ There are seven solar cities around Australia, including Adelaide, Alice Springs, Blacktown, Central Victoria, Moreland, Perth and Townsville.²¹⁰ The initiative is administered by the Department of Climate Change and Energy Efficiency working in collaboration with local and state governments, industry, business and local communities.²¹¹ The program trials encompass a range of measures which encourage technological uptake, capacity building and community behaviour change.

5.6.6 The Greenhouse and Energy Minimum Standards (GEMS)

Minimum Energy Performance Standards (MEPS) programs have previously been enforced through state government legislation and regulation.²¹² However, on 1 October 2012, the Greenhouse and Energy Minimum Standards (GEMS) Act came into effect which is a national framework for the enforcement of appliance standards.²¹³ The GEMS act aims to reduce energy consumption through two main regulatory tools – the mandatory MEPS and Energy Rating Labels (ERLs).²¹⁴ MEPS are used to increase the average efficiency of a product class, and when used in conjunction with an effective labelling program have demonstrated success in reducing energy consumption within Australia and overseas.²¹⁵

Within Australia, MEPS are supported by ERLs which are mandatory for a variety of appliances, and display a star rating which indicates the energy efficiency of the appliance.²¹⁶ This tool enables straightforward comparison of the efficiency of appliances by consumers and also provides incentive to suppliers to improve the energy performance of their products.²¹⁷ MEPS and ERLs are administered by the Equipment Energy Efficiency Program (E3), and current estimates forecast an economic benefit to Australia of \$22.4 billion by 2024.²¹⁸

5.6.7 Climate Change Grant Program

The \$3 million Climate Change Grant Program aims to educate the public on the requirement to take action to tackle climate change, and to highlight the opportunities and advantages of moving forward to a low carbon economy.²¹⁹ The program awards funding to organisations that are managing projects which raise awareness of carbon reduction activities and opportunities related to transitioning to clean energy.²²⁰

5.6.8 Energy Efficiency Information Grants Program

The Energy Efficiency Information Grants program is a \$40 million merit-based, competitive grants program which provides financial support to successful industry associations and non-profit organisations.²²¹ The funding supports these entities to provide practical information and implement education programs regarding energy efficiency that are specific to the needs of small and medium enterprises and community organisations.²²²

5.6.9 Energy Efficiency Opportunities (EEO) Program

The Energy Efficiency Opportunities Program is aimed at improving the energy efficiency of large-scale energy consuming businesses, through legislation which dictates the identification, evaluation and public reporting of cost-effective energy savings opportunities by liable entities.²²³ The legislation came into effect on 1 July 2006, outlining the mandatory participation in the program by corporations from all sectors of the economy using more than 0.5 petajoules (PJ) of energy /year.²²⁴ The program aims to encourage corporations to examine energy use, identify and implement cost-effective energy efficient opportunities and simultaneously improve productivity whilst reducing emissions.²²⁵

This approach builds on the experience of other energy efficiency programs operating in states and territories such as SEAV in Victoria, SEDA/DEUS in New South Wales and the Energy Efficiency Best Practise program (EEBP) which operated from 1998-2003.²²⁶ The EEBP cooperated with companies and research agencies from a variety of sectors and resulted in a series of case studies and best practise guidelines with demonstrable success in terms of financial savings generated from energy efficiency measures.²²⁷ In 2011, a review of the EEO

determined that the program is encouraging behaviour change, reducing energy consumption and emissions and also providing business with financial savings.²²⁸

6. Conclusion

The potential risks posed by climate change are too drastic to ignore, and therefore immediate action is required to reduce carbon emissions. Due to the eventual widespread recognition of these facts, there is considerable pressure to respond with urgency to the challenge of transitioning to a low carbon economy. Significant changes must be undertaken to the very structure of the economy, and change must be facilitated and supported through appropriate government policy. Structural change of the magnitude required to meet the challenge of carbon abatement will have substantial socio-economic impacts. The Australian experience of structural adjustment has demonstrated there are costs and benefits involved with undertaking significant reform. Previous implementation of extensive policy reforms has resulted in distributional impacts and critics of structural adjustment assert that the costs of adjustment may not be justified by the inequitable gains.

This experience highlights the requirement for a robust policy evaluation process which thoroughly explores prospective costs and benefits. The consideration of potential distributional impacts should be central to policy evaluation, and where possible interventionist strategies to mitigate these impacts should be incorporated in the policy development stage. In addition, reforms need to be examined as a package in order to assess interaction effects. However, it is recognised that inherent uncertainty and knowledge constraints limit the capacity for policy makers to accurately predict and plan for all possible outcomes. Therefore flexibility is crucial to adapting policy and consequent intervention in order to mitigate unforeseen impacts.

Whilst there is no general consensus regarding whether compensation is morally required to ease the burden on those most negatively affected in the adjustment process, there are some cases where it is typically deemed necessary to provide compensation. If the change is policy rather than market induced and there are considerable ramifications, it is generally accepted that compensation is obliged. Extenuating circumstances where additional assistance should be provided include when those relatively disadvantaged are made worse-off or if those relatively advantaged gain substantially. If a minority is subjected to great and/or unexpected losses or the policy severely deviates from legitimate expectations additional assistance is also warranted. In terms of both compensation and additional assistance it is considered best practise to administer the support through separate policy instruments and traditional welfare institutions.

Structural adjustment is considered an essential and ongoing process within a growing economy. It is acknowledged that autonomous adjustment yields the greatest benefits in terms of efficiency (and may need to be supported through complimentary measures) and ability to take advantage of the opportunities inherent to responding to structural change. Attempts to impede the adjustment process often have detrimental impacts and can obscure the realisation that adjustment is inevitable by distorting relevant market signals. In contrast, attempts to facilitate and expedite the adjustment process have been shown to maximise early-mover opportunity and limit the stagnation of unsustainable or irrelevant processes and institutions.

One of Australia's leading policy responses to climate change, the Clean Energy Future Plan, built on and incorporated the knowledge gained through previous experiences of structural adjustment. The legislative package incorporates methods from the most successful market-based mechanisms for tackling climate change, such as the Renewable Energy Target, the NSW and ACT Governments' Greenhouse Gas Abatement Scheme, and the Queensland Government's Gas Electricity Target. The government program directly addressed market

failures through the introduction of a carbon pricing scheme and complementary measures. The carbon price allows for flexibility and autonomous adjustment by firms whilst harnessing the capacity of the market to encourage competition. The scheme combines the advantages of both a carbon price and emissions trading, as the pricing plan will move to an ETS by 2015 allowing for a total cap on emissions and future integration in the international carbon market. The legislative package contains compensatory measures for those most vulnerable to related price impacts, and allows for additional assistance to support strongly affected regions, jobs and industry in the transition to a clean energy future.

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