The political economy of Australia's climate change and clean energy legislation: lessons learned

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Thomas Spencer, Carole-Anne Sénit (IDDRI), Anna Drutschinin (Sciences Po)

THE AUSTRALIAN CONTEXT

In November 2011, Australia adopted a highly innovative, ambitious and comprehensive climate change policy, the Clean Energy Legislative Package (CELP). This outcome was not self-evident. Australia is a small, high growth, open, emissions intensive economy; and resource extraction and industry play an important economic and political role. At the same time, among developed countries, Australia's wealth and particular exposure to climate change should create a context conducive to action.

BARRIERS AND DRIVERS TO ADOPTION

From roughly 2006 to late 2009, the Australian public was highly supportive of climate change policy. Climate change policy seems to have been an important factor in the last two federal elections. From late 2009, public support for climate change policy started to wane on the back of the disappointing outcome of Copenhagen, the global financial crisis, the breaking of the so-called Millennium drought in Australia in 2009-2012, and the increasingly divided partisan discourse on climate change. However, in the August 2010 federal election, Australia's hybrid electoral system in the House of Representatives (preferential voting) contributed to an unusual outcome, making it possible for a multiparty climate change policy package to be developed between the minority Labour Government, the Green Party and the three Independents.

APPROACH TO ENSURING POLICY SUSTAINABILITY AND IMPROVING ECONOMIC EFFICIENCY

The CELP embeds an innovative carbon pricing mechanism in a comprehensive and highly generous package of complementary measures designed to increase its public acceptability, and environmental and economic efficiency. It is combined with progressive income tax cuts, increases in government transfer payments, and measures to shield emissions and trade-intensive industry and promote investment in renewable energy, energy efficiency and R&D. In addition, the package contains innovative governance mechanisms to shield it from the vagaries of the political cycle, and increase the political and administrative costs of dismantling it. In all, these measures increase the CELP's chances of survival and provide an example of policy innovation for other countries to follow, keeping in mind their particular national circumstances.

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1. INTRODUCTION

Australia is the world's 16th largest contributor to global greenhouse gas (GHG) emissions (UN data), and has the 9th highest per capita emissions in the world (World Bank data). Between 1990 and 2010, Australia's emissions increased by 29.8% from 418 million tons (Mt) of CO_2-e to 542.7 Mt,[1] excluding the land-use sector (UNFCCC data). Australia's abundance of coal and other raw materials, such as iron ore and aluminium, has led to the development of a carbon intensive economy. Its economy is growing strongly, pulled along by the resource-intensive growth of Asian economies. Australia is also extremely vulnerable to climate change, as has been demonstrated by severe droughts, floods and cyclones in recent years (Australian Government, 2011a).

Australia is therefore one of the few developed countries at the forefront of the risks posed by climate change, yet reducing its emissions requires significant economic changes, leaving the government with a difficult task of balancing the political economy of climate policy. The Australian Government's solution is the *Clean Energy Legislative Package* (CELP). This paper addresses the central research question: how could the design of the CELP contribute to its political and social sustainability, *i.e.* by improving its economic efficiency, assisting vulnerable constituencies and thus increasing its public acceptability? It is structured as follows. Section 2 provides the context for the legislation in terms of the structure of the Australian economy and energy sector and the political and social context during the package's negotiation. Section 3 summarizes the main political economy barriers to carbon pricing in Australia, and sketches the Government's measures to respond to these barriers. Section 4 then analyses in more detail the way the package is designed to overcome these barriers. Section 5 concludes with lessons for the design of climate policy.

2. THE CONTEXT FOR THE *CLEAN ENERGY LEGISLATIVE PACKAGE*

2.1. The Australian economy and energy sector

Although the performance of Australia's economy should create a context conducive to the adoption of a carbon price, its composition presents some hurdles.

Historically, Australia has a strong, stable economy. Its real rate of GDP growth has averaged 3.2% in the 20 years between 1991-2011, with just one year of recession (1991). Over the same period 1991-2011, its unemployment rate has averaged 7%, and 5.4% since 2001. Per capita GDP was AUD 58.7 thousand in 2011,[2] 35.3% above that of the United States and 65.2% above that of the Euro area at market prices (IMF data). Such solid economic performance should provide politicians with some breathing space to introduce a policy that is modelled to marginally slow economic growth (Australian Treasury, 2011).

However, Australia's resource endowments and geography have favoured the development of an export-driven, emissions intensive economy. In

1. Difference between figures and percentage due to rounding. In 1990, Australia's emissions were 417.99291 million tons CO_2e, in 2010 542.69076 million tons CO_2e, excluding the land-use sector.

2. Many figures are given in this paper in AUD. For reference, in the 2011 calendar year, 1 AUD = 0.74 EUR and 1.04 USD.

2009 the emissions intensity of Australia's economy was 0.56kg CO_2/US dollar of GDP,[3] putting it exactly on par with that of China, above that of the United States (0.46kg CO_2/USD of GDP) and far above the European Union (EU) average (0.30kg CO_2/USD of GDP). This difference is mainly due to the *carbon* intensity of Australia's energy mix. Australia's *energy* intensity is only 1.3% above the OECD average (IEA data).[4]

In 2010, exports amounted to over 20% of Australia's GDP, giving the country a net trade surplus of AUD 16.8 billion. Geographically, Australia is relatively close to Asia and is specialized in the export of the primary resources demanded by the region's rapid development. China is Australia's largest export market, followed by Japan and South Korea. 70% of all Australian trade is with member economies of the Asia-Pacific Economic Cooperation (APEC) forum (DFAT, 2011). Of Australia's exports in the year up to March 2011, 52.8% comprised minerals and fuels (Richardson and Denniss, 2011). In 2010, coal exports contributed AUD 43 billion to GDP, a figure topped only by exports of iron ore and concentrates worth AUD 49.4 billion (DFAT, 2011).

Coal dominates the Australian energy mix. In 2011 it provided 34.7% of total primary energy supply compared to the OECD average of 20%, and 69.3% of electricity supply compared with 34.3% in the OECD (IEA data). Such an abundance raw materials and a relatively cheap energy source has encouraged the development of energy and emissions intensive industries such as aluminium smelting, and iron and steel production.

In recent years, mining in general has played a central role in the Australian economy. With the exclusion of the ownership of dwellings, the mining sector is currently the fourth largest contributor to gross value added (GVA)[5] (7.9%), sitting closely behind finance and insurance (10.4%), manufacturing (8.5%) and construction (8.4%) (ABS data). Sector contributions to GVA added are illustrated in Figure 1.[6]

Although it is not the largest contributor to GVA, what is striking about the mining sector is its rapid growth. Between financial years 2001/2002 and 2009/2010, mining GVA grew in nominal terms from AUD 33.8 billion (2001/2002 prices) to AUD 96.1 billion (2009/2010 prices). This took its share in total GVA from 5.2% in 2001/2002 to 8% in 2009/10 (ABS, 2012 and ABS, 2003). Much of this nominal growth is due to booming prices over the previous decade, a structural shift that seems likely to be sustained despite the current global slowdown;[7] deflated by sectoral prices (producer price index), the volume growth of the mining sector is much less significant. The current mining boom allows mining groups to exert considerable influence in the public and political spheres (see Section 2.2.1.). This is despite the fact that it represents only about 2% of total direct employment, and that its strength has created exchange rate and inflationary pressures on the rest of the economy. These factors are not widely understood. According to a survey conducted by The Australia Institute in June 2011, the Australian public believes that the mining industry "employs nine times more workers than it actually does, accounts for three times as much economic activity as it actually does, [and] is 30 per cent more Australian-owned than it actually is" (Richardson and Denniss, 2011: 54).

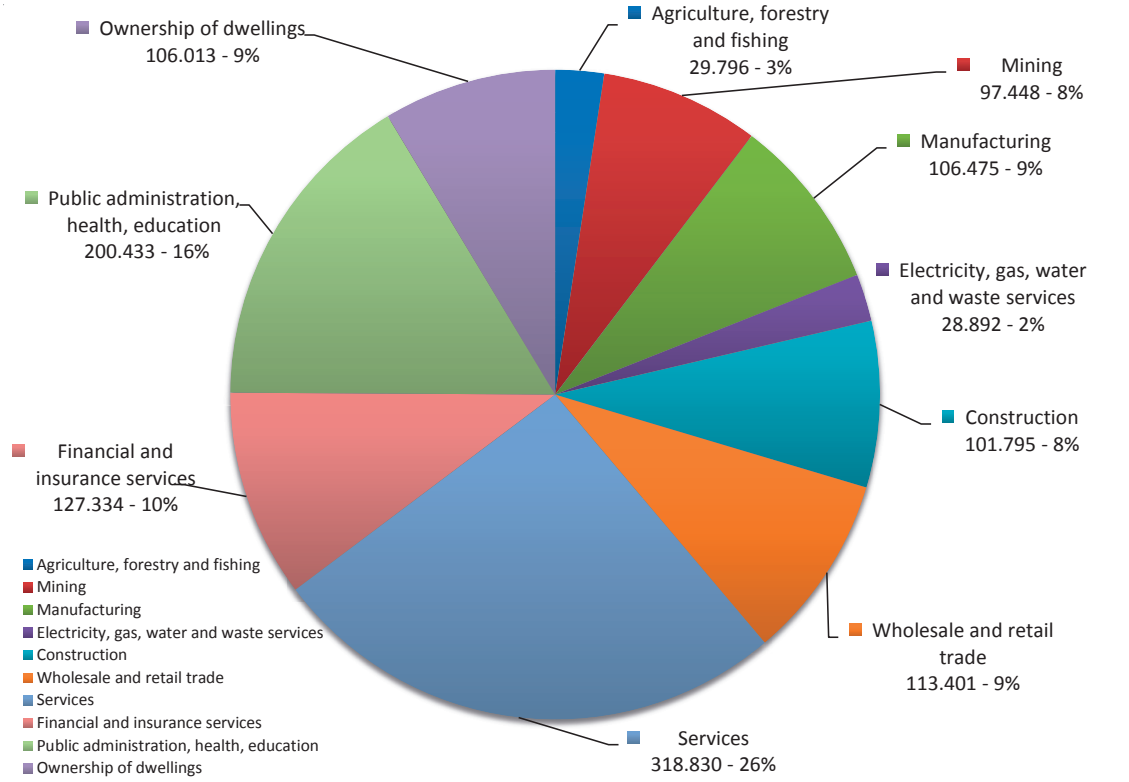
In summary, the Australian economy is relatively small, open and highly emissions intensive. As a result of the Asian boom and its own comparative advantages, Australia is increasingly specialized in emissions intensive, tradable sectors, although these sectors still represent a relatively small share of the overall economy and employment. However, such sectors form a highly organized, vocal constituency, and hence present a particular challenge to the political economy of climate policy (Victor, 2011). At the same time, Australia's wealth and particular exposure to climate change should create a context conducive to action. This dichotomy of interests has created a highly fraught political and social context for climate change policy in Australia.

2.2. The political and social context

This section draws on the political science literature to analyse the factors that may have been influential in establishing drivers and barriers to the development and adoption of the CELP. Many scholars have noted that policy outcomes may be affected by a series of political and social factors,

3. Using 2000 prices and purchasing power parity methodology (PPP).
4. Measured using PPP.
5. Gross value added: monetary value of the goods and services produced, minus the costs of inputs attributable to that production.
6. N.B. some sectors have been aggregated into larger groups such as "services", or "public administration, education and health".
7. We present the growth in mining in nominal terms based on the view that the price boom over the past decade has resulted from a structural break in supply and demand in key commodity sectors, and thus represents a sustained revaluation thereof.

Figure 1. Sectoral breakdown of Australian GVA, financial year 2010- 2011 (AUD billion)



Source: ABS data

including public preferences, partisan ideologies, and the electoral system.

2.2.1. Public preferences

Public preferences[8] appear to have had an ambiguous impact on the passage of climate change legislation in Australia. Generally speaking, public prioritization of climate change appears to have been very high in 2006-2008 and to have then declined from roughly 2009 (Figure 2).

The impact of public preferences on the policy process surrounding the CELP may be divided into four periods.

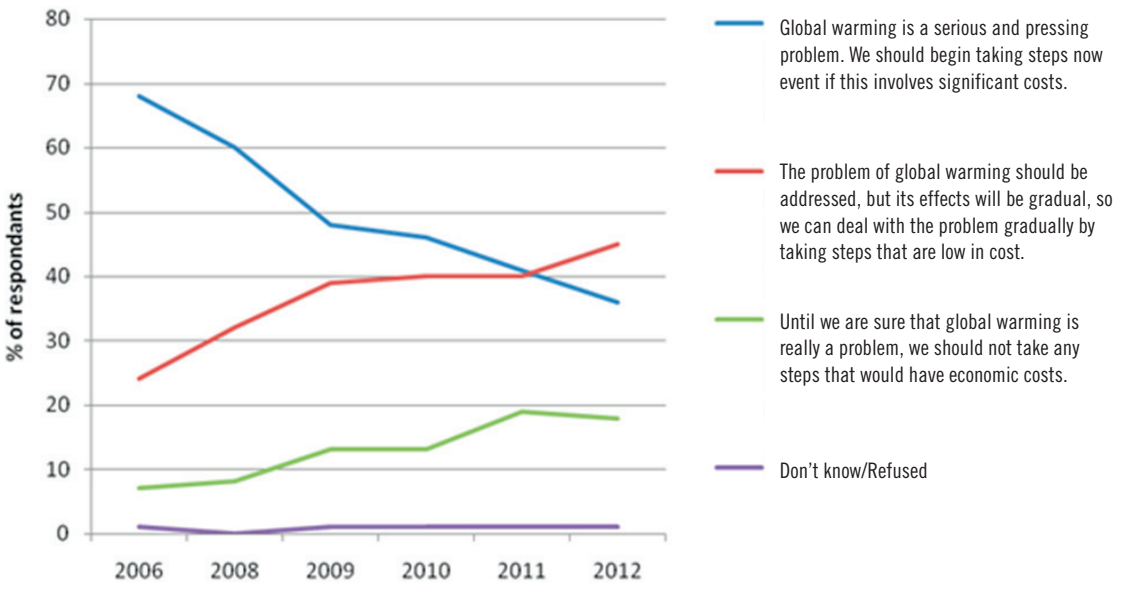
1. *2006 to the federal election of November 2007*: In the lead-up to the 2007 federal election, Australians were more worried about climate change than any other global issue, and 74% were in favour of a carbon tax (Crowley, 2010). Thus during this first period, public preferences were central to pushing climate change into the Australian political debate, and to making climate change a central issue in the federal election. The ruling Coalition[9] was forced to change its long-held reticence to climate policy and carbon pricing; the two major parties (the centre-left Labour Party and the centre-right Liberal Party) both included a carbon-pricing scheme in their 2007 election platforms. The Labour Party won the federal election with a swing of 5.74% in what has been described as Australia's first "climate change election" (Burgmann and Baer, 2012).

2. *November 2007 to December 2009*: Strong collective preferences in favour of climate policy were insufficient to enable the government to pass climate change legislation, *i.e.* the *Carbon Pollution Reduction Scheme (CPRS)*. The Labour Government tried to negotiate mainly with the centre-right Liberal Party, but the legislation failed to pass the Senate on two occasions. The five Green senators also refused to support the CPRS, despite the fact that it shared many essential elements with the current CELP, which the Green Party helped to pass (see below). Thus the failure to

8. Public preferences can be defined as the aggregated priorities given by a community regarding different public goods and the public policies aimed at providing them. Therefore, collective preferences include the political support the community agrees to bring to each policy area.

9. The Coalition of the centre-right Liberal Party, and the smaller centre-right National Party.

Figure 2. Australian attitudes to domestic climate policy 2006-2012



Source: Lowy Institute, 2012

establish a multi-party ownership of the legislative process appears to be a key factor for the failure of the CPRS. In November 2009, the centre-right opposition Liberal Party changed its leader to Tony Abbott, more reticent on climate policy, and withdrew its support for carbon pricing. Thus during the period November 2007 to December 2009, the Government's legislative strategy was pinned between the Green Party and the Liberal Party. The Green Party supported a highly ambitious policy while the Liberal Party was more reticent, to the point of changing its leader over, *inter alia*, this issue and subsequently withdrawing its support for carbon pricing in November 2009.

3. *December 2009 to August 2010*: Unable to force its passage, Prime Minister Kevin Rudd withdrew his climate change legislation in April 2010, which significantly damaged his credibility and contributed to his removal as leader of the Labour Party and hence Prime Minister in June 2010. Despite decreasing in intensity, public preferences nonetheless kept climate change on the political agenda in the lead-up to the August 2010 federal election and seem to have been expressed in the election results. Neither of the major parties took a carbon pricing policy to the August 2010 federal election, and each received 72 seats in the House of Representatives, four short of the total needed to form a majority government. This created Australia's first hung parliament at the federal level since 1940. However, the Australian Green Party experienced a swing of +3.97%, the strongest of any party, and received a seat in the House of Representatives for the first time. The Labour Party formed a minority government with the Green Party and three independent Members of Parliament (MP). The cooperation between the Green Party and the Labour Party was based on a formal agreement, which affirmed climate change policy as a central principle (Australian Labour Party and Australian Green Party, 2010: 4). In addition, the agreement contained the creation of a Multi-Party Climate Change Committee (MPCCC),[10] which subsequently negotiated the key elements of the package between the Labour Party, the Green Party and the Independents (Australian Government, 2011b). This gave policy ownership to multiple parties, and was crucial to the development of some of the key elements of the CELP's design, such as the extensive provisions for assisting low-income households and earmarking revenues for

10. The membership of the MPCCC was as follows: Julia Gillard (Labour Party, Australian Prime Minister); Wayne Swan (Labour Party, deputy Prime Minister and Treasurer); Greg Combet (Labour Party; Minister for Climate Change and Energy Efficiency); Christine Milne (Green Party, Senator); Bob Brown (Green Party, Senator); Tony Windsor (Independent Member of the House of Representatives); Rob Oakeshott (Independent Member of the House of Representatives). The following people were invited to assist the MPCCC: Mark Dreyfus (Labour Party, Member of the House of Representatives, Parliamentary Secretary for Climate Change and Energy Efficiency); Adam Bandt (Green Party, Member of the House of Representatives).

investment in renewables, energy efficiency and research and development (R&D).

4. *August 2010 to November 2011*: the Australian Government was able to pass the CELP in November 2011 in the face of sharply eroding public preferences (see Figure 2). There seem to be several reasons for this decline, including the disappointing result at the Copenhagen climate conference in December 2009, the global financial crisis, and the breaking of the Millennium drought[11] in Australia during 2009-2012. In addition, the increasingly contested partisan discourse on climate change after the accession of Tony Abbott to the leadership of the Liberal Party seems to have contributed to the erosion of public preferences (see Section 2.2.2. below). Relatedly, the Australian media appears to have played an important role. A study by the Australian Centre for Independent Journalism finds that, overall, negative media coverage of the carbon policy led by Julia Gillard's Labour government—in power since the fall of Kevein Rudd in June 2010—outweighed positive coverage across ten Australian newspapers by 73% to 27% (ACIJ, 2011). In particular, the apparent negative bias with respect to climate change and the market power of the dominant *News Limited* corporation was raised by several studies (ACIJ, 2011; Manne, 2011), and were cited as a motivating factor for the Government-commissioned independent inquiry into media practices and regulation (Australian Government, 2012a). Added to this negatively-skewed media coverage was an aggressive advertising campaign against the policy, funded by industry. Despite this unfavourable conjunction of elements, the government, dependent on the support of the single Green MP, was forced to retain climate change as a top priority, and was able to pass the CELP in November 2011, with the support of the Green Party and the three Independent MPs.

In summary, public preferences appear to have played an important but ambiguous role in pushing climate change legislation forward. Public pressure made climate change a central electoral issue several times, and this public concern was expressed in election results (see Section 2.2.3 below). Climate change policy was a key factor in the overthrow of two Prime Ministers (John Howard in the 2007 federal election; and Kevin Rudd in an internal party coup in June 2010), and one leader of the Opposition (Malcolm Turbull was replaced by Tony Abbott in November 2009). We now turn to examine in more detail the role that the partisan positions may have played in shaping public preferences on climate policy.

2.2.2. Partisan positions

There is a large literature on the role of elite opinion and the formation of public preferences (see in particular Zaller, 1992). The amount of information and range of subjects requiring political judgment exceeds most citizens' capacity to engage intensively with the details of the public debate. Citizens therefore delegate much of their opinion-formation to political elites, political journalists, and policy experts. The role of partisan discourses is important in this process of opinion delegation. Citizens operate under a system of partisan cues or stereotypes, which they use to evaluate information and form opinions (Rahn 1993). This suggests a two-way relationship between public preferences and partisan positions, with each influencing the other. A large body of literature also shows that belief in and prioritization of climate change is highly correlated with ideological/political identifications, and that these can dominate other factors such as age, education, and social status (McCright and Dunlap, 2011). In broad terms, liberals or left-wingers tend to have a higher belief in and prioritization of climate change than conservatives or right-wingers.[12]

As noted above, the Australian political debate around climate change became highly polarized in November 2009. The centre-right, opposition Liberal Party replaced its leader, Malcolm Turnbull, with the more climate-skeptic Tony Abbott, and withdrew from the bipartisan consensus on carbon pricing. The models of public opinion formation presented above suggest that this would be associated with an increase in the polarization of public preferences as citizens gravitate toward the respective positions of the political parties with which they identify. Tranter (2011) showed that there was indeed a partisan polarization in the Australian electorate around climate change, which was already evident in 2007 data. Fielding *et al.* (2012) surveyed 311 Australian politicians in October 2009. Their results show that the centre-left Green and Labour Party politicians had stronger beliefs in and higher prioritization of climate change than the centre-right Liberal or National Parties; gave more heuristic weight to scientists and environmental groups; and judged their own belief in and prioritization of climate change to be stronger than those of their electorate. Interestingly, all political parties judged their own belief in

11. The so-called Millennium drought lasted from roughly 1995 to 2009/12 and was the worst recorded since European settlement.

12. The Australian Liberal Party is in fact a party of the centre-right.

and prioritization of climate change to be stronger than those of their electorate, although the perceived gap narrowed toward the right of the political spectrum.

This suggests, firstly, that Australia's politicians do perceive a leadership role for themselves, to the extent that their prioritization of climate change is perceived to exceed that of their electorate. Secondly, after the breakdown of the bipartisan consensus on carbon pricing in November 2009, it seems likely that the increasing polarization of the partisan discourse on climate change contributed to the erosion of public preferences for climate change policy (Figure 2).

2.2.3. The Role of electoral rules

Electoral rules shape the process by which public preferences are aggregated and translated into the power relations of government. They can thus potentially have a material impact on policy outcomes.

Australia has a mixed electoral system with a first-past-the-post system (preferential voting) in the House of Representatives and proportional representation (single transferable vote) in the Senate. Preferential voting is a hybrid between proportional systems and majority systems. A candidate must secure an absolute majority of votes (*i.e.* above 50%) in order to be elected. Voters rank the candidates on the ballot paper in the order of their preference. If there is no absolute majority for a candidate in the first round, the candidates with the fewest votes are progressively excluded, and their votes are transferred to other candidates according to voters' preferences, until one candidate reaches the absolute majority (Australian Government, 2008). Such an electoral rule exaggerates the share of seats for the major parties in order to produce a working parliamentary majority. At the same time, it allows two avenues for minor parties to exercise political influence. First, before the election, the negotiation of preferences between parties gives an opportunity for minor parties to influence the platforms of major parties.[13] Second, the allocation of preferences during the vote tally allows the minority views of the electorate to be expressed in the final result. In the case of the August 2010 federal election, the latter avenue was vital, as we show below.

Under proportional representation, parties win parliamentary seats roughly in proportion to the size of their vote. The proportional electoral model used in the Senate increases the chances of minor parties and independents winning seats and makes it difficult for a major party to gain control of the Senate.

A recent comparative study of national climate policies finds that while majority systems dampen the expression of the strong environmental views held by a minority of voters, proportional systems exaggerate their impact when small green parties play a critical role in parliamentary coalitions (Harrison & Sundstrom, 2010). Yet the relationship between electoral systems and environmental policy outcomes may not be so straightforward. Another comparative study on carbon-energy taxation rates in OECD countries suggests that under certain conditions, policy outcomes in some majority systems resemble those in proportional systems (Lachapelle, 2009). In situations where the seat vote elasticity is high,[14] an increase in environmental voting can create incentives for big political parties to adopt stricter environmental policies, even if green parties never actually gain power.

Between 2001 and 2010, the number of votes for the Australian Greens more than doubled in federal elections, and in 2010 the Green party won its first seat in the House of Representatives (Table 1). As noted above, the 2010 federal election produced a minority Labour Party government dependent on three Independents and one Green MP. However, the Green MP, Adam Bandt, did not in fact win the primary vote in his seat. Table 2 below shows the results of the House of Representatives election in the Division of Melbourne, which was vital to the Green Party's role in the subsequent balance of power. It shows that the hybrid preferential syetsm was vital to the election of the Green MP in the Division of Melbourne.

Thus, the preferential system of the House of Representatives produced a similar policy outcome as a proportional system. That is, it magnified the role of "green" public preferences in the formation of government and hence in the development of policy. An important pre-condition for the Green Party holding the balance of power was the general discontent with both major parties, Labour and Liberal, which prevented either from forming a majority government. Although the ruling Labour Party experienced a swing of -5.70%, the Liberal Party experienced a swing of only +0.76% in the crucial federal election of August 2010.

13. Each major party hands out "how to vote cards" on election day, which stipulate the preference order that voters for that party should use. These preference orders are often negotiated prior to the election between the parties.

14. For example, in a situation where there are two closely matched major parties contesting a seat, any small shift in their vote could lead to the loss of the seat, and hence major parties will fight hard to gain votes and prevent losses.

Table 1. Evolution of voting for the Australian Greens in federal elections, House of Representatives, 2001-2010

Year	Votes	%	Swing (%)	Number of seats
2001	569,075	4.96	+2.34	0
2004	841,734	7.19	+2.23	0
2007	967,789	7.79	+0.60	0
2010	1,458,998	11.76	+3.97	1

Source: Australian Electoral Commission, 2010

Table 2. Results of the House of Representatives election in the Division of Melbourne, 2010

Count	Adam Bandt (Green Party)		Cath Bowtell (Labour Party)		Simon Olsen (Liberal Party)	
	Primary votes + *preferences*	% of total	Primary votes + *preferences*	% of total	Primary votes + *preferences*	% of total
First	32 308	36.17	34 022	38.09	18 760	21.00
Second	+173	36.36	+112	38.21	+97	21.11
Third	+195	36.58	+153	38.38	+69	21.19
Fourth	+695	37.36	+260	38.67	+363	21.59
Fifth	+1 293	38.81	+435	39.16	+392	22.03
Sixth	+ 15 395	56.04	+4 286	43.96	EXCLUDED	
TOTAL	50 059	56.04	39 268	43.96	19 681	22.03
	ELECTED					

Source: Australian Electoral Commission, 2010

2.2.4. Summary

The political and social factors identified above—public preferences, partisan positions and electoral rules—have had an ambiguous impact on the outcome of the *Clean Energy Legislative Package*, sometimes in contradiction with theoretical anticipations. While we would have expected the shift in public preferences to act as a barrier to the adoption of carbon pricing, the Gillard government was ultimately able to pass the CELP in November 2011. This suggests that politicians' own ideals and preferences were necessary to the CELP's positive outcome, even though they were confronted with adverse public preferences. Australia's electoral rules also critically influenced the CELP outcome. By allowing for the negotiation of preferences between parties and the expression of minority preferences, the first-past-the-post system in the House of Representatives enabled Green MP Adam Bandt to enter the House of Representatives. Holding the balance of power, the Green Party pushed for the development of carbon pricing and was crucial to its final adoption. This underscores the importance of bipartisan consensus and policy ownership for the development of sustainable climate policy (Giddens, 2008). In addition, the design of the package, in particular provisions for assisting low-income households, were a key result of the multi-party negotiations of the MPCCC. These elements are likely to be key to the policy's social and political sustainability, and therefore gave politicians cover in pushing through the legislation despite deteriorating public preferences. It is to these elements of policy design that we now turn.

3. SUMMARIZING THE POLITICAL ECONOMY BARRIERS TO CARBON PRICING AND THE AUSTRALIAN APPROACH IN RESPONSE

Literature on and experience of environmental taxation[15] is clear in stating that a significant impediment to its adoption is lack of public support (Gaunt *et al.*, 2007; Kallbekken *et al.*, 2011). Although the public is not as organised as industry in exerting immediate influence upon the government, their voting power ultimately renders public opinion an important determinant of the sustainability of any policy (Kallbekken and Saelen, 2011). In turn, key reasons for low public support are:

- A strong mistrust in the government's ability to use the revenue wisely and to achieve the policy's intended environmental outcomes (Clinch *et al.*, 2006; Kallbekken and Saelen, 2011).
- A lack of understanding regarding the rationale for and the functioning of an environmental tax, or trading scheme (Clinch *et al.*, 2006). In this regard, more direct policies that target renewables or energy efficiency are often preferred by the public, even if their economic efficiency may be

15. Such as a carbon tax, which is effectively what Australia will have until 2015. Furthermore, the Australian media has frequently been labelling the carbon pricing mechanism as such, which is why it is important to review the literature on public barriers to environmental taxation, and suggested mechanisms to overcome these barriers.

lower than a policy framework including a carbon price (Brannlund and Persson, 2012).

- Concern about the effects that the environmental tax will have upon the economy (Milne, 2008). In this regard, the emissions and trade intensive industries are a particularly powerful constituency (Victor, 2011).
- Concern about the regressive distributional impact of the scheme, and whether low-income households will be appropriately compensated (Kallbekken and Saelen, 2011).
- The Labour government has embedded the Australian carbon price in a wider set of policies aimed at addressing the barriers to public support elaborated above. These policies include the following:
- Earmarking significant revenues for renewable energy, energy efficiency and R&D in clean technologies.[16] This combats lack of public trust in how the government will spend taxpayers' money and in the ability of the policy to achieve its intended environmental goals.
- The establishment of a strong, independent governance mechanism. This also aims to overcome lack of public trust in the government, as well as attempting to shield the policy from the vagaries of the political cycle.
- Free permit allocation to Australia's emissions intensive, trade exposed industries, which shields them from the full brunt of the carbon price and gives them time to adopt lower emissions production methods. This should help allay fears about the carbon price harming the economy and potentially vulnerable economic sectors.
- A reform of the income tax system and increased government assistance transfer payments. This combats regressive distributional impacts by increasing the real disposable income of low-income households, and should improve the policy's macroeconomic and labour market outcomes.

In theory, these instruments should allow greater public scrutiny of the CELP (Brunner *et al,* 2011) and allay the public's reservations towards it. In practice, however, the CELP's design and rationale remain widely misunderstood. For example, the Ipsos Social Research Institute (2012) reported that in November 2011, 53% of Australians surveyed somewhat or strongly believed that they would be worse off under the CELP, and only 16% did not think that they would be worse-off. By contrast, research by the Australian Treasury found that under the CELP average household costs will go up by AUD 9.90 a week, which would be more than offset by income tax cuts and increased transfer payments calculated to increase the income of the average household by AUD 10.10 per week (Australian Government, 2011a). It is therefore apparent that the government must, as Clinch *et al.* (2006: 969) argue, develop "a marketing strategy…in order to address the information asymmetries and lack of understanding". Indeed, a report by the Climate Institute (2012) found that when the provisions for revenue recycling and investment in renewable energy are explained to the public, support increases significantly. More in-depth and widespread communication and explanation of the CELP will be crucial to its long-term sustainability.

4. THE CLEAN ENERGY LEGISLATIVE PACKAGE: DESIGNING SUSTAINABLE POLICY

4.1. Governance between flexibility and certainty

4.1.1. Designing the carbon price

Designing a carbon pricing mechanism requires a delicate balance of certainty and flexibility. On the one hand, the carbon price must be credible in order to leverage the investments that actually reduce emissions. On the other hand, the carbon pricing mechanism also needs to be flexible enough to adapt to changing circumstances, such as macroeconomic and technological developments, changing scientific knowledge, and the progress of global negotiations (Brunner *et al.,* 2011).

Initially, the Australian carbon pricing mechanism essentially functions as a tax, which transitions to an emissions trading scheme (ETS) over a period of six years. From 1 July2012 to 30 June 2015, unlimited permits are allocated to Australia's 500 biggest polluters at fixed prices, starting at AUD 23 and increasing in real terms by 2.5% per annum.[17] In theory, this should give a period of

16. These include the Clean Technology Program, the Clean Energy Finance Corporation, the establishment of the Australian Renewable Energy Agency, and the Biodiversity Fund. Details on these instruments and on the many additional instruments not listed here that form part of the Clean Energy Legislative Package can be found at http://www.cleanenergyfuture.gov.au/clean-energy-future/programs-and-initiatives/

17. Note that the carbon price will be imposed on pollution from the following sources: stationary energy, waste, rail transport, domestic aviation and shipping, industrial processes and fugitive emissions. Land use sectors such as agriculture are exempt, as are all forms of road transportation.

stability and certainty, allowing businesses and government to learn about abatement supply and demand. In initial policy phases, theory suggests that a carbon tax should be more efficient, given the uncertainties that firms and governments are likely to face regarding abatement supply and demand.[18] Whatever the theoretical justification, this so-called fixed price phase was an outcome of the political economy of the negotiation process in the MPCCC. The Labour Party and the Green Party could not agree on the ambition of Australia's 2020 emissions target, and hence opted for a fixed price and flexible means of setting subsequent targets.

From 1 July 2015, the government will set emissions caps and price of permits will be allowed to fluctuate below a fixed price ceiling,[19] which will be removed from 1 July 2018. The mechanism for setting pollution caps is designed to balance certainty and flexibility, as discussed above. In 2014, the government will announce the pollution caps for the first five years of the flexible trading scheme, *i.e.* to 2019. Subsequently, in every given year x, the government will determine the cap for year x + 5, allowing firms to always know five years in advance the pollution caps that they will face. This would allow policy makers to adjust future quantities in response to macroeconomic events, technology developments or the progress of global negotiations. In theory, such a system could act like a "carbon monetary policy",[20] with policy makers adjusting future caps in response to changing circumstances in order to deliver pre-announced policy trajectories. Adjusting *future* quantities allows policy makers to manage long-term investment incentives, *i.e.* the real lever for decarbonization. Unlike monetary policy, however, the CELP does not delegate the power to set carbon caps to an independent authority, although the government will receive advice from the independent Climate Change Authority on this issue (see below).

18. Weitzman (1974) shows that regulation *either* by prices (tax) or quantities (cap and trade) may be preferable depending on uncertainty regarding the relative slope of the marginal abatement curve and marginal benefit curve. If the relative slope is steep, regulation by quantities is preferable, *vice versa* if it is shallow. In the short term, given that climate change is a global, long-term pollution *stock* problem, the relative slope of the marginal benefit and marginal abatement cost curve is likely to be shallow, suggesting that price regulation would be most efficient under uncertainty. In the long term global perspective, the relative slope is likely to be steep, suggesting that quantity regulation would be most efficient under uncertainty.

19. The fixed price ceiling is to be AUD 20 above the international price expected for 2015-2016, and will rise by 5% in real terms each year.

20. See Whitesell (2011) for a discussion of the parallels between carbon and monetary policy.

In August 2012, the Australian Government reached a shared understanding with the European Commission on the linkage of the Australian scheme and the EU ETS. From 1 July 2015, a partial link with the EU ETS will begin. Australian businesses will be able to buy allowances from the EU ETS in order to meet up to 50% of their compliance obligations.[21] This will pave the way for a full two-way linkage in 2018 (European Commission and DCCEE, 28 August 2012). A key rationale for the linkage is to increase the political sustainability of the scheme, as it helps to undermine the argument that Australia is isolated in implementing carbon pricing. It is also a powerful "commitment device", *i.e.* an "institutional [arrangement] that make[s] it a difficult and time-consuming process to change the policy rules" (Brunner *et al.*, 2011: 3). However, EU experience has shown that linking ETS can reduce the flexibility of the policy, insofar as diverse governments must agree on any policy adjustments (Spencer and Fazekas, forthcoming). In this regard, it is not yet clear what the proposed linkage would mean for Australia's innovative system of a rolling 5 year caps. In this instance, the government may have favoured increased policy certainty over flexibility, to the extent that the EU ETS linkage may increase the political and social sustainability of the scheme.

4.1.2. The governance system

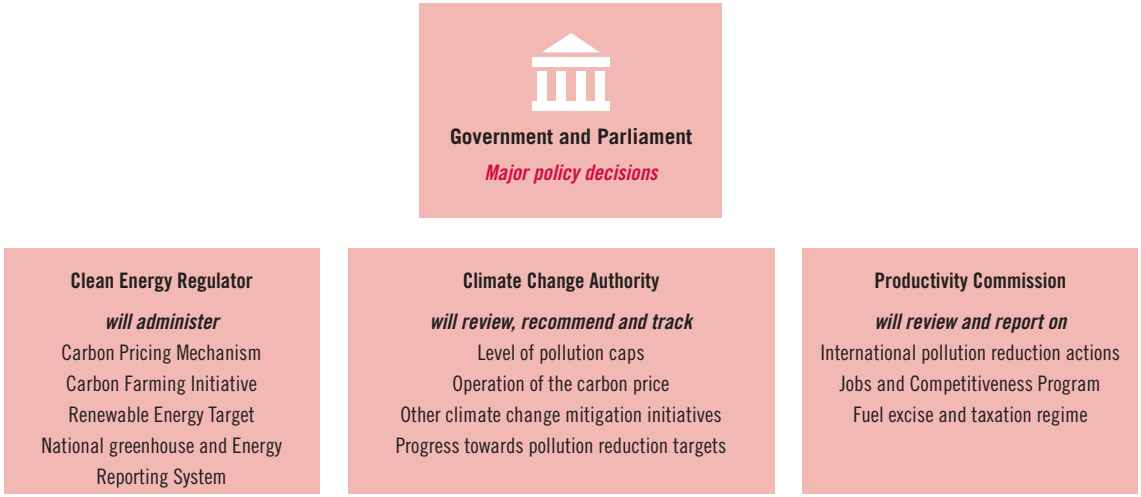
In an attempt to shield the carbon pricing mechanism from the fluctuations of day-to-day politics, and to thus increase its credibility in the eyes of investors, the CELP creates a strong system of governance.

The new system of governance allocates advisory, administrative and reviewing roles to different, independent statutory bodies. The Climate Change Authority (CCA) will give the government expert policy advice, for example on future pollution caps. The Clean Energy Regulator will administrate the regulatory aspects of the scheme. The highly respected Productivity Commission will review specific, politically sensitive elements of the scheme, such as the risks of carbon leakage and the implementation of the *Jobs and Competitiveness Program* (see 4.2 below). Figure 3 summarises the roles of each of these independent bodies:

Although ultimate policy control remains with the Australian Government, this governance structure insulates aspects of the administration and the review of the scheme from the political cycle. Furthermore, the CCA ensures that the government is held publically accountable for its policy

21. Until 2020, firms must meet at least 50% of their obligations using domestic permits.

Figure 3. Governance structure of the Australian carbon pricing mechanism



Source: Australian Government, 2011a.

decisions. The CCA will publically report on the progress of the scheme and give recommendations for improvement. The review and reporting process must always involve public consultation, and if the government's policy decisions (such as the setting of pollution caps) differ from the CCA's recommendations, the government must publically justify its actions. This delegation of certain review and advice functions to independent authorities should thus ensure greater continuity of Australia's climate change policy across political cycles (Patay and Sartor, 2012).

4.2. Supporting emissions intensive, trade exposed industries and investing in clean technology

As explained earlier in this paper, emissions intensive, trade exposed industries play an important role in the Australian economy and form a well-organized, vocal constituency that has considerable influence in politics. Addressing the risks of a loss of international competitiveness and of carbon leakage[22] is therefore crucial to the political and economic sustainability of Australian climate policy.

To this end, the CELP contains a number of programs that assist these industries by partially shielding them from the carbon price whilst simultaneously providing targeted funding to assist the transformation to a low-emissions economy.

The *Jobs and Competitiveness Program* (JCP) spearheads industry assistance by allocating free carbon permits to eligible emissions intensive, trade exposed industries, the bulk of which are in the manufacturing sector (Australian Government, 2011a). For free allocations, the emissions benchmark is determined by the industry average performance. The production benchmark is determined based on each individual entity's level of output in the previous year with a true up period to take account of actual production, *i.e.* effectively an output based production benchmark (Australian Government, 2011a). During the fixed price period from 2012 to 2015 the government will *buy back* any unused freely allocated permits from eligible entities, preserving the opportunity cost of emissions and effectively transferring the carbon scarcity rent from the public budget to private firms. Table 3 presents the details of free allocations under the JPC and compares it to free allocation of permits in the EU ETS.

Assisting industry through the allocation of free permits can build industry support for the scheme, in turn increasing the scheme's political sustainability (Stavins, 2009). In theory, the environmental effectiveness of the scheme is not reduced by free permit allocation because businesses still face the same carbon price signal (Coase, 1960). That is, each permit has an opportunity cost, which firms should compare with their cost of reducing emissions. In practice, however, in the presence of behavioral biases and incomplete markets, free

22. "Carbon leakage" refers to the phenomenon of emissions-intensive industries relocating from countries with stringent climate policies to countries with less stringent policies, thereby hurting the economies of the countries with stringent climate policies and meaning that such policies do not have the intended effect of reducing global emissions.

Table 3. Free allocation methodology in the Australian ETS and the EU ETS

	Australia (JCP)	EU ETS
Eligibility criteria	Trade intensity*: >10% Emissions intensity**: For first assistance tier: ≥2000tCO_2e/AUDm revenue *or* ≥6000tCO_2e/AUDm value added For second assistance tier: 1000-1999tCO_2e/AUDm revenue *or* 3000-5999tCO_2e/AUDm value added Trade intensity and emissions intensity are measured using historical data from between 2004 and 2009.	Trade intensity: >10%; and Cost exposure: direct and indirect additional costs induced by the EU ETS ≥ 5% of Gross Value Added Alternative methodology: either criteria ≥30%
Initial free allocation level	First assistance tier: 94.5% Second assistance tier: 66%	100% for sectors deemed at risk of carbon leakage 80% for sectors not at risk
Free allocation emissions baseline	Based on industry average historical emissions per unit output in the given activity	Product based benchmarks based on 10% highest performing installations covered by the ETS in the given product category
Free allocation production baseline	Historical with annual updates and a true up period to account for actual production	Historical production (2005-2008 or 2009-2010), not updated according to actual production.
Free allocation evolution	Free allocation declines by 1.3% per year (named the "carbon productivity contribution")	Maintained at 100% for sectors at risk of carbon leakage Reduced linearly by 7.4% per year for sectors not at risk of carbon leakage (from 80% in 2013 to 30% in 2020)

Source: Australian Government (2011a) and European Commission.

* Ratio of value of imports and exports to value of domestic production; N.B. this is supplemented by a qualitative criteria, namely "…a demonstrated lack of capacity to pass through costs due to the potential for international competition" (Australian Government, 2011).

**Emissions intensity = average emissions per million dollars of revenue, or emissions per million dollars of value added.

allocation may negatively distort the environmental outcome of the scheme, as has been observed in the EU ETS (Abrell *et al.*, 2011).

It is partly for this reason that the Productivity Commission has been commissioned to review the assistance given under the JCP, and it will advise the government about whether the JCP needs to be amended to ensure that the program meets its objectives as efficiently as possible.

The presence of multiple market failures, particularly with regard to innovation spillovers and capital market failures, may necessitate certain complementary measures to assist firms and industries with the transition to a low-emissions economy. To this end and also to provide further assistance, the JCP is supplemented by a number of further measures:

The *Clean Technology Program* comprises an AUD 1.2 billion grant program in energy efficiency, low-pollution capital investments, and R&D in key industries. This will be supplemented by industry co-financing.

The *Clean Energy Finance Corporation* will invest in the commercialization and deployment of renewable energy, energy efficiency and low-pollution technologies. It will operate with a commercial approach, leveraging private finance from an initial budgeted capitalization of AUD 945 million for the period 2011-2015.

In addition to these measures agreed by the MPCCC, the government has pledged to implement an AUD 300 million *Steel Transformation Plan* and an AUD 1.3 billion *Coal Sector Jobs Package* to reduce fugitive emissions from coal mines.

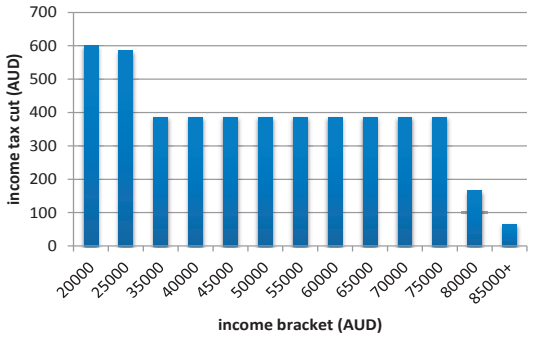
For small business, the package contains a 30% increase in the instant asset write-off threshold, a tax break that will incentivize investments in new, presumably lower emissions capital stock.

Finally, an *Energy Security Fund* worth AUD 5.5 billion in free permits and loans to finance the purchase of permits or cover debt refinancing in the event high emissions electricity generators are unable to finance themselves on capital markets.

The total industry assistance package and earmarks for renewables, energy efficiency and R&D amount to about AUD 4 billion per year in the fiscal years 2011/2012 to 2014/2015, or 0.3% of 2011 GDP.[23] This seems well in excess of what would be needed to compensate the most exposed firms, and address other market failures through public investments in clean technology.

23. This includes the following programs: support for jobs, the Clean Energy Finance Cooporation, energy security and transformation, land and biodiversity measures, and additional government measures not agreed by the MPCCC. See Australian Government 2011a, table 1, p. 131, and table 1, p. 135.

Figure 4. Total income tax cut in AUD per income bracket, 2012-2015



Source: Australian Government, 2011c.

4.3. Supporting households

As noted above, concerns about the regressive distributional impact of carbon pricing present an important barrier to public acceptance of such a policy (Kallbekken and Saelen, 2011). As a general rule, carbon pricing is indeed regressive, as poorer households spend a greater share of income on energy services. Rural residents, the unemployed and pensioners also represent particularly vulnerable constituencies. Finally, low-income households may not have the capital to undertake energy and carbon efficiency investments.

The importance of an equitable treatment of households was highlighted early in the process of developing the Labour Government's climate policy (Garnaut, 2008). In his second 2011 report for the Gillard Labour government, advisor Ross Garnaut recommended integrating some of the recommendations of the Henry Tax Review, submitted to the Australian Government in May 2010 (Australian Government, 2010). Consistent with the recommendations of the Henry Tax Review, Garnaut proposed a progressive tax shift from labour to carbon consumption, *via* an increase in the tax-free threshold for income tax. There were at least three rationales for this proposal (Garnaut, 2011):

1) A labour-carbon tax shift would increase employment and labour force participation;

2) And therefore increase economic growth relative to a simple carbon tax scenario;

3) A progressive tax shift targeting low-income deciles could offset the regressive impacts of the carbon tax.

The package adopted under the CELP increased the effective tax-free threshold from AUD 16,000 to AUD 20,542 in 2012/2013, and to AUD 20,979 in 2014/2015. Figure 4 shows the total level of the tax cut by income bracket over the period 2012-2015.

In addition, the package includes increases in virtually all government benefits, such as pensions, income support, family benefits, and support for students. This will be implemented in two stages: an upfront *Clean Energy Advance* before the legislation enters into force, and an annual, permanent, and tax-free increase thereafter, called the *Clean Energy Supplement*. These represent an increase in the maximum rate of most government benefits of 1.7%, which can be compared with the estimated inflationary impact of the scheme of a 0.7% increase in the Consumer Price Index in 2012/2013.

The fiscal impacts of these measures are significant. In the three fiscal years 2012/2013 to 2014/2015, progressive income tax cuts average AUD 2.68 billion per year, or 0.2% of 2011 GDP. In the four fiscal years 2011/2012 to 2014/2015, the increase in government transfer payments averages AUD 1.72 billion per year, or 0.13% of 2011 GDP. Table 4 shows the net fiscal impact of all measures to accompany the implementation of a carbon price. The total net negative fiscal impact of the CELP averages AUD 1.1 billion per year for the years 2011/2012 to 2014/2015, or 0.08% of 2011 GDP.

The Australian carbon-pricing scheme has thus been tied to an ambitious fiscal reform, intended to reduce the regressive distributional impacts and increase the economic efficiency of the carbon price. The economic literature agrees that recycling carbon revenues reduces the economic impacts of carbon pricing (Hourcade *et al.*, 2010). If used to reduce labour taxes, it can, under certain conditions, increase employment and national income (Anderson, 2010). A progressive reduction of labour taxes for the lowest income brackets is estimated to be most effective in creating employment and growth, as it has the highest marginal impact on after tax income. Lower-income deciles also have greater marginal utility gains to increased incomes, suggesting, other things equal, a higher income-employment elasticity for these income deciles.

As shown in Table 4, the overall package has a negative net fiscal impact. This can be explained by the fact that the extremely fraught politics of carbon pricing seem to have pushed the government to develop a very generous assistance package. The package likely exceeds what is strictly necessary in order to compensate the hardest-hit household segments and industries, and the policy of tax cuts and benefit increases may not be the most accurate method of targeting compensation. However, Australia is in a reasonably comfortable fiscal position, with a net government debt of 7.8% and a fiscal deficit of -4.3% of GDP in 2011 (IMF data, 2012). Australia thus has a fiscal room for maneuver, which other countries may not enjoy.

Table 4. Total fiscal impacts of the *Clean Energy Legislative Package*, in million AUD

	2011/2012	2012/2013	2013/2014	2014/2015
Total carbon price revenues	0	8,600	9,080	9,580
Assistance to Households	-1,533	-4,196	-4,802	-4,825
Support for jobs	-26	-3,017	-3,475	-3,773
Clean Energy Finance Corporation	-2	-21	-467	-455
Energy security and transformation	-1,009	-1	-1,003	-1,042
Land and biodiversity measures	-69	-131	-506	-489
Governance	-78	-90	-106	-107
Total assistance costs	-2,717	-7,456	-10,359	-10,691
Additional measures not agreed by the MPCCC*	-223	-48	-322	178
Net fiscal impact	-2,939	1,096	-1,601	-933

Source: Australian Government (2011a)

* These are the Coal Sector Jobs Package; Coal Mining Abatement Technology Support Package; Steel Transformation Plan, and the Additional fuel tax credit reductions for heavy on-road transport from 2014-15.

CONCLUSIONS AND LESSONS LEARNED

In November 2011, Australia adopted a comprehensive and innovative climate change policy, the *Clean Energy Legislative Package*. This paper has examined the approach taken by this legislation in order to overcome the significant political and social barriers to its adoption and retention in force.

The key barriers can be described as follows. First, with the withdrawal of the centre-right Liberal Party from the bipartisan consensus on carbon pricing in November 2009, the public discourse became highly partisan. This seems to have contributed to a deterioration in public preferences for climate change policy. Second, the Australian economy is small, open and specialized in tradable, emissions intensive sectors. These sectors represent an important political lobby, and have contributed to the fraught public debate on climate change policy. Third, consistent with the literature on public perceptions of climate policy instruments, there has been a lack of public understanding for the rationale for carbon pricing, and a high level of public concern over its potentially regressive impacts.

Within this context, a number of factors appear to have been crucial to the adoption of the CELP. First, the Australian electoral system produced a highly unusual result in the August 2010 federal election, namely a hung parliament in which a single Green MP was crucial to the balance of power, along with three Independent MPs. In this regard, the hybrid system of preferential voting in the House of Representatives seems to have been crucial. The result, similar to configurations more often produced by proportional voting, was crucial to forcing climate change policy back to the centre of the minority Labour Government's platform. Second, the CELP was developed on the basis of multi-party negotiations under the auspices of the MPCCC. This allowed the entry of new ideas, such as the extensive household compensation package, and gave the Labour Party, the Green Party and the three Independents ownership over the package design and the subsequent legislative process. Third, the innovative and highly generous compensation package in the legislation seems to have given Labour and Green politicians and the Independents some assurances of its longer-term public acceptability during the fraught adoption phase.

The CELP embeds an innovative carbon pricing mechanism in a broader package of policies, designed to ensure the social and political sustainability of the policy and improve its economic efficiency. First, the package is combined with comprehensive fiscal reform. In the three fiscal years 2012/2013 to 2014/2015, progressive income tax cuts average AUD 2.68 billion per year, or 0.2% of 2011 GDP. In the four fiscal years 2011/2012 to 2014/2015, the increase in government transfer payments averages AUD 1.72 billion per year, or 0.13% of 2011 GDP. In theory, this should allay concerns about the potentially regressive impacts of the reform, and improve its macro-economic and labour market outcomes. It may also act as an important "commitment device", making dismantling the package more administratively and politically difficult. Second, the package contains a generous and comprehensive suite of measures to shield emissions intensive, trade exposed industry, and facilitate the transition to a low-carbon economy by investing in R&D, renewable energy, energy efficiency and measures in the land sector. These amount to about AUD 4 billion per year in the fiscal years 2011/2012 to 2014/2015, or 0.3%

of 2011 GDP.[24] The total net negative fiscal impact of the CELP averages AUD 1.1 billion per year for the years 2011/2012 to 2014/2015, or 0.08% of 2011 GDP. Third, the package contains innovative governance mechanisms to hold the government accountable, shield the instruments from the political cycle, and increase the political costs of dismantling the package. A key example thereof is the recent decision to link with the EU ETS. However, the Australian experience shows that even well designed policy needs a careful and thorough public communication strategy in order to overcome severe information asymmetries between the public and policy makers.

The CELP represents an interesting case study for other countries looking to implement comprehensive climate change policies. The relevant economic circumstances and social and political barriers are different in each country. Other countries can follow a similar principle of analyzing these *ex ante* and developing a comprehensive reform package to address them. Progressive cuts in labour taxation can potentially be win-win-win, addressing three objectives: improving macroeconomic and labour market outcomes, and addressing regressivity concerns. The Australian experience also underscores the crucial importance of bipartisan ownership of policy development. Earmarking a significant share of carbon revenues for low-carbon energy, energy efficiency and R&D can help to overcome public concerns about the effective use of revenue, and address capital market failures and barriers to innovation. However, the future sustainability of the CELP is not assured. The centre-right Liberal Party has pledged to repeal it if it wins the next federal election, as seems likely. Nonetheless, the numerous measures discussed in this paper increase the CELP's chances of survival and provide an example of policy innovation for other countries to follow, keeping in mind their particular national circumstances.

24. This includes the following programs: support for jobs, the Clean Energy Finance Cooporation, energy security and transformation, land and biodiversity measures, and additional government measures not agreed by the MPCCC. See Australian Government 2011a, table 1, p. 131, and table 1, p. 135.

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INTERVIEWS

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The political economy of Australia's climate change and clean energy legislation: lessons learned

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