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**The logic of collective action and Australia's
Climate Policy**

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Abstract. We analyse the efficiency of the target and of the provisions to prevent carbon leakage in the Australian Government's Carbon Pollution Reduction Scheme (CPRS), as proposed in March 2009, and the nature and likely cause of changes to these features during 2008. The target range of 5-15% national emission cuts during 2000-2020 is weak, and on balance likely to increase the cost of mitigation in Australia in the long run. The free allocation of output-linked, tradable permits to Emissions-Intensive, Trade-Exposed (EITE) sectors was much higher than proposed earlier, and than shown to be needed to prevent carbon leakage. It plausibly means that EITE emissions can rise by 13% during 2010-2020, while non-EITE sectors must cut emissions by 34-51% (or make equivalent permit imports) to meet the national targets proposed, far from a cost-effective outcome. The weak targets and over-generous EITE assistance illustrate the efficiency-damaging power of collective action by the 'carbon lobby'. Resisting this requires new national or international institutions to assess lobby claims impartially, and more government publicity about the true economic importance of carbon-intensive sectors. A very different demonstration of lobby power is overemphasised concern that voluntary emission cuts will be nullified by the CPRS.

Key words: climate policy, Australia, targets, emission trading, carbon leakage, lobbying

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1. Introduction

The evolution of the Australian Government's Carbon Pollution Reduction Scheme (CPRS) from May 2007 to March 2009 provides a classic example of Mancur Olson's (1965) "logic of collective action". Concentrated and thus powerful groups, who would inevitably suffer most under a sound, national-interest policy proposal, lobby to change the proposal into something which instead protects their special interests. The lobbying is made all the more effective, in the case of controlling a small nation's contribution to global emissions of climate-changing greenhouse gases (hereafter "carbon emissions" for short), by appealing to the free-riding instinct that nothing a small nation does will affect emissions control by the rest of the globe.

We analyse here the plausible effects of such lobbying by focusing on three documents important in forming the CPRS: the Garnaut Climate Change Review (Garnaut 2008a), commissioned by the Labor Party in opposition, but delivered to a new Labor government; the Government's Green (discussion) Paper (Australian Government 2008a); and the Government's White (draft policy) Paper (Australian Government 2008b). Of course, showing how subsequent changes to proposals favoured the carbon-intensive industries which formed the dominant lobby groups (hereafter "the carbon lobby") does not prove consequence. It is hard to see the behind-the-scenes persuasion which, according to rare, anonymous evidence in Pearse (2007), is the real influence on Australian climate policy. Nevertheless, the changes in proposals studied below, notably from the Garnaut Review and/or Green Paper to the White Paper, are so striking that the influence of lobbying is unmistakable.

Much will have happened to Australian climate policy between this paper's writing in late April 2009 and publication in 2010: the CPRS may pass unchanged, pass with substantial amendments, or be scrapped altogether, putting policy back on the drawing board. So in analysing changes up to 2009, we seek durable lessons that will apply to many countries, whatever the eventual policy outcome in Australia. The two main aspects we study are targets for Australian emissions in 2020, conditional on international policy developments, and special assistance for emission-intensive, trade-exposed (EITE) sectors of the economy. The latter sectors are those most vulnerable to carbon leakage, whereby emissions abatement in Australia causes intensive activities to move abroad to even more intensive locations, reducing or even reversing the abatement in global emissions. The carbon lobby's self-interest is obviously served by a low target and high levels of EITE assistance.

Section 2 sets the scene by noting the main Australian climate policy developments during 2007-9 and giving a sectoral analysis of GDP, employment and carbon emissions. Our contributions then follow. In Section 3 we analyse the diplomatic and economic case for certain levels of 2020 targets, and the lobbying arguments used to support the White Paper's weaker position. Section 4 describes the mushrooming EITE assistance proposed in the White Paper, compared with earlier recommendations and proposals. We show how this assistance level is not supported by evidence of carbon leakage; can be

calculated to be so inefficient and inequitable as to question the sincerity of the Government's already weak conditional target; and clearly reveals the carbon lobby's influence. In Section 5 we briefly propose new national or international institutions for impartially assessing industry lobbying claims, and more government publicity about the economy's structure, as two ways of producing better climate policy. Section 6 concludes.

2. Recent developments in Australian climate policy, and their economic context

2.1 Recent policy developments

A new era in Australia's climate policy opened in May 2007, when Prime Minister Howard's Task Group proposed a (carbon) emissions trading scheme (ETS) as a central plank of policy (PM&C 2007a). Most economists thought the proposal mostly well-designed, even though it set no emission targets, and proposed generous assistance to power generators and only general principles on tackling carbon leakage. The (conservative) Howard Government's response (PM&C 2007b) broadly accepted the proposal, which inspired large parts of later proposals; but the Government made no progress before losing the November 2007 election. Meanwhile in April 2007 the (left-of-centre) Labor Party started the advisory Garnaut Review, which reported to the now (Prime Minister) Rudd Labor Government in February, July and finally in September 2008. The Review thus overlapped the Government's August Green Paper, December White Paper, and subsequent draft legislation (Australian Government 2009). The last differed little from the White Paper and left many aspects of EITE assistance to later regulations, so we ignore it here.

All emission targets in this paper are percentage cuts during 2000-2020 for total Australian greenhouse emission entitlements, which may be lower than actual emissions because of emission permit imports. (We also sometimes discuss the percentage cut lying ahead during 2010-2020.) The Garnaut Review (p.xxxix) recommended three different targets:

"5% if there is no comprehensive global agreement at [UNFCCC] Copenhagen in 2009."

"10% as Australia's full part of an initial agreement on a global emissions path towards stabilisation of the atmosphere at 550 ppm CO₂-e."

"25% as Australia's full part of an initial agreement on a global emissions path towards stabilisation of the atmosphere at 450 ppm CO₂-e."

The Green Paper did not propose any targets. The White Paper proposed (p.xix):

5% as "a minimum (unconditional) commitment to reduce emissions, irrespective of the actions by other nations"

15% as "a commitment to reduce emissions in the context of global agreement where all major economies commit to substantially restrain emissions and all developed countries take on comparable reductions to that of Australia."

Also worth mentioning is the White Paper proposal on agriculture, because it affects later EITE calculations:

"Commencing in 2009 the Government will undertake a work program to enable it to determine in 2013 whether or not to cover agriculture emissions from 2015." (p.xxix)

We doubt the practicality of covering agricultural emissions, but for consistency assume it can and will happen. All three documents made different, detailed proposals for EITE assistance which we describe and discuss in Section 4.

2.2 The Economic Context

The Australian economy is peculiar in having relatively large agricultural and especially mining sectors for a rich country, but the strong contrast between its economic and emission structure shown in **Table 1** is still not that unusual. The five most carbon-intensive sectors (agriculture, forestry and fishing; mining; manufacturing; electricity, gas and water; transport and storage) account for about 87% of total direct emissions, but only 29% of GDP and 21% of employment.

This high concentration of emissions in a few, intensive sectors, enhanced by the greater capital intensity, size and geographical isolation of typical workplaces in those sectors, produces the classic conditions identified by Olson (1965) as likely to foster self-interested, collective action by the carbon lobby. So although the main way to cut emissions at least overall cost to the nation is to apply a pervasive carbon price through an ETS or a carbon (emissions) tax, this will inevitably cause larger percentage cuts in output and employment in carbon-intensive sectors, and they will lobby strenuously for various forms of protection or shielding. Acceding to all their demands can easily produce the reverse, perverse effect of larger percentage cuts being demanded from *non*-carbon-intensive sectors.

Table 1: Structure of Australian economy, employment and greenhouse gas emissions in 2006 (all percentages are of total for whole economy)

<i>Sector</i>	<i>Agriculture, forestry & fishing</i>	<i>Mining</i>	<i>Manufacturing</i>	<i>Electricity, gas & water</i>	<i>Commercial services & construction</i>	<i>Transport and storage</i>	<i>Residential</i>	<i>"Carbon lobby"</i>
<i>ANZSIC code</i>	<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>	<i>E-H, J-Q</i>	<i>I</i>		<i>A-D, I</i>
GDP	3%	8%	11%	2%	62%	5%	8%	29%
Jobs	3%	1%	10%	1%	79%	5%		21%
Direct emissions	24%	9%	12%	36%	4%	7%	9%	87%
Inclusive emissions	24%	12%	25%		12%	7%	20%	68%
Inclusive emissions intensity (kgCO ₂ e/\$)	5.22	0.87	1.42		0.12	0.88	1.46	1.42

Sources: ABS National Accounts 5206.0 for GDP, and Labour Force 6291.0.55.003 for jobs; DCC (2008) for emissions. Inclusive emissions allocate all electricity, gas and water emissions to other sectors in proportion to their electricity use.

3. Target-setting: different interpretations of self-interest

Here we first consider two arguments for Australian emission cuts during 2000-2020. The first is appeals to short-term, reciprocal, self-interest, assuming Australia has influence. The second appeals to long-term self-interest, considering the likelihood that Australia will need to make deep long-term cuts (henceforth meaning by 2050) as part of global action to avoid dangerous climate change. Then we discuss key lobbying arguments, some tantamount to exhortation to free-riding, which may have been influential in limiting the White Paper targets to 5-15%. Finally, we briefly consider environmental lobbyists' arguments in arguing that the CPRS nullifies voluntary abatement efforts.

3.1 Short- and long-term considerations for the 2020 target

A commonly discussed upper limit for the global carbon concentration in order to avoid dangerous climate change has been 450 ppm CO₂-e (IPCC 2007), though many reputable scientists now call for stabilisation targets well below this limit (Hansen et al 2008). But deriving a national emissions target from a global concentration target is also conditional on the degree of global cooperation envisaged, and on Australia's commitment to be part of that cooperation. After modelling both the global emissions cut physically required, and the different cuts that could reasonably be expected from developing and developed countries, the Garnaut Review made a strong case for the conditional 25% target already noted. The case appealed mainly to Australia's short-term, reciprocal, self-interest: "if we are not prepared to pay our fair share in the cost, then we cannot expect other countries to do so". Garnaut (2009) stressed that the "fair share" argument certainly had diplomatic traction, and rejected the common lobbyist view that Australia has no influence:

"That position is ignorant of the realities of Australian diplomacy. ... I know from close interaction with [policymakers in Indonesia, Papua New Guinea and China], for a start, that what we say, so long as it is consistent with what we do, can have a significant influence on the outcome."

The Review made no reference to any moral implication of Australia having the highest emissions per person of any country in UNFCCC Annex 1 (CAIT 2009). However, per-person arguments were used to publicise the 25% target as a cut of 40% in per-person emissions, by assuming that Australia's population will grow by 25% during 2000-2020, and that emission entitlements should depend on population, among other factors.

We also support a second, rather neglected argument that even if Australia's policy had no diplomatic influence, then in terms of its long-term self-interest, there is also a case for stronger Australian targets for 2020 than in the White Paper, whatever the world agrees in the short term: that is, both 5% and 15% targets should be stronger. Given mounting scientific evidence, deep global cuts, like the 90% or 80% by 2050 that Garnaut found to be required by a 450 ppm or 550 ppm CO₂-e target – and the Government's White Paper launch expressed continued willingness to support global efforts to achieve 450 ppm CO₂-e (Rudd 2008, pp.27-29) – are surely inevitable. Australia will have to contribute significantly to such deep cuts: because it is rich and has very large per person

emissions, even its closest allies are unlikely to let it get away with minimal abatement. In other words, there is a strong chance that Australia will need to restructure its economy anyway to achieve deep cuts in the medium to long term.

So when the Government balances the costs of climate change mitigation against the emissions reductions it proposes to achieve in the short run, it needs to consider that the longer significant action is delayed, the *higher* is the economic cost of decarbonising the economy in the long run (and also the higher is the risk of international negotiations failing). The economic cost of abating by no more than 15% by 2020 while aiming for 80% or more by 2050 would be great, as supported by modelling, for example:

"There are advantages to early action if emission pricing expands gradually across the world. Economies that defer action face higher long-term costs, as more emission-intensive infrastructure is locked in place and global investment is redirected to early movers." (Australian Treasury 2008, p.89)

Given uncertainty about the science and what the international community may commit to and when, and the arguments above for a tighter target, it is also vital to remove any legal or economic obstacles to tightening the target later. The White Paper's CPRS design was such an obstacle, both directly by locking in a maximum 15% target for 2020, and indirectly through the proposed EITE assistance, as argued later.

3.2 Carbon lobby arguments for a lower, more rigid target

Turning to the effect of lobbying and the nature of lobbying arguments used, there is no evidence of whether or not the Government ever intended to accept Garnaut's 25% conditional target recommendation before choosing its 15% conditional target, so the net effect of lobbying on targets is unclear. However, public lobbying about the targets was vigorous (the Green Paper stimulated around 1000 submissions). Two issues which received much emphasis (as did carbon leakage, discussed later) were the supposed futility of Australian abatement, even if carbon leakage is solved, and the long-term unaffordability of cuts in the region of 25%. The first point, on effectiveness, is simply that if Australia cut emissions on its own by as large a number one cares to name, the risk of catastrophic climate change would not be appreciably affected because it produces only about 1.3% of global emissions (CAIT 2009). As a naive argument for Australia to free-ride on other countries' abatement efforts, or at least to wait for countries like India and China to show a lead, this is negated by our above discussion of the country's short and long-term self-interest, given the realities of climate diplomacy and the long term cost of delaying the restructuring of its economy. Nevertheless, this argument is regularly repeated by carbon lobbyists, and clearly weakens public support for any given level of cuts.

The second point, on cost, is almost always made qualitatively instead of quantitatively. Lobbyists point out that compared to a business-as-usual, 'reference' case of a 40% rise in emissions during 2000-2020 (as in Australian Treasury 2008, Table 1), a 25% cut during 2000-2020 is a 46% cut on business-as-usual, and hence 'obviously' unaffordable. Yet the Treasury's calculated difference in per-person GDP in 2020 between the 25% cut and reference scenarios is only about 2.2%! However, this does assume a cut achieved at

least overall national cost, which Section 4 shows to be far from true under the White Paper proposals. (Also, many argued that supposed job losses caused by the CPRS are a reason for delaying the Scheme's start until the global financial crisis starting in 2008 has passed. The net effect of delay on jobs is hard to judge, since uncertainty from delay could itself harm investment and other jobs, so we don't discuss this issue further.)

A further, if more subtle exaggeration of the costs comes from lobbyists suggesting that tighter targets will cause alarmingly higher carbon prices. Yet Australia will be a price-taker on the world emission permit market, assuming permit trade is allowed. So a tighter target will cause not extra domestic abatement, but extra permit imports at a constant price, and thus be cheaper for Australia, though by no means free.

Emissions-intensive sectors lobbied hard for the rigidity of White Paper's upper, 15% cut. They claimed that rigidity is needed to give investment certainty; for if instead a government keeps changing policy, this introduces 'sovereign risk' which deters investors. However, allowing market risk premiums to reflect real uncertainty, when governments are not changing policies randomly but rather in reaction to relevant scientific and economic information, enhances economic efficiency rather than detracting from it.

3.3 Voluntary action and the CPRS

A very different demonstration of lobby power is a concern, much publicised by environmental and consumer groups in later 2008 and early 2009, that the CPRS would make voluntary emissions abatement pointless. For example:

"...once the government has decided on an acceptable level of pollution, it will issue a corresponding number of pollution permits. If households use less energy and create less pollution, they will simply free up permits to allow other families or other industries to increase their own emissions." Denniss (2008, p.1)

This criticism seems over-played because it is too short-sighted. When setting the target, the Government already considered past voluntary emission cuts. These made the expected cost of achieving any given target lower than otherwise, and contributed to the Government's willingness to choose its target. Something similar could be true for future household reactions to the CPRS carbon price (though it is then impossible, and irrelevant, to know if this is "voluntary"), *if* there is flexibility in the target. So the criticism here is more about target rigidity than the fundamental nature of an ETS.

Despite this explanation, and the unimportance of voluntary action (in 2007 low-carbon electricity bought voluntarily in Australia was less than 1% of total use), these arguments gained wide currency in public debate and eroded public support for the whole CPRS: a testament to the collective power of the very few people originally raising the concern.

4. Assistance to emission-intensive, trade-exposed industries

4.1 The devilish dilemma of dealing with carbon leakage

In any trading economy, the uniform carbon price created by a simple ETS will not deliver *global* abatement at least cost to the domestic economy, because of carbon leakage to other, non-carbon-constrained economies where firms expand output and emissions in place of falling output and emissions from carbon-constrained domestic firms. Such leakage is worst from (carbon-)emission-intensive, trade-exposed (EITE) domestic sectors in the economy. So there is a *prima facie* case for assistance (such as output-related free permits, or many alternatives) to such EITE sectors. But because of unavoidable limitations on data, and the inevitable political force of collective action by the carbon lobby, policymakers face huge difficulties in devising good EITE assistance. The data limitations spring from the wide range of potentially EITE "activities" like aluminium smelting and liquid natural gas (LNG) production (activities are the proposed basis of EITE assistance, not the usual industrial sub-classifications used in aggregate in Table 1); and because firms may not know their abatement costs accurately, and often have a strong incentive to hide or distort what they do know. These data limitations make it almost impossible to avoid a devilish dilemma: *either* one can limit total EITE assistance so it remains of net benefit to the economy, but fails to prevent the inefficiency and injustice of carbon leakage from a few sectors; *or* one can prevent carbon leakage from any EITE sector, but only by giving harmfully excessive total EITE assistance, particularly as conditions change over time. Such harm arises in three separate ways:

- (a) the direct distortion from abatement incentives (the leakage-adjusted carbon price) in EITE sectors being too weak, so that too little abatement occurs there, while too much occurs in the *non*-carbon-intensive sectors of the economy;
- (b) two indirect effects from assistance spending leaving insufficient revenue for:
 - (i) efficiency-raising incentives needed to correct market failures in research and development of low-emissions technologies, and in energy-saving by households, especially low-income ones;
 - (ii) compensation to households for higher energy prices caused by carbon pricing.

Given the tendency for EITE assistance to be increased by strenuous collective action, and the harm just described, it is imperative for total EITE assistance to be well-justified by expert, impartial evidence on likely carbon leakage, but this has not happened in Australia, as we note later.

4.2 The Garnaut, Green Paper and White Paper proposals

Garnaut's preferred solution was (Garnaut 2008a, p.345):

"For every unit of production, eligible firms receive a credit [from the government] against their permit obligations equivalent to the expected uplift in world product prices that would eventuate if our trading competitors had policies similar to our own."

One can broadly divide abatement into *activity-based* opportunities, to reduce emissions-intensive production and consumption types, and *technology-based* opportunities, to install more efficient production technologies. The production-based credits proposed by

Garnaut discourage activity-based abatement, but that is their purpose, to avoid carbon leakage. However, if the eligibility criteria are too lax, so that many non-carbon-leaking firms get such credits, direct distortion (a) would indeed happen.

One can never know whether inevitable data limitations and lobbying pressures would have stopped the Garnaut proposal from avoiding the devilish dilemma, since the proposal was discarded by the Green Paper, and again by the White Paper on grounds of "significant limitations on the extent to which such a policy could be implemented" (Australian Government 2008b, p.12-6). Instead, the Government proposed output-related free permits to EITE sectors (henceforth just "EITE permits"). There is no space here to summarise both the hugely complex EITE proposals in the (524-page) Green Paper and the (820-page) White Paper, and then compare the two, so instead in **Box 1** we summarise just the White Paper proposal.

Box 1: Key elements of White Paper proposals for assistance to EITE activities

[page numbers refer to the White Paper]

If an activity has a both trade share (the ratio of the value of imports and exports to the value of domestic production) > 0.1 in any one of 2004-5, 2005-6, 2006-7 or 2007-8 [p.lxxv], and has an emissions intensity in one of two ranges below, then in year t (with $t = 0$ in 2010), entity i undertaking activity a gets:

$$A_t^{ia} = O_{t-1}^{ia} \times EI^{a+} \times k_t^a \text{ tCO2-e of free permits}$$

where

O_{t-1}^{ia} tonnes = output of activity a by entity i in year $t-1$;

EI^{a+} tCO2-e / tonne (of activity output)

= EI^a tCO2-e/tonne, the historic, direct *emissions-intensity baseline* for activity a
+ allocations in tCO2-e/tonne for indirect electricity emissions and upstream natural gas emissions for activity a ; and

either $k_t^a = 90\% / (1.013)^t$ [p.12-55]

if EI^a/RI^a tCO2e/\$m, the historic *emissions intensity* for activity a , with RI^a being the historic revenue or value-added in \$ per tonne of activity, is such that

$$EI^a/RI^a \geq 2000 \text{ tCO2e}/(\$m \text{ revenue}), \text{ or}$$

$$EI^a/RI^a \geq 6000 \text{ tCO2e}/(\$m \text{ value-added}) \text{ [p.12-58];}$$

or $k_t^a = 60\% / (1.013)^t$ [p.12-55]

if EI^a/RI^a tCO2e/\$m is such that

$$1000 \leq EI^a/RI^a \leq 2000 \text{ tCO2e}/(\$m \text{ revenue}), \text{ or}$$

$$3000 \leq EI^a/RI^a \leq 6000 \text{ tCO2e}/(\$m \text{ value-added}) \text{ [p.12-58].}$$

Activities which are formally assessed as eligible for EITE assistance will be listed publicly in the Scheme regulations. Two likely examples in the 90% category are aluminium smelting and cement clinker production, and two likely examples in the 60% category are alumina refining and liquid natural gas (LNG) production. [p.12-45]

Five years' notice will be provided of any modifications to the EITE assistance program, unless required for compliance with Australia's international trade obligations. [p.lxxix]

By contrast, the Green Paper proposals were neatly summarised in the White Paper as:

"Assistance would be calibrated over time such that the share of assistance provided to the EITE sector does not increase significantly over time. Assistance would be withdrawn in the event of acceptable international action. ...Overall, allocations to EITE activities could be up to around 30 per cent including agriculture." (Australian Government 2008b, p.B-11)

In addition, the Green Paper had no value-added options for the emissions-intensity tests, and a lower limit of 1500 tCO₂e/(\$m revenue) to qualify for 60% free permits.

Though the Green Paper and the Garnaut Review proposed different mechanisms, the latter also (p.xxxii) judged that EITE assistance should be worth significantly less than 30% of total permit value, and in addition would fall automatically over time as other countries adopted comprehensive or sectoral carbon pricing. The big differences occurred from the Green to the White Paper, with the three most important being:

- the Green Paper 30% limit on total EITE permits, albeit approximate and with no mechanism for enforcing this limit, disappeared in the White Paper;
- the proposal to withdraw EITE assistance "in the event of acceptable international action" (which would remove the cause of carbon leakage) also disappeared, to be replaced only with a weak, efficiency-related withdrawal of 1.3% (0.013) per year, irrespective of international action, and a probable 5 years notice of any faster withdrawal;
- the minimum emissions intensity needed to qualify for 60% free permits dropped from 1500 to 1000 tCO₂e/(\$m revenue), and new value-added options appeared.

The last difference increases the eligibility to EITE permits, while the first two provide no means of avoiding excessive total assistance. Two less obvious domestic features add to such concerns:

- (a) The less than 100% rates of initial assistance (k_t^a), and the 1.3%/yr fall in these rates, appear to maintain some activity-based abatement incentives. However, technology-based abatement may cut actual emission intensities in such sectors (EI_t^{ia} in a consistent notation) far enough below the historic activity average (EI^a in Box 1) to leave some recipients with net gains, not losses. So at the extreme, EITE assistance could provide a perverse output *subsidy* to some of the most emissions-intensive goods, an example of the "potential for abuse in practice" politely warned against by Fischer and Fox (2007, p.597).
- (b) The EI^a baselines are subject to asymmetric information. The government will need to get these data from the very sectors that will gain from them being high. Given the highly organised nature of most such sectors, and the Government's not requiring all firms in a given activity to report their EI^a 's, the baselines the Government agrees to will probably be inflated: the logic of collective action in operation yet again.

Two less obvious international features of the proposed EITE assistance also deserve a mention:

- (c) The absolute nature of the package, lacking both a cap on total free permits and any means of making a cap respond to international policy developments, will make it

harder to tighten targets in the period to 2020. As shown below, the tighter the target is, the higher is the proportion of EITE permits, and the greater is the burden on the non-carbon-intensive sectors.

- (d) The broad range of EITE assistance is likely to be seen as protectionist by other countries, and thus fuel the use of emission reduction measures for trade protectionism worldwide. Country-specific measures to curb leakage, such as the Australian free permit proposal, and the unilateral border tax adjustment proposals floated in Europe and America, will make it difficult for the world to lower EITE assistance over time (Weber and Peters 2009). Such measures effectively provide emissions safe-havens for the foreseeable future, even in countries that otherwise do have significant measures to curb emissions domestically. This would not be in Australia's national interest.

4.3 What is the evidence for carbon leakage?

Given the harmful effects of excessive EITE assistance (shielding) just noted, and the alarming quantities of assistance discussed below, one would hope that the Government can justify such large EITE permit totals by pointing to correspondingly large amounts of likely carbon leakage, but the available evidence suggests otherwise. Treasury modelling suggested fears of carbon leakage are overplayed (Australian Treasury 2008, p.169), even though "both GTEM and MMRF [the models used in this study] are likely to overestimate carbon leakage and the relocation of production activities" (p.170). A further sign that 'shielding' EITE activities from the carbon price is unlikely to yield long-term net economy-wide benefits is that (p.169):

"The very emissions-intensive, non-ferrous metal sector (aluminium) benefits most from shielding ... However, once the sector is no longer shielded, as the rest of the world joins the scheme, aluminium sector output falls."

So EITE aluminium protection is expected to exceed that from the appropriate, leakage-related price 'uplift' (using Garnaut's terminology); that is, aluminium is over-protected under the Treasury shielding scenario. And the Business Council of Australia (BCA 2008) provided rare evidence that even investments in highly affected industries may be quite resistant to relocating overseas. As pointed out by MMA (2008, p.15), "in the example provided by the BCA, no leakage would occur at carbon prices below \$28 per tonne", despite a number of unrealistic assumptions made by BCA to support the case for increased and broadened assistance to industry. However, international modelling studies of carbon leakage are inconsistent (for example, Babiker 2005 found significant leakage, while Barker et al. 2007 found little), and Oikonomou et al. (2006) understandably called for more research on relocation decisions.

4.4 The unaffordable quantities of proposed EITE assistance

The Australian Government's proposals for EITE assistance fly in the face of the MMA and Treasury modelling evidence that significant carbon leakage is unlikely, and certainly unproven. Various criticisms were made that the Green Paper EITE proposals were excessive, for example (MMA 2008, p.13):

"Were 30% of permits allocated freely to EITE activities as proposed in the Green Paper, then assuming a carbon price of \$20 per tonne, the assistance could be worth around \$3 billion per year. At \$40 per tonne – the figure used in the BCA report – this would increase to around \$6 billion per year; more than half the total Australian Government spending on infrastructure, transport and energy or about a third of the total spending on education."

Under the more generous White Paper proposals in Box 1, this assistance is much higher, as shown in **Table 2**. This combines basic sectoral emission data, the estimates of the share of EITE *free permits* in 2010 and 2020 given in the White Paper, and one extra assumption not revealed there. This is the average assistance rate to EITE sectors, with EITE *emissions* being free permits divided by this rate. We assume this rate starts halfway between the 60% and 90% rates, and stays constant over the next 10 years, as actual EITE emission intensities (EI_t^{ia}) decline at the same 1.3%/yr as the assistance rates (k_t^a). (If the EI_t^{ia} decline faster, this makes the Table's calculations less bad in terms of efficiency, but worse in terms of equity.)

Table 2. White Paper scenarios for total emissions, EITE free permits and emissions, and non-EITE emissions, 2000-2020

Year (and 2000-2020 national abatement target)	2000	2010	2020 (-5%)	2020 (-15%)	2020 (-25%)
Total emissions in MtCO ₂ -e	550	594	523	468	413
Emissions covered by permits*	-	586	515	461	407
EITE free permits (share)**	-	35%	45%	50%	57%
EITE free permits (level)	-	205	232	232	232
EITE emissions (level)***	-	273	309	309	309
EITE emissions (share)	-	46%	59%	66%	75%
EITE emissions 2010-20 increase (- = abatement)	-	-	13%	13%	13%
Covered non-EITE emissions	-	312	206	152	98
Non-EITE emissions 2010-20 increase (- = abatement)	-	-	-34%	-51%	-69%
* To enable comparisons with 2020, numbers for 2000 and 2010 are as if agriculture was included in CPRS, so that coverage is 75% + 23.6%, agriculture's emission share in 2006					
**35% for 2010 and 45% for 2020 from White Paper p.xxxvi					
***This row and all rows below assume average EITE assistance rate of 75%					

Table 2 shows that because total assistance is both uncapped and probably unresponsive to any change in target, then by the White Paper's own assumption that 45% of permits go as EITE assistance in 2020, the *non*-EITE economy has to cut its emissions over 2010-2020 by 34%, 51% and 69% respectively to meet target cuts of 5%, 15% or 25%, while the EITE economy increases its emissions by 13%! This imbalance of relative abatement, which is worse with the larger 2020 cuts that we argued in Section 3 would (if achieved at least cost) be in Australia's interest, is manifestly unfair. It will also be hugely inefficient, even though a good deal of non-EITE "cuts" would be extra permit imports at an unchanged world price rather than actual abatement, to an extent that calls into question the Government's sincerity in setting even a 5% target.

The harm caused by excessive EITE assistance would not stop there, for there was also the problem that giving away 45% of permits would leave the Government far too little permit revenue for its other plans. In Garnaut's in-person words (2008b):

"...the revenue pool from sale of permits is exhausted at 45 per cent [EITE permits], by the household compensation arrangements proposed in the White Paper. Already there is nothing left for increases in payments to households as the carbon price rises over time. Little is left for incentives to research, develop and commercialise low-emissions technologies, which are essential components of the domestic and international mitigation efforts. Nothing is left for systematic support for overcoming information and contractual market failures inhibiting energy-saving in low-income households."

4.5 The role of collective action in changing the EITE assistance

The government's defence of the striking increase in generosity in EITE assistance from Green to White Paper was limp:

"The Government has balanced the concern of the emissions-intensive trade-exposed sector with the fact that more assistance for these sectors reduces the Government's capacity to assist households and other businesses. Accordingly the rate of assistance per unit of output will be gradually reduced over time." (p.xxxvi)

Moreover, support for the continued *growth* of EITEs was expressed prominently in the White Paper foreword by senior government ministers. So one naturally suspects the influence of the carbon lobby at work, but as noted at the outset, this is hard to prove. Nevertheless, the lobbying by potential EITE firms was highly visible and relentless from the moment the Green Paper was published, as pungently described by a leading economic journalist:

"Last week's disillusioning plea for special treatment by the Business Council was just the latest in a long line of business lobby group responses to the Green Paper on a carbon pollution reduction scheme, all of them predicting death and destruction unless they were let off the hook." (Gittins 2008, August).

The general starting point of lobbying arguments was neatly summarised by Garnaut (2008a, p.344) as a set of false but often-implied Australian beliefs that no climate policy progress is happening or will happen abroad, and nothing done by Australia makes any difference to what happens abroad. Garnaut's personal view, upon publication of the White Paper, was that the force of collective action applied to the CPRS debate had been

"...the most pervasive vested-interest pressure on the policy process since the [1929-32] Scullin Government and the most expensive, elaborate and sophisticated lobbying pressure on the policy process ever." (Garnaut 2008b)

The changes between the Green and White Papers were clearly of enormous benefit to such firms, so it is hard to avoid the conclusion that one led to the other. Lobbying by the LNG industry to lower the threshold in Box 1 to 1000 tCO₂-e/\$m so it would qualify for 60% free permits was particularly notable (Woodside Energy 2008). So was the position of many commentators in early 2009 that any job losses in emissions-intensive industries (even if not trade-exposed ones), any move away from the conventional "quarry vision"

of Australia's future, would be considered a failure of the ETS (Pearse 2009). This amounted to a basic refusal to accept that the lowest-cost abatement opportunities lie in such industries, and a complete failure to keep any focus on the cost of climate policy to the whole economy.

5. The need for neutral institutions to assess designs and data

We have now seen, for the case of Australia, the amount of EITE assistance at stake and its potential to significantly increase the cost of achieving any particular target, as well as the lack of supporting evidence for carbon leakage. In any country these are likely to be common features (Sijm et al. 2006), so the scope for distortionary collective action clearly needs to be limited by having a neutral body, with enough economic expertise, sift through industry claims and the subtle and intertwined effects of EITE assistance features. This applies both to the overall design of assistance, and to the detailed data needed to make it operational. Such an assessment will unavoidably be contestable, as it relies on a counterfactual analysis. It is thus crucial to provide the soundest possible institutional base for assessment, and minimise the scope for influence by special interests.

The obvious body in Australia would be the Productivity Commission, which could review the whole EITE assistance scheme and report within 1-2 years, so a revised assistance scheme could be implemented around 2015, assuming the 5-year notice period for policy change remains part of the CPRS. However, giving the authority of assessment to an international body (perhaps the International Energy Agency given its expertise and independence) may be the more viable solution. The analysis is international by nature in any case, and a single global assessment may help to coordinate EITE assistance across countries. This in turn could help stem pressures in many countries to use EITE assistance as disguised protectionism.

We also contend that more advance government publicity is needed to make efficient climate policy possible. Public opinion needs to understand that letting carbon pricing cut emissions where it is cheapest inevitably means bigger cuts in carbon-intensive sectors than elsewhere. To make this acceptable, the public also needs to understand more about the economy's structure of output and jobs. In particular, the small proportion of jobs in carbon-intensive sectors shown in Table 1 needs to be well-known, so that unquantified or exaggerated claims about extensive job losses can be seen in their proper context. Finally, to enable broader public scrutiny, governments should avoid pandering to sectoral interests so as to greatly reduce the length and complexity of their proposals.

6. Conclusions

The evolution of Australian climate policy from May 2007 to April 2009 provides a classic example of the power of collective action to distort national policy to serve sectoral self-interests. We have made a strong case, albeit with no behind-the-scenes evidence, that the Australian carbon lobby managed to emasculate the sound economic

principles, for cutting national carbon emissions at something approaching least overall cost, that originally underlay the policy design proposals in the Green and White papers. The resulting Carbon Pollution Reduction Scheme had weak targets, and assistance to emission-intensive trade-exposed (EITE) sectors so excessive as to greatly increase both total costs. Even a 5% cut of total Australian emissions during 2000-2020 would require non-EITE emissions to fall by 34% in the decade to 2020 while EITE emissions rise by 13%, a grossly inefficient imbalance which cast doubts on the Government's sincerity in proposing even this weakest cut.

To achieve such imbalance, the carbon lobby wrongly though effectively argued that carbon leakage under unilateral carbon would be severe, and cause severe job cuts. To reduce such special-interest influence, we suggest using national and/or international institutions to apply neutral economic expertise to both the overall design of and data collection for EITE assistance schemes. We also suggest that good public debate requires governments to publicise more the sectoral structure of their economies, and to make much simpler proposals.

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