

Reflections on the Economics of Australia's Carbon Price

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Background to Australian Carbon Pricing

This chapter introduces some issues in the economics of climate change that became important in my two policy-oriented Reviews for successive Australian Prime Ministers, Kevin Rudd (Garnaut, 2008) and Julia Gillard (Garnaut, 2011).

The chapter begins with a brief description of the recent history of carbon pricing policy in Australia, placing my two Climate Change Reviews into perspective. It then touches on a number of issues that had to be considered in the Climate Change Reviews, relating to how we should calculate the amount of mitigation we should undertake so as to equate the marginal costs and benefits of reducing greenhouse gas emissions, and how we should go about achieving the desired amount of abatement. We have to come to grips with many complexities in internalising the external costs of greenhouse gas emissions, particularly related to the realities that we are dealing with a global and not a national externality, that it is the stock of emissions accumulated in the atmosphere and not the flow in any year that determines the extent of the damage, and that the costs of mitigation are felt much earlier than the benefits. The chapter then takes a closer look at two issues that required attention: choice of discount rates in comparing the respective value of costs at one time with benefits at another; and assessment of whether and the extent to which established emissions-intensive industries should be compensated for any private costs of introduction of a mitigation regime.

Background to the Reviews

I have been thinking about climate change more than any other economic issue since April 2007, when Kevin Rudd and Anna Bligh asked me to do the first of my Climate Change Reviews. Bligh was the Treasurer from Queensland. Rudd was the leader of the Federal Opposition.

Bligh had been asked to make arrangements for the Review on behalf of all of the States and Territories. The States and Territories had formed the view that national action should be taken on climate change and that in the absence of leadership from the Commonwealth Government that they should develop a national policy themselves. They had commenced work on a states-based National Emissions Trading System (NETS). They had also decided that there should be an Australian study of the impacts of climate change and the costs and benefits of moderating that impact, leading to recommendations for Australian policy. They decided to commission such a study, invited the Commonwealth to join it, and gave the Queensland Treasurer—soon to be Premier—the job of asking me to undertake the study.

The Commonwealth Government at the time declined the offer to participate in the study, but the Leader of the Opposition said that he would have the Commonwealth join the States and Territories in support of the Climate Change Review if he became Prime Minister at the 2007 General Election. So the Leader of the Opposition joined the Treasurer in asking me to do the work.

My commission overlapped the work on the NETS but went well beyond it. The NETS focussed on the structure of an emissions trading scheme, and not its parameters, rationale, objectives or wider policy context.

Many technical issues were worked through constructively in the NETS. The Premiers and Chief Ministers decided that the NETS analysis and conclusions should become a submission to the Climate Change Review, without endorsement by the Governments which had sponsored it.

The Climate Change Review became a cooperative Commonwealth-State project when the Rudd government was elected in late 2007. It was well resourced and genuinely independent. At no stage did Federal or State governments seek to direct or to lead me on content.

My Climate Change Review also overlapped a Commonwealth initiative in response to the NETS activity, states' discussion of a climate change review and community opinion. In December 2006 the Howard Commonwealth Government set up a committee led by the Secretary of the Department of Prime Minister and Cabinet, Peter Shergold, to advise on the structure of an emissions trading scheme. Like the NETS, this work focussed on the mechanics of a scheme and not its objectives or parameters.

The members of the Shergold Committee were the heads of a number of Commonwealth Departments and a larger number of chief executives of major companies. All except one of the chief executives were from major emissions-intensive industries (coal, aluminium, diversified mining, civil aviation, steel). The one exception was the chief executive of one of the big four banks. The Shergold Committee reported to the Commonwealth government soon after my work had been commissioned, on May 31, 2007 (Prime Ministerial Task Group on Emissions Trading, 2007).

The Shergold Committee recommendations were strongly influenced by the NETS. The NETS and Shergold recommendations on the structure of an emissions trading scheme had a number of sound design features that were carried through my own Climate Change Review recommendations into the 2011 legislation. In particular, "compensation" to emissions-intensive industries was generally related to base year and not current emissions, which had the effect of retaining incentives for reducing emissions. An exception was the allocation of additional permits where new investment augmented productive capacity.

I had had a little contact with the climate change issue before 2007. Most importantly, I was for seven years a Director including four years as Chairman of the International Food Policy Research Institute (IFPRI) based in Washington DC. IFPRI undertakes research in economics and the other social sciences all over the world on rural development with a special focus on food security and its relationship to the alleviation of poverty and hunger. When social scientists started to integrate the knowledge from the reputed global climate models with what they knew about agriculture, they were troubled by risks to food production in some populous poor regions of the world, particularly in Africa and South Asia. That was my first substantial exposure to the results of solid research on climate change.

So while I had some background in climate change, the States and Territories' commission prompted my first deep immersion in the issue.

The Rudd Government had undertaken to have an emissions trading scheme operating by mid-2010, so that practical work on a scheme within a new Department of Climate Change began before the completion of my Review. The Commonwealth Government issued a Green Paper with draft proposals on design in July 2008, a White Paper on proposed policy in December, and the proposed legislation went through two iterations before it had been passed by the House of Representatives and introduced into the Senate in December 2009.

I presented the Garnaut Climate Change Review to Prime Minister Kevin Rudd on 30 September 2008—the Australian morning after the New York day that signalled the onset of the acute phase of the developed world's financial crisis.

After a false start, the targets for emissions reduction finally adopted as policy and embodied in legislation passed by the House of Representatives in 2009 were as proposed in my Review: an unconditional commitment to reduce emissions by 5 percent on 2000 levels by 2020; and conditional commitments to reduce emissions by up to a 25 percent reduction depending on what other countries were doing. The structure of the emissions trading scheme that became policy followed my recommendations, which had much in common with the NETS/Shergold proposals. I had recommended as a practical matter that the emissions trading scheme commence with a fixed price for a limited period, and this was taken up in the legislation.

The arrangements for compensation of emissions-intensive industries in the 2009 legislation represented a compromise between NETS/Shergold and my own recommendations, departing on the side of increased payments to industry from the principles that I had defined. Proposals for compensating households in the 2009 legislation followed the general directions that I had proposed but the resources available for the purpose were diminished by the larger payments proposed for emissions-intensive industries. The large payments to emissions-intensive industries did not allow the implementation of my recommendations on support for research, development and commercialisation of low-emissions activities.

All of that seemed to become irrelevant except as history after dramatic events within the Opposition parties in Canberra in December meant that the legislation was rejected on the two occasions that it was presented to the Senate. The official Opposition led by Malcolm Turnbull had agreed to support in the Senate the emissions trading scheme legislation for which the Government had received the support of the House of Representatives. By a single vote, Tony Abbott defeated Malcolm Turnbull in a contest for the leadership of the Liberal Party and therefore of the Opposition in December 2009. All of a sudden the legislation was left high and dry without a Senate majority. After two defeats in the Senate, the government decided not to pursue passage of the legislation.

The prospect of an emissions trading system improved with the election of a hung Federal Parliament in the middle of 2010. The independents, Tony Windsor and Rob Oakeshott, who were critical to the balance of power, spoke to both Nicholas Stern and me in the process of

working out who they would support in government. They set as conditions for support of a Government the re-examination of a carbon price, the updating of my 2008 Review, and the commissioning from the Productivity Commission of a paper on international action on reduction of greenhouse gas emissions.

The Gillard minority government was formed, and I was asked to update the Review. I accepted the new commission after the disappointing outcome in 2010 because the unique political circumstances seemed to have created an opportunity for a good policy outcome on this second attempt.

The Australian Greens Party, supporters of the minority government, suggested and the Government and Independents accepted the formation of a Multi-Party Parliamentary Committee on Climate Change with the status of a Cabinet Committee. The Committee was to be chaired by the Prime Minister and to have four external experts including myself as full participants.

The Multi-Party Committee met through the first half of 2011, until agreement had been reached by the political members of the Multi-Party Committee in July.

The Committee received and discussed each of the eight “update papers” and several supplementary notes that I prepared through the first five months of 2011, along the way to presentation of the Garnaut Climate Change Review 2011 to the Committee and the Prime Minister on May 31 (Garnaut, 2011; www.garnautreview.org.au). The Review Update followed the main lines of the original Review. It was differentiated by its presentation of more detail in the recommendations on the use of permit sale revenue to finance reductions of income tax for people on low and medium incomes; and by greater detail in recommendations on governance arrangement for the adjustment of emissions reduction targets and the independent review of support for trade-exposed emissions-intensive over time.

The package of legislation passed into law in the second half of 2011 introduced an emissions trading system with the regulatory authority selling permits at a fixed price for three years, before freeing the price in the market. Subsequently the Government reached agreement with the European Union to accept permits from the European Emissions Trading Scheme to acquit Australian responsibilities from the time of the freeing of the Australian price in 2015, that would cause the Australian price converge with the European price. The 2011 arrangements were more disciplined than the 2009 legislation in allocating free permits to established emissions-intensive activities, which allowed a higher proportion of the scarcity value of the emissions permits to be returned to households, most notably through a lifting of the tax-free threshold for income tax. The 2011 legislation also provided for governance arrangements that were more likely to insulate parameters of the scheme in future from vagaries of the political cycle, notably through provision for assistance for trade-exposed industries to be reviewed by the Productivity Commission from 2015, and for an independent Climate Change Authority to play a structured role in recommending targets for emissions reductions and other important elements of the mitigation policy regime.

Internalising an Externality

At one level, the policy problem is a simple one: to internalise the external cost of greenhouse gas emissions. This could be achieved through regulation, or by charging for emissions at a price that reflects the external costs of emissions.

On closer examination, this is a problem of multifarious complexity.

The first complication is that the externality is global. The global nature of the climate change problem makes it different from most other environmental externalities that have been the subject of major corrective policy action. Other environmental problems are mostly of the local kind, for example relating to a region, a river basin or a city. There are exceptions, including the (so far) successful global action to protect the ozone layer of the atmosphere. However, none of the exceptions involve corrective action on anything like the scale required for effective mitigation of climate change.

Policy is made in separate sovereign states, but internalising the externality within one state will not solve the problem for that country or for any other country. Given that there are costs of mitigation in each country (and as with any policy innovation, fears that the costs will be higher than rational analysis would suggest), there is a challenge to allocate mitigation responsibilities across countries in ways that leave the decision-makers of each one of them calculating that the benefits of mitigation exceed the costs from a national point of view. There is also a challenge to overcome the free rider problem of international collective action. I presented my latest thoughts on this matter in the 2012 Colin Clark Lecture (Garnaut, 2013a), and will not go over that ground again in this chapter.

The second complication is that the external costs of greenhouse gas emissions accumulate over time; it is the size of the stock and not the annual flow of emissions that determines the extent of damage.

The atmosphere's capacity safely to absorb greenhouse gases can be seen as a finite resource that is depleted by the emission of greenhouse gases at any time. Conceptualising the problem in this way allows us to draw on the economics of optimal depletion of a finite resource (Hotelling, 1931; Garnaut and Clunies Ross, 1983). This body of analysis tells us that the market will generate a price for the resource in situ—or a price on carbon emissions—that rises at an appropriate interest rate.

The literature on emissions pricing generally accepts that the price should rise over time, although there is confusion about the analytic basis of the rising price. It is sometimes argued that uncertainty about the appropriate price justifies an easy start, so that the losses from a false start are low. Rigorous analysis does not support this argument: the possibility that the costs of climate change may turn out to be much lower or much higher than the mean of current expectations may justify a higher starting price (where normal risk aversion causes value to be placed on insurance against the worst cases), but never a lower starting point.

Separately, Nordhaus (2008) and others have suggested that the optimal price should rise over time because the marginal cost of damage is rising with increasing accumulations of greenhouse gases in the atmosphere. That, too, is an erroneous explanation for a rising price. An extra tonne of carbon emissions now will actually do no less damage; it may do more damage through adding to the stock of emissions earlier rather than later, because its damaging effects will be felt over a longer period. (The analysis may be different for some of the short-lived and high-impact greenhouse gases, but they are not the main story).

The price should rise simply because there is an economic opportunity cost from delaying the utilisation of scarce capacity to emit greenhouse gases, in a way that is analogous to the rising value of a tonne of an economically valuable mineral resource that can be utilised now or later.

The third complication is that the costs of acting to correct the externality come early and the benefits late, requiring unusual comparisons of welfare of people living at different times.

The interaction of the first, second and third complications compounds the difficulty of the policy task. Take the interaction of the first and third. Different societies at different levels of development will value incomes at different times in vastly different ways. Developing countries looking forward to strong growth in real incomes per person can be expected to value current relative to future income much more highly than developed countries with weaker prospects for growth in incomes. This leads them with good reason to discount future incomes at a higher rate. Should we apply the lower discount rate applicable to developed or the higher discount rates applicable to developing economies? And what if a specified amount of mitigation is warranted at the lower and not at the higher discount rate?

The reality recognised in my Review is that you cannot separate the allocation of the mitigation responsibility across countries from the assessment of whether and how much reduction of greenhouse gas emissions is warranted. The allocation of responsibility must be acceptable for all substantial economies, whose participation is necessary for a successful global mitigation effort. If developing countries are offered a lighter load of mitigation responsibilities, they are more likely to reach positive conclusions about participation in a global mitigation effort despite their higher discount rates. The allocation of responsibilities across countries needs to be mindful of this reality, and my Review's proposals sought to take it into account. After allocation of mitigation responsibilities across countries (presumed in each country until such time as there is an international understanding on the matter), each country must make its own assessment of whether and how much reduction of greenhouse gas emissions is justified, applying a discount rate appropriate to its own circumstances. The global mitigation effort is the sum of the national efforts.

The second of my two Climate Change Reviews took further the development of the approach to allocating emissions reduction responsibilities across countries that had been set out in the first. My aim was to define a system that had good prospects of being judged to be acceptable by all substantial economies. The Review's proposals for international allocation of effort began a conversation on this matter that continues today.

A methodology was developed that was appropriate for assessment of the costs and benefits of mitigation in one country in a many-country world. The first Review's quantitative work was directed at applying that methodology to one country: Australia.

The optimal carbon price—the price that equates the marginal costs and benefits of mitigation now and over time—can be defined in one of two ways: through the operation of a market in emissions entitlements, or through a modelling exercise that simulates the operation of the market.

In the case of generation of a price through the operation of a market, the optimal extent of mitigation would be agreed amongst countries as a result of political discussions informed by analysis. The amount of greenhouse gases that could be emitted over time consistently with the agreed extent of mitigation would be calculated and entitlements to emit greenhouse gases allocated amongst countries. The price would emerge through international trade amongst countries and over time. In the case of calculation of an optimal price through modelling costs and benefits of mitigation, price would be derived through a process that simulated the operations of a market.

The international system of climate change mitigation that has emerged in recent years can be described as one of concerted unilateral mitigation. It is not yet a system that can be relied upon to support an optimal global mitigation effort, although it may evolve into such a system. Concerted unilateral mitigation depends on each country defining its own contribution to the global mitigation effort in terms of an objectively determined level of emissions and then choosing its own policies and instruments for constraining emissions.

We all know from standard economics that if you can value an externality, and tax it at a rate that internalises the external costs, then you will modify private agents' behaviour in ways that cause them to take decisions that are consistent with the public interest. With a country required to constrain its emissions to a specified extent, a general price on emissions equal to the external costs that they imposed on others would be more efficient than large numbers of regulatory interventions.

If it were decided that the correction of the externality should be achieved by imposing a price on emissions rather than through regulatory action, the price could be imposed in one of two ways.

The price could be applied as a tax, at a rate that is calculated to reduce greenhouse gases enough to reach the emissions target.

Or the price could be generated by trade in permits that were issued in numbers that would hold emissions within the target. Either a tax or an emissions trading system would serve; each has pluses and minuses, and an "on balance" choice needs to be made between them.

My Reviews' focus on the optimal extent of mitigation for one country differs from the global approach to optimisation adopted by Cline (1992), Nordhaus (1994, 2008) and Stern (2007). The setting of the decision making problem as one for a sovereign government in one country,

dealing with a part of an externality in a multi-country world, is at once more complex and more relevant to real-world decision-making than the attempts at optimisation for a single global community.

The price of carbon is not a measure of the cost of mitigation. Whether generated by a tax or by requirements to acquit emissions permits, the scarcity value of the permits does not disappear from the economy. In the first instance it is collected by Government for public revenues and used to reduce other taxes or to expand public expenditure, or else it is given away to private entities in tax concessions or exemptions or concessional or free allocation of permits. Nordhaus (1994, 2008) demonstrated that pricing carbon is a relatively efficient form of taxation. For example, the deadweight costs of collecting some revenue in this way are lower than the costs of income taxation at the rates currently applied in the United States, so some price on carbon with the revenue collected and used to reduce income taxation would reduce the costs of funding Government.

The cost of mitigation is the value of the economic resources required to produce goods and services and ultimately human utility by less rather than more emissions-intensive means, plus the net deadweight cost (which may be negative) of raising taxation through imposition of carbon pricing rather than through other means.

The Discount Rate

The appropriate discount rate for comparing future and current values is a critical variable in climate change policy-making. Nordhaus (2008) establishes that differences in the discount rate account for most of the large divergence between his own and Stern's conclusions about the urgency of and optimal ambition on mitigation (Stern, 2007).

This seems a more complex question than it turns out to be. One source of apparent complexity is that we need to apply three separate interest rates to different aspects of the analysis. One is the rate of return on business investment, which affects the future growth in incomes derived from current investments. One is the rate at which the carbon price rises over time. The third is the rate at which future incomes are brought to account in comparisons with current costs in emissions in assessing whether and the extent to which mitigation is justified.

What is the right discount rate?

It depends on the purpose. The purpose that is most important in determining the appropriate ambition in mitigation and the appropriate carbon price is the rate at which we discount future income in assessment of utility.

The Hotelling rate—the rate at which the value of resources in the ground or entitlements to emit greenhouse gases increases—is determined in the market. I suggested that the markets would settle on a rate of around 4 percent in real terms, representing the interest rate on riskless (sound sovereign) investment plus a risk premium of 2 percent. This was incorporated into my own and then into the joint Garnaut-Treasury modelling of alternative policies. If one were applying a normative rather than positive Hotelling rate, with a view to maximising the

contribution of mitigation to utility, one might make it lower, generating a higher starting price and a lower rate of increase over time. This is a matter that warrants further discussion.

The rate of return on business investment is embodied in the economic models. It is appropriate to use average realised rates of return on past investment, taking care to adding back the negative returns the failures which disappear from the lists of surviving investments. The models have not varied widely in the implicit rates of return applied for this purpose. The models used in my own and the Treasury quantitative analysis allow a real rate of return of 4 percent on business investment—a rate derived from historical experience. This covers the point made by Nordhaus (1994, 2008), when they draw attention to the opportunity cost of income foregone in mitigation. The Nordhaus criticism of normative rates of return used by Stern (2007) confuses the return on business investment with the discount rate used to convert future into current utility.

The third interest rate is the basis for comparing the utility at a future time and at present. There is a strong case for applying a normative rate in comparing utility for two different states of nature, one of which embodies exposure to unmitigated climate change, and one of which reflects early investment in mitigation. But to the extent that there is any case for applying a positive or market rate, it is the rate of return on riskless investment that is relevant.

What normative discount rate should be applied? It is hard to see the justification for valuing the welfare of future generations less highly than of the currently living generation simply because they are living in the future. Quiggin (2012) in a paper based on a submission to the 2008 Review illustrated the point by noting that most people care at least as much about their children's welfare as their own. It is reasonable to presume that the children will value in a similar way the welfare of their own children, and so on for all future generations.

The normative rate will take into account the lower utility of a given amount of income in future if there is strong growth in average incomes over time. It will also make some small allowance for the possibility of extinction of the species independently of climate change considerations. The former factor will be more important in developing than developed countries.

Australia in early 2013 is possibly a special case: with current incomes inflated temporarily by high terms of trade and high investment in the resources boom, and with high vulnerability to climate change, one cannot be sure that future incomes will be significantly higher than current incomes (Garnaut, 2013b). The positive value that people place on environmental amenity and on heritage that is threatened by climate change, and the likelihood that these values are not highly substitutable for income, add to caution about judgements that utility of Australians will necessarily be higher in the long term future than at present.

But even if it is assumed that the growth in average incomes will continue at something like the average rates of the era of modern economic growth, there are a number of additional analytic steps on the way to determining an appropriate normative discount rate. If we apply elasticities of utility with respect to income that are implicit in and derived from societies'

decisions on other matters involving income distribution (for example, acceptance of progressive income tax), the appropriate normative interest rate is low, probably no more than about one percent. Moderately higher values are suggested by other approaches that are discussed in the literature on the income elasticity of utility. The Review cautiously used a range of 1.35 to 2.65 percent. The top half of this range implies that exceptionally high value is placed on distributional equity—values that would suggest much more progressive income and social security systems and much larger commitments to international development assistance than are applied in any country (Garnaut, 2008, pp. 18-21).

The case for applying a normative discount rate in assessing the utility of widely different states of nature is strong. Yet there has been a cacophony of opinion favouring the use of rates corresponding to market returns. The argument is that market rates embody people's actual valuation of current relative to future income, whether or not those valuations are defensible on ethical grounds or even consistent with most people's articulation of their own ethical principles.

If one were to accept that approach, the appropriate market rate would seem to be that applicable to riskless investment. The debt instruments that are closest to being riskless are sovereign bonds in countries with strong records for fiscal reliability. The sovereign bond rate in countries with sound records on debt servicing and strong financial conditions is closest approximation that we have to the rate at which private investors have been prepared to lend to low-risk borrowers. The long term average rate of return on United States Government long-dated bonds is about 2.1 percent; on Australian bonds about 2.2 percent. These rates fall within the range of normatively derived discount rates suggested in the Review. The real rate of interest on long sovereign bonds has actually been well below the historical average in recent times.

Nordhaus (2008) and other systematic studies of the economics of climate change that have applied discount rates applicable to typical returns on business investment or equity investment. Unsurprisingly, the results have led to less urgent and less ambitious mitigation recommendations than came from work using normative discount rates (Stern, 2007; Garnaut, 2008) or market rates for riskless investments (Garnaut, 2008). As I have already remarked, their approach confuses the rate of return on business investment foregone as a result of some resources being spent on mitigation, and the rate of return relevant to discounting human utility over time.

I remain comfortable with the approach of the Review (Garnaut, 2008) that is sketched in this chapter.

As I pointed out at the beginning of my update of the Climate Change Review in 2011, anything that happens in half a century's time and later doesn't matter much at all if future income is discounted at a rate corresponding to aspirations for equity returns. The temperature increases could lead to the extinction of our species in a century's time and still there would be no case for seeking to reduce greenhouse gas emissions. Most people would think that was an absurd result.

The Political Economy of a Rent-Seeking Society

The issue that generated most noise and resistance from particular interests during the work of my two reviews was the allocation of permits. Should some permits be allocated free to entities required to acquit them with emission of greenhouse gases, and if so, how many? Or should the value of the permits be collected for the revenue, and be used to reduce other forms of taxation, or support increased public expenditure to encourage innovation in low-emissions activities or on other goods and services?

The introduction of a system in which emissions have to be accompanied by the surrender of a permit, and in which the number of permits is less than the level of emissions under business as usual, generates scarcity value for permits. This value is created by the scarcity of permits and is ultimately paid for by users of emissions-intensive goods and services if emissions-intensive goods and services are sold into markets (obviously domestic markets, but often international markets as well) in which competitors are subject to costly carbon constraints. The scarcity rents are paid for by producers of emissions-intensive goods and services if their competitors are not subject to similarly severe carbon constraints. Where competitors of entities that are liable to acquit permits are subject to carbon constraints and are given permits free, the entities are being given a valuable piece of public property without conceivable justification in equity or economic efficiency.

The same holds if the price of permits is controlled at a fixed level by the regulatory authority's preparedness to buy and sell permits without limit at that price.

If the permits are issued by the regulatory without limit at a fixed price, it is a simple matter to collect that price for the revenue. If the permits are issued and then traded in markets, the efficient way to collect the value of this public property for the community is to auction the permits. The amount of revenue expected to be collected from auction is equal to the amount collected from a tax that provided equivalent incentives to reduce emissions.

Of course, it is open to the authorities to allocate the permits to favoured users at no charge or at a concessional price, whether price is being determined by the authorities or the market.

Economists are familiar with the distinction between the taxpayer and the ultimate bearer of the incidence of a tax. If firms engaged in emissions-intensive activities are required to acquit emissions with a permit when once they were free to release them into the atmosphere without restraint, their costs rise. But the firms may be able to pass all or part of the increase in costs to users of their products.

Whether and the extent to which firms are able to pass on permit costs to purchasers of their products depends on whether there is competition in meeting users' requirements and on whether competitors are subject to similar cost increases. Competitors may not be subject to similar cost increases if they are exempt from the payments, produce competing products through less emissions-intensive technologies, or operate in jurisdictions which do not impose charges on carbon emissions.

A distinction can be drawn between firms whose products are sold in a domestic market and not subject to foreign competition, and trade-exposed industries. The former are likely on average to be able to pass on a large part if not all of the increase in costs. Whether and the extent to which trade-exposed producers are able to pass on cost increases depends in part on whether competitors are subject to costly constraints on carbon emissions. What matters is the cost of meeting the requirement to reduce emissions below business-as-usual levels. For these purposes, it does not matter whether the costs result from the operation of carbon pricing or regulatory instruments.

The contemporary reality is that all substantial countries are imposing constraints in one form or another on carbon emissions. The Productivity Commission in a report submitted to the Multi-Party Parliamentary Committee during its deliberations on policy documented the immense numbers of such interventions in all countries which it examined (Productivity Commission, 2011). The costs imposed on emissions-intensive enterprises and on national economies were typically greater when the interventions took the form of regulation rather than economy-wide pricing of carbon.

There is no economic case for compensating producers for the domestic market by the issue of free permits.

There is a possible, limited economic case for issue of free permits for trade-exposed industries. The case depends on the carbon-related costs being imposed on trade-exposed industries being higher than the costs being imposed on competitors in other countries. It depends as well on the likelihood that in the absence of “compensation”, the trade-exposed industry would contract under the immediate competitive pressures, and could be expected otherwise to expand at some later date when other countries imposed comparable constraints. The correct rate of “compensation” is the payment that would bridge the gap between the product sales price available in current conditions, and the price that would be available when other countries had imposed similar constraints to Australia. (See Garnaut, 2008, Box 14.5 and Garnaut, 2010 for a geometric presentation of the case for limited and temporary compensation).

In the course of the Australian discussion of carbon pricing, the limited economic case for free permits was somehow transformed into a claim by emissions-intensive producers for almost comprehensive issue of free permits. How did this happen?

Two dimensions of the policy-making history were crucial to the development of a sense of entitlement in relation to free permits.

One crucial dimension of the policy-making history was the European experience, where virtually all producers in the first instance had been allocated free permits. This led to a large transfer of income and wealth from households to the energy sector in particular. The transfer was sufficiently large to make “energy poverty” a social and political issue amongst low income households and their representatives, and significantly to increase the market capitalisation of enterprises in the sector. The transfers made the emissions trading system highly attractive to

electricity generating and some other enterprises, and unattractive to many households who were aware of the discussion of the economics of the issue.

The second crucial dimension was the preponderance of electricity sector interests in the development of the NETS and of emissions-intensive businesses more generally in the Shergold Committee. This led to uncritical acceptance of the case for undisciplined issue of free permits, without regard to the reality that the permits represented public property, created by charges on households.

I began my Review with the economics of permit allocation in mind, but with incomplete awareness of the extent to which an alternative business sense of entitlement had become entrenched.

I was alerted to the alternative perspective when I was talking to a group of senior officials early in the Review. I mentioned that the auctioning of permits in an emissions trading system was the economically efficient and equitable way to allocate entitlements among competing users. A State Departmental Secretary for Energy exclaimed: “Oh, so you want a carbon tax!” In his mind, the distinction between a carbon tax and an emissions trading scheme was that a carbon tax would collect the revenue for the state, while an emissions trading scheme would mostly give the permits free to the firms who were required to surrender them with the emission of greenhouse gases. That perspective remained important amongst energy sector interests through to the legislation of the carbon pricing package in 2011.

With or without that background, there was bound to be tension between the interests of emissions-intensive businesses and prescriptions based on application of economic principles. Much of my work on the Reviews involved effort to have “compensation” issues discussed in a principled way, rather than having decisions emerge from purely political discussions and pressures.

It was an advantage for participation in this pressured discussion that I had been in the front line of the debates on removal of protection in the 1980s and early 1990s. Interested parties pressed their claims as strongly when the focus of rent-seeking activity was the retention of protection as when the issue was allocation of free permits or, for the most emissions-intensive enterprises, resistance to the introduction of carbon pricing at all.

There are nevertheless important differences in the Australian political and media culture from those days of contests over trade liberalisation. The changes have been consistently in the direction of making it more difficult to uphold the public interest. Media interests, with the Australian print media now monopolised to an extent that is unprecedented in the experience of Australia or other developed countries, is less interested in presenting complex economic argument and more receptive to simple claims foreshadowing calamity or bliss. The print media has been superseded to a significant extent by a less structured system of electronic communications with even greater resistance to argument embodying chains of logic with multiple links. The new phenomenon of “astroturfing”—the commercial generation of the appearance of grass roots opinion—for the time being distorts communications through the

new media. Corporate interests feel less inhibited in appealing to sectional rather than national interests in pushing policies that they favour.

Sadly for our own profession, there has been considerable commercialisation of the contributions of economists and people claiming that status in the intervening years. The climate change policy debate since 2007 has been marred by several truly awful contributions presented as being the professional work of economists.

The processes through which policy was discussed within the political system were more transparent the second time around, in 2011, through the work of the Multi-Party Parliamentary Committee. It turned out to be more resistant to pressure from vested interests.

It was sometimes argued by participants within the policy-making process that the ceding of windfall gains to emissions-intensive interests would make them supporters of the emissions trading scheme, and would therefore facilitate the advancement of the policy. This had some logic when participants in discussion were confined to the emissions-intensive industries themselves. It was always the reality, however, that for success, policy would ultimately have to pass the test of wider public opinion and ultimately the electorate. At that stage of the policy validation process, unjustified transfers from households to business interests would be major impediments. The balance within the final policy package, with retention of substantial value from permit sales for tax cuts and other payments to households, was at once economically efficient, and important in protecting the scheme in community opinion.

Where From Here?

Despite the pressures on the policy-making process and the difficult starting points, the policy that is now in place following the 2011 legislation places Australia in a relatively good position to contribute its fair share in a global mitigation effort at reasonably low cost.

The legislated arrangements contain two governance features that follow recommendations of the 2011 Review Update, and which are likely to contribute substantially to the sound operation of the scheme over time. One is the provision for independent review of the assistance arrangements for trade-exposed and emissions-intensive industries. The other is the provision for an independent Climate Change Authority to recommend on targets for emissions reduction in 2015 and subsequently. These two measures will help to insulate the policy-making process in relation to adjustment of the scheme from the pressured politics that characterised the years leading up to the legislation.

The subsequent decision to link the Australian emissions trading scheme to that of Europe from the time the permit price is set by the market in mid-2015 currently seems likely to lead to much lower carbon prices at least for a while. Seems, although whether that turns out to be the case depends on whether the European Union strengthens its emissions reduction targets between now and mid-2015. If there is insufficient tightening of European targets and permit prices remain low, the role of the carbon price in Australia's mitigation effort will be diminished at least for a while, and the role of less efficient regulatory instruments including the Renewable Energy Target enhanced and prolonged.

My own assessment is that it would have been politically impossible to defend a carbon price that was well in excess of European prices, whatever the economic case for relying heavily on carbon pricing rather than regulatory means of reducing emissions.

A successful global mitigation effort will require a tightening of targets in the European Union and elsewhere. That tightening would raise European permit prices, and Australian prices with them. The linkage with Europe therefore allows Australia to increase the contribution of carbon pricing to reducing domestic emissions as an increase in global mitigation ambition calls for a larger Australian effort.

It is unlikely that Australians and their Government will wish to stand outside an increasing global mitigation effort in the years ahead. It would be a pity if Australia were to lose the arrangements that would allow it to increase its contributions smoothly, without a return to the rancour of the recent past, and at reasonably low cost.

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