
FOSTERING TRADE EXPOSED INDUSTRIES UNDER A CARBON EMISSIONS REDUCTION PROGRAM

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What Professor Ross Garnaut described as the “diabolical dilemma” between protecting important trade exposed industries from unfair competition and achieving meaningful reductions in greenhouse gas emissions is the main stumbling block to the implementation of a workable (and durable) emissions trading scheme in Australia. The Government’s approach to the problem is by way of compromise and hope: partial assistance for trade exposed industries under the CPRS when full protection is called for, and naïve faith in world order when almost nothing of pertinence is in prospect.

As Garnaut was at pains to emphasise, a lasting and substantial “solution” demands a global agreement. This, in the context of Australia’s trade exposed industries, must comprehend our trade competitors, not just the major economies (which are typically our customers). An agreement amongst the major economies is most unlikely to oblige them to pay more for imports from countries with carbon taxes or emissions trading schemes, like Australia, when the same products can be imported from elsewhere. The holy grail ‘comprehensive international agreement’ would need to have all countries imposing comparable regimes and border adjustments for transgressions (strictly, the harmonized pricing of carbon emissions) – but such a deal is not even under discussion.

Whatever is negotiated and announced at the end of 2009 in Copenhagen and afterwards – irrespective of the fanfare – will fall far short of the ideal. As a consequence, and inescapably, trade exposed industries here, as elsewhere, will be undercut by competitors unless they are completely shielded from the cost impacts of their domestic regimes. Investment in these industries is more ‘footloose’ than production and will be more vulnerable to diversion. Little of such ‘leakage’ to countries without comparable emissions controls will result in reduced global emissions; most will result in increases.

In light of the realities about a global agreement, the CPRS’s failure to provide full protection for trade exposed industry is a major business concern – and should concern all with an interest in Australia’s prosperity. It prompts questions as to:

- Whether emissions trading, and the cap-and-trade model in particular, is an appropriate instrument;
- Whether and how the CPRS, as proposed in draft legislation, could be amended to provide trade protection; and
- Whether alternative approaches to national carbon emissions control should be considered.

These questions are canvassed in this short paper.

DECLARATIONS

The paper was commissioned by Woodside Energy Limited, but the views expressed are entirely those of the author, John Daley, the Principal of Businesscertainty.com Pty Ltd, who takes full responsibility for them.

John Daley has been a consultant economist for many years, advising on energy, resources and climate change policy. He was the CEO of the Australian Industry Greenhouse Network from 2004 to 2008 and in 2007 was a member of the secretariat of the then Prime Minister’s Task Group on Emissions Trading.

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EXECUTIVE SUMMARY

Prior to the Election, The Australian Labor Party pledged that an ALP Government would establish “specific mechanisms to ensure that Australian operations of emissions intensive trade exposed firms are not disadvantaged by emissions trading”. By February 2008, however, the Government had made a decisive u-turn from the unqualified, and economically principled, commitment pre-Election to a much more equivocal, and politically calibrated, level of support

In both the Green and White Papers, the Government suggested that allocating free permits to trade exposed industries (TEIs).to ensure their competitiveness was not an absolute, but rather involved a trade-off against the revenue and also imposed a burden on other sectors of the economy. Both of these assertions are furphys:

- All of the “revenue” or “value created” in an ETS is attributable to costs shouldered by someone in the economy. In an ETS, by auctioning permits, government appropriates this “value” from emitters and consumers; it makes no contribution to national income. Government then has no right to lay claim to this “value” as “taxpayers’ money”; and
- The validity of the “burden shifting” claim rests solely on the assertion that about 25% of permits (about 110 million permits) set aside for TEIs in the White Paper was in the first place the “right” amount to allocate to TEIs. Export and import competing industry, which will need up to 200 million permits, has limited ability to pass-through increased costs to consumers. This means that households do not pay increased prices for those products, and have no claim to the permit revenue associated with the products. Rightfully allocating permits to trade exposed businesses does not shift the burden to the rest of the community.

In any case there is no shortage of permits to do the job of offsetting trade disadvantage properly, as committed to by the ALP in Opposition, and the current Opposition when in Government:

- First, as the White Paper points out, low and middle-income households are compensated by an average 120% of the modelled increase in the CPI — this equates to about an extra 40 million permits auctioned every year;
- Second, at least until 2013, households will be, unnecessarily, fully compensated for any increase in petrol prices — this equates to about 80 million permits auctioned every year to 2013; and
- Third, although the permit revenue is budgeted up until 2011-12, permits to the value of at least \$25 billion have been appropriated by the Government in the period to 2020 for an unspecified purpose. The number of spare permits that could be allocated to the TEIs ranges from 70 to 120 million per annum from 2013 through to 2020.

A cap-and-trade emissions trading scheme can be designed so as to not unnecessarily disadvantage exports and import competing industries. The amendments to the CPRS design required to achieve this outcome are:

- Remove the emission intensity eligibility tests and concentrate on trade exposure;

- Determine that all exports are trade exposed;
- The trade exposure test for import competing industry would focus on the historical evidence of domestic product prices moving in tandem with international prices for those products, which the Productivity Commission could independently and transparently assess;
- The quantum of permit allocation for exports would be based on production and the historical emission intensity of that production for existing facilities, and project-specific benchmarked emissions for new investments, and be aligned 100% with the emissions associated with the facility or project — “activities” are not trade exposed, products from facilities and projects are trade exposed;
- The quantum of permit allocation for import competing products would be similarly determined, although for some products less than 100% allocation might be warranted on the basis that the domestic prices of these products are not fully exposed to international prices;
- Remove the 1.3% annual tax on permit allocation to TEIs, allowing the price of permits to drive the economically efficient level of emission abatement;
- Provided the three prior amendments are delivered, the proposed arbitrary electricity factor of 1 would be replaced by an actual emission factor for own use electricity and a grid specific factor, adjusted for cost pass-through, for purchased electricity. Electricity cost pass-through adjustments would be either evidenced by contracts or estimated by independent modelling; and
- Tailor removal of permit allocation to each trade exposed product to the international competitive circumstances of that product. This could also be a matter of independent and transparent review by the Productivity Commission, rather than a ministerial decision based on advice from a handpicked Review Committee, as is currently proposed in the CPRS.

Unfortunately there may be no solution to the concern that permit allocation to TEIs may breach WTO rules.

With the above amendments, but subject to the WTO concerns, the CPRS can be designed to offset the unintended erosion of the competitiveness of Australian industry for the period of time until competitor nations take on comparable commitments to reduce their emissions.

It is important to appreciate that these commitments – under the Kyoto Protocol or other arrangements under deliberation - relate to the *production* of emissions, not to their consumption (to which populations can be more reasonably accountable and which is more readily controllable by individual jurisdictions).

An alternative, *consumption*-based model, capable of delivering full trade protection by a conventional ‘destination’ point of liability, has come to light only in recent times. It is asserted that Geoff Carmody’s proposal¹ has been presented “too late” — though this is a judgment that should properly comprehend the very long timescales involved in climate change policy as well as the expected ‘half life’ of any CPRS enacted. It is certainly radically different to the “assistance” mentality of the CPRS, and it would likely to be much more effective in inducing competitor nations to join a

¹ *Effective Climate Change Policy: the Seven ‘Cs’*, Geoff Carmody & Associates, Policy notes 1, 2 and 3, 2008.

global agreement. As Carmody has noted, a model of national commitments based on emissions production, like the Kyoto Protocol, the EU emissions trading scheme and the CPRS, “only works if all nations sign at the same time. History tells us they won’t. When nations act at different times or to different degrees, production models undermine trade competitiveness .. (and) .. nations won’t sign or want carve-outs”.

Carmody has proposed instead a *consumption-based* emission tax or trading scheme² operating along the lines of the GST (and similarly acceptable under GATT rules), rebating all emission costs to exports and imposing trade-neutral emission costs on all imports³. The consumption based alternative has gained the support of many Australian economists and appears to be attracting interest overseas, notably from China. Because the consumption model (by contrast) is trade competitiveness neutral, it is a contributor to international ‘confidence building’ not a detractor.

It would be foolhardy not to give this option further consideration, particularly in view of the fact that Australia, like China, is a net emissions exporter, liable to be disadvantaged by the production approach⁴.

Nonetheless, if it is “too late”, politically, to countenance that alternative, notwithstanding its policy merit, the trade exposed industry problem can be effectively assuaged within a cap and trade scheme like the CPRS, with sufficient allocation of free permits to neutralize the trade disadvantage. The amendments listed above would achieve that outcome, and are required if the CPRS is to be depicted honestly as being consistent with the Government’s pre-Election promises.

TREATMENT OF TEIS IN THE CPRS COMPARED WITH THE GOVERNMENT’S ELECTION MANDATE

PRE-ELECTION COMMITMENTS

Prior to the Election, The Australian Labor Party pledged that an ALP Government would establish “specific mechanisms to ensure that Australian operations of emissions intensive trade exposed firms are not disadvantaged by emissions trading”⁵.

² The pure carbon tax approach would be simplest, administratively, though it would not deliver the capped environmental outcome (the emissions budget) promised by a cap-and-trade scheme. However, the consumption based tax approach could be confined to exports and imports (border rebates and charges) with a cap and trade ETS, governing emissions consumption, operating in parallel. Traded permit prices in the ETS could provide the tax (or rebate) rates for the border adjustments, preferably *a priori* (note that an ETS price cap could be formulated in the same way).

³ This would be calculated at the average emissions intensity or cost to the product in question manufactured in Australia (and would not require information about foreign manufacturing methods or components).

⁴ This point would be neutralized if Australia (and China) were to obtain proportionally higher allocations of assigned amounts under Kyoto or its successor – but this is not the direction suggested by discussion of uniform percentage emission reductions.

⁵ This pledge was pre-Election, in *Labor’s Plan for a Stronger Resources Sector*, Senator Chris Evans, Shadow Minister for National Development, Resources and Energy, *ELECTION 2007*. The section of that election policy document headed Protecting trade exposed emissions intensive industries states:

The Federal Labor Leader – and now the Prime Minister, the Hon. Kevin Rudd MP - in his May 2007 Fraser Lecture, *An Action Agenda for Climate Change*, outlined Labor’s “five tests for an effective ETS”. The third test was that the scheme “must be economically responsible” and, pertinently, that, “in taking the lead before an effective international agreement is in place, it is also *vitaly important that a domestic scheme does not undermine Australia’s competitiveness and provides mechanisms to ensure that Australian operations of energy-intensive trade-exposed firms are not disadvantaged*”.

POST-ELECTION DELIVERY

These assurances have not been delivered under the CPRS that instead offers trade exposed industries “assistance” which, while reducing the extent of the competitive disadvantage, does not remove it. The competitiveness of TEIs that cannot recoup additional costs from customers (because alternative supplies are available from competitor countries) is thereby unavoidably reduced.

Apart from this competitive burden (which has recently been described as a “reverse tariff”⁶) business interests are rightly offended by the Government’s presentation of the impost as assistance, albeit “transitional” assistance. The imposition of additional costs on TEIs, ahead of competitor countries imposing comparable costs on their industries, is a tax (and an impediment to investment). What is labelled “assistance” is actually only (temporary) relief from an even more harmful, bigger tax.

ACKNOWLEDGEMENT OF THE RATIONALE FOR TEI SUPPORT

The rationale for shielding trade exposed industries until such time as overseas competitors implement comparable schemes is well known to the Government, and was plainly expressed in election policy documents⁷. After the Election the Climate Change Minister, Senator the Hon Penny Wong, gave an important speech at an AI Group luncheon in which she said:

“The introduction of a carbon price ahead of effective international action can lead to perverse incentives for such industries to relocate or source production offshore. There is no point in imposing a carbon price domestically which results in emissions and production transferring internationally for no environmental gain.”

The Minister and the Prime Minister have made similar observations many times since.

MORPHING FROM PRINCIPLE TO POLITICS

“A Rudd Labor Government will:

- *Ensure that Australia’s international competitiveness is not compromised* by the introduction of emissions trading.
- Consult with industry about the potential impact of emissions trading on their operations *to ensure they are not disadvantaged*.
- Establish specific mechanisms *to ensure* that Australian operations of emissions intensive trade exposed firms *are not disadvantaged* by emissions trading.” (italics added)

⁶ Terry McCrann, *The Australian*, 21 March 2009, *What to make of a prime minister and government that builds its defining policy around a lie*, and 7 March 2009, *Kevin Rudd’s unilateral and unco-ordinated emissions trading scheme was always a very bad idea. Now it is a national suicide note*.

⁷ The same election policy document states: “Labor recognises that the transition to a more carbon constrained economy has the potential to disadvantage emissions intensive trade exposed industries. There is no global environmental benefit to simply shutting down LNG plants or aluminium smelters in Australia only to have new plants open up in other countries which may have inferior environmental protection standards and higher emission intensities.”

Aside from its lip service to the rationale, that February 2008 speech, however, marked a decisive turning point from the unqualified, and economically principled, commitment pre-Election to a much more equivocal, and politically calibrated, level of support.

The ‘no competitive disadvantage’ principle was replaced by “careful assessments” of what might be bearable, with one gauge of that being the balance of complaints between business interests and green lobbies, the latter being seized with the goal of maximizing emission penalties. Post-Election, the undertakings changed:

- “Addressing”⁸ competitiveness concerns became the substitute for allaying them; and
- “Ensuring that incentives remain for these industries to adjust their emissions profiles consistent with an emerging global carbon constraint” replaced the commitment to *ensure* their competitiveness.

The AI Group luncheon speech flagged that TEIs would be “addressed” by partial protection, not full protection, against competitors advantaged by Australia’s imposition of an ETS. At that time and in the subsequent Green Paper⁹ the Government suggested that allocating free permits to TEIs (the preferred means of support) to ensure their competitiveness was not an absolute, but rather involved a trade-off against the revenue (“every permit allocated for free is a permit not auctioned”) and also imposed a burden on other sectors of the economy. Both of these assertions are furphys.

THE FURPHY ABOUT THE REVENUE

An emissions trading scheme creates a totally artificial commodity. There is no intrinsic value in an emissions permit and no value is created. Prices are paid for permits only by diversion, either as a tax when the cost is recouped from customers or as a transfer when consumers pay the cost of emissions embodied in goods and services at the expense of other consumption. All of the “value created” is attributable to costs shouldered by someone in the economy. In short, the “revenue” in an ETS is appropriated by government from emitters and consumers that have higher costs associated with the price of permits; it makes no contribution to national income.

Government then has no right to lay claim to this “value” as “taxpayers’ money”.

Importantly, if an ETS has the effect of diverting existing production or new investment offshore, auction revenues will not change (demand for permits in Australia will fall, as manifest reduced imports of foreign certificates, but the price is set by international markets). Providing free permits to ensure the industry’s competitiveness, and ensuring such diversion does not happen, is revenue neutral not revenue negative. That approach would secure national income, in terms of exports and avoided imports, and associated income tax revenues, rather than risk it.

FURPHY ABOUT BURDEN SHIFTING

It is also asserted that permit allocation to trade exposed industries increases the economic cost of the ETS and shifts the burden of emission reduction costs to households and other sectors of the economy.

⁸ ‘Address’ is the treasured verb in a politician’s lexicon that affords promise to inaction.

⁹ Carbon Pollution Reduction Scheme, Green Paper, July 2008, p295.

The Treasury modelling debunks two claims associated with these assertions¹⁰:

- Permit allocation to trade exposed industries does not increase the economic burden of the rest of the economy because, contrary to the claims, it does not induce an increase in emission permit prices. Permit prices in Australia are either controlled by international prices or by a “safety valve” price, both of which are features of the CPRS, the allocation of permits within Australia is most unlikely to influence the international price; and
- Permit allocation to trade exposed industries does not, as claimed, reduce the incentive for these industries to invest in emission reduction opportunities. The proposed permit allocation design, based as it is on benchmark emission intensities, preserves the power of permit prices to induce investment in these operations.

The claim now being made is that, having arbitrarily determined that trade exposed industry might receive about 25% of permits (about 110 million permits), any claim by trade exposed industry to more permits must therefore reduce the number of permits auctioned and hence the revenue available to compensate households. The validity of this claim rests solely on the assertion that about 25% of permits was in the first place the “right” and “fair” amount to allocate to trade exposed industry.

Trade exposed industry has, by definition, limited ability to pass-through increased costs associated with an emissions price, because the prices of their products are determined in international markets. This means that households do not pay increased prices for those products, and therefore have no valid claim for extra compensation. (Compensation to households has justification in respect of non-traded goods and services. In respect of these it can be expected that additional costs will be passed on.)

The total emissions associated with the mining and manufacturing industries, all prima facie trade exposed with the exception of some coal dedicated to power generation and domestic gas supplies, is about 45% of the permits (about 200 million) to be allocated at the beginning of the ETS (about 450 million) — not about 25% of the permits (about 110 million permits) asserted in the White Paper. This means that up to 20% of permits (about 90 million) have been withheld from exporters and domestic producers, and either wrongly given to households or appropriated by the Government.

Rightfully allocating permits to trade exposed businesses does not shift the burden to the rest of the community. On the contrary, arbitrarily restricting allocation shifts the burden to trade exposed businesses, and subsidizes households.

The Australian Industry Greenhouse Network (AIGN), in successive submissions, has identified where some of the permits that should be dedicated to trade exposed industry have been misdirected. First, the Government has decided to over-compensate households for the costs they might incur. As the White Paper points out, low and middle-income households are compensated by an average 120% of the modelled increase in the CPI¹¹ — this equates to about an extra 40 million permits auctioned every year. Second, at least until 2013, households will be fully compensated for any increase in petrol prices — this equates to about 80 million permits auctioned every year.

¹⁰ Australia’s Low Pollution Future, The Economics of Climate Change Mitigation, October 2008.

¹¹ *Carbon Pollution Reduction Scheme: Australia’s Low Pollution Future*, White Paper Volume 2, December 2008, Page 17-13

It seems up to 120 million permits per annum have been assigned to raise revenue to over-compensate households. Yet a maximum of a further 90 million permits is required to fully deliver the competitiveness commitments to trade exposed industry.

Related to this issue is that the Government has promised that “every dollar” will be returned to the community. The White Paper provides a budget for just four years that purports to deliver this promise¹². However, over the period 2010 to 2020, AIGN has estimated that, at a starting price of \$25/t escalating at 7% per annum and incorporating the generous allocation of revenues to households, the whereabouts of permits to the value of at least \$25 billion are unaccounted for — that is, they are to be retained by the Government in Consolidated Revenue for as yet unspecified purposes. The number of spare permits that could be allocated to the trade exposed industries to adequately offset the competitive disadvantage imposed by the CPRS ranges from 70 to 120 million from 2013, without disturbing the existing compensation to households.

In summary, there are more than enough permits available to do the job of offsetting trade disadvantage properly.

MISUNDERSTANDINGS ABOUT THE SIGNIFICANCE OF THE ‘SCHEME CAP’

A lot of prominence has been given to the adequacy, or otherwise, of the scheme cap or emissions reduction “target”. It is felt that the CPRS’s proposed 5% unilateral cut by 2020 from the reference projection, and the higher figure with international support, is insufficient as a token of Australia’s leadership and contribution to the global emissions reduction imperative.

What is widely misunderstood is that the stringency of the scheme cap (which, by definition, is the number of permits issued by the Australian Government) does not govern, in an internationally linked ETS, the quantum of emissions emanating from Australia — there is no “target” for Australian sourced emissions, only an allocation of Australia’s share of global rights to emit. Australia’s emissions are determined by the permit price, which is unlikely to be significantly affected by the Australian decision on its “scheme cap”. Industry and consumers will react to the price, not to some communal “target” figure.

What the scheme cap does determine, given the price elasticity of demand for permits in Australia, is the quantity of certificates to be sourced overseas and the amount of money to be paid to overseas vendors. The more stringent the cap, the higher the payments from Australia to overseas. By arithmetic, the scheme cap also determines the CPRS’s revenue potential once freely allocated permits are deducted. Only in this sense is a freely allocated permit a cost to government revenue.

This implication is confirmed by ANU economist, Dr Frank Jotzo, in recent evidence to the Senate inquiry on the draft bills.¹³

¹² White Paper, Appendix E, December 2009

¹³ Australia's commitment to cut emissions by between 5% and 15% by 2020 does not constitute a weak set of targets given the underlying growth in the nation's emissions, ANU-based climate change economist Frank Jotzo last Thursday night told the Senate draft trading bills inquiry. Jotzo said it was incorrect to assume that adopting a more stringent target would mean a higher permit price under the Australian scheme. “That is to a large extent not true, because of the open trading regime that has been proposed,” he said. “A more ambitious target in all likelihood will primarily mean that Australia would simply buy more permits or credits overseas, particularly from developing countries,” he said. (CE Daily 23 March 2009)

In all plausible scenarios for an Australian ETS the market for Australian permits will be 'short' – that is, demand will exceed supply. This assessment is an implication of two features of the CPRS which economists and industry interests applaud – international 'linking' and 'banking'¹⁴ - in conjunction with several other key factors:

- the expectation that the cap would be set below business-as-usual¹⁵,
- the belief that Australian abatement costs are high relative to overseas alternatives, and
- the inevitability that financial institutions will be buyers of permits to bank, in order for them to offer forward price hedges (another highly desirable feature of emissions trading schemes).

In these circumstances, Australia will import recognized certificates - in the first instance, Certified Emissions Reductions (CERs) - from overseas and the price of Australian permits will be as high as, but be capped by, the international price of CERs. This has been around €7-10 (for Dec 2009 delivery) in recent months¹⁶ (about €1-2 below the price of corresponding European Union Allowances). The Government's CPRS White Paper suggested the starting levels for Australian permits would be around \$25/t, a broadly consistent figure.

What this means is that, unless Australian demand for CERs looms large on the international stage, relative to the availability of CERs, it will not significantly influence the CER price. That should be the situation if the scheme cap is set to depart only gradually from the reference emissions projection. Also, the Australian scheme overall will have a coverage about a quarter of the size of the EU scheme and will be progressively less significant as other countries institute trading schemes. The CER price will be determined by the conjunction between that aggregate global demand and the total supply of CERs.

This is an aspect of the CPRS that business supports. But if Treasury needs more revenue from the scheme to fund the Climate Change Action Fund (CCAF) or allay welfare concerns, the single best approach would be for Australia to negotiate a higher share of the global allocation of emission rights. Indeed, one of the key reasons why Australia must negotiate a share higher than a simple equal percentage reduction "target" for all nations is that our national circumstances include a high proportion of trade exposed industry. Another approach would be for the Government to relax the cap.

In either case, this will make no difference whatever to the incentive for industry and consumers to abate or to the aggregate quantum of Australian emissions. Cutting back on freely allocated permits is not the sole alternative to raising government revenue.

¹⁴ Banking enables 'vintaged' or undated permits to be held for acquittal against future year emissions. Banking has the effect of bringing estimates of future marginal abatement costs forward into current permit prices. It should be noted that the market, without corresponding 'borrowing' provisions, is one-sided since there is no official facilitation to short-sell more sanguine estimates of future costs. Professor Garnaut proposed restoring this symmetry by allowing borrowing (under a long period cap rather than an annual cap) but that proposal was rejected in the White Paper.

¹⁵ Consistent with embarking along the ETS path in the first place.

¹⁶ Carbonpositive and Reuters reported late March that the prices of Certified Emissions Reductions (CERs) remain depressed below €10, although having lifted above their record lows for now. The price of benchmark Dec 09 CERs in secondary-market exchange trading ended February at €8.81 on the ECX, up €1.50 off its record low two weeks earlier. The Dec 09-Dec 12 strip was around the €9.60.

MISCONCEIVED CONCEPTS OF 'TRANSITION'

In deciding to provide various degrees of protection for Australian TEIs from unfair overseas competition, the Government has encouraged the dissemination of seriously misconceived concepts of transition. Transition properly and sensibly should refer only to the period until a truly global agreement is reached on the decarbonisation of the world economy.

It is evident that the Government plans to actively transition Australia more rapidly to this carbon constrained ideal, notably through the CPRS's productivity tax (reducing the level of "assistance" by 1.3% a year).

Decarbonisation would (or will) happen without government direction if governments around the world can agree on a reasonably comprehensive regime. *That must involve Australia's major competitors in international markets, not just the large economies, which are typically customers, not competitors.* Penalising TEIs in Australia in advance of that international regime can only be destructive, jeopardising Australia's main competitive advantages.

In any case, the goal must be the progressive decarbonisation of the world economy, not individual parts of it. It may well be that an optimum transition for the world could involve expansion of emissions intensive industries in Australia where bulk resources are located and stringent environmental standards can be established and enforced. Possibly the best example is LNG. This is the key fuel in the world's transition to reduced reliance on carbon, and impediments to LNG's development in Australia, notably the historical average emission intensity rules in the CPRS that discriminate against new LNG projects, would impede this contribution and would be sadly counterproductive.

Australian climate policy needs to provide for the transition to an international agreement by supporting Australian TEIs in the face of belated action by competitors, not by penalizing them. Encouragement, not penalty, should also be given to existing, low cost, technologies and fuels, like natural gas, which are important in facilitating the ultimate transition to even lower emission future technologies.

THE COMPETITIVENESS OF A 'DE-CARBONISED' AUSTRALIAN ECONOMY

There is also the implicit concept that the Australian economy, once industries have transformed themselves, will retain an unchanged competitive position in the world. This is totally unproven and speculative. It is highly questionable whether Australia's living standards can be maintained if our economy were to be re-structured towards less carbon intensive industries in which we are relatively uncompetitive now.

GE models (which usually "close" with near full employment assumptions) can represent the transformation. In line with the input assumption, they typically show employment levels unaffected, but the interested sponsors of such modelling seldom report the reduction in real wages and the deterioration in the exchange rate. Reported income (GNP) reductions are relatively modest because international trade assumptions are lazily indifferent to the changed competitive circumstances – or assume explicitly that competitor countries impose comparable penalties on their industries.

HOW TO AMEND THE CPRS TO ALIGN WITH ASSURANCES

The Government's decision to provide only limited assistance to "address" the problem of eroding the competitiveness of Australian export and import competing industry rather than to "ensure no disadvantage" has been prosecuted with numbing arbitrariness.

In order to restrict the number of permits to be allocated to trade exposed industry to an arbitrary figure, several mechanisms were devised:

- The eligibility test for emission intensity (1000t/\$million of revenue and 3000t/\$million of value add, which is itself compromised) has been used as a proxy for the extent of potential disadvantage. It is as if high emission intensity is assumed to equate with low ability to pass-through emission costs to customers, the true measure of the problem, and vice versa;
- Discontinuous levels of emission intensity have been used to justify different levels of permit allocation (zero, 60% and 90% eligibility categories);
- Artificial definitions of “activity” (on the grounds that the “activity” is trade exposed not the “products” finally sold from a facility or project) have been used to reduce the permit allocation such that even when qualifying for an allocation category, effective rates of allocation are below 60% and 90% - in some cases significantly below;
- The permit allocations are annually reduced by a “productivity tax” of 1.3% per annum. This tax has the role of reducing allocations to trade exposed industry in line with a possible national emission “target” and ensuring that business-as-usual improvements in emission intensity are not rewarded with permits; and
- The framework for removing permit allocation to trade exposed industry has been cast in terms of a general global agreement on emission reduction, rather than removal being tailored to the international competitive circumstances of the individual trade exposed products.

The remedies are to amend the CPRS or move to an alternative requiring no permit allocation (see “innovative alternatives” below).

The amendment route would require the following changes to the CPRS:

- Remove the emission intensity eligibility tests and concentrate on trade exposure;
- Determine that all exports are trade exposed;
- The trade exposure tests for import competing industry would focus on the historical evidence of domestic product prices moving in tandem with international prices for those products. This is straight forward for all industries currently being considered for permit allocation and for others, particularly in general manufacturing, would be a task that the Productivity Commission could independently and transparently undertake;
- The quantum of permit allocation for exports would be based on production and the historical emission intensity of that production for existing projects and project specific benchmark emission intensities for new investments. Allocation levels would be aligned 100% with the emissions associated with the facility or project — “activities” are not trade exposed, products from facilities and projects are trade exposed;
- The quantum of permit allocation for import competing products would be similarly determined, although for some products less than 100% allocation might be warranted on the basis that the domestic prices of these products are not fully exposed to international prices;

- Provided the above allocation changes are adopted, the electricity factor of 1 would be replaced by an actual emission factor for own use electricity and a grid specific factor, adjusted for cost pass-through, for purchased electricity. These factors are already used in the estimation of Australia's emissions. The cost pass-through adjustments are either evidenced by contracts or estimated by modelling that is already well established in the electricity industry;
- Remove the 1.3% per annum productivity tax. With permit allocation based on historical emission intensities for existing projects and tailored benchmarked emission for new projects, the market price of permits will send sufficient signals for TEIs to reduce emissions below those intensity benchmarks overtime; and
- Tailor removal of permit allocation to each trade exposed product to the international competitive circumstances of that product. This could also be a matter of independent and transparent review by the Productivity Commission, rather than a ministerial decision based on advice from a handpicked Review Committee, as is currently proposed in the CPRS.

With these proposed amendments, the CPRS would not be entirely unlike the trading scheme recommended to the previous Government in outline in the Shergold Report of 2007¹⁷. Like the TEI support scheme then recommended, the CPRS may not be WTO compliant.

In relation to the quantum of permit allocation to individual trade exposed industries within the CPRS, Professor Garnaut¹⁸ proposed a different methodology. Under that proposal, trade exposed industry would be allocated sufficient permits to bridge the gap between an actual increase in product prices produced in the real world (under an imperfect global agreement) and the theoretical increase that would occur within a comprehensive global agreement. While the proposal avoids over-compensation, expected (or actual) price increase estimates rely entirely on models of the counterfactual and cannot be other than continuously contentious. The modeling approach may well lend support to the case for TEI assistance but it is quite impractical as an instrument of implementation.

As to the potential WTO problem, unfortunately there may be no amendment remedy - the TEI permit allocation mechanism does look like a production subsidy to many observers. Government officials continue to assure industry that the scheme being devised is compliant with the WTO or they suggest that no country is likely to take an Australian industry to task on this account (in a formal dispute). It is a "trust us" approach that may not be sufficient to convince a cautious company board that triggering a Final Investment Decision on a multi-billion dollar project is safe. Such prudence could be warranted given that WTO rules preclude governments from indemnifying a company against an adverse decision — and the Australian Government has made no contingency plan, nor legal advice, public.

ALTERNATIVE POLICY APPROACHES

It is appropriate in this discussion to canvass the range of 'market instrument' alternatives to a cap-and-trade system that have generally not been preferred. These include carbon taxes on one hand and baseline-and-credit schemes (as alternative emissions trading schemes) on the other. Comment is

¹⁷ Report of the Task Group on Emissions Trading, Prime Ministerial Task Group on Emissions Trading, 2007.

¹⁸ Professor Ross Garnaut, *The Garnaut Climate Change Review*, September 2008, Section 14.5

also warranted on the place of ‘complementary measures’ to be utilized in parallel with an emissions pricing regime.

CARBON TAXES

The distinction between trading and taxes is often drawn by explaining that a trading scheme (eg a cap-and-trade scheme) sets an emissions quantity and allows the market to determine the emissions price, whereas a carbon tax establishes the price of emissions and allows the market to determine the emissions quantity. Trading therefore gives primacy to the environmental objective (a specific level of emissions) while taxing only steers activity in that direction (and may overshoot). Trading involves uncertainty about prices whereas taxing, in the short run, does not.

The distinction is not very profound, since taxes can be changed over time to realize the environmental objective quite accurately, and governments, driven by the policy objective, would be expected to make those changes.

There are efficiency advantages of carbon taxes (eg lower administrative costs, greater short term certainty for business). However, these differences matter little in the longer term if taxes are continuously adjusted to reflect changing emissions reduction goals or for other reasons (and, almost certainly, they would be subject to periodic change if other countries adopt trading schemes instead).

The key advantages that trading schemes can claim over a carbon tax are that trading:

- Provides a conduit for linking abatement schemes worldwide, with convergent pricing and hence greatest potential for least cost abatement discovery (this is a more decisive advantage for cap-and-trade rather than for baseline-and-credit schemes);
- Ensures the same price is signaled for sequestration (in fact all activities best handled by ‘baseline-and-credit’, such as forestry, waste and destruction of hydroflourocarbons) as for mitigation (an efficiency improvement);
- Allows creation of a forward market¹⁹; and
- In terms of shielding TEIs (and compensating strongly affected industries like coal-fired power generation), a trading regime better matches the additional costs than its subsidy equivalent (which would be necessary under a tax regime) since it provides a perfect hedge against changes in permit prices.

It is difficult to imagine the realization of the tax alternative to linked trading schemes – that being internationally harmonized tax regimes – anytime soon. It is similarly difficult to contemplate a robust forward market in tax certificates. Both common international pricing and forward hedging facilitation are important in realizing efficiency opportunities, reducing the overall cost of emissions control.

It is important to understand, however, that the policy choice need not necessarily be between a tax and trading. Rather, the desired features of both can be combined by adding to the trading scheme a “safety valve” permit price above which permit prices cannot rise, and by which overall costs to the economy are contained commensurate with the community’s maximum willingness to pay for the anticipated environmental outcome. And this is proposed in the CPRS.

¹⁹ Though note, with banking, this is just the interest rate.

BASELINE-AND-CREDIT

The two common approaches to emissions trading are:

- Cap-and-trade, in which an aggregate cap on emissions is distributed (by free allocation, auction or otherwise) in the form of permits or allowances, with the divergence between the cap and an aggregate business-as-otherwise emissions projection determining scarcity, and hence a positive permit price to guide consumption, production and investment behavior; and
- Baseline-and-credit, under which firms (or facilities) earn emissions reduction credits (or offsets) equal to the amount by which their emissions are held below a baseline (probably set on a sector-by-sector basis); the credits are sold to firms whose emissions exceed the baseline. Under baseline-and-credit, the necessary equality between sales and purchases determines a credit or offset price which in turn drives output (and, longer term, investment, behavior).

The flexibility mechanisms of the Kyoto Protocol embrace both approaches. Cap-and-trade is the approach adopted for trading Parties' assigned amounts (their target commitments) while baseline-and-credit is the approach adopted for the 'project based' instruments – the Clean Development Mechanism (which generates certified emissions reduction units, CERs, from projects in developing countries) and 'Joint Implementation' (which provides for analogous offsets from projects in countries with binding Kyoto commitments). The two approaches are compatible and, under Kyoto as well as in the EU ETS and the CPRS, emissions can be acquitted by surrendering paper sourced from either approach.

There is a pragmatic logic to this: some activities are not sensibly or practically handled by cap-and-trade. For example, forest sequestration does not lend itself particularly well to annual emissions reporting, and emissions reduction activities in 'uncovered' sectors of an economy, or in otherwise uncovered countries, warrant some instrument of encouragement.

Sometimes it is asserted that baseline-and-credit schemes provide positive incentives ("carrots") in contrast with the cap-and-trade, pay for all emissions, "stick". The dichotomy is false. Under baseline-and-credit there is, by definition, the same quantum of stick as there is of carrot. The incentive for emissions reduction, under either approach, is identical for the same environmental outcome because the price is the same — the effect on the bottom line of a reduced cost (less permits to buy) is identical to the effect of a commensurate increase in revenue (some permits to sell).

But it would be difficult, albeit conceivable, to achieve an identical environmental outcome (ie the same level of emissions). This would require the sum of the baselines across all industries/facilities/firms to be the same level as the cap. Achieving that specific outcome in practice under baseline-and-credit would be an administrative nightmare although, by adjusting baselines over time (not particularly helpful for business certainty), a target outcome could be approximated.

Most proponents of baseline-and-credit advocate an emissions intensity benchmark rather than an absolute emissions baseline. In this model, the baseline would be computed by multiplying a measure of activity (eg energy input or product output) by a performance standard (eg emissions and/or electricity input per unit of product output). The CPRS, which is essentially a cap-and-trade system, utilizes this approach in delivering its "assistance" to TEIs.

But under this approach, as pointed out by Resources for the Future economist, Dr Carolyn Fischer²⁰, the implicit cap on aggregate emissions (or the aggregate emissions of the assisted TEIs in the CPRS case) varies with the level of aggregate output. A consequence of this, which is confirmed in trading experiments by economists from Canada's McMaster University²¹, is that the variable baseline in such baseline-and-credit schemes "introduces a critical difference in long-run performance compared with cap-and-trade with the same implied performance standard. Specifically, the variable baseline acts as a subsidy on output." Accordingly, with the same performance standard under both approaches, "the baseline-and-credit plan will exhibit higher output, emissions and external costs. If, instead, the performance standard under baseline-and-credit is tightened so as to meet the aggregate emissions specified under cap-and-trade, then industry costs will increase due to unnecessarily tight restrictions on emitting firms."

In essence, a baseline-and-credit system places a cost at the margin on the supply side of the emission reduction equation. This limits the costs passed-through to consumers and, in turn, limits the demand response for emission reduction. The cap-and-trade system allows the costs of emissions associated with all production, not just production at the margin, to be reflected in both demand and supply.

Another related problem is that, to be economically efficient, baselines in different sectors need to be established at exactly the correct level to reveal the same marginal cost across all sectors. That is, the baseline for the electricity sector set at tCO₂/MWh must be calibrated with the baseline for steel set at tCO₂/tsteel and petroleum products at tCO₂/kilolitre and so on. To date, all baseline-and-credit schemes have been applied to one sector (for example, electricity in NSW), and have therefore not addressed this important problem. It is hard to imagine, actually, how the problem could be overcome, save for a cap-and-trade scheme.

These are important deficiencies of baseline-and-credit relative to cap-and-trade, and are possibly behind the general preference around the world for cap-and-trade schemes, at least for activities they can readily 'cover'.

Another reason though may be that baseline-and-credit schemes raise no revenue for governments. This is seen by governments to be a negative (although we are told revenue raising is not an objective of the CPRS²²), but the corollary is that it is a positive for (some) in industry. Since baselines are allocated to TEIs in the same way as permits are to be allocated, the need for companies to raise money to participate in auctions is reduced. Whether the baseline-and-credit approach reduces the funding burden of an industry relative to the cap-and-trade approach is dependent on the amount of permits available under cap-and-trade to be allocated for free.

Working capital aside, there are few intrinsic advantages in the baseline-and-credit approach.

Table 1 summarises the advantages and disadvantages of cap-and-trade, baseline-and-credit, carbon tax and the Carmody consumption approach (see next section) in the context of Australia putting a

²⁰ Fischer, C. *Rebating environmental policy revenues: Output-based allocations and tradable performance standards*. Discussion Paper 01-22, Resources for the Future, 2001.

²¹ Buckley, Neil J., Mestelman, Stuart, and Muller R. Andrew, *Baseline-and-Credit Emission Permit Trading: Experimental Evidence Under Variable Output Capacity*, in **Environmental Economics, Experimental Methods**, Todd Cherry, Stephan Kroll and Jason Shogren (eds.), New York : Routledge Press, 2008, EconPapers, 2005.

²² Exposure Draft, Carbon Pollution Reduction Scheme Bill 2009, Clause 3

price on emissions in advance of our trade competitors — in a comprehensive global emissions market the issue does not arise.

TABLE 1: COMPARISON OF EMISSION TRADING APPROACHES IN CONTEXT OF LIMITED GLOBAL AGREEMENT

Feature	Cap-and-Trade	Baseline-and-Credit	Carbon Tax	Carmody Approach
Compatibility with trade neutrality	Possible with TEI permit allocation to fully offset competitive disadvantage	Possible with baselines set for TEIs at the level of project emissions	Possible with tax rebates for TEIs	Purpose designed to be trade neutral with export rebates and import taxes
Compatibility with international trading	Fully compatible	Compatible, although the baselines themselves are not traded	No trading, but could accommodate imported permits as tax credits	No trading, but could accommodate imported permits as tax credits
Compatibility with WTO	Probably incompatible, but risk of challenge may not be high	Probably compatible, but has not been tested	Uncertain, but risk of challenge may not be high	Fully compatible if implemented like GST
Compatibility with economic efficiency	Compatible if TEIs not competitively disadvantaged	Requires alignment of baselines between sectors and additional demand-side measures to be economically efficient. It is a production subsidy	Compatible if TEIs not competitively disadvantaged. Requires sequestration credits to be tax credits	Fully compatible. Requires sequestration credits to be tax credits
Compatibility with emission targets	Compatible, noting that permits can be imported (but see 'economic cost')	Compatible, noting that permits can be imported	Tax rates need to be adjusted to meet the targets	Tax rates need to be adjusted to meet the targets
Compatibility with known economic cost	Compatible with a 'safety valve' permit price design feature	Compatible, but costs of additional demand-side measures are uncertain	Fully compatible	Fully compatible
Compatibility with managing permit price uncertainty	Compatible as it allows markets to establish forward price curves	Compatible as it allows markets to establish forward price curves	Requires government to set forward tax rates	Requires government to set forward tax rates

COMPLEMENTARY MEASURES

There is a great deal of literature on the economic logic of using market-based measures to address environmental problems. Where possible, putting a price on the “externality” is more likely to deliver least-cost innovation to meet the environmental objective than governments attempting to mandate the solutions.

Nevertheless, pricing may not overcome all market failures. In regard to greenhouse gas emission reductions, it has been demonstrated that, because the market is reliant on government for its

existence, the associated elements of sovereign risk will result in an under-investment by private firms, particularly in RD&D²³.

Further, where long-lived assets are associated with the emissions and the progress toward emission reduction is required at a faster rate than the market will deliver at a price that can be absorbed by the economy, there is a case for setting standards (for example, in buildings) or funding early commercial scale demonstration of “frontier” technologies (for example, in electricity generation). These kinds of rigorously scrutinized ‘complementary measures’ deserve support. However, they are special cases and any attempt to apply mandated approaches across the whole economy or whole sectors will not deliver a least-cost outcome.

INNOVATIVE ALTERNATIVES

The tax and trading approaches discussed above define national emission commitments in terms of the *production* of those emissions. This is in keeping with the Kyoto Protocol formulation of emission responsibilities.

While, in a world where there is a comprehensive global agreement, it matters little whether national commitments are defined in terms of emissions production (domestic consumption plus exports) or consumption (domestic consumption plus imports), it matters a great deal in a (real) world where countries take on different commitments at different times. In particular, a system based on national responsibilities for production of emissions automatically creates a trade advantage for countries that delay action — the “diabolical” problem to which Professor Garnaut refers. Indeed Treasury modeling confirms the proposition, with countries that delay taking on emission targets benefiting from an increase in investment in trade exposed industry²⁴.

Geoff Carmody is particularly alive to this problem and has proposed a consumption-based scheme that, for the period of transition to a comprehensive global agreement (and beyond), would ensure trade neutrality for countries that take on emission reduction commitments earlier than others²⁵. In essence, the scheme would provide that:

- All exports are rebated emission costs, both direct costs and emission costs embodied in inputs. An importing country would be free to impose an emissions charge at the same rate as it imposes on a domestic equivalent; and
- All product imports are assigned a border charge set at the same ad valorem rate as the emissions cost in an equivalent domestic product. That is, at least initially, imports are treated as if they have the same emission intensity as domestic production.

The key to the Carmody proposal is that it is trade neutral in exactly the same way as is GST and it can piggy-back on existing GST systems for implementation. This also makes it much more likely than the EITE (emissions intensive, trade exposed) element of the CPRS to be WTO compliant.

The complexity in the proposal arises from the initial need to determine and assign the emission intensities of domestic products to equivalent imported products. It is probable that this is no more

²³ Montgomery, W David and Smith, Anne E, *Price Quantity and Technology Strategies for Climate Change*, CRA International, October 2005

²⁴ The Treasury, *Australia’s Low Pollution Future: The Economics of Climate Change Mitigation*, October 2008

²⁵ Geoff Carmody, On Line Opinion, <http://www.onlineopinion.com.au/author.asp?id=5613>

complex that the emission estimates being made for artificially defined 'activities' under the CPRS — and, just as is the case for the EITE mechanism, could take a year to develop. However, once the scheme is up and running, it would deliver information about embodied emissions in all domestic products which could then be used to refine the rates of tax applied to equivalent imports.

An added advantage of the Carmody approach is that it avoids the large transfers in revenues from countries taking on relatively tough targets to other nations. This is not an issue about the merits of such transfers, but rather relates to the issue of how a truly global agreement can possibly be struck. Nations that are the potential beneficiaries are being given an incentive to remain so, and nations providing the funds face the politically difficult task of convincing voters at home to agree to lower their living standards — it is this very feature of the Kyoto Protocol that is likely to continue to incline the American Congress (and parliaments in other key nations) against any global agreement of the Kyoto Protocol type. In this respect, the Carmody approach and the McKibbin/Wilcoxon emissions trading model²⁶ share common ground.

Interestingly, Australia's surplus of emissions production over consumption is a characteristic shared by China, which is beginning to draw attention to the proposition that a country can be responsible for its consumption of emissions but much less sensibly, or equitably, for its production.²⁷

RECOMMENDATIONS

Both the current Government in opposition, and the current Opposition in government, had adopted a principled and economically sensible approach to the impacts on TEIs of Australia moving ahead of trade competitors in placing a price on emissions. Since the change of government, however, that potentially bipartisan approach has been sacrificed for evident political, as distinct from policy, reasons. If the CPRS is to provide a viable framework for future investment in Australian resources and manufacturing, a return to the principled approach is necessary.

Cap-and-trade schemes have merit. They provide a conduit for linking abatement schemes worldwide, with convergent pricing and hence greatest potential for least cost abatement discovery;

²⁶ McKibbin W. and P. Wilcoxon (2006) A Credible Foundation for Long Term International Cooperation on Climate Change, in Joseph Aldy and Robert Stavins (eds), *Architectures for Agreement: Addressing Global Climate Change in the Post-Kyoto World*.

²⁷ For example, see: *China's Greenhouse Gas Emissions Threaten to Double*, Spiegel Online International 6 March 2009:

"Many Western industrialized nations want China to commit to reducing its CO2 emissions," says Dabo Guan of the Electricity Policy Research Group at the University of Cambridge in England. "But the country will not even be capable of doing so." Guan, a native of China, together with colleagues from Norway and the US, have published several studies on the issue, most recently in the academic journal *Geophysical Research Letters* (GRL). The outcome of their analyses is unsettling. Even with substantial increases in efficiency and the broad introduction of climate-friendly energy technologies, China's CO2 emissions, they claim, will almost double in the next two decades compared with 2002 levels. Australian mathematician Glen Peters of the Center for International Climate and Environmental Research in Oslo points out that the industrialized countries clearly share some responsibility for China's miserable impact on the climate. In the GRL study, he and his co-authors analyze the reasons energy consumption and emissions in China rose so sharply between 2002 and 2007. They say most of the blame goes to ballooning annual growth of 26 percent in the export products industry. "About two-thirds of Chinese exports go to the United States, Japan, Europe and Australia," says Guan, who suggests that consumers in the Western industrialized countries should question their "luxurious lifestyle." The products China exports are mainly electronics, metals, chemicals and textiles.

they ensure the same price is signaled for sequestration as for mitigation; they allow the creation of a forward market; and, in terms of shielding TEIs (and compensating strongly affected industries like coal-fired power generation), a trading regime better matches the additional costs than its subsidy equivalent since it provides a perfect hedge against changes in permit prices.

A cap-and-trade emissions trading scheme can be designed so as to not unnecessarily disadvantage exports and import competing industries. The amendments to the CPRS design required to achieve this outcome and align with pre-election assurances were listed in the relevant section above.

Unfortunately there may be no solution to the concern that free permit allocation to TEIs may breach WTO rules. However, it may be that no nation challenges Australia's approach, not least because they may themselves wish to follow a similar approach in respect of their own TEIs.

There is a policy choice between modifying the CPRS and, in the light of the Carmody proposals, taking a different course in order to align with the rational pre-Election commitments of both major Parties to avoid the competitive disadvantage TEIs will otherwise bear until a comprehensive global agreement is reached. The choice has not only a domestic dimension but also an international one in terms of the prospects for a more immediate and lasting global agreement.

It appears the 'consumption-based' approach advocated by Geoff Carmody is beginning to gain attention and support, particularly from countries such as China which, like Australia, consume less emissions than they produce. The 'estimated half life' of an Australian CPRS will look to have been overdone if the consumption concept does catch on internationally. This is a good reason for the Carmody proposal to be taken seriously and to be seriously considered.

That is not to say that Australia should not proceed with the CPRS but, if it does so, the proposed treatment of Australia's trade exposed industries should be changed. Amendments which would afford TEIs the same transition protection as the Carmody scheme (but in a much different way) are listed in this paper. They are surely warranted.