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Policy note no. 3

October 2008

## **EFFECTIVE CLIMATE CHANGE POLICY: THE SEVEN 'CS'**

**IMPLEMENTING EFFECTIVE CLIMATE CHANGE POLICY: ETS OR CARBON TAX?**

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**GEOFF CARMODY & ASSOCIATES**

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## FOREWORD

The world financial and economic situation has taken a sudden and dramatic turn for the worse since the completion of GCA policy note no. 2 at the end of September 2008.

The USA 'sub-prime'-sourced credit crunch has gone global, and the world economy is now facing a major growth slow-down, with recession already in place or likely in most of the developed world. The financial system is suffering a major confidence crisis, with financial institutions collapsing, being taken over by other private sector institutions, or being bailed out and/or partly taken over by governments. Iceland has called in the IMF.

Credit confidence has been shattered. Lending has been drastically curtailed. Consumer and business confidence has been reduced. A growing 'batten down the hatches' mood threatens a 'paradox of thrift' impetus to a vicious circle of weaker economic activity and rising unemployment, especially in the developed economies.

This conjuncture is a major threat to global economic activity. It makes 'normal' international trade negotiations very difficult. It engenders a strong 'my country first, my jobs first' instinct from which sovereign governments are not immune. Unchecked, policy responses accommodating that instinct could intensify the expected global economic slow-down. This is a real threat to economic and political stability, the like of which probably has not been seen since the 1930s.

How long will this sombre situation last? That is not clear, but the painful process of 'de-leveraging' and asset price deflation, plus the associated weakness in economic activity, could be protracted.

This is the stage on which attempts to secure a truly global deal on climate change policy – soon – must be played out. The claimed 'prisoners' dilemma' or 'free rider' problem preventing such a deal – described as 'diabolically difficult' before – now seems so intense as to be insuperable. Individual country initiatives are likely to be deferred. Europe is divided. Italy, Poland and Germany (and five others?) have questioned policy timing.

A major reason for the severity of the claimed 'prisoners' dilemma' or 'free rider' problem that has prevented a global deal on climate change policy to date is the production-based policy model currently being advocated by the EC and others. For countries acting unilaterally, this model:

- Threatens 'carbon leakage' (and possibly 'emissions permit leakage'), thereby negating or minimising net contributions to global greenhouse gas emission reductions, and, with that, losses of economic activity and jobs from the countries adopting such policies.
- Apart from deterring countries from even adopting such policies, for those that do, it encourages major policy 'carve-outs', industry 'compensation' and similar measures that emasculate policy effectiveness.

In short, the production-based model is ineffective and inefficient, even when adopted. Worse, its key features are major reasons why key emitting countries will not adopt such policies in the first place.

These policy impediments have been greatly magnified by the current financial-economic conjuncture.

Meanwhile, in Australia (which is relatively well-placed economically):

- We hear repeated claims that Australia is peculiarly exposed to the adverse effects of global warming.
- Simultaneously, we see a growing tide of business demands for more 'carve-outs' and concessions, as forecast in GCA policy note no. 1. Amongst the latest is the Australian Industry Group, expressing concern about job losses as high as one million due to carbon leakage unless there are more concessions, a later start for the ETS, and a low carbon price. The proposed 'carve-outs' already offered are themselves arbitrary, complex and a recipe for interminable haggling about dividing lines and thresholds.

Australia can turn this challenging environment into an opportunity to provide policy leadership, by tweaking the current Green Paper approach and switching to a consumption-based model as an example to the world.

That example will greatly reduce if not eliminate the claimed 'prisoners' dilemma' or 'free rider' problem.

It might – just – make a global deal on climate change policy achievable. The production-based alternative isn't an option, (if it ever was) for key emitters that have not yet adopted broad-based, price-oriented climate change policies.

Geoff Carmody, Canberra

October 2008

## **ACKNOWLEDGEMENTS**

Following the release of policy notes nos. 1 & 2, Geoff Carmody & Associates has received many comments on the contents of both documents.

Overwhelmingly, the comments have been encouraging and often constructively critical.

In response to these notes, and especially policy note no. 2, some readers with backgrounds in WTO/GATT negotiations have continued to raise some concerns about WTO compliance as an impediment to the findings in both notes.

This final note in this series deals with these concerns.

In preparing this third policy note, Geoff Carmody & Associates again has benefited greatly from readers' comments and suggestions. It is not possible to record individually acknowledgements for all of the contributors' comments here.

But they have improved the contents of policy note no. 3 substantially.

We do wish to single out Russell Higgins. Russell has been a patient and tireless sounding board for our ideas, and a gentle but effective advisor when it came to smoothing off the rough edges of the drafting and making the central message clearer.

Naturally, the remaining analytical and other errors are ours.

Geoff Carmody, Canberra

October 2008

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## POLICY OVERVIEW (COVERING POLICY NOTES 1, 2, AND 3)

*Effective international action is necessary if the risks of dangerous climate change are to be held to acceptable levels, but deeply problematic. International cooperation is essential for a solution to a global problem. However, such a solution requires the resolution of a **genuine prisoners' dilemma**. Each country benefits from a national point of view if it does less of the mitigation itself, and others do more. If all countries act on this basis, without forethought and cooperation, there will be no resolution of the dilemma. We will all judge the outcome, in the fullness of time, to be insufficient and unsatisfactory.*

(Garnaut Climate Change Review, Draft Report, June 2008, pages 1-2.

Emphasis added.)

We initially accepted this 'prisoners' dilemma', or 'free rider', diagnosis of the impediments to a truly global deal on climate change policy. Having thought about this issue a bit, and having completed this final note in a series of three policy notes on this subject, we're no longer convinced that this is a wholly, or even largely, correct diagnosis.

We think there's a **policy puzzle**, but not that much of a 'prisoners' dilemma'.

The **policy puzzle** is this: why have European (and some other) countries opted to become 'prisoners' to a climate change policy model designed to fail? Why have they opted for a model that *generates* 'prisoners' dilemma' or 'free rider' effects? Why have they done so when a more effective and efficient policy model is theirs to choose?

There's a cynical, trade advantage-motivated, answer, but we do not subscribe to it. There's an alternative answer that we think is more plausible. This is a new area of policy. The initial attempt at it was optimistic (everybody was expected to sign up at once/soon – they didn't) and, as a result, it's flawed. This is probably the right answer.

If we're right, this is an enormously 'good news' policy finding. Australia, and indeed all countries, can *choose* how much of a 'prisoners' dilemma' or 'free rider' problem climate change policy has to confront. We can *choose* an emissions *production* based model (and *choose* a large dose of 'free rider' problems and policy failure), or we can *choose* an emissions *consumption* based model (and largely wipe the 'free rider' problem away).

This is the key point. **Governments choose the climate change policy design they want. Realistically, they choose unilaterally. But trade risk can be minimised.**

We conclude that the major reason why the world has not signed on to a truly effective and efficient global deal on climate change policy is not so much a 'prisoners' dilemma', but, rather, a failure of **government policy design choice**. Governments *can* fix this failure, and should do so if they are serious about effective and efficient policy in this area. *They* are responsible for choices about policy design, nobody else.

We think that the 'prisoners' dilemma' diagnosis is mainly an admission that the world has become a prisoner to a flawed policy model: the production-based model. There is a practical alternative: the national emissions consumption-based model. This starts by asking each country, first, to 'clean up its own emissions consumption act', without risking any loss of trade competitiveness or 'carbon leakage'.

Importantly, it also offers each country the opportunity of a large efficiency-enhancing switch in its taxation mix, away from inefficient taxes and towards more efficient taxes. It does so with no loss in real incomes as well. Climate change policy can lift incomes.

It's worth a try. After all, in a world sliding into recession, the production-based alternative is no longer a realistic global policy option. Even in Europe, it's under threat.

### EXECUTIVE SUMMARY (POLICY NOTE 3)

This policy note critically evaluates some (residual) claims that WTO/GATT rules would preclude adoption of a comprehensive consumption-based greenhouse gas abatement policy, even though such a policy is operationally feasible, as shown in policy note no. 2, completed in September 2008.

It also attempts a balanced evaluation of the merits of an emissions trading scheme (ETS) versus a carbon tax.

Taking the current policy note, and the two preceding it, together, we conclude that a number of central points are clear:

- Effective and efficient greenhouse gas abatement policies will require good carbon accounting, reporting and monitoring systems. That will be true whether we choose a consumption or a production target base for such policies. It will be true whether we choose an ETS or a carbon tax as the policy instrument.
- For small open economies like Australia, and for all economies in a world where adoption of climate change policies will be effected over a period of time, there is a strong in-principle case for adopting a national emissions *consumption* policy model. Especially where international trading in emissions permits is allowed, a *production*-based model sets the policy up for failure, driven either by ‘carbon leakage’ and/or by ‘emissions permits leakage’.
- Adopting an effective consumption-based policy model is quite feasible. In Australia, it can be done starting with the sort of emissions accounting proposed in the Green Paper, the existing GST-based Tax Invoice system, the existing import tariff product classifications, and without any of the unnecessarily complex ‘carve outs’ and ‘compensation’ currently being offered by the Government or being demanded by business and others.
- There is no credible WTO/GATT objection to the approach as specified in these policy notes.
- The strength of a country’s efforts to deliver greenhouse gas abatement can fairly readily be measured. It only requires good estimates of (i) the carbon price in the country concerned, and (ii) the effective emissions coverage of the greenhouse gas abatement policy in that country. The higher are both, the greater is the country’s effort.
- ‘Compensation’ should not be a feature of effective and efficient greenhouse gas abatement policies. That said, overall revenue-neutrality (or a modest degree of revenue-negativity) provides scope for (i) reducing or eliminating existing inefficient indirect taxes, (ii) lowering income taxes, (iii) raising transfer payments, or (iv) a combination of these, as an adjustment accompanying implementation of a broad based greenhouse gas abatement policy.
- Just as broad based greenhouse gas abatement policies work by sending a price penalty for greenhouse gas emissions, there is a case in principle for offering price subsidies (negative taxes) for activities sustainably withdrawing such gases from the atmosphere. This case rests on the existence of a demonstrated market failure, and evidence that government intervention can substantially improve outcomes.
- Using a cost-effectiveness calculus, a carbon tax is probably a better policy instrument, overall, than an ETS.

This last point is important for other reasons too.

There is still some uncertainty about the science of global warming – in *both* directions. The threats might be larger – or smaller – than we currently understand. We hear much about the ‘precautionary principle’ as a basis for setting environmental policy objectives. There is a good case for applying the same principle to the policy bases and instruments we choose to meet those objectives as well.

This suggests we need an effective and efficient policy that can be adjusted fairly quickly, *and globally*, in response to new evidence.

This requires (i) a transparent *global* policy actually in place to start with, and (ii) a capacity to adjust its settings in a coordinated way without running up against new 'prisoners' dilemma' or 'free rider' problems.

In short, we need a global policy base, and a policy instrument applied to that base that can be adjusted relatively quickly.

A consumption based carbon tax, applied globally, would meet those requirements.

Many others have analysed these issues.

Geoff Carmody & Associates would like to leave the last word to a recent analyst. We think his views are apposite:

*.... I do not argue that prevailing scientific opinion is wrong, nor that the possibility of 'dangerous anthropogenic interference with the climate system' can be ruled out, nor that action to curb emissions is provably unwarranted. Recognising the current over-presumptions and endemic bias for what they are does not entail saying that today's official policy consensus should now be ignored, rejected or overturned. In any case, the world is not starting from scratch. Governments everywhere have signed up to the Framework Convention, and many of them have taken action, entered into commitments and created expectations accordingly. They have done so on considered advice which they themselves commissioned and reviewed.*

*Given the combination of continuing uncertainties, past history and the present situation, I am personally in favour of the widespread adoption of a carbon tax, provided it can be made to work and is kept revenue-neutral. .... Nigel Lawson has taken a similar position. However, I consider that neither the official policy consensus nor the advice on which it rests should be treated as authoritative or final. Both should be seen, not as well established doctrine, but rather as a set of working assumptions. As such, they should be made subject to rigorous testing and review; and it should be a leading concern of policy, which up to now it has not been, to ensure that such testing and review takes place.*

*More broadly, I part company with official thinking, and with many fellow-economists including now Ross Garnaut, for reasons that have been outlined above. I have come to believe that in relation to climate change issues a whole new framework of thinking is needed – less presumptive, more inclusive, more professionally watertight, and more attuned to the huge uncertainties that remain. A leading task of policy should be to establish such a framework and procedures that reflect it.*

*Where so much remains uncertain and indeed unknown, and the stakes are so high, policies should be evolutionary and adaptive, rather than presumptive; and their evolution should be linked to a process of inquiry and review that is more thorough, balanced and objective than is now the case. For a start, governments – and other institutions too – should institute (a) comprehensive audit of the quality of the science-based information that enters into policy. **Further, they should now promote open exchanges of view, while contrasting informed assessments should be commissioned, funded and published. It should no longer be taken for granted either that 'the debate is over' or that the present official advisory process is fully adequate to its task.***

*(Climate Change Issues: An Australian Contribution to the Debate, David Henderson, 24 September 2008, pages 10-11.)*

(Parenthesis and emphasis added.)

## 1. INTRODUCTION

This is the third and final note in the GCA policy note series dealing with broad-based, price signal-oriented, policy measures intended to reduce anthropogenic greenhouse gas emissions as a contribution to addressing forecast climate change problems in the period ahead.

Policy note no. 1 set out seven design principles for evaluating greenhouse gas abatement policies.<sup>1</sup> Policy note no. 2 provided some additional comments on the first four design principles set out in policy note no. 1, and concentrated in particular on demonstrating how a consumption-based policy model could be implemented in Australia.<sup>2</sup>

The practicality of a consumption-based policy model is crucial if it is to be a serious contender to replace the fundamentally flawed production-based policy model currently favoured by some countries (notably within the EC and, currently, including Australia).

Policy note no. 2 showed that a consumption-based policy is workable, comprehensive, eliminates 'carbon leakage' risks, and should be WTO compliant.

### 1.1 FOCUS OF THIS POLICY NOTE

This final policy note addresses some residual arguments questioning the WTO compliance of the approach set out in policy note no. 2.

It also provides some further comments on the remaining three design principles not covered in policy note no. 2, viz:

**V.** Compensation-constrained country policies.

**VI.** Carrot-inclusive country policies.

**VII.** Cost-effective country policies.

Finally, this note attempts a balanced assessment of the practical merits of an emissions trading scheme (ETS) versus a carbon tax, drawing on the analysis in all three policy notes.

### 1.2 STRUCTURE OF THIS POLICY NOTE

The remainder of this note is structured as follows:

- Section 2 addresses some ongoing concerns about WTO compliance that have been raised by readers of policy note no. 2.
- Section 3 provides some additional comments on design principle #5: compensation-constrained country policies.
- Section 4 provides some additional comments on design principle #6: carrot-inclusive country policies, including an examination of the case for a negative carbon price as an incentive for activities that sustainably withdraw greenhouse gases from the atmosphere.
- Section 5 provides some additional comments on design principle #7: cost-effective country policies.
- Section 6 attempts to draw together the analysis in all three policy notes to come to a balanced judgement on the merits of an ETS versus a carbon tax.

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<sup>1</sup> *Effective climate change policy: the seven 'Cs'. Some design principles for evaluating greenhouse gas abatement policies*, policy note no. 1, Geoff Carmody & Associates, July 2008.

<sup>2</sup> *Effective climate change policy: the seven 'Cs'. Implementing design principles for effective climate change policy*, policy note no. 2, Geoff Carmody & Associates, September 2008.



- Section 7 presents some concluding comments.
- As necessary, more detailed material is presented in Attachments to this note.

## 2. POSSIBLE WTO/GATT OBJECTIONS: ARE THEY SUBSTANTIVE OR SPURIOUS?

Despite the analysis and findings presented in policy note no. 2, some readers have continued to maintain that WTO/GATT rules might not permit a country to adopt a consumption-based climate change policy model.

### 2.1 BACKGROUND

This claim of WTO/GATT inconsistency seems to run as follows:

- Applying a carbon tax to imports on the basis of *their* embedded carbon content could be WTO-inconsistent. Exempting exports would be WTO-inconsistent.
- Under the GATT, the EU negotiated 'special treatment' for Value-Added Taxes (VATs), and this 'special treatment' has been transferred to the WTO. (This special treatment permitted a 'destination', or consumption location, tax base, rather than an 'origin', or production location, tax base, for VATs.)
- This 'special treatment' took a lot of negotiation,<sup>3</sup> and is a 'one-off' case, not to be repeated.

The obvious rejoinders, based on policy note no. 2, are as follows:

- How are 'revenue' customs and excises based on, say, alcoholic content or tobacco content, WTO-compliant (as they must be if they exist and have done so for a long time)?
- That said, if ascertaining the carbon content of *imports* is needed, it is true that attempting to do so would be at best potentially controversial and at worst difficult if not impossible. In that *practical* sense, under current WTO/GATT rules, it is understandable that attempts to apply a carbon tax to imports based on *their* carbon content could well cause WTO compliance concerns and objections.
- However, the consumption approach proposed in policy note no. 2 does not require information about imported product carbon content. It only requires emissions intensity data for Australian products.
- More generally, if Australia imposes the same ad valorem tax on an imported product as on the counterpart import-competing product – *regardless* of the rationale for that tax – the tax effect would be trade competitiveness-neutral. Similarly, if a new tax/price on Australian production does not apply to exports, Australian export competitiveness is not affected, either. How could the WTO object to these outcomes? In the case of the GST, there is no objection.

It seems to us that these considerations mean that the claim of WTO inconsistency, as it relates to the consumption base proposed in policy note no. 2, boils down to a *sui generis* argument. That is, VATs (and of course Australia's GST) are 'special treatment cases', not to be repeated.

The weakness of this claim can be exposed by considering (i) economic, (ii) political, and (iii) technical perspectives.

### 2.2 THE ECONOMICS OF THE ARGUMENT

Consider the economics of the *sui generis* claim first. If we are to believe this position:

- The WTO rules support an 'origin', or production-based, climate change policy, which, for countries acting unilaterally, generates 'carbon leakage' and job losses by reducing the competitiveness of the country adopting such policies relative to those that do not.

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<sup>3</sup> See *Effective climate change policy: the seven 'Cs'. Implementing design principles for effective climate change policy*, policy note no. 2, Geoff Carmody & Associates, September 2008, section 4.3, pages 7-8.

- The WTO rules proscribe a ‘destination’, or consumption-based, climate change policy, which, for countries acting unilaterally, does not generate ‘carbon leakage’ or job losses and is trade competitiveness-neutral for countries adopting such policies relative to those that do not.
- The WTO rules allow major ‘carve-outs’, producer ‘compensation’ (including, potentially, behind-the-border, non-transparent protectionist measures), as part of an origin-based policy – indeed, as a defence against ‘carbon leakage’ – regardless of the emasculation of the policy that results from such measures.
- The WTO rules actually *support* the biggest single reason for the ‘prisoners’ dilemma’ or ‘free rider’ problem that is preventing a global deal on climate change policy: erosion of competitiveness. Yet this reason is otherwise directly amenable to country policy control.

Just to state the economics in this way is to underline the absurdity of the *sui generis* appeal to WTO rules as a reason why the world must persist with a policy model that won’t work.

### 2.3 THE POLITICS OF THE ARGUMENT

The politics of the argument summarised below are strong when the world is growing strongly. They are simply irresistible given the present financial/economic conjuncture:

- The WTO rules require countries unilaterally adopting climate change policies to expose their electorates to rising unemployment relative to business-as-usual (BAU) because they must choose a production based model.
- The WTO rules prevent countries unilaterally adopting climate change policies from insulating their electorates from rising unemployment relative to business-as-usual (BAU) by choosing a consumption based model.
- The WTO rules require countries unilaterally adopting climate change policies to accept that they must risk little or no net reduction in *global* greenhouse gas emissions, regardless of their own efforts, *because* they risk higher unemployment and lower economic growth relative to BAU.

In this case, the economics and the politics strongly coincide.

The politics, especially at present, are highly toxic.

If politicians were meeting as members of WTO, and were confronted with the economics and politics as summarised above, a surprising thing might well happen.

We might see an extreme rarity in international negotiations: a unanimous, or near-unanimous, vote to change the (so-called) *sui generis* rules in this case.

### 2.4 THE TECHNICALITIES

Suppose we suspend common sense, and surrender to the claims made in section 2.1 above.

Suppose we must accept, for some obscure technical reasons buried in the minutes of past negotiations and communiqués, the *sui generis* argument, the illogicality of it notwithstanding.

This would be a triumph of (international) bureaucratic stupidity over (coinciding) economic and political common sense (a coincidence itself rare enough to be treasured!).

It would mean that GATT rules negotiated long before climate change was on the global agenda can reach forward and over-ride sensible global responses to that problem, and cannot be changed.

It would be a worthy subject for new episodes of *Yes, Prime Minister*, or *The Hollowmen*.

But, even if we accept this situation, we have one shot left in our policy locker: precedent.

## 2.5 EXPLOITING THE TECHNICALITIES: A GST SURCHARGE

Australia's GST is WTO-compliant.

Australia can have a multiple-rate GST if it wants to have one.

The EC is a past master at multiple rate VATs.

Australia already has some variations. Some food, health and education is GST free. Some financial services are input-taxed, which means they are subject to an effective GST rate of less than 10%. We also have a Luxury Car Tax (which has recently been increased, subject to some extra complexity to get it through the Senate), and a Wine Equalisation Tax.

All of these indirect taxes, at different ad valorem rates, are applicable in Australia, and also apply to imports.

We assume that in all cases they are internationally accepted as WTO-compliant.

However, suppose we play it *really* safe in terms of WTO rules.

There would be absolutely nothing to stop Australia from adopting a 'destination' or consumption-based climate change policy by:

- exploiting the supposedly *sui generis* status of Australia's destination-based GST (indeed, we exploit its features to make a consumption-based climate change policy workable anyway);
- changing the GST legislation to provide amendments to the current GST rates as follows:
  - for all goods and services, and measuring ad valorem tax rates as a percentage of the GST-exclusive price;
  - the new GST rate would be the simple sum of two components;
  - the first would be the currently-applicable GST rate (usually 10%, sometimes 0%, and sometimes in between);
  - the second, applicable to all transactions, including imports, and subject to full ITCs (notably for most business inputs and exports) would be a rate defined as follows:

$$\text{GST surcharge rate} = \frac{\text{carbon price} \times \text{product group unit average emissions intensity}}{\text{GST-exclusive product price}}$$

- the total GST rate for a product therefore would be the simple sum of two ad valorem rates under the GST legislation: the current rate plus an additional percentage determined by the carbon price and the relevant emissions intensity (see Attachment A);
- this combined GST rate would apply to Australian products and competing imports.

To be sure, pursuing a strictly GST option – if we really must – raises some interesting questions and challenges, especially in relation to the current financial agreement between the Commonwealth and the states, and in relation to the current Commonwealth Grants Commission (CGC) distribution formula for GST revenue.

In general, if necessary, Australia should challenge any attempt to 'shoe-horn' us into a GST-specific policy option. That said, such an option offers potential opportunities for State tax reform, as well as challenges. Indeed, such opportunities are relevant to the Henry Review of Australia's tax-transfer system (see section 3 below).

Overall, however, any *sui generis* WTO objection to a GST-like consumption model for climate change policy in Australia – or any other country – is anachronistic nonsense. If there are any such objections, bring them on, we say!

## 2.6 'CARBON LEAKAGE' HOLES IN THE PRESENT TAX/TRADE RULES SYSTEM.

The current international agreements and conventions in relation to taxation of goods and services do formally sanction a loophole that could generate significant 'carbon leakage'. They already result in a significant tax revenue leakage.

These relate to international travel and transport.

To the extent that international travel and transport is not covered by the policy – whether production or consumption based – there is a large area of emissions-generating activity outside the ambit of the policy.

Already, under various Conventions, international aviation is not included in Value-Added Tax systems like Australia's GST.<sup>4</sup>

Clearly, if the *sui generis* argument reviewed above has any weight, then the question becomes: do we need to modify current trade/taxation rules, including 'special treatment' for the GST, to deal with this gap in policy coverage?

GCA acknowledges that data adequacy in relation to this area of economic activity may well be a practical issue, but questions whether that is necessarily an insuperable hurdle in the case of international aviation at least.

To the extent that reasonable data is available, GCA concludes that a taxation/carbon pricing approach targeting the *country of residence* of the purchaser of the travel/transport services should be considered.

The reasoning behind this is as follows:

- At present, the 'destination' rationale for VAT systems generally works to exclude exports and include imports, but not always. In the case of international tourism (and other services such as overseas education), where the 'destination' of the consumption of travel-related goods and services happens to coincide with the 'origin' of their production (ie, the exporting country), VAT systems generally *include* such exports and *exclude* imports. In this case, unilateral action to impose a VAT undermines the international competitiveness of the tourism exports, and enhances the competitiveness of tourism imports, for the country concerned. Partial attempts to address this problem abound (eg, *ex post* availability of some/partial VAT rebates on presentation of 'big ticket' expenses receipts).
- Against that, *all* travel deemed to be international travel – whether exported or imported – is VAT-free.
- Depending upon how the VAT system 'special treatment' agreement is defined, there seems to be a good case for closing off the coverage gap for climate change policy. (Indeed, more generally, the question of exemption of international travel/transport from VAT systems should also be reviewed, but that is another matter.)
- When the physical production of the international travel/transport service is deemed to be 'international' – that is, ex-customs and ex-passport control/migration clearance – where is the service deemed to be supplied/demanded? Under current VAT arrangements, the answer seems to be: 'outside sovereign national jurisdictions'. Under current national accounting frameworks as supported by the United Nations System of National Accounts (SNA), the answer is different, and has three parts. First, the supplier of such services (by national resident status) is deemed to export such services where the purchaser is a non-resident. Second, the national resident purchasing such services is deemed to import such services

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<sup>4</sup> This exclusion can also extend to purchases of domestic air transport services where these are deemed to be part of 'international carriage' as defined under the *Carriage By Air Act 1967* which, by international agreement, (under the *Warsaw Convention*, the *Hague Protocol* or under *Section 18 of the Carriage By Air Act*) is a zero-rated service under value-added tax systems.

where the supplier is a non-resident. Third, the supplier of such services is deemed to meet local demand where the purchaser is a resident of the same country. These possibilities cover the spectrum. They are reflected in national balance of payments and national accounts components of a country's SNA.

- These national accounting approaches are intended to ensure that national balance of payments statistics 'add up' globally. (That's the intention: they only do so via the addition of a sizeable 'statistical discrepancy' to address national data deficiencies.)
- Nevertheless, the SNA/balance of payments statistics suggest a solution in relation to international travel/transport:
  - Suppose we deem the *supply* of the international travel/transport service to be provided in (or starting in) the country of residence of the purchaser (passport and related data probably make this relatively straightforward to determine). This classifies it as an import, or as local consumption (depending upon the country of residence of the supplier). This is consistent with current SNA/balance of payments treatment. It could imply a 'destination' approach to the treatment of such purchases under a consumption-based carbon price or carbon tax approach.
  - If so, arguably the VAT *sui generis* 'special treatment' approach could be applied.
  - That is, under VAT systems, such purchases should be taxed in the same way as similar services supplied locally in the country of the purchaser.
  - To be sure, for current VAT *taxation* systems, that would require amendments to current agreements and conventions relating to VAT systems, but there's a case for such amendments to 'close' the global indirect tax base as well.
  - Ignoring current VAT systems, for a new VAT-like carbon price/carbon tax (including when covered under current VAT legislation), this 'destination' approach arguably is consistent with the current *sui generis* approach for VAT systems.
  - Indeed, unlike the current treatment of much tourism export income and import spending, which produces perverse 'tourism business leakage' outcomes, this 'destination' approach would apply a consumption base to international travel and transport in a way that eliminates 'carbon leakage', 'emissions permit leakage', and concerns about undermining international competitiveness in relation to international travel and transport.

At present, this is a grey area.

However, the approach set out above is a possible solution.

Because the proposed solution is trade competitiveness-neutral, we assume it is likely to be relatively easy to get agreement from sovereign nations to its application (especially now).

The same conclusion might apply to broadening VAT system bases to currently-exempt international travel and transport, which would add to the scope for reducing other taxes and increasing transfers within each country (see section 4 below.)

### **3. PRINCIPLE #5: COMPENSATION-CONSTRAINED COUNTRY POLICIES**

There has been much debate about, and an increasing number of claims for, 'compensation' since the release of the Government's CPRS in its Green Paper in July 2008.

Defining what is meant by this term, and distinguishing 'compensation' from other adjustments following the introduction of a broad-based greenhouse gas abatement policy, is the subject of section 3 of this policy note.

#### **3.1 DEFINING COMPENSATION**

In the context of an ETS or a carbon tax, GCA defines 'compensation' as any or all of the following:

- Exemptions or 'carve-outs' from the coverage of the policy, relative to the intended policy base (whether that be production or consumption).
- Concessional pricing (including free issue) of emissions permits under an ETS.
- Tax offsets or other subsidies either partially or wholly directly negating the emissions price signal raising the cost of greenhouse gas emissions that would otherwise flow from implementation of the greenhouse gas abatement policy.

Both as a result of the proposals in the Green Paper (and subsequent negotiations thereon), and in the light of wider demands made by industry groups and other organisations, it is clear that examples of all three forms of compensation abound (and are likely to expand) if Australia persists with the production-based CPRS currently favoured by the Government.

As indicated in its first policy note,<sup>5</sup> GCA believes that 'compensation' as defined above is completely inappropriate if climate change policies are to be effective and efficient. Where some businesses seek 'compensation' because of institutional or other impediments that hamper the passing-on of the relevant price signals, those impediments should be removed.

That said, there are appropriate adjustments that may accompany the introduction of a broad-based greenhouse gas abatement policy. Indeed, these offer significant reform opportunities.

#### **3.2 BROAD TAX-TRANSFER OFFSET OPTIONS**

Whether governments introduce an ETS or a carbon tax, they are likely to raise significant revenues, either from emission permits auction proceeds or as carbon tax revenue, especially if they eschew 'compensation' as defined above.

Other things being equal, such revenues are likely to add significantly to governments' total tax revenue (including tax-like revenue in the case of an ETS). Assuming that the Budget position before implementation of the policy was satisfactory, and that no additional government spending is undertaken, this revenue increase could finance other tax-transfer adjustments.

These are summarised below.

#### **3.3 PRICE-REDUCING OFFSETS: FINAL RESIDENT CONSUMERS**

As was the case with the GST when it was introduced as part of the Howard Government's *New Tax System* in July 2000, the ETS or carbon tax revenue increase could be used to finance abolition of existing inefficient taxes. The remaining state-level stamp duties and fire services levies are excellent examples of existing inefficient taxes in Australia.

In effect, the introduction of a tax (or tax-like measure) targeted to reduce a global 'bad' (excessive greenhouse gas emissions) can also be used (in part) to finance the reduction in, or elimination of,

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<sup>5</sup> See *Effective climate change policy: the seven 'Cs'*. Some design principles for evaluating greenhouse gas abatement policies, policy note no. 1, Geoff Carmody & Associates, July 2008, section 5.5, pages 13-17.

current taxes on 'goods'. That is, the opportunity can be taken to reduce government reliance on existing inefficient taxes while increasing the community-wide efficiency of our treatment of external diseconomies (by pricing them better).

A word of caution is warranted here.

The revenue available for this purpose is only that reflecting the extent to which greenhouse gases continue to be emitted. Given that the intent of the policy is to reduce such emissions, revenue is likely to be affected by behavioural responses, even if (especially if?) the carbon price rises over time. Initially, such revenue is likely to be substantial (if the climate change policy base is broad and the carbon price is significant). However, it should be expected to decline relative to the economy as the policy progressively 'bites'.

That caveat aside, this is a 'win-win' outcome for efficient resource allocation, especially in the initial years.

Moreover, where the taxes being reduced or abolished are indirect taxes, their reduction or abolition will have price-reducing effects on the products affected, and on broader price indices.

These effects will provide an offset to the price-increasing effects of an ETS or a carbon tax.

Indeed, if all of the additional ETS/carbon tax revenue was allocated to such purposes, net price effects on broad price indices like the CPI could be close to zero.

If this were the result, resident consumers' real incomes, on average, would be almost unaffected by the policy changes. In that case, little or no real income 'compensation' is needed to leave consumers, on average, no worse off.

The main effects would be (i) higher prices for emissions-intensive products, and (ii) lower prices for other products. That *relative* price change is precisely the signal consumers need to face to change behaviour, switching to lower emissions products.

#### **3.4 REAL INCOME LOSS OFFSETS: FINAL RESIDENT CONSUMERS**

An alternative option – subject to the same caveat about available revenue – is to leave existing indirect taxes unchanged, but to use the additional revenue to finance income tax reductions and increases in social welfare transfer payments.

In this case, the net price-increasing effects of an ETS or a carbon tax are not offset by other indirect tax reductions. Real incomes therefore are reduced.

Real income offsets to those reductions could be delivered via income tax cuts and/or transfer payment increases. (That said, for many transfer payments, such increases would occur automatically, via current indexation provisions in response to increases in the CPI, for example.)

Done properly, such income tax cuts entail reductions in a tax system that is fairly inefficient relative to broad-based alternatives. To this extent, again, a 'win-win' efficiency outcome is secured.

#### **3.5 PRICE/INCOME OFFSETS: RESIDENT BUSINESSES AND EXPORTERS**

These price or income offsets are less relevant for resident businesses and exporters.

The latter should be unaffected by the introduction of a greenhouse gas abatement policy – provided the policy model uses a comprehensive consumption base.

For Australian resident businesses, a properly-designed, consumption-based climate change policy involves additional ITCs or similar mechanisms, allowing the price signals to be seen, and then passed on (ultimately to the final Australian resident consumer).

However, in the case of price-reducing offsets, resident businesses on average would also benefit from removal of taxes on business inputs (such as a number of stamp duties) that unnecessarily, and inefficiently, distort business input choices.



### **3.6 COMPENSATION VERSUS TAX OFFSETS: OVERVIEW**

In short, we strongly oppose 'compensation' as defined above.

'Compensation' is another way of saying: 'our climate change policy is less effective and efficient than it could be'.

The Green Paper proposal on the treatment of petroleum products (unfortunately) is a good example of 'compensation' in this context.

That said, we see no good reason why net revenues from either an ETS or a carbon tax should be allowed to raise the (currently-high) government sector tax/GDP or revenue/GDP ratios.

To the extent that additional revenue from an ETS or a carbon tax is sustainable for a run of years, we see merit in using that revenue either (i) to reduce or eliminate existing inefficient Australian indirect taxes, and/or (ii) to finance reductions in income tax rates and, possibly, increase transfer payments to individuals.

If anything, we have a preference for the first of these options, although, if state taxes are involved, that generates its own challenges.

In any case, this is clearly a matter for the Henry Review of Australia's tax-transfer system.<sup>6</sup>

There is another potential use for net revenues from an ETS or a carbon tax.

That is covered in the next section of this policy note.

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<sup>6</sup> See <http://www.treasurer.gov.au/DisplayDocs.aspx?doc=pressreleases/2008/036>, terms of reference, item 3.6.

#### 4. PRINCIPLE #6: CARROT-INCLUSIVE COUNTRY POLICIES

The rationale for broad-based, price-oriented, greenhouse gas abatement policies such as an ETS or a carbon tax is to put a (comprehensively-applied) price on *selected carbon emissions*.

Note the words '*selected*' and '*emissions*'.

Contrary to some loose descriptions of their intent, strictly speaking, such policies do *not* 'put a price on carbon':

- Past *stocks* of carbon accumulated in the atmosphere, however caused, are not covered.
- Future natural *flows* of greenhouse gas emissions – including some possibly induced by human activity (eg, tundra melting and associated CO<sub>2</sub> and methane emissions) – are not covered.
- There's an anthropogenic source of future greenhouse gas emissions *flows* that we assume is not covered as well. Human beings breathe. The world's population continues to grow.
- It's only a selected set of future anthropogenic *flows* of (human activity-induced) greenhouse gas emissions that are potentially caught by any greenhouse gas abatement policy.

In other words, such policies are intended to affect choices at the margin between *commercial* activities that generate more additional greenhouse gas emissions and those that generate less (or no) greenhouse gas emissions.

The sum of these commercially sourced *flows* of emissions is assumed to influence atmospheric greenhouse gas *stocks* over time. Altering these particular flows is the channel through which policy is intended to influence atmospheric concentrations of such gases, and meet particular concentration targets.

It's important to appreciate these points. Policy is seeking to influence *total* atmospheric concentrations of greenhouse gases by introducing incentives to reduce a sub-set of the contributing anthropogenic sources of forecast increases therein.

##### 4.1 POLICY 'STICKS'

The focus of GCA policy notes 1 – 3 so far has been on policy 'sticks'.

That is, we have concentrated on effective and efficient policy measures for *penalising* selected commercial activities generating additional flows of greenhouse gas emissions.

Broad-based, price oriented policies, such as an ETS or a carbon tax, introduce a price penalty for commercial activity-generated greenhouse gas emissions.

The rationale for such government policies is the assumed existence of a (global) market failure, resulting in non-pricing of selected commercial carbon emissions that therefore requires a policy-driven price signal to reduce such emissions.

The best we can expect from such a signal is the cessation of the selected sources of greenhouse gas emissions. This is likely to take a considerable period of time to effect – even if there is a truly global deal adopting the appropriate policies.

If price reductions for emissions-reducing activities could complement – and accelerate – price increases for emissions-increasing activities, why shouldn't government policies include 'carrots' for the former as well as 'sticks' for the latter?

##### 4.2 POLICY 'CARROTS'

The most important question here is: what activities *objectively, demonstrably and sustainably* withdraw greenhouse gases from the atmosphere?

The answer to this question is one for reputable scientists. It's not a question GCA is competent to answer.

Note that the question relates to *reductions* in greenhouse gases, not just slower *growth in emissions* of such gases.

Once the answer is determined, the next question is this: are such activities *demonstrably* subject to under-expansion (market failure) because the returns they attract attributable to reducing greenhouse gas emissions are too low (or zero)?

The answer is: 'probably yes, to the extent that such greenhouse gas reducing results are not explicitly rewarded'. This follows because, at present in Australia, greenhouse gas emissions are not priced (positively), and greenhouse gas reductions aren't priced either (negatively).

If market failure is resulting in excessive greenhouse gas emissions, then policy symmetry suggests government-imposed penalties for (selected) commercial greenhouse gas emissions, plus government-imposed incentives for (selected) commercial greenhouse gas emission reductions.

'Fixing' carbon, or exploiting 'carbon sinks', is the name of the emissions reduction game.

The practical questions then become:

- What activities (whether currently commercial or currently non-viable) genuinely 'fix' carbon as described above?
- Are they commercial without government assistance?
- If not, what assistance is needed to induce an efficient expansion of such activities?

These are easy questions to ask. They're much harder to answer.

The principle, however, is clear. There may well be a case for carbon subsidies for activities that *withdraw* carbon from the atmosphere for a very long time, just as there is a case for carbon penalties for activities that do the opposite.

#### **4.3 BEWARE THE 'MARKET FAILURE' CARPETBAGGERS**

It's important to add a caveat to the comments in section 4.2 above.

Once lobbyists understand the 'policy lingo', they tend to frame their lobbying arguments in terms that employ that lingo.

Since the early 1980s in Australia, the term 'market failure' – in some contexts – has become over-used and, frequently, misused.

(Expect more of this in the wake of the global financial and economic crisis through which the world is currently suffering.)

However, in the context of climate change, it is likely that there is no better example of really significant market failure. All three of the current GCA policy notes series are based on that reality. At present, there is no global market pricing greenhouse gas emissions – or reductions: that's the problem.

But even in the climate change context, the empirical strength of the market failure case – *and the demonstration that government intervention can significantly improve the situation* – remain essential 'reality checks'.

## **5. PRINCIPLE #7: COST-EFFECTIVE COUNTRY POLICIES**

This principle covers two obvious, but important, elements:

- Minimising the scarce resources needed to administer and comply with the greenhouse gas abatement policy chosen (efficiency).
- Maximising the capacity of the policy to achieve its intended objectives (effectiveness).

### **5.1 MINIMISING POLICY COSTS**

Whether we are considering an ETS or a carbon tax, the costs of operating such policies comprise:

- Greenhouse gas emissions recording, monitoring and reporting. This will require resources from both private and public sectors.
- A new emissions trading market, in the case of an ETS, requiring new resources operating in the financial markets as well as the markets covering production of other goods and services, plus, presumably, some public sector monitoring and oversight.
- An additional tax instrument, in the case of a carbon tax, requiring additional compliance resources in the privates sector, and administration/monitoring resources in the public sector.

We consider the merits of an ETS versus a carbon tax in relation to system costs in section 6 below.

For now, we simply emphasise that, for a given effectiveness ranking, the lower the policy costs, the better.

### **5.2 MAXIMISING INTENDED POLICY EFFECTS**

The effectiveness of the chosen greenhouse gas abatement policy will depend upon:

- How broadly spread, widely recognised and economically felt are the (given) price signals encouraging a switch away from greenhouse gas emissions.
- This, in turn, will depend upon minimising scope for (i) 'carbon leakage', (ii) 'emissions permits leakage', and (iii) 'carve outs' and other 'compensation' as defined in section 3 above.

Policies operating on the broadest possible bases, with the fewest possible exceptions, are likely to deliver the most effective policy outcomes.

We consider the merits of an ETS versus a carbon tax in relation to system effectiveness in section 6 below.

For now, we simply emphasise that, for a given policy cost ranking, the more effective the policy, the better.

## 6. ETS OR CARBON TAX? AN ASSESSMENT AGAINST DESIGN PRINCIPLES & PRACTICE

Much of the emphasis in all three GCA policy notes in this series has been on the reasons why an emissions *consumption* base is a better national policy target than an emissions *production* policy base.

A consumption base is both 'right' in principle (policy note no. 1), and feasible in practice (policy notes nos. 2 & 3). It is the biggest single policy design contribution we can make to reducing the 'prisoners' dilemma' or 'free rider' problem that all agree is the biggest impediment to cutting a global deal on climate change policy.

There remains the design question of whether an ETS or a carbon tax is the best policy instrument. In some respects, we consider this is a lower order issue. The choice of the policy base – consumption or production – is far more important. Nevertheless, if we can get the policy base 'right', we should also try to optimise the policy instrument applied to it.

Before making an assessment of the merits of each, we note that:

- Both consumption and production bases for climate change policy could be targeted by either of these approaches.
- In theory, and under the right conditions, an ETS and a carbon tax can deliver equivalent results. (Such 'equivalence' results are regular findings of academic research.<sup>7</sup>)
- In practice, such equivalence findings often break down, as noted in policy note no. 2. For countries acting unilaterally, and where taxes or tax-like measures are not uniform across products (eg, they depend upon emissions intensities), this breaking down of the 'equivalence' conclusion is potentially very important.

We now consider the merits of an ETS versus a carbon tax against the seven design principles set out in policy note no. 1, and against one other criterion covered in section 2 above: WTO-compliance.

### 6.1 RANKING AN ETS AND A CARBON TAX AGAINST POLICY DESIGN PRINCIPLES

#### I. 'Countable' country emissions.

The recording/accounting frameworks needed to monitor and report greenhouse gas emissions are likely to be a common requirement for an ETS or a carbon tax.

In fact, the practical approach outlined in policy note no. 2 can build on the recording/accounting approach proposed in the Green Paper, whether an ETS or a carbon tax is adopted.

Subject to the comments below under principle #7, the requirements under principle #1 therefore are common to an ETS and a carbon tax.

In this limited sense, both policy options can be ranked equal.

#### II. 'Credible' country policies.

The credibility of greenhouse gas emissions policies boils down to these questions:

- Are they understood and (in terms of price) felt?
- Do they deliver what they claim to deliver?

There is a widely presented argument that the difference between an ETS and a carbon tax is that the former guarantees an emissions reduction outcome (by capping emissions) at the expense of price

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<sup>7</sup> See, for example, *Effective climate change policy: the seven 'Cs'. Implementing design principles for effective climate change policy*, policy note no. 2, Geoff Carmody & Associates, September 2008, section 4.3, page 8.

volatility, while the latter guarantees a price outcome (by setting a price on carbon emissions) at the expense of emissions reduction uncertainty.

Were this to be true, there would be some *a priori* appeal in opting for an ETS. After all, the ultimate policy target is a reduction in greenhouse gas emissions, not a particular price for emissions.

In a global policy context, with a unified global policy response, this argument might be correct.

However, it is incorrect in a world where individual countries act unilaterally to reduce greenhouse gas emissions:

- In these circumstances, an ETS will generate both price uncertainty (this depends upon fluctuating demand relative to supply of emissions permits), as well as emissions uncertainty (because, with a production base, emissions reductions in Australia are likely to be partly or wholly attributable to 'carbon leakage', or 'emissions permits leakage' to other countries).
- A carbon tax offers a predictable path for the price for carbon covered by the policy, albeit with uncertainty about how emissions will be reduced. Where a production base is used, there is still the risk of 'carbon leakage', but the price path is more certain.
- In fact, in Australia, current proposals (whether by Garnaut or by the Government) are for an initial period where, in effect, we commence a production-based policy with a carbon price ceiling. In other words, at least initially, the CPRS will not be an ETS. Rather, it will be a (capped) carbon price (tax) policy.

So is an ETS likely to be more credible, overall, than a carbon tax?

The answer depends on the policy base:

- Under a production-based policy, a carbon tax may offer *more* certainty than an ETS. Indeed, the CPRS may start effectively as a carbon tax rather than a true ETS *and for precisely this reason*. Score one point for a carbon tax.
- Under a consumption-based policy as proposed in policy note no. 2, and assuming that risks of 'carbon leakage' and 'emissions permit leakage' are eliminated or minimised, an ETS might be a more solid option. It would be more likely to deliver a targeted reduction in (global) greenhouse gas emissions, albeit with more price volatility than a carbon tax. Score one point for an ETS.

This is an ironical conclusion.

If the CPRS switched to a consumption base, emissions trading (after the price ceiling phase expired) might deliver a more certain Australian *and global* emissions reduction outcome than a carbon tax! In that sense it might be more credible than a carbon tax (albeit with potentially more price volatility).

But under the currently preferred production base, an ETS generates *both price and* (globally) emissions quantity uncertainty.

We conclude that, under a production base for the policy, a carbon tax offers more certainty, which helps long-term investment planning. Under a consumption base, an ETS might be more effective in delivering a specified emissions quantity outcome.

On balance, score one for a carbon tax under a production base, and score one for an ETS under a consumption base.

### III. Consumption-based, comprehensive country policies.

The *practicality* of an ETS or a carbon tax for implementing a consumption-based policy is the issue here.

We do not wish to add to the assessment the merits of a consumption base versus a production base. These have already been argued in policy notes nos. 1 and 2.

Building on the analysis in policy note no. 2, we conclude that, while both approaches could work, a carbon tax, exploiting the reporting and crediting mechanisms already in place as a result of the GST and associated Tax Invoice systems, is somewhat easier to apply than an ETS.<sup>8</sup>

Score one for a carbon tax.

#### **IV. Comparable effort-based** country policies.

The core message here is that country effort should be assessed on the basis of (i) the carbon price, and (ii) the coverage of the policy, in the country concerned.

The carbon price signal can be delivered either by an ETS or a carbon tax.

There is no obvious reason to favour one policy approach over the other in relation to principle #4.

#### **V. Compensation-constrained** country policies.

In principle, policy adjustments (tax cuts and transfer increases) associated with the revenue gains from adopting greenhouse gas abatement policies could be effected regardless of the choice between an ETS and a carbon tax.

In practice, calibrating the required tax-transfer offsets described in section 3 above is likely to be easier under a carbon tax, because the price-revenue effects are likely to be more predictable.

Score one for a carbon tax.

#### **VI. Carrot-inclusive** country policies.

In principle, there is no reason why incentives for carbon withdrawal could not be delivered under either an ETS or a carbon tax, whatever their precise form.

There is no strong reason to favour an ETS or a carbon tax under principle #6.

#### **VII. Cost-effective** country policies.

Under cost effectiveness, two considerations affect the assessment of whether an ETS or a carbon tax is preferable:

- On cost minimisation, the assessment boils down to whether the creation of a new market trading in pieces of paper (with margins on each trade and, possibly, a rich new field for 'financial engineering') is more cost-effective than adding an instrument to an existing tax system.
- On policy effectiveness, the assessment is dependent on whether an ETS is better than a carbon tax in delivering the required outcome.

We are inclined to conclude that, much as (yet another) tax is not welcome, 'bolting-on' a GST-like tax instrument to the already-existing GST system is likely to be more cost-efficient than creating a whole new market in paper-shuffling, overlaid with all sorts of 'financial engineering', international trading in permits, and the like.

We conclude that the ETS approach is likely to be more resource-intensive and costly.

On policy effectiveness, this has more to do with the policy base chosen (a consumption base being preferable to a production base).

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<sup>8</sup> *Effective climate change policy: the seven 'Cs'. Implementing design principles for effective climate change policy, policy note no. 2, Geoff Carmody & Associates, September 2008, section 4, pages 5-14.*

However, if an ETS allows international trading in emissions permits, as recommended by Garnaut and possibly supported by the Government, we conclude that a (consumption-based) carbon tax is likely to be a more effective instrument for delivering reductions in global emissions. It will be less liable to 'emissions permit leakage'.

Score one for a carbon tax.

### **VIII. WTO-compliant country policies.**

Building upon the material in section 2 above, there's another benchmark against which an ETS or a carbon tax might be assessed: which is preferable from a WTO/GATT compliance perspective?

The implementation of a 'pure' ETS, whether production or consumption based, implies possibly volatile carbon prices. A carbon tax implies more stable (gradually increasing) carbon prices.

In terms of the WTO-compliant model set out in policy note no. 2, we conclude that:

- Price volatility either implies greater risks of a WTO challenge (especially because import BTAs move above locally produced carbon pricing due to adjustment lags), or the precision with which Australian carbon emissions are targeted is reduced (because the relevant local tax, and counterpart BTA, are based on carbon price averages over time).
- Price stability – a feature of a carbon tax – provides the necessary price smoothing (as does a carbon price 'ceiling', to some extent, in a transition phase for an ETS).

Score one for a carbon tax.

### **6.2 AN ETS OR A CARBON TAX: WHICH IS BETTER?**

Based on the brief analysis above, we conclude that:

- For three of the design principles proposed by GCA, either policy approach would be acceptable in practice.
- For one of the design principles, the answer depends on the policy target base chosen. For a production base, the preference may be for a carbon tax. For a consumption base, an ETS might be preferable.
- For the remaining three design principles, and for effective and efficient WTO compliance, we judge that a carbon tax is preferable.

On balance, the answer depends upon the weighting applied to each of the seven design principles, and to effective and efficient WTO compliance.

In GCA's opinion, principles #1, #2, #3, and #7, and WTO compliance, are the most important design criteria.

Based on these, we favour a carbon tax over an ETS.



## 7. CONCLUDING OBSERVATIONS (COVERING ALL THREE GCA POLICY NOTES)

This series of three policy notes has presented a number of central points:

- Effective and efficient greenhouse gas abatement policies will require good carbon accounting, reporting and monitoring systems. That will be true whether we choose a consumption or a production target base for such policies. It will be true whether we choose an ETS or a carbon tax as the policy instrument.
- For small open economies like Australia, and for all economies in a world where adoption of climate change policies will be effected over a period of time, there is a strong in-principle case for adopting a national emissions *consumption* policy model. Especially where international trading in emissions permits is allowed, a *production*-based model sets the policy up for failure, driven either by 'carbon leakage' and/or by 'emissions permits leakage'.
- Adopting an effective consumption-based policy model is quite feasible. In Australia, it can be done starting with the sort of emissions accounting proposed in the Green Paper, the existing GST-based Tax Invoice system, the existing import tariff product classifications, and without any of the unnecessarily complex 'carve outs' and 'compensation' currently being offered by the Government or being demanded by business and others.
- There is no credible WTO/GATT objection to the approach as specified in these policy notes.
- The strength of a country's efforts to deliver greenhouse gas abatement can fairly readily be measured. It requires good estimates of (i) the carbon price in the country, and (ii) the emissions coverage of the greenhouse gas abatement policy in that country. The higher are both, the greater is the country's effort.
- 'Compensation' should not be a feature of effective and efficient greenhouse gas abatement policy. That said, overall revenue-neutrality provides scope for (i) reducing or eliminating existing inefficient indirect taxes, (ii) lowering income taxes, (iii) raising transfer payments, or (iv) a combination of these, as an adjustment accompanying implementation of a broad based greenhouse gas abatement policy.
- Just as broad based greenhouse gas abatement policies work by sending a price penalty for greenhouse gas emissions, there is a case in principle for offering price subsidies (negative taxes) for activities sustainably withdrawing such gases from the atmosphere. This case rests on the existence of a demonstrated 'market failure', and evidence that government intervention can substantially improve outcomes.
- Using a cost-effectiveness calculus, a carbon tax is probably a better policy instrument, overall, than an ETS.

This last point is important for other reasons too.

There is still some uncertainty about the science of global warming – in *both* directions. The threats might be larger – or smaller – than we currently understand. We hear much about the 'precautionary principle' as a basis for setting environmental policy objectives. There is a good case for applying the same principle to the policy bases and instruments we choose to meet those objectives as well.

This suggests we need an effective and efficient policy that can be adjusted fairly quickly, *and globally*, in response to new evidence. This requires (i) a global policy actually in place, and (ii) a capacity to adjust its settings in a coordinated way without running up against new 'prisoners' dilemma' or 'free rider' problems.

A consumption based carbon tax, applied globally, would meet those requirements.

Many others have analysed these issues.

GCA would like to leave the last word to a recent analyst. We think his views are apposite:

.... I do not argue that prevailing scientific opinion is wrong, nor that the possibility of 'dangerous anthropogenic interference with the climate system' can be ruled out, nor that action to curb emissions is provably unwarranted. Recognising the current over-presumptions and endemic bias for what they are does not entail saying that today's official policy consensus should now be ignored, rejected or overturned. In any case, the world is not starting from scratch. Governments everywhere have signed up to the Framework Convention, and many of them have taken action, entered into commitments and created expectations accordingly. They have done so on considered advice which they themselves commissioned and reviewed.

Given the combination of continuing uncertainties, past history and the present situation, I am personally in favour of the widespread adoption of a carbon tax, provided it can be made to work and is kept revenue-neutral. .... Nigel Lawson has taken a similar position. However, I consider that neither the official policy consensus nor the advice on which it rests should be treated as authoritative or final. Both should be seen, not as well established doctrine, but rather as a set of working assumptions. As such, they should be made subject to rigorous testing and review; and it should be a leading concern of policy, which up to now it has not been, to ensure that such testing and review takes place.

More broadly, I part company with official thinking, and with many fellow-economists including now Ross Garnaut, for reasons that have been outlined above. I have come to believe that in relation to climate change issues a whole new framework of thinking is needed – less presumptive, more inclusive, more professionally watertight, and more attuned to the huge uncertainties that remain. A leading task of policy should be to establish such a framework and procedures that reflect it.

Where so much remains uncertain and indeed unknown, and the stakes are so high, policies should be evolutionary and adaptive, rather than presumptive; and their evolution should be linked to a process of inquiry and review that is more thorough, balanced and objective than is now the case. For a start, governments – and other institutions too – should institute (a) comprehensive audit of the quality of the science-based information that enters into policy. **Further, they should now promote open exchanges of view, while contrasting informed assessments should be commissioned, funded and published. It should no longer be taken for granted either that 'the debate is over' or that the present official advisory process is fully adequate to its task.**

(Climate Change Issues: An Australian Contribution to the Debate,  
David Henderson, 24 September 2008, pages 10-11.)

(Parenthesis and emphasis added.)

## ATTACHMENTS

### A. A CARBON TAX AS A GST SYSTEM SURCHARGE: AN ILLUSTRATION

How does a GST system surcharge work?

Attachment B to policy note no. 2 set out the essential elements.<sup>9</sup>

Consider an example.

$$G_1 = \sum_i (p_{nci} \cdot (1 + \text{gst}) \cdot q_i + p_m \cdot e_i \cdot q_i) \dots\dots\dots (1)$$

Where  $G_1$  = the market value of product group 1, summed across all group member products  $i$ .

$e_i$  = emissions intensity of product  $i$ .

The other notation follows that in Attachment A, policy note no. 2.<sup>10</sup>

$$p_{1idp} = (\sum_i (p_{nci} \cdot (1 + \text{gst}) \cdot q_i + p_m \cdot e_i \cdot q_i)) / \sum_i q_i \dots\dots\dots (2)$$

$$= (1 + \text{gst}) \cdot (\sum_i (p_{nci} \cdot q_i) / \sum_i q_i + p_m \cdot \sum_i E_i / \sum_i q_i) \dots\dots\dots (3)$$

Where  $p_{1ipd}$  = implicit price deflator for product group 1, including GST and emissions costs.

$$p_{1ipd} = (1 + \text{gst}) \cdot p_{1ipdnc} + p_m \cdot e_1 \dots\dots\dots (4)$$

That is, the all-inclusive implicit price deflator for product group 1 is equal to the GST-inclusive, carbon price-exclusive, implicit price deflator for product group 1 plus the market price for carbon multiplied by the group 1 product average emissions intensity.

As a result of the introduction of a carbon price, the *change* in the group 1 implicit price deflator is:

$$\Delta p_{1ipd} = ((p_{1ipd} - (1 + \text{gst}) \cdot p_{1ipdnc}) / p_{1ipdnc}) \cdot 100 = (p_m \cdot e_1 / p_{1ipdnc}) \cdot 100 \dots\dots\dots (5)$$

The larger the market price for carbon, and the larger the product group's average emissions intensity, the larger the group-average price impact of the introduction of a carbon price, other things being equal.

The relationship in equation (5) can be used to calculate the BTA for imports of products in group 1:

$$BTA_1 = (p_m \cdot e_1 / p_{1ipdnc}) \cdot 100 = +\epsilon\% \dots\dots\dots (6)$$

For locally produced substitutes, this adjustment – that is, a uniform percentage price change for locally produced products in group 1 of  $+\epsilon\%$  – replaces the product-specific price increase described in Attachment A of policy note no. 2. Summed across all product groups, the aggregate price change arising from the introduction of a market price for carbon will be the same, but it will comprise the sum of a number of product group averages, not the sum of individual product price increases.

By construction, the effect of this approach is to impose the same carbon price-related ad valorem tax on both locally produced products, and those imported products deemed to be in the same import tariff category.

As with the GST, this is a trade-neutral tax adjustment. The BTA represents the same percentage price increase as is applied to the locally produced substitute.

<sup>9</sup> Effective climate change policy: the seven 'Cs'. Implementing design principles for effective climate change policy, policy note no. 2, Geoff Carmody & Associates, September 2008, Attachment B, pages 24-25.

<sup>10</sup> Effective climate change policy: the seven 'Cs'. Implementing design principles for effective climate change policy, policy note no. 2, Geoff Carmody & Associates, September 2008, Attachment A, pages 17-20.

We can now define a new ‘total’ GST, expressed as an ad valorem percentage rate relative to the GST- and carbon price-free product price as follows:

$$gst_{1t} = ((gst_1 + p_m \cdot e_1) / p_{1ipdncgst}) * 100 \dots\dots\dots (7)$$

$$gst_{1t} = (gst_1 / p_{1ipdncgst}) * 100 + (p_m \cdot e_1) / p_{1ipdncgst} * 100 \dots\dots\dots (8)$$

$$\%gst_{1t} = (\alpha_1 + \epsilon_1) \% \dots\dots\dots (9)$$

Where  $gst_{1t}$  = unit total Australian GST for product group  $1$ .

$gst_1$  = current ‘standard’ unit total Australian GST for product group  $1$ .

$p_m$  = Australian market price for carbon (greenhouse gas emissions).

$e_1$  = average unit emissions intensity for product group  $1$ .

$p_{1ipdncgst}$  = pre-GST, pre- GST surcharge, implicit price deflator for product group  $1$ .

$\%gst_{1t}$  = unit total GST for product group  $1$ , as % of the pre-GST, pre-GST surcharge price.

$\alpha_1$  = current GST rate for product  $1$  (as % of the pre-GST, pre-GST surcharge price).

$\epsilon_1$  = GST surcharge rate for product  $1$  (as % of the pre-GST, pre-GST surcharge price).

Across all Australian and imported products, the total GST rate will vary.

There will be some variation due to the current GST rates (10%, zero, or in between).

There will be much more variation because of the GST surcharge:

- A common Australian carbon price will apply (although this also presumably will be expected to increase over time, even if it is stable, or nearly so, within years and possibly for a run of years).
- The main source of variation within any period will be differing product group average emissions intensities. High emissions Australian products (and their imported substitutes) will face the highest total GST rates. Low emissions Australian products (and their imported substitutes) will face the lowest total GST rates.
- These emissions intensities will be expected to decline over time in response to carbon pricing.

Note also that:

- All exports will be (total) GST-free (except those caught by the ‘destination principle’ because they are consumed in Australia).
- All imports will be (total) GST-liable, at the same rates as apply to their import-competing local substitutes under Australia’s import tariff classifications.
- Imports where there are no locally produced substitutes will also attract the total GST rate at some level.
- Most business inputs will attract ITCs. For ‘standard’ inputs, these will comprise the ‘standard’ GST rate plus the GST surcharge.
- However, for input-taxed supplies, these ITCs may be zero, or, depending upon practicality, comprise just the GST surcharge (probably the former).
- Australian resident consumers will face the full GST rate on their purchases, with higher rates on emissions-intensive products, and conversely.

Because this approach uses the GST system – and indeed could be embodied in appropriate GST legislation – it would be covered by the (so-called) *sui generis* ‘special treatment’ allowing a ‘destination’ or consumption based GST.

In this way, the proposed consumption base for Australia’s greenhouse gas abatement policy would be WTO-compliant.