

SUBMISSION TO THE PARLIAMENT OF AUSTRALIA'S SENATE SELECT COMMITTEE ON THE SCRUTINY OF NEW TAXES

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The Regrettable Need for Carbon Tax Thresholds - or the Heroic Case for No Free Carbon Permits

Summary

I argue here that if a carbon tax is charged on all units of emissions coming from any emitter covered by the tax, it can serve only an introductory role in creating a carbon price in Australia. To be politically capable of creating a price high enough to be the main driver of any serious target (e.g. at least a 5% abatement in carbon emissions over 2000-2020), a tax must include emission thresholds, below which the tax is not payable. Such thresholds reduce the total amount of tax revenue raised, and thus lower political resistance; but if thresholds are tradable, they leave intact the economy-wide price on another tonne of carbon emissions, which is the most cost-effective overall method of abatement (compared for example to the government "picking winners" for direct action using taxpayers' money).

Carbon tax thresholds are generally equivalent to free permits under a carbon trading system. So arguing that a carbon tax will be simpler and less subject to political lobbying if it has no thresholds is in my view heroic. One can equivalently argue that carbon trading will be simpler and less subject to lobbying if no permits are freely granted, but all are auctioned. Regrettably, political realities in dozens of countries since 1990 have shown that heroic solutions do not work, and free permits are essential to getting carbon trading legislation that achieves serious abatement passed by parliaments. Equivalently, a carbon tax without thresholds will be politically forced to stay at a low, introductory rate, or to allow major sectoral exemptions. And a low tax rate cannot achieve serious abatement, while major exemptions will make the tax inefficient and unjust, as well as ineffective.

1. What might a 10-year, tradable, carbon tax threshold roughly look like?

*Anyland Government
The Treasury*

CARBON TAX THRESHOLD for 100,000 tonnes/year of CO₂-equivalent

The Anyland Government will pay the registered owner of this certificate each year on 1 July, starting 1 July 2012 and ending on 1 July 2021, a sum equal to 100,000 tonnes, multiplied by the CO₂ tax rate in \$/tonne set for that year by the Anyland Treasury.

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(The relevance of this illustration will become clear later.)

2. The Committee's Terms of Reference addressed, and my background

In this submission I address these Terms of Reference:

- (a) new taxes proposed for Australia, including:
 - (ii) a carbon tax, or any other mechanism to put a price on carbon, and
- (d) the likely effectiveness of these taxes and related policies in achieving their stated policy objectives;
- (e) any administrative implementation issues at a Commonwealth, state and territory level;
- (g) alternatives to any proposed new taxes, including direct action alternatives.

I have a Bachelor's degree in mathematics, and Master's and Doctoral degrees in economics; a decade's experience as a government scientist and economist working on environmental issues; and then two decades of experience as an academic environmental economist. All opinions here are mine alone, not those of the ANU or the ANU-based Environmental Economics Research Hub, which partly funded the research on which this submission draws.

3. General point: the need to compare a carbon tax and a carbon trading system in a fuller, more symmetric way than before

So far, the Australian debate on comparing a carbon tax and a carbon trading system has followed worldwide debate, by treating these two carbon pricing mechanisms as much more different than they actually are. This false difference starts with their popular names – a "carbon" tax yet an "emissions" trading system (ETS) – even though each can be applied to exactly the same greenhouse gases. (So in this submission, I write of a carbon trading system or CTS, to stress its similarity with a tax.) The worst outcome of such a false difference is its illusion that a carbon tax can both be effective – that is, the main force for achieving Australia's chosen carbon abatement target at something like minimum cost – and yet somehow avoid the lobbying that in 2008-9 engulfed the plans for allocating free tradable permits under the Carbon Pollution Reduction Scheme (CPRS). This submission highlights the equivalence between a carbon trading system with some (but not all) free permits, and a carbon tax with thresholds; and it gives some examples of carbon pricing overseas, to show why the idea of pure, lobbying-free carbon taxation is illusory. I am not seeking to downplay obvious, important differences between tax and trading, such as that a (credible) tax gives certainty over emissions price and marginal abatement cost, while (credible) trading gives certainty over emissions abatement. What I am seeking is for tax and trading to be compared on a realistic, level playing field which prevents time being wasted on heroic delusions.

4. Specific point: the regrettable need for carbon tax thresholds - or the heroic case for no free carbon permits

My argument is best started from what is already well known about carbon trading, and then extended to the little known case of carbon tax thresholds. Under a **carbon trading scheme**, the government decides both the total permits created (the cap) and the total free permits given out, while market trading in permits determines the carbon (permit) price. An individual emitter ends up paying:

carbon price (\$/1-tonne permit) \times [emissions – free permits received].

Because permits are tradable, revenue is negative for any emitters (i.e. they *receive* money) who choose to cut their emissions below their free permits received, and then sell their spare permits. Assuming full enforcement so that total emissions equal total permits created, the **government's net revenue** from the scheme (ignoring any payments outside the scheme, e.g. for compensation or renewable energy support) is still positive, namely

carbon price (\$/1-tonne permit) \times [total emissions – total free permits given out].

Under a **carbon tax with thresholds**, the government decides the carbon price (here the tax rate) and the total amount of thresholds, while each emitter decides their emission level. An individual emitter ends up paying:

carbon price (\$/1-tonne permit) \times [emissions – threshold received].

If thresholds are tradable, revenue is again negative for any emitters (they are paid *by* the carbon-tax agency) who choose to cut their emissions below their thresholds. However, if the threshold is non-tradable like an income tax threshold, then there would be no reason why an emitter would cut its emissions below its threshold. Likewise, under trading, an emitter would have no reason to cut emissions below its free permit level if free permits are non-tradable: another example of equivalence between tax and trading schemes, summarised for convenience in the page-long table below. The **government's net revenue** from the tax with thresholds (again ignoring any outside payments) is

carbon price (\$/1-tonne permit) \times [total emissions – total thresholds given out].

So although the carbon price is created in a very different way under trading and a tax, the formula for the government's net revenue is essentially the same, once it is realised that free (tradable) permits and (tradable) tax thresholds are equivalent. However, an important difference is that total revenue under a carbon tax with thresholds is positive only if the government ensures that total thresholds are well below likely total emissions, that emitters choose in response to the government-set carbon price (the tax rate).

Why then use free permits or tax thresholds to lower the government's net revenue? Let us set aside the vexed problem of carbon leakage, and emission-intensive, trade-exposed sectors (EITEs – though for any solution to this problem using free permits under trading, there is an equivalent using thresholds under a tax). So the following applies just to non-traded sectors, like electricity generation in Australia. The reason for lowering revenue has everything to do with **political acceptability**, and nothing to do with economics or equity. For years there has been a strong academic consensus on sound welfare and equity reasons for the "pure" approach of giving no free permits or tax thresholds, and thus maximising revenue-raising for recycling as income tax cuts or compensation. I have supported this case as an ideal position in both academic writing (Pezzey, Mazouz and Jotzo 2010, Pezzey and Jotzo 2010) and popular writing (Pezzey 2008). But no matter how sound this consensus, it has time and again been overwhelmed by the political power of carbon-intensive special interests (the "carbon lobby").

In every country where carbon trading or a carbon tax has been proposed, the carbon lobby has defeated "pure" proposals. The only schemes adopted have been carbon trading with mostly free permits, or carbon taxation with low overall tax rates and/or

many sectoral exemptions (where whole sectors of firms are completely excluded from taxation, or taxed at a much reduced rate). Three key examples are:

- European Commission proposals for carbon taxes in the early 1990s considered only pure taxes, ignoring the possibility of tax thresholds. Political resistance to the amounts of revenue that would be raised by pure taxes, if set at anything like full incentive rates, together with legal problems of dictating member nations' tax policies, was too great to be overcome. So the 1997 Kyoto Protocol instead adopted tradable permits as the economic instrument of choice, because of the obvious option using free permits to avoid raising revenue.
- In 2005, the New Zealand government proposed a carbon tax with no thresholds and all revenue recycled into reducing existing taxes. A review scrapped the tax plan, with the key reason given being its unfairness and its inefficiency, with both caused by its large exemptions. It is likely these exemptions were proposed to improve the tax's political acceptability, given its lack of thresholds.
- The Obama administration's early-2009 intention to auction 100% of permits in a U.S. emissions trading scheme was in stark contrast to the 15% permit auctioning proposed by the House (Waxman-Markey) bill passed in June 2009, and the initial 12% allowed in the 2010 Senate (Lieberman-Kerry) bill.

Policy-making must not let some idealised "best" (pure carbon pricing that maximises revenue-raising) be the enemy of an achievable "good" (the speedy introduction of an economy-wide carbon price). So **if** a carbon tax is to be used, and used efficiently, this means **either** using a tax with thresholds; **or** using a pure tax for only a year or two, with carbon trading thereafter – for without thresholds, it will be politically impossible to raise the tax rate high enough to achieve anything like the long-run level of abatement needed. The need to make this choice has often been overlooked in current debate. That is equivalent to assuming that carbon trading with a serious abatement target can somehow be introduced with no free permits: heroic, desirable, but politically very improbable.

Yet another tax-trading equivalence is one overlooked by Lenore Taylor, who recently claimed Labor and Green can better reconcile their carbon pricing positions under a tax than under trading, because the parties can agree on an initial tax rate more easily than on a trading target for 2020. She is probably right in terms of current political understanding, but there is no logical reason for this difference. If a low carbon tax for just a year or two with no plans, hence no investment certainty, thereafter can work, then so could carbon trading with a modest cap for just a year or two. Conversely, a carbon tax with thresholds can be created with any desired time horizon, as shown in my opening 10-year illustration, just as carbon trading targets can be set for 2020.

References

- Pezzey, Jack (2008). "Garnaut has got the compo right: there's no heart-melting case for free permits." *Canberra Times*, 25 February, 9.
- Pezzey, John C.V. and Frank Jotzo (2010). "Tax-versus-trading and free emissions shares as issues for climate policy mechanism design." Research Report 68, Environmental Economics Research Hub, Australian National University. [This gives references to my earlier academic work on carbon tax thresholds.]
- Pezzey, John C.V., Salim Mazouz and Frank Jotzo (2010). "The logic of collective action and Australia's climate policy." *Australian Journal of Agricultural and Resource Economics*, 54, 185-202.
- Taylor, Lenore (2010). "Everything's on the table..." *Sydney Morning Herald*, 8 October.

Comparisons between a carbon trading scheme and a carbon tax with thresholds		
<i>Feature</i>	<i>Form taken under carbon trading</i>	<i>Form taken under a carbon tax</i>
	Similarities	
1. Existence of uniform carbon price in \$/tonne	Permit price in \$/tonne; uniform because all emitters trade permits in the same market	Tax rate in \$/tonne
2. The "pure" way to create a carbon price	Initially auction all tradable permits	Tax all units of emissions
3. How to raise less revenue without affecting incentive to cut emissions	Grant (give away) free, tradable permits	Grant (give away) free, tradable tax thresholds
4. How to raise less revenue, and reduce the incentive to cut emissions	Grant free, non-tradable permits (because of non-tradability, each emitter has no incentive to cut emission below its free permit level)	Grant free, non-tradable thresholds (because of non-tradability, each emitter has no incentive to cut emission below its threshold)
5. How to create a carbon price for every year up to 2020	Create and auction/grant tradable permits for every year until 2020	Announce a tax rate schedule to 2020, and grant tradable thresholds for every year until 2020
6. How to create a carbon price for the next year or two	Create and auction/grant tradable permits for the next year or two	Create a carbon tax for the next year or two
7. How to charge different emitters different carbon prices	Allow different emitters to use different multipliers of permits (fixed numbers more or less than 1) when balancing their permits and their emissions at year's end	Apply the same multipliers to a standard tax rate, so that different emitters pay different tax rates at year's end
8. What emissions must be monitored, and should this be done upstream, downstream or both?	Each scheme faces near-identical issues of monitoring costs; whatever solution is reached for tradable permits should apply to tax-with-thresholds (barring unforeseen legal differences)	
	Differences	
9. How is the carbon price set, and who is affected?	By trading in permit market; guarantees total emission cut but creates price volatility for emitters	By government choice of tax rate; gives price certainty to emitters, but no guarantee of total emissions cut
10. Is it easy to guarantee positive total revenue (leaving aside any promised compensation, etc.)?	Yes: just auction enough permits to cover monitoring and admin costs	No: must set tax rate and total thresholds so that total emissions always stay well above total thresholds
11. What are the main admin roles for government and its agencies?	Set the cap; auction and grant permits; track permit trades; check emissions against permits	Grant thresholds, and track trades (fewer than permit trades); set tax rate, and levy net taxes; track total emissions