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Principles for reducing greenhouse gas emissions and improving the wellbeing of most Australians

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Policy Brief

Introduction

Australia's emissions from stationary energy sources increased from 195 megatonnes in 1990 to 296 megatonnes in 2008 [1], an increase of around 50 per cent during a period in which we were fully aware of the need to reduce emissions. At the 1992 Rio Earth Summit Australia accepted the evidence of climate change, accepted that it was caused by the burning of fossil fuels, and accepted the need to curb such fuel use by introducing a carbon price. Indeed, as Guy Pearse reminded us, the Liberal Party went to the 1990 election promising to reduce emissions by 20 per cent by the year 2000.[2]

While the 2007 election was fought on a promise by the ALP to introduce a carbon price the 2010 election was fought by both the ALP and the Coalition on a promise not to do so. For the ALP the promised inaction was until at least 2013 and for the Coalition the promise was open ended. The Greens, on the other hand, campaigned on the need for a carbon tax. The election result saw a big increase in the Green vote and the public's failure to endorse the 'agenda' of either major party.

Despite much of the election being allegedly fought on 'economic management' neither the ALP nor the Coalition were asked to explain how it was that they simultaneously claimed to be 'good economic managers' yet were determined to ignore all economic evidence about the best way to tackle climate change.

This election has shown just how much of a challenge new issues such as climate change are for old political structures. Consider the following: the Coalition describes its approach to tackling climate change as 'direct action', which translates roughly as support for the regulation and government intervention once primarily associated with the ALP. The ALP's major contribution to the climate change policy debate during the 2010 election was the announcement of a 'citizens' assembly', which sounds reminiscent of the Greens historical preference for 'consensus' based decision making. The Greens, on the other hand, have been pushing for the 'economic rationalist' approach of relying on a carbon tax and price signals.

This paper spells out the economic principles that should underpin an effective, efficient and equitable approach to reducing Australia's greenhouse gas emissions at the lowest possible cost. In addition to providing an overview of the principles that should underpin the development of efficient emission reduction policies it also provides evidence to support the claim that the introduction of a carbon price would benefit most Australian families. Put simply, the collection of a carbon tax should not be seen as a cost to the economy but a redistribution within the economy. If the proceeds of a $25 carbon tax were provided directly to Australian households rather than returned directly to the polluters a family of four could be paid a 'carbon dividend' of $2,100 per year.

Principles for efficient emissions abatement

While the politics of tackling climate change appear to be challenging for Australia's major political parties the economics that underpin that challenge are quite straight forward. While there is much debate within the economics profession about some of the minor design details of an 'optimal' suite of emission reduction policies, there is little debate about the broad principles that should underpin a 'good' suite of policies. These principles include:

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1 Department of Climate Change, National Greenhouse Gas Inventory, http://ageis.climatechange.gov.au/#

2 G Pearse, *High and Dry*, Penguin 2007

1) Remove existing subsidies that encourage the use of greenhouse gas emitting fuels
2) Introduce a price on greenhouse gas emissions
3) Remove existing subsidies to renewable energy that do not deliver either low abatement cost of identifiable domestic industry development objectives
4) Invest in public transport and other public good or natural monopoly infrastructure to ensure that consumers can more easily respond to price signals
5) Regulate to enhance energy efficiency when existing market failures reduce the ability of higher energy prices to deliver reduced energy consumption
6) Provide investors with certainty about the direction, if not the destination, of legislative change.

Put simply, the main principle that should underpin Australia's response to climate change is that good emission reduction policy raises revenue for governments and that bad policy costs money. The following sections provide context for the principles spelt out above as well as providing specific policy suggestions for how such principles could be introduced in practice. The paper concludes with a discussion of the potential for the introduction of a carbon price to generate improvements in the equity of the Australian tax system. That is, if the revenue from a carbon price is directed towards households rather than polluters there is significant potential to increase the disposable income of most Australians, admittedly at the expense of those who receive a significant portion of their income in dividends from large polluters.

1) Remove existing subsidies that encourage the use of greenhouse gas emitting fuels

The best way to start moving forward is to stop moving backwards. While much has been made about the need to introduce a price on carbon pollution there has been scant attention paid to the need to remove the billions of dollars worth of subsidies paid to polluting activities each year. Just as it would be illogical to simultaneously tax tobacco and subsidise cigarette packaging the Rudd Government's Carbon Pollution Reduction Scheme (CPRS) proposed to introduce a carbon price while leaving a wide range of subsidies to the mining and road transport industries in place. If the next government is at all serious about least cost abatement it would immediately abolish the following subsidies:

Exemption from excise for 'alternative fuels'	$750 million pa
Concessional rate of excise levied on aviation gasoline and aviation turbine fuel	$720 million pa
Application of statutory formula to value car benefits (FBT)	$1050 million pa
Fuel tax credit scheme	$5073 million pa

2) Introduce a price on greenhouse gas emissions

As discussed above, it is difficult to comprehend how a political party could simultaneously claim to:

- be concerned with responsible economic management
- be concerned with the efficient expenditure of taxpayers' money
- claim to seek emission abatement at least cost, and
- oppose the introduction of a carbon price.

There is no doubt that there is a significant role for well designed and efficiently implemented 'complementary' measures to reinforce the role played by a carbon price, but it does not follow that such measures make either economic or environmental sense when they are introduced in the absence of the carbon price that they were designed to 'complement'.

Both the Howard Government and the Rudd Government previously accepted the need for a carbon price with both proposing to introduce such a price through an emissions trading scheme. Despite this previous recognition of the need for a carbon price, both the ALP and Coalition currently assert that their 'direct action' and 'complementary' schemes can still deliver 'least cost abatement'. It is not clear, for example, exactly what Penny Wong means when she suggests that the current collection of subsidies for renewable energy deliver least cost abatement when she previously stated in 2009 that:

> …the design principles for emissions trading have long been established. Indeed, these principles have been on the table since February 2008 – some eighteen months ago.
>
> If there were to be a debate about principles, the time was then. It is worth noting that the Government has held to these principles. This has not been easy; it has meant hard decisions.
>
> But it has also meant that we have created a coherent, robust Scheme that reforms Australia's economy to tackle climate change.
>
> We have not designed this Scheme simply to weather today's political storm. We have focused on the task at hand - to build a Scheme that will change the way our economy works for decades to come. A Scheme which will change the way the market works; so every economic decision will factor in the climate.[3]

Indeed, in the same speech she stated again that:

> We have long known that central to this action is placing a limit and price on our carbon emissions. [4]

And in criticising the then Liberal Party Leader she said:

> Anyone who has followed this debate would know that principle has nothing to do with it. There is no policy coherence, no framework, no understanding of the task at hand. There is no application of the national interest; no economic credibility.[5]

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[3] http://www.climatechange.gov.au/~/media/Files/minister/wong/2009/major-speeches/August/sp20090803.ashx

[4] http://www.climatechange.gov.au/~/media/Files/minister/wong/2009/major-speeches/August/sp20090803.ashx

While the Rudd Government's back down on its determination to introduce the CPRS has been widely analysed there has been much less scrutiny of the inconsistency between the policy approach previously espoused by the ALP and their recent preference for ad hoc subsidy schemes. Perhaps the most perplexing example of this idiosyncratic approach to 'climate policy' was the decision in the 2010 budget to spend an additional $600 million on renewable energy. While this measure was greeted with enthusiasm by sections of the environment movement it was never made clear how such expenditure would lead to environmental benefits given the existence of the Renewable Energy Target (RET).

3) Remove existing subsidies to renewable energy that do not deliver either low abatement cost or identifiable domestic industry development objectives

There is no doubt that in the absence of a significant price on carbon pollution, renewable energy cannot compete on price with electricity from black and brown coal fired power stations. But there is also no doubt that it is better to introduce a price on carbon than it is to subsidise renewable energy. While it is true that both taxing pollution and subsidising renewable energy can 'level the playing field' there are two reasons why it is much more efficient and equitable to play on the high carbon price field rather than the expensive subsidy field.

The first major advantage of relying on a price on carbon pollution is that it has the potential to raise a significant amount of revenue from polluters whereas subsidies impose significant costs on taxpayers and/or lead to a diversion of government spending away from services such as health and education.

The second advantage is less obvious but, in many ways, more significant. One of the best ways to reduce emissions quickly and at low cost is to encourage behaviour change. While the role of price in determining the level of demand for energy is often overstated there is little doubt that it has a role to play. Subsidies for renewable energy can therefore have the perverse result of increasing demand for energy, and reducing the arguments for investment in energy efficiency, by putting downward pressure on price.[6]

If the next government is serious about achieving least cost abatement it would for example, abolish the subsidies currently provided to domestic photo voltaic (PV) solar panels. While there is no doubt that there is significant potential for solar energy to supplement Australia's energy supply there is also no doubt that the installation of small scale solar PV arrays on Australian rooftops is one of the most expensive ways to achieve emission abatement.

The Australian National Audit Office, for example, estimated programs such as the Solar Homes and Communities Plan and the Renewable Remote Power Generation Program have cost around $1 billion but the estimated cost of each tonne of pollution avoided was $447.

The presence of solar PV panels on residential rooftops may provide the appearance of significant investment in tackling climate change but, with given technologies, the small scale, high installation costs, difficulties with shading, solar access and maintenance means that the abatement costs are among the highest of all alternatives.

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5 http://www.climatechange.gov.au/~/media/Files/minister/wong/2009/major-speeches/August/sp20090803.ashx

6 While the introduction of a carbon price shifts the demand curve to the left (driving up the equilibrium price and driving down the equilibrium quantity) the introduction of a subsidy shifts the supply curve to the right (driving down the equilibrium price and increasing the equilibrium quantity).

While some argue that these policies can be justified on 'industry development' grounds such arguments seem hard to maintain given that the panels are imported.

4) Invest in public transport and other public good or natural monopoly infrastructure to ensure that consumers can more easily respond to price signals

Economists typically place much faith in the ability of individuals to make rational choices between available alternatives. Indeed, it is this faith in the ability of individuals to make decisions that best suit the needs and budgets of individuals that is at the heart of many economists faith in the conclusion that 'market forces' provide the best outcomes for individuals. While economic theory makes clear that such faith can be justified under a range of narrow assumptions, in reality individuals can find it difficult, or impossible, to make 'efficient' decisions, especially when the choices they are asked to make are heavily constrained by the decisions made by others.

Commuters in Sydney, for example, may find it difficult to purchase a house that is conveniently located near their work, education and/or care responsibilities. Similarly, commuters in Melbourne may find it difficult to 'substitute' public transport for their private car when the public transport network and/or timetable does not facilitate them making such a switch. While some economists might argue that if commuters really valued public transport they would vote for parties that offered it, such an explanation struggles to explain what voters should do if other voters disagree with their priorities or neither major party offers to provide such transport alternatives.

Until recently, both major political parties supported the need for the Australian population to grow significantly yet neither of them proposed to invest in city wide transport infrastructure. It is inconceivable that there will be a significant shift in the percentage of commuter trips made in cars until there is a significant shift in the percentage of local, state and federal government funds provided to mass transit. While individuals should be free to choose the mode of transport that best suits their needs, it is impossible for them to choose modes that are provided inadequately or not provided at all. It could be argued that the governments of New York, Tokyo and London invested in extensive public transport because their citizens demanded it or it could be argued that the citizens of those cities rely heavily on mass transit because their governments provide it.

Any Australian government that is serious about facilitating population growth, improving the wellbeing of 'working families' and reducing greenhouse gas emissions should be willing to commit to ensuring that investment in public transport is greater than expenditure on roads.

5) Regulate to enhance energy efficiency when existing market failures in other markets reduce the ability of higher energy prices to deliver reduced energy consumption

Individuals make some decisions well and some decisions poorly. If society had great faith in individual decision making we would not require car companies to install seat belts or catalytic converters. Indeed, 'rational' individuals would be willing to pay a premium to have such features installed. The reality is, of course, that there are many cars for sale in Australia that come with air conditioning and CD players that are not equipped with airbags or ABS braking.

As a society we require, rather than request, car companies to install seat belts, property developers to install fire escapes and food processors to inform us if their products contain nuts. But we do not currently require manufacturers of cars, houses or appliances to achieve high levels of energy efficiency. There are a number of good reasons for governments to begin to do so, including:

- while it is easy to compare the sticker price of cars and appliances it can be much harder to determine the comparative lifetime cost of owning different models of refrigerator or clothes dryer

- even if accurate lifetime ownership costs were provided there is a substantial body of evidence that suggests that most consumers focus excessively on the upfront cost

- manufacturers often charge a premium price for more efficient appliances and cars even though such a premium, or the size of the premium, is not justified by higher production costs.

Just as consumers tend to ignore the potential benefits associated with investing in energy efficiency the same is true for most businesses. For most businesses energy costs account for around 1-2 per cent of total costs which means that a ten per cent saving in energy costs translates to a reduction in total costs of 0.1 to 0.2 per cent. There is no doubt that businesses could save money by turning out the lights in CBD office towers at night, but there is also no doubt that the benefits of doing so are trivially small as a percentage of their total profit.

6) Provide investors with certainty about the direction, if not the destination, of legislative change

While much of the debate around the CPRS focussed on the need to provide polluters with 'certainty' the reality is, of course, that in globalised markets such certainty can never be provided. Just as miners and manufacturers face volatile exchange rates, interest rates and fluctuating world rates of growth it is inevitable that there will be a high degree of uncertainty around the price of carbon in the coming decades. While it is understandable why polluters would prefer to shift the risk of such volatility onto taxpayers, such a transfer of risk is neither efficient nor equitable. For example, the design of the CPRS ensured that if the price of pollution was low some polluters who received assistance would receive a windfall but if the price of carbon was higher than expected the taxpayer would accept all liability over a $40 'price ceiling'.

Governments do not know how far emissions will need to fall, or how fast, in order to avoid dangerous climate change. As new evidence emerges we should hope that our elected representatives will respond accordingly. But while it is impossible to provide 'certainty' about the likely future price of carbon it is easy for governments to send clear signals about the need for, and likely direction of, a carbon price.

The Reserve Bank informs the market that it intends to stabilise inflation at between 2 and 3 per cent and will increase interest rates as necessary in order to do so. Governments that are serious about driving reductions in Australia's greenhouse gas emissions should also signal that they are willing to introduce a carbon price and adjust it upwards until emissions trend downwards.

Governments could also provide a high degree of regulatory certainty without resorting to 'picking winners'. For example, even if governments are reluctant to take the obvious step of banning new coal fired power stations they could instead require proponents of such new facilities to formally acknowledge the likely risk of a rising carbon price and make a formal undertaking to seek no 'compensation' from any level of government in the event that emission reduction policies reduce their profits or asset values in the future. Put simply, if private individuals are willing to bet billions of their own dollars that 'clean coal' will be invented in the near future then they should not be prevented from investing accordingly. But in the likely situation that such invention is not forthcoming it should be shareholders, not taxpayers that bear the risk.

Why a carbon tax is good for the hip pocket

A price on carbon is widely regarded as an essential element of an efficient response to climate change, yet such an approach has been described as a 'great big tax on everything' by opponents. While there is no doubt that putting a price on greenhouse gas emissions will lead to an increase in the price of energy and, to a lesser extent, the price of other products there is also no doubt that if the revenue collected from such a scheme was given back to households, rather than used to compensate polluters, then individuals and families would be financially better off.

The data presented below provides evidence that the introduction of a simple carbon tax of $25 per tonne has the potential to raise $13 billion in new revenue and improve the financial position of an average family by more than $1,000 per year. The $13 billion in revenue should not be seen as a cost that is taken out of the economy but as a redistribution of $13 billion from polluters and towards other groups in society that are deemed to be most deserving of assistance.

That is, given that a carbon tax on Australia's polluters would raise around $13 billion per year there is enormous potential to make direct payments to families, cut other taxes, invest in services, or any combination of the three. This paper is not prescriptive about how the $13 billion raised from the biggest polluters should be spent; rather it presents a range of costed alternative options for how the proceeds of a carbon tax could be returned to Australian families, Australian businesses, or a combination of the two.

As discussed below the proceeds of a simple carbon tax would be sufficient to pay every adult a 'carbon dividend' of $700 per year and for a family of four the dividend could rise to $2,100 per year. Such payments are far greater than the likely increase in the cost of electricity and other products which is estimated by the Commonwealth Treasury to be around $18.50 per week for an average family.

Other options for how the revenue from a carbon tax could be spent include lowering the Goods and Services Tax (GST), lowering the company tax rate, investing in renewable energy and other low carbon infrastructure or providing compensation to polluters. The purpose of providing this range of options is to highlight the fact that a carbon tax is not a 'cost' to the economy but a means of both changing behaviour and redistributing money away from polluters and towards other uses.

This paper's conclusions will come as a surprise to many. Put simply, the paper argues that a simple carbon tax levied on the biggest polluters can put money into, rather than take money from, family budgets in Australia. There are three simple explanations for this surprising conclusion:

- the Rudd Government appears to have done a poor job of explaining to households just how generous the proposed compensation for the CPRS could have been

- many of the upcoming increases in electricity prices, such as the NSW Government's proposal to increase electricity prices to cover a massive expansion in the electricity distribution grid, have nothing to do with the introduction of the CPRS

- most of the proposals outlined below provide far less compensation to big business than was proposed by the CPRS. Every billion dollars given away to the polluters is a billion dollars that can't be given back to households as compensation or invested in new infrastructure or services.

Potential costs of a carbon price

The Commonwealth Treasury's estimate is that the additional cost per household of a $25 carbon price would be $6 a week for the direct impact on the costs of electricity, gas and other household fuel.

There are also indirect costs to consumers in the prices they pay for other commodities. The butcher has power costs that are passed on to consumers, electricity goes into smelting aluminium that goes into all aluminium products including cans of soft drink. Adding indirect effects increases the additional cost per household to $18.50 a week for a family on average household income, an increase of 1.1 per cent on the value of all household consumption expenditures.[7]

Lower income families, who on average spend less on energy and on general consumption, would face smaller weekly increases in their costs.

Potential benefits of a carbon tax

The impact of a carbon tax cannot be evaluated with reference only to the increase in the cost of electricity and other products. While prices will rise as a result of the introduction of such a tax so too will government revenue. The impact on families will be as much determined by what governments choose to do with the new source of revenue as by the rise in electricity prices.

The introduction of a carbon tax should not be seen as taking $13 billion out of the economy but as a redistribution of $13 billion from polluters and towards other groups in society that are deemed to be most deserving of assistance. One of the major problems with the CPRS is that the polluters themselves were major recipients of the proposed compensation package.

By restricting the amount of compensation paid to polluters it is possible to significantly increase the potential payments to Australian households. As already pointed out, every billion dollars given back to the polluters in the form of compensation is a billion dollars that cannot be given back to families.

How could the proceeds of a carbon tax be given back to families?

Based on a carbon price of $25 per tonne, the Commonwealth Treasury estimates that the government would collect $13 billion per year in revenue. The following section provides a range of costed alternatives for how the proceeds of a pollution tax could be recycled through the tax and spending system.

Family carbon dividend payment

This option would pay to each household a carbon dividend equal to $700 per year per person or, for families, $1,400 for two person families and another $350 for each additional family member. Hence

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[7] These are The Australia Institute estimates based on ABS, Australian National Accounts: Input-Output Tables – Electronic Publication 2005-06, Cat No 5209.0.55.001, 18 November 2009. The input-output tables allow us to track the increased energy costs on other businesses which eventually flow into higher costs for consumer purchases. Those additional costs are compared with the average household expenditure on consumption goods as reported by the Australian Bureau of Statistics in ABS, Household Expenditure Survey, 2003-04, cat no 6530.0, 15 February 2006. Those expenditures in turn are updated to 2011-12 values using CPI estimates from the ABS

- a single parent with one child would receive $1400 or approximately $27 per week
- a family of four, two adults and two children, would receive $2100 per annum or just over $40 per week.

The impact on electricity and other prices of a $25 carbon tax is estimated to be only $18.50 per week ($962 per year) for an average family of four which means that a $2,100 carbon dividend would mean they were more than $1,100 better off each year. If they were able to reduce their energy use then they would be even better off each year.

It is also important to note that lower income families, not surprisingly, spend less on electricity and other products than average families. This means that while their annual carbon dividend payment would be the same as others their net benefit would actually be greater. Further, any family that was successful in significantly reducing the amount of energy they used would see even larger financial benefits. Rather than disadvantaging low income earners, by providing direct compensation payments based on family size the introduction of a carbon tax would provide a significant financial boost to 'hard working families'.

One way of delivering the carbon dividend would be allowing households to opt to receive their dividend to offset their bills from their electricity or gas supplier. For most people that would mean a cash refund from their electricity or gas supplier.

Reduce company tax

This option applies the whole $13 billion towards cuts in company tax rates. The present projections in the budget papers show total company tax collections will be $75.6 billion in 2011-12 at the present company tax rate of 30 per cent. $13 billion would fund a reduction to 25 per cent.

Reduce GST rate

The Goods and Services Tax now applies to most consumption goods with the major exceptions of food, rent and financial services. In 2011-12 the GST will raise $51.3 billion. If the whole $13 billion of carbon receipts were applied to reducing the GST it would reduce the rate from 10 per cent to 7.5 per cent.

Because low income earners tend to consume a higher proportion of their income the result would be to benefit lower income earners proportionately more than higher income earners.

Conclusion

While the science and politics of tackling climate change are likely to remain challenging, the economics of reducing greenhouse gas emissions is relatively straight forward. This is not to suggest that there are no areas of disagreement among economists nor areas in which more information is needed. Rather, the assertion of this paper is that the economics of where policy makers need to start, if they are serious about achieving emission reductions at least cost, is quite well established.

Introducing a carbon tax is both economically efficient and, if the compensation package is well designed, highly equitable. In addition to the complexity of the CPRS and its timid

emission reduction targets[8] a major problem with that proposal was that so much money was being offered to compensate polluters that it was not possible to design sufficiently generous compensation packages for households. The data and proposals provided above show clearly that it is possible to introduce a carbon tax, drive down emissions and improve the financial position of Australian families. While it is obviously not possible to do so if governments simultaneously seek to provide generous compensation to the polluters themselves, it is entirely possible as long as elected governments are willing to ensure that it is the polluters who really do pay.

[8] It is interesting to note that while the Rudd Government always claimed its emission reduction targets were 'ambitious' on a per capita basis there has been no willingness on the part of the Gillard Government to concede that now that population is expected to grow more slowly that the emission reduction targets can be proportionately increased.