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The Environmental Implications of the Revised ANTS Package

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Summary

The Australia Institute has modelled the impact of the revised ANTS package on emissions from the transport sector. The estimates incorporate both the effects of fuel price cuts and increases in public transport prices as well as a range of offsetting measures, notably the adjustments to prices of alternative fuels, incentives for conversions to gas vehicles and the abolition of diesel excise on rail.

The revised ANTS package is expected to result in an increase in greenhouse gases of almost 5 million tonnes of CO₂ equivalent per annum over the business-as-usual situation by 2010, of which 2.9 million tonnes occurs in the transport sector. Although equivalent to around 1% of total greenhouse gas emissions, the additional emissions represent around one-eighth of the total increase in emissions above 1990 levels Australia is allowed under the Kyoto Protocol. The revised package will also result in an increase in particle pollution of approximately 1520 tonnes per annum and SO_x of approximately 1470 tonnes per annum – see Table 1. The net increases in particulate and SO_x emissions from transport are 7% and 4%, respectively, above 1995 levels.

The Government's own analysis shows that it expects greenhouse gas emissions from commercial transport to rise by 60% between 1997 and 2015, while the Kyoto Protocol requires Australia to limit emissions growth to 8% above 1990 levels by 2010. The fuel price cuts in the revised ANTS package remain contrary to Article 2 of the Kyoto Protocol.

The Australia Institute's estimates of increased emissions due to ANTS are conservative. The Government's own confidential modelling used in the negotiations estimated increased greenhouse and particle emissions *twice* as high as the Institute's previous modelling. The Government has always insisted that the ANTS package would have no detrimental environmental impact.

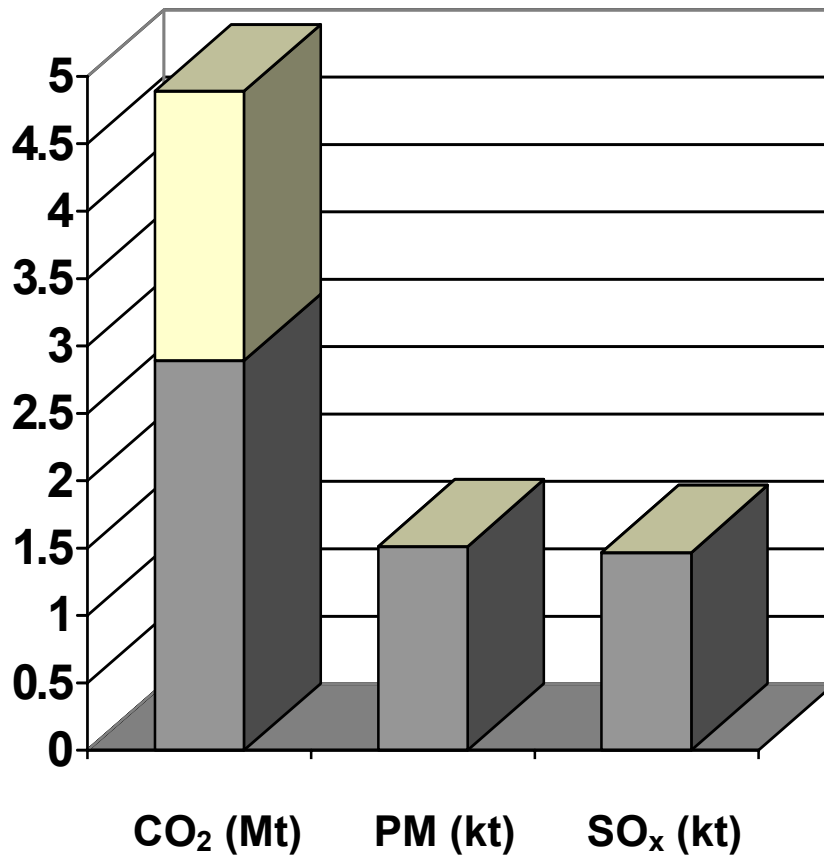
The fuel price cuts are the main driver of environmental damage in the ANTS package and, since the original fuel price cuts remain largely unchanged, it should be no surprise that the revised ANTS package continues to have a major detrimental impact. Despite the fact that the package allocates almost \$1 billion over three years to new environmental programs, in net terms the revised GST package will see an extra \$7.8 billion over three years spent on polluting activities – see Table 3.

The revised ANTS package promises to make Australian vehicle emission and fuel standards close to those emerging in Europe by around the middle of the next decade. This is highly desirable. However, these tighter standards were due to be introduced over the same timeframe anyway and cannot be attributed to the ANTS package or negotiations – see Table 2.

The revised ANTS package includes a new greenhouse gas abatement program amounting to \$100 million per annum. However, this program is not a greenhouse gas *abatement* program but is aimed at sink enhancement and is little more than a subsidy for land management practices. The revised ANTS package contains some very powerful incentives to increase greenhouse gas emissions from fossil fuel sources (large fuel price cuts), offset by some weak measures aimed at sinks that will in all likelihood be invalid under the terms of the Kyoto Protocol.

Compared to the original ANTS package, the revisions have very little effect on the additional greenhouse gas emissions. However, the revisions to the ANTS package do improve emissions of SO_x and particles over the original package, but still produce a significant net negative impact on the environment.

Figure 1 Increased greenhouse gas and urban air pollution due to the revised ANTS package in 2010



Note: shaded areas represent emissions from the transport sector. The lighter shaded area represents CO₂ emissions from the stationary energy sector.

Introduction

This analysis of the environmental implications of the revised ANTS package begins with lists of both the environmentally negative and environmentally positive aspects of the package. It then provides an assessment of the net effect on emissions of greenhouse gases and selected urban air pollutants of the revised ANTS package agreed by the Government and the Australian Democrats on 28th May 1999. There follows a discussion of some problems with the more important aspects of the revised ANTS package. The revenue effects and spending associated with each of the measures are shown in Table 3 at the end of this paper.

Negative measures

The measures in the package that will have a negative effect on the environment are as follows.

- The 23 cents/litre cut in diesel prices for vehicles over 20 tonnes and for regional vehicles over 4.5 tonnes.¹
- The 6-7 cents/litre reduction in fuel prices for all business vehicles.
- The extension of the off-road diesel rebate by \$100-150 million.²
- No zero-rating of GST on public transport, renewable energy equipment and Greenpower. No measures to encourage energy efficiency.

Positive measures

The positive aspects of the package are as follows.

- The possible earlier introduction of tighter engine and fuel standards.
- Protection of the relative prices of alternative fuels.
- Abolition of the diesel excise for rail.
- An additional \$100 million p.a. for greenhouse gas abatement.
- Programs to encourage the conversion of vehicles to alternative fuels.
- Grants (to be administered by the States) to offset the GST on electricity from renewable sources, and grants for half of the capital cost of rooftop PV systems.
- Grants to promote renewables instead of diesel in remote area power systems (RAPS).

¹ This is an improvement from the 25 cents/litre for all vehicles over 3.5 tonnes gross weight originally proposed.

² Although much reduced from the original ANTS package.

Net environmental impact on emissions of revised ANTS package

What will be the net environmental impact of the revised ANTS package? The Institute's modelling allows assessment of the impact on greenhouse gases (CO₂-equivalent) and urban air pollution (measured by emissions of particles and SO_x) in the transport and stationary energy sectors. The results for the transport sector are reported in the Table 1. For comparison, the impact of the original ANTS package are also presented in the table.

Table 1 Annual environmental impacts of the ANTS package in the transport sector in 2010 above business-as-usual

	Change in CO ₂ -e emissions (Mt)	Change in SO _x emissions (t)	Change in particle emissions (t)
Revised ANTS package	2.89	1471	1515
	(+3%)	(+3%)	(+5%)
Original ANTS package	3.08	1833	2217

Figures in parentheses indicate conservative estimates of percentage increase in total road transport emissions above 2010 levels.

Changes in emissions are calculated as in the original Australia Institute analysis (Turton and Hamilton 1998) with adjustment to reflect the range of changes in the revised ANTS package. Both the changes in fuel prices for heavy and light vehicles and the offsetting measures are incorporated into this analysis, notably the adjustments to prices of alternative fuels, incentives for conversions to gas vehicles and the abolition of diesel excise on rail. In addition, the change in emissions resulting from the GST on public transport fares have been included. Additional emissions from the extension of the existing off-road rebate by over \$100 million per year have not been modelled; inclusion of them would raise the estimates of higher emissions estimated here.

It is assumed that the net result of the revised package is to leave current projections of the growth of gas buses unchanged at 30% per annum. There are two offsetting effects – a lengthening payback period due to the fuel price changes, offset by grants to subsidise the conversion of buses to gas. Although the package includes provision to maintain the relative price of CNG to diesel, the changes will mean that the absolute price advantage of CNG over diesel is diminished (by 7 cents/litre for buses under 20 tonnes and 10.5 cents/litre for buses over 20 tonnes).³ This decline in cost

³ The expected final prices of automotive diesel oil (ADO) and CNG for private, business and heavy vehicles are shown in the table.

	Price of ADO	Price of CNG	Difference
Current prices (c/l)	70	40	30
Prices after revised ANTS			
Private vehicles	70	44	26
Business vehicles	63	40	23
Heavy vehicles	47	27.5	19.5

ADO: automotive diesel oil.

savings from conversion to gas is expected to lengthen the payback period of conversions considerably and this will discourage conversions.

On the other hand, the revised package provides for subsidies to gas conversion for buses amounting to 50% of the costs of conversions (but no funding to subsidise the purchase of new buses, by far the largest expected growth area). An offsetting factor may be that lower patronage of public transport due to the GST on fares may diminish the financial capacity of transport authorities to upgrade bus fleets at the rates currently anticipated. On balance, the assumption that growth rates of gas vehicles remain at current levels is a conservative one.

The measures for gas vehicles other than buses in the revised ANTS package are expected to offset fully the disincentives arising from the increase in the relative price of gas and the loss of relatively favourable WST treatment for vehicle conversion to gas. Accordingly, gas use in the heavy vehicle, business and private transport sectors is expected to grow at business-as-usual projections (drawn from the BTCE 1996).

The projections are also based on the assumption that trucks between 4.5 and 20 tonnes gross weight operating outside urban areas qualify for cheaper diesel. This represents around 40% of such vehicles, and is consistent with the revenue effects of changing the threshold for urban areas contained in the revised ANTS package.

The effects of emissions standards and fuel standards are modelled separately and presented in Figure 2. As we will see, according to the National Road Transport Commission (NRTC), these new standards would have been applied anyway. Figure 2 illustrates the impact of new emissions standards on particulate emissions from commercial vehicles with and without the revised ANTS package. The figure clearly demonstrates that particulate levels are significantly increased as a result of cheaper fuels in the revised ANTS package.

The effect of a faster turnover of the vehicle fleet produced by a cut in the WST on new vehicles has not been included because this will only produce a short-term improvement in the fleet emissions profile before increased use of fuel overwhelms it (and because it merely accelerates what would occur anyway).

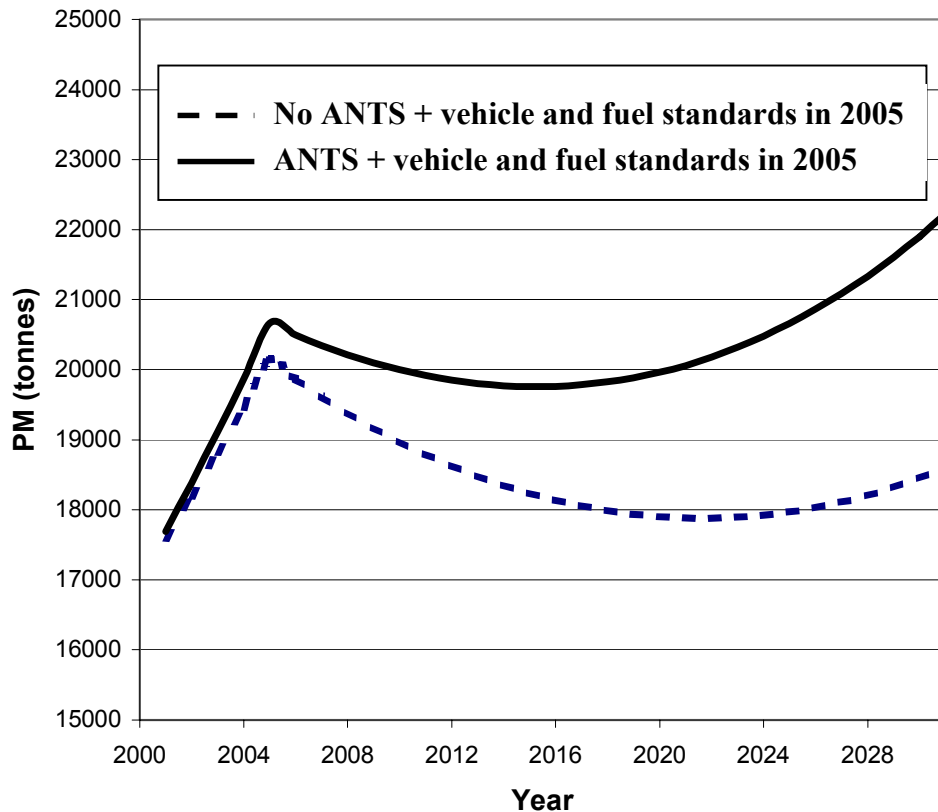
For more detail, including an analysis of the impacts of the ANTS price changes on fuel consumption, see Turton and Hamilton (1998) and the joint Australia Institute, Australian Conservation Foundation and Australian Medical Association submission to the Senate Inquiry into ANTS.

It is apparent from Table 1 that the revisions to the ANTS Package will have very little impact on the additional greenhouse gas emissions arising from the original package. The modifications introduced into the ANTS Package as a result of the negotiations produce a decline in SO_x emissions of 20% and PM of 32%. The net increase in emissions from the revised ANTS package were shown in Figure 1 where CO₂ emissions are measured in Mt and PM and SO_x are measured in kt.

The implications for greenhouse gas emissions are especially serious. The Institute's analysis shows that greenhouse gas emissions from the commercial transport sector alone will receive a stimulus of at least 5% from the GST Package by 2010, and that the Democrats' concessions will have almost no effect on this. The Government's

own analysis shows that it expects greenhouse gas emissions from commercial transport to rise by 60% between 1997 and 2015, while the Kyoto Protocol requires Australia to limit emissions growth to 8% above 1990 levels by 2010. The fuel price cuts remain contrary to Article 2 of the Kyoto Protocol.

Figure 2 Particulate emissions from commercial vehicles



The Australia Institute’s estimates of increased emissions due to ANTS are conservative. The Government’s own confidential modelling used in the negotiations estimated increased greenhouse and PM emissions *twice* as high as the Institute’s. The Government has always insisted that the ANTS Package would have no detrimental environmental impact.

Turning to the impact on urban air pollution, the revised ANTS package will result in the annual release of an additional 500 tonnes of both particulates and SO_x in urban areas (i.e. around one-third of the total increase in these emissions will occur in urban areas). This negative impact is likely to cause increased morbidity and mortality in urban areas.⁴ The additional levels of urban air pollution represent an improvement on the original ANTS package where the annual increase in emissions of particulates in urban areas was estimated at 1190 tonnes of particles and 870 tonnes of SO_x. Nevertheless, the revised ANTS package still has a significant net negative impact on urban air quality and, concomitantly, health.

⁴ The health impacts are discussed further in the joint Australia Institute, Australian Conservation Foundation and Australian Medical Association submission to the Senate Inquiry into ANTS.

Problems with the environmental measures in the revised ANTS Package

Some of the claimed benefits of the new measures in the ANTS package are more apparent than real. They relate particularly to the emission standards agreed in the revised package, the greenhouse gas abatement program and thresholds for eligibility for cheap diesel.

Emission standards

Australia has some of the dirtiest diesel engines and dirtiest diesel fuel in the OECD and tighter emissions standards are an urgent priority. The revised ANTS package promises to make Australian standards close to those emerging in Europe by around the middle of the next decade. This is highly desirable. However, these tighter standards were due to be introduced anyway and cannot be attributed to the ANTS negotiations. The Government is soon to receive a report from the Motor Vehicle Environment Committee (MVEC) of the National Road Transport Commission and the National Environment Protection Commission which recommends, with industry approval, precisely the measures agreed in the revised ANTS package. The NRTC recommendations and the standards proposed in the final ANTS deal are compared directly in Table 2.

Note that the MVEC observes that its proposed staging of new standards are “achievable at minimum cost, given [that] the technology will be readily available and well proven”. The proposed new standards have met with the approval of the road transport industry (*pers. comm.*). Clearly, the increase in urban air pollution and greenhouse gases that will follow the fuel price cuts in the revised ANTS package will be additional to those that would occur in the absence of ANTS, and this is the basis for Figure 2.

Greenhouse gas program

The new greenhouse gas program of \$100 million per annum is to be devoted to sink enhancement rather than reducing emissions. According to the Prime Minister’s letter: “The Government ... will develop options which will have maximum carbon reduction or sink enhancement capacity” (p. 8). By focussing attention on sink enhancement, the Government is continuing with its attempts to avoid any serious assault on the core greenhouse problem – emissions from fossil fuel combustion. In fact, the new measure is not a greenhouse gas *abatement* program at all, but is aimed at carbon offsets. Some of the sink enhancement measures are likely to be highly dubious. At a recent international meeting in Indianapolis, the Australian Government put forward the following illustrative list of potential sinks:

“There are significant opportunities for greenhouse sinks to contribute to achievement of sustainable land management. ... Examples provided included:

- Saltbush plantings for sheep fodder on land subject to dryland salinity;
- Mallee plantings on land threatened by dryland salinity ...;
- Improved grazing practices in the rangelands providing vegetation recovery.”

Table 2 Timetable for the implementation of Euro 3 vehicle emission and fuel standards

Vehicle type	NRTC recommendations	Final ANTS deal
Trucks >12 tonnes	2003	2003
Trucks 3.5-12 tonnes	2005 (Euro 4: 2006/7)	Euro 4: 2006/7
Buses >5 tonnes	2003	2003
Buses <5 tonnes	2005 (Euro 4: 2006/7)	Euro 4: 2006/7
LCVs	2005 (Euro 4: 2006/7)	Euro 4: 2006/7
Passenger Cars	2006	2006
Diesel fuel	2002-03 (sulfur) (Euro 4 ~ 2006)	2002-03 (sulfur) Euro 4: 2006
Petrol fuel	Euro 4 pending outcome of Fuel Quality Review	2005/6 Unsure for Euro 4

Source: Motor Vehicle Environment Committee (1999). Review of Motor Vehicle Emission Standards

Under the Kyoto Protocol, valid sinks will be confined to industrial plantations established on land cleared prior to 1990, and will not include the activities listed here for the purposes of reaching our 108% target.

The Prime Minister also wrote in his letter that in making program choices “[p]articular attention will be given to opportunities in rural and regional Australia” (p. 8). Thus the greenhouse initiative appears to be little more than a disguised subsidy to land management activities, most of which will not be valid under the Kyoto Protocol. It is yet another indication of the Government’s determination to avoid tackling greenhouse gas emissions at source.

In sum, the revised ANTS package contains some very powerful incentives to increase greenhouse gas emissions from fossil fuel sources (large fuel price cuts), offset by some weak measures aimed at sinks that will in all likelihood be invalid under the terms of the Kyoto Protocol.

Diesel thresholds

The increase in the cheap diesel threshold from 3.5 tonnes to 4.5 tonnes for regional trucks is not a concession by the Government since the original threshold of 3.5

tonnes was based on a typographical error in a government report (*pers. comm.* BTE).⁵

The 4.5 tonne threshold will apply to all regional transport. The definition of 'regional' is so wide that the effective threshold for many trucks operating in and around urban areas will be 4.5 tonnes. 'Regional transport operations' that will qualify for the 23 cents/litre price cut include travel between regional centres and metropolitan areas. This scheme will result in severe compliance problems – even worse than the existing off-road diesel rebate which has been vigorously criticised by the Auditor-General in reports in 1991 and 1996. The ANAO wrote that claimants were overpaid at least \$23.4 million in 1994-95, and that "Customs have virtually discontinued the imposition of administrative penalties and prosecutions for detected abuses of the system". The effective threshold in the revised ANTS package will be 4.5 tonnes for the great majority of trucks, which is the proposal the Government originally intended.

Renewable energy measures

The grants to offset the GST on renewable electricity look highly tenuous and are unlikely to be maintained as renewable electricity takes up a substantial share of the market. Current uptake of Green Power is about 1% in markets where it is offered but it is growing quickly. If the demand were to grow to 5% by 2002/03 then an allocation of \$21 million per annum would be required to fully offset the incremental cost of the 10% GST on Green Power. This compares to the allocation of only \$7 million in the revised ANTS package (funding scheduled to last three years only). Zero-rating renewable electricity would have been simple and would have guaranteed the benefit over time.

The program of grants for installation of PV systems is an inadequate measure. The package provides sufficient funding for about 700 systems in 2000/01, 1000 in 2001/02 and 1600 in 2002/03. While this is sufficient for current demand, it is unlikely to be sufficient for growing demand in response to such a program. A more realistic estimate of the national demand for such systems under such a program may be 4000 per annum in 2002/03.

It is unclear why solar water heaters should be excluded from this program as they do not receive any greater benefit from the 2% renewables target than do photovoltaic systems. There are thus no measures to overcome the price disadvantage to solar hot water systems arising from the GST. The Government says this is because solar hot water will 'benefit strongly' from the 2% renewables target. But the 2% renewables program has not yet been legislated and is being seriously eroded by cynical industry moves to include waste coal seam methane as a renewable. If industry succeeds, and there is no portfolio approach to limit the role of bagasse in the renewables target, then solar hot water will receive very little boost from the 2% renewables target.

As with Green Power, zero-rating renewable energy and energy efficiency products would have been a more secure and effective option.

⁵ The BTE citation refers specifically to the existence of the typographical error.

Other issues

Environmental impact assessment of the greenhouse gas potential of new projects could provide an important tool for addressing greenhouse issues in Australia, and the greenhouse trigger for Commonwealth environmental legislation that the Democrats asked for is a desirable measure in itself. However, it has been made contingent upon the Democrats agreeing to pass the Environment Protection and Biodiversity Conservation Bill which environmentalists view as a dangerous piece of legislation that will weaken Commonwealth powers on the environment. Moreover, even after passage of the ECBC Bill, the greenhouse trigger remains subject to the agreement of the States and is unlikely to provide an effective policy tool, if it eventuates.

While the remote power generation program offers up to \$66 million per annum for renewable energy projects, it is likely that only a portion of this funding will be spent. It is unclear how 'remote' will be defined and whether there will be sufficient funding available for off-grid localities to match the Federal Government's \$66 million per annum. In states with an extensive grid such as NSW and Victoria there may very little expenditure at all. This potential is likely to be further limited if states "have to commit to continue to cross subsidise remote power costs" as stipulated in the Prime Minister's letter. If this cross subsidy is in the form of below-cost grid supply, then the demand for renewable energy remote energy systems may actually contract.

Finally, most of the environmentally positive measures in the revised ANTS package depend on the Government honouring promises rather than being bound in to legislation as part of the ANTS package. They are therefore very vulnerable to erosion.

Looking at the revenue implications of the package as a whole, it should not be a surprise that the revised ANTS package continues to have a major detrimental impact on the environment. Despite the fact that the package allocates \$1 billion over three years to new environmental programs, in net terms the revised GST package will see an extra \$7.8 billion over three years spent on polluting activities.

Conclusions

The revised ANTS package will result in significantly higher greenhouse gas emissions and urban air pollution in Australia. The critical influences leading to this conclusion are the reductions in the prices of diesel for heavy vehicles and of both diesel and petrol for light vehicles used for business purposes. Their effects will intensify over time. The proposed tighter emissions standards, while highly desirable in themselves, cannot be attributed to the revised ANTS package as they were due to be introduced anyway.

Most of the compensatory environmental measures are small in comparison with the effects of the fuel price cuts. In addition, most of them will not be part of the ANTS legislation and depend on promises which may not be kept. The greenhouse gas abatement program in particular will not, on current indications, have any effect on reducing emissions, but will be spent on sink enhancement, diverting attention from the real greenhouse gas problem.

Table 3 Revenue impacts of environmental measures in the revised ANTS package

Measures in the original ANTS package	Cost to revenue over 3 years
	\$bn
Changes to excises	
Reduce excise on petrol and diesel to maintain price with GST	6.330
Excise rebate for heavy vehicles	2.980
Extend off-road rebate scheme	1.560
Total subsidy to fuel use	10.870
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Revisions to the original ANTS package	
Scaling-back of excise measures	
Reduce heavy vehicle excise rebate	-0.257
Higher thresholds	-0.631
Higher sulfur excise	-0.054
Scaling back the off-road rebate extension	-1.200
Reductions in fuel subsidies	-2.142
Total subsidy to fuel in revised ANTS Package	8.728
Additional environmental measures	
Gas conversions	0.055
Oil recycling	0.045
Photovoltaics grant	0.019
Household Greenpower	0.016
Remote power generation	0.198
Emissions testing	0.030
Greenhouse measures	0.300
Gas incentive	0.040
Rail concession	0.234
Total environmental measures	0.937
Total spending on fuel subsidies minus additional environmental spending	7.791