

**SENATE STANDING COMMITTEES ON ENVIRONMENT AND COMMUNICATIONS**

**SUBMISSION TO THE**

**INQUIRY INTO THE ABBOTT GOVERNMENT'S DIRECT ACTION PLAN**

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## SUMMARY

- The emission reduction target of 5% below 2000 by 2020 actually involves a reduction of around 20% from estimated business-as-usual 2020 emissions, a daunting objective.
  - On current figures it seems the funding available per tonne of CO<sub>2</sub>-e to be abated or offset will be about \$8, a figure that strains credibility if the objective is a 20% reduction in an economy like Australia's.
  - Although in theory the economy is replete with low-cost emission reduction opportunities, especially in energy efficiency, experience is that there are various practical obstacles that necessitate a higher price/incentive than bottom-up technical studies suggest.
  - The main way that carbon pricing (carbon tax or capped trading schemes) work to reduce emissions is that they are seen as the first step in a permanent arrangement, with increasing prices. They therefore induce long-term technical change, from when introduced. The scope for inducing purely short-term emission reduction from a carbon price is limited.
  - For the same reason, the scope is limited for reductions from a short-term abatement funding scheme, especially with a low funding figure per tonne. Firms could have little confidence that the scheme would last, and in fact expand, and that they would also win tenders in future stages, conditions necessary to bring on long-term, low-cost abatement.
  - Use of Kyoto credits to achieve the target is artificial in the extreme, using an increasingly irrelevant international negotiating framework to avoid actual emission reduction..
  - Administering payments to small-scale projects will be resource intensive.
  - Establishing genuine additionality for each project will be difficult.
  - Relying on government funding to purchase abatement and offsets as the main approach to reducing emissions will be unique to Australia. The Clean Development Mechanism under the Kyoto Protocol is different from the proposed scheme in key respects and so is not a model for it.
  - Most forms of soil carbon sequestration do not seem viable approaches under the scheme. Simple offsets, where there is no effect on emitting activity, are clearly not viable in the longer-term as a major means of dealing with growing emissions. The more offsets are relied on, the less is funding available for action to lessen emissions.
  - Baselines as a concept in reducing emissions seem unworkable.
  - A general conclusion is that the Emission Reduction Fund proposal is very unlikely to meet its reduction target, and is inherently resource intensive in its administration. In order to make the best of it as proposed, it needs radical amendment, and the best way that this could happen (apart from greatly increasing the funding) would be to focus as far as possible on large-scale, long-term technical change, and away from simple offsets.
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## **PREAMBLE**

This submission addresses, generally, the first four subsections of part a) of the Inquiry's terms of reference. Its brevity is due to the rather short time-frame of the Inquiry, to the lack of detail so far on the Government's Emissions Reduction Fund proposal, and to the release only on 20 December 2013 of the Government's Green Paper on this subject.

## **THE ABATEMENT TASK IN PERSPECTIVE**

The policy objective is to reduce Australia's emissions in 2020 by 5% below 2000 levels (levels which were very similar to 1990 levels, and to 2010 levels). This objective has been widely criticised as inadequate by those who see a long-term, necessary goal for global sustainability as reducing emissions by, say, 80% by 2050. They have advocated a reduction of 15 or 25% by 2020. However, the 5% goal actually represents a reduction estimated in the Government's Green Paper at 131 m tonnes, which will amount in 2020 to an estimated reduction of about 20% on annual emissions, a very significant challenge. Why does an objective like this seem at once both insignificant, and very challenging?

The reason is that Australia's emissions are likely to rise strongly through coming years, to 2020. The reason that emissions overall remained fairly constant 1990-2010, but are now likely to rise steadily to 2020, is that beneath the overall emissions level, significant changes occurred. Land clearing emissions fell greatly after 1990, and agricultural and waste emissions did not increase, allowing energy, industry, fugitive and transport emissions to rise steadily in their place, without pushing up overall emissions. This period of overall stability is now over, with the once-only emission reduction in land clearing gone, with strong likely growth in emissions, due to little being done to constrain the sectors with rapidly growing emissions in the years since Kyoto. Hence the significant challenge just to return to slightly below 2000 and 2010 levels.

With the task as mainly to offset or abate increases still to come by 2020, a policy aim of reducing to 15 or 25% below 2000 levels is not three or five times harder than 5%, but more like one-third or two-thirds more difficult, in terms of tonnage to be avoided.

According to the Green Paper, the objective, after taking into account offsets due to Kyoto carry-over emission rights, is to abate or offset in 2020 131 m tonnes of emissions, and a cumulative task of abating or offsetting 431m tonnes over the six years 2014-15 to 2019-20.. At the same time, spending for this under the Emissions Reduction Fund is to be \$300m, \$500m and \$750m in the three years to 2016-17, while the Government has apparently said that a limit of \$3.2 bn is to be spent to reach the 2020 target. On these still-to-be-clarified figures, the assumption must be that abatement or offsets will be found to the extent of 20% of total emissions in 2020, at an average price no more than about \$8 a tonne CO<sub>2</sub>-e.

This is an extremely low abatement incentive to achieve a 20% reduction in emissions from an economy such as Australia's, and in fact it strains credibility. Currently the EU emission price is at about \$A7, and this is universally considered ineffective, and is likely to be much higher in due course. In Australia an initial carbon price of \$23 was introduced, as a price likely to induce change of the size currently sought. Other estimates are of \$30, or upwards. There are carbon prices around the world that are quite low, but these are usually 'thin end of the wedge' measures, not envisaged as achieving large change in themselves.

(It is valid to compare carbon prices with abatement incentive prices, because in theory they should have the same effect. With a price, it is rational to eliminate emissions that can be removed where the cost of removal is lower than the price paid. With abatement payments it is rational to remove

emissions where the payment received is greater than the cost of removing the emissions).

## **OBSTACLES TO THE EFFECTIVENESS OF A LOW EMISSION PAYMENT LEVEL**

Studies in emission reduction, especially through energy efficiency, have long identified the existence of a large scope for very low cost, no cost, or net financial gain opportunities for lowering emissions in an economy such as Australia. However these opportunities seem mostly to be not taken up. The reason is that there are frequent practical obstacles to their adoption, such as:

- poor information among many firms and households
- scarce management time
- transaction costs, where there are regulatory aspects
- capital investment needs, where firms or households have difficulty borrowing for even conventional financially rational investments, and
- the small component of energy costs in many firms overall costs.

An overall conclusion is that a quite low abatement price/incentive is unlikely to generate anything like the expected, rational decreases in emissions that technical bottom-up studies indicate. The conclusion is that a relatively high price/incentive is needed to overcome these practical obstacles. Thus a \$20 price/incentive may be needed to uncover emission reductions where theoretically a \$10 figure would suffice. A low price/incentive just isn't enough to overcome many of the real, practical costs of change.

## **HOW CARBON PRICES ACTUALLY INDUCE CHANGE**

In order to see how the proposed scheme of paying for abatement would work, it is necessary to see how carbon prices actually induce change. Theoretically, upon a price being introduced, at say \$20 a tonne, all emissions that in the short-term can be eliminated for less than \$20 are eliminated. However, such short-term emission reduction opportunities are limited in number, even if the short-term is several years. This is because capital equipment of all kinds determines emissions or energy use, and most such investment almost always is based on years, sometimes many years, of functioning. Much greater emission elimination, based on the same \$20 price, can only come about by long-term investment changes, in other words, based on the expectation that the carbon price will be very long-term, continuing for decades for instance, or a permanent feature of the future.

An example can be seen in the electricity generation industry in Australia. The short term effect of the carbon price was the mothballing of high-emission power plants based on brown coal, and increased generation from lower-emission sources. However, there is limited scope for adjustment using existing capital investment which was developed in a situation of no carbon price. What would induce much greater change would be if all future long-term investments in new power generation were based on the expectation of a long-term, and increasing, carbon price, so that permanent change were made to generation capacity in the direction of lower emissions.

It is this long-term expectation, that carbon pricing is here to stay, will increase over time, and is globally more and more likely, that makes carbon prices actually effective in inducing change, from the moment they are introduced. This can be seen already in the approach by Shell and Exxon-Mobil to their investment throughout the world. They are already eliminating emissions by factoring in carbon pricing of \$US40 and \$US60, respectively, for all new investments, because they expect that in the longer-term carbon pricing will be a global phenomenon.

## HOW THE PROPOSED ABATEMENT SCHEME COMPARES

The proposed abatement purchase under Direct Action, when examined in relation to how carbon pricing actually works, has severe limitations in inducing any of the long-term investment changes which are necessary to reduce emissions. It offers a very low likely abatement purchase price, insufficient to overcome obstacles to much potential emission reduction. It is specifically short-term. A firm considering a long-term investment to reduce emissions, even if it were well-placed to win a tender for payment for a few years emission reduction under the current proposal, could place no reliance on continuing to receive payments beyond 2020, especially as it could never be sure of winning a tender the next time round.

Thus the abatement purchase scheme under Direct Action would only induce emission reductions of a very limited scope, those that can be achieved short-term. Also, firms may well be in a position after the end of the payment period to revert to previous, higher emission, operational modes. For instance, a mothballed brown coal-fired power station could be reactivated. It has long been recognised that 'pay the polluter', as opposed to 'polluter pays', has the disadvantage that there can be an incentive for polluters to maintain their polluting potential, so as to be able to receive payments in a future period.

More broadly, carbon pricing schemes are far more likely to survive long-term, around the world, because they involve governments raising revenue for budgets from polluters, compared with a scheme where a government has to spend greater and greater taxpayer funds from budgets, for purchasing abatement, and must convince firms that this is likely, to provide a basis for long-term emission reduction investment.

## USE OF KYOTO CREDITS

According to the Green Paper, the government is proposing to use emission credits from its first Kyoto period as offsets to emissions up to 2020. These apparently amount to 91m tonnes. In any real sense, these are entirely fictitious offsets. Australia's, and the globe's, emissions in any realistic sense will be no smaller because of these credits. These credits only have meaning in relation to Australia claiming, in the increasingly irrelevant context of the Kyoto Protocol negotiating process, that it has met a reduction target. If Australia thinks this makes sense, then it should claim, for instance, that a country such as Canada, which failed greatly to meet its Kyoto Protocol targets, and later renounced the Protocol, should for negotiating purposes have added on to its current emissions the huge 'debts' it incurred under Protocol targets. This is entirely unlikely, as it is utterly far-fetched, but so too therefore is claiming Kyoto credits from the first commitment period 2008-12.

These credits accrued to Australia only because Australia adopted a uniquely uncooperative approach at the Kyoto conference in 1997, and in order to achieve consensus the conference at the last moment agreed to two unique concessions to Australia: an increase of 8% over 1990 emissions (the only large increase agreed) and the 'Australia clause' relating to land clearing emissions. Combined with the fortuitous changes referred to above, these clauses allowed Australia to come in under its 2008-12 target, hence the credits, while at the same time steadily increasing its emissions in energy, industry and transport. All those involved in the international negotiating process know how these 'credits' came about, and use of these virtually meaningless offsets in meeting a target should be abandoned.

## ADMINISTRATION ISSUES

According to the Green Paper, a very wide range of measures to offset or lessen emissions could

be eligible for tender for payments. As noted above, large, long-term capital investment projects to lessen emissions are very unlikely to be attracted to tender, because payment is to be for a maximum of five years, and firms could place no reliance on getting longer-term funding. Short-term, low capital investment emission-reduction projects will be favoured inherently. In other words, often small projects. The administration of this scheme will therefore be very different from the carbon pricing scheme at present in operation, where only 300 entities have obligations for a much broader scheme covering about 60% of all emissions, and where the basic element of the scheme was just measuring the emissions from these large emitters, a comparatively easy task in most cases.

In order to be properly administered, this will require an immense administrative effort. The Green Paper states that projects may be aggregated by proponents, but this does not mean that individual projects can be aggregated for technical evaluation, tender evaluation, emission verification, and payment administration purposes. Very extensive technical and administrative staffing will be required for this scheme to function properly. The Green Paper gives no indication of staffing resources to be provided to the Clean Energy Regulator who will administer the scheme.

## **ADDITIONALITY**

In a carbon pricing scheme, there is no need for proving additionality and the absence of gaming, that is manipulating dishonestly for gain, because the scheme essentially involves just measuring emissions from an entity. It doesn't matter what the technical operations or plans are of the entity. With a payments scheme however, there is an unavoidable element of gaming, which has been noted in overseas payment schemes, such as the Clean Development Mechanism. This arises from operators being paid to reduce emissions, or to create offsets, which they were going to do anyway. It is almost impossible to eliminate this, because to identify gaming like this it is necessary to have detailed knowledge of an entity's technical operations, the finances of an operation, and the operator's frame of mind. For instance, changes by farmers to no- or low-tillage, resulting in soil carbon sequestration, could be the subject of offset payment, even though this may be a rational change for different reasons.

For these reasons staffing resources will have to be used to avoid false additionality.

## **SIMILAR ABATEMENT PAYMENT SCHEMES**

The Green Paper refers to some other schemes in existence where emission abatement or offset payments are made as a means of reducing emissions. However, no other country seems to use, or is proposing to use, this approach as the principal means for addressing emission reduction. Any such schemes, where they exist, have been minor policy measures compared with carbon pricing or regulatory measures.

The Green Paper makes frequent mention of the largest abatement payment scheme, the Clean Development Mechanism under the Kyoto Protocol. However, the CDM is different in key respects from the proposed Australian scheme:

- CDM involves large, long-term, often capital-intensive emission reduction projects, with emission credits lasting up to 21 years. CDM is likely therefore to lead to large, long-term technical change in a way the Australian scheme is unlikely to;
- payments of this kind, to another entity, to earn credits, are made by an emitting entity usually under a national emissions trading scheme, where a government has imposed a cap, not by a government using taxpayer funds. This therefore is a variant of 'polluter pays', involving cost pressures on emitters to lessen emissions even if they resort to buying credits

- elsewhere. In this respect it is quite unlike the proposed scheme here; and
- allowing credits to be earned under CDM by paying others to abate in other countries is seen as warranted, as a way of transferring technology to developing or emerging economies. This justification clearly does not apply to the Emission Reduction Fund.

CDM is not therefore a precedent for the Direct Action approach.

## SOIL CARBON SEQUESTRATION

In earlier statements on Direct Action the Coalition indicated that the larger part of its efforts to reach the 5% reduction target would be in the form of soil carbon sequestration (85 m tonnes in 2020 as opposed to 55m tonnes in purchasing abatement). In the Green Paper this breakdown has disappeared, and soil carbon sequestration is simply included as one among various measures. However, to the extent that it is used, along with related land sequestration approaches such as reforestation, soil carbon sequestration has some noteworthy characteristics.

In most of its forms it ranks as a simple offset, unrelated to emission activity, and so has no effect on the levels of emissions taking place elsewhere. By contrast, some forms of offset, such as carbon capture and storage with power stations, are tied to an emitting activity and, as a cost to be borne by the emitter, could be expected to lessen emissions through this cost burden.

What this means is that, to the extent that a simple offset is relied upon to reach an emissions target, the generation of emissions continues undisturbed, and no action is taken to lessen emissions (in contrast to the purchase of abatement). The more that this form of offset is relied on, therefore, the less are emissions going to be reduced. If emissions continue to grow, because of reliance on offsets, the greater and greater will be the need for offsets. It is quite conceivable that in perhaps two decades, if soil carbon sequestration continues to be a major policy measure, that offsets of this kind will need to be several times greater than was recently envisaged, of 85m tonnes a year.

Clearly, using simple offsets is, at best, a short-term measure, and the longer reliance is placed on them, the later will the essential task of emission reduction be done.

According to research papers on soil carbon, there is a great deal of uncertainty surrounding this sequestration approach. In fact, it seems clear that reliably measuring most forms of sequestration could only be carried out with very large resources. This is because ways of measuring soil carbon changes are still being developed, and regular measurement of soil carbon would be needed for quite small areas of land to determine reliably what sequestration had occurred over a period. For instance, even within individual properties, soil types vary greatly, so generalisation about an individual property would not suffice.

A paper by Sanderman et al. ('Soil Carbon Sequestration Potential: a review for Australian agriculture', J Sanderman, R Farquharson, J Baldock, CSIRO, 2010) discusses the significance and reliability of a wide range of soil carbon sequestration approaches. An issue which this paper raises is that those approaches where the most likely significant gains can most be made, and where there is a higher degree of certainty about their effectiveness, are the ones that involve probably the greatest financial cost, or involve the greatest change to farming activity. These are altering land use entirely from farming to native vegetation, turning cropping land over entirely to pastoral use, or importing large amounts of carbon matter, such as manure, onto farming land. In this light, the idea that just amending existing farming methods, such as changing from tillage to no- or low-tillage farming, can provide significant, low-cost, measurable sequestration, seems very doubtful.

In a paper by Lam et al ('The potential for carbon sequestration in Australian agricultural soils is

technically and economically limited' by Shu Kee Lam, Deli Chen, Arvin R Mosier, Richard Roush, Nature, July 2013) the costs of carrying out soil carbon sequestration, in terms of tonnes of CO<sub>2</sub> per hectare, through various methods, are estimated. This paper concludes that generally these costs are far greater than the figure of \$10 or under that would be available per tonne under the Emissions Reduction Fund. There is disagreement about some of their figures, revolving around whether nitrogen would be needed in some cases to help retain the carbon in the soil, which Lam et al include as a cost. However, even if some costs lower than Lam et al estimate are applied in this regard, there is still a large gap between sequestration cost figures and the funds per tonne available under the Emissions Reduction Fund. On this basis, most forms of sequestration (such as those listed in the paper by Sanderman et al) could not be funded under the Emissions Reduction Fund.

It is widely accepted that increased soil carbon is beneficial to farming productivity, in various ways, and should be pursued in its own right for this reason, but the high costs per tonne of soil carbon sequestration, the difficulty of measuring sequestration over periods such as a year, and the large workforce that would be needed to do this on a large scale, suggest that this is generally a highly problematic and unreliable way to approach emission offsetting. It shouldn't be used therefore, except in the probably few instances where these obstacles clearly can be overcome.

### **EMISSIONS ABOVE A BASELINE**

In the Green Paper there is discussion about possible use of emission baselines, apparently to identify where emissions are increasing in some unwarranted way, and there is mention of possible disincentives to this, such as monetary penalties or requirements to buy offsetting credits.

However, as many have pointed out, there are very complex questions to be resolved if any baseline mechanism is to be used, such as how to set the baseline (best technology, or average technology, or average industry performance, etc), and what circumstances would be held to warrant going above the baseline (such as business downturn beyond the power of the firm, or need to change the product, or change in costs of inputs beyond the power of the firm). These questions indicate almost insuperable obstacles to applying baselines, not least because, if any penalties apply, legal definition and justification would arise.

Moreover, the definition of 'baseline' in the Green Paper is 'a projected level of future emissions or a historical level of emissions that would have occurred without policy intervention'. There is no reference to a standard, or a measure to assess, emissions in this definition, and on this basis, quite apart from the question discussed above, any implementation of baselines seems unlikely ever to happen.

### **GENERAL CONCLUSION**

A general conclusion is that, as proposed to date and with likely spending figures, the Emission Reduction Fund proposal is very unlikely to meet its reduction target, and is inherently resource intensive in its administration. In order to make the best of it, it needs radical amendment, and the best way that this could happen would be to make the following changes:

- increase funding to provide for a more realistic reduction purchase price; and/or
- make it a long-term program, providing for funding for long-term projects, of at least ten years, so that many low-cost reduction projects that are viable only over the longer-term, can be supported; and/or
- minimise the element in the program of simple offsets, where there is no direct effect of lessening emissions from spending, to only the most outstanding projects of this type.