

Land Use Change and Forestry Activities and the Clean Development Mechanism

ECCM Policy Paper No 1

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September 2000

ECCM

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In a recent letter (see Appendix below) addressed to Frank Loy, the U.S. Under Secretary of State for Global Affairs, a group of prominent NGO's argued that the inclusion of land use change and forestry activities within the Kyoto Protocol's Clean Development Mechanism (CDM) would be damaging to the aims of the Climate Change Convention and could also lead to a deterioration of social and environmental conditions in developing countries.

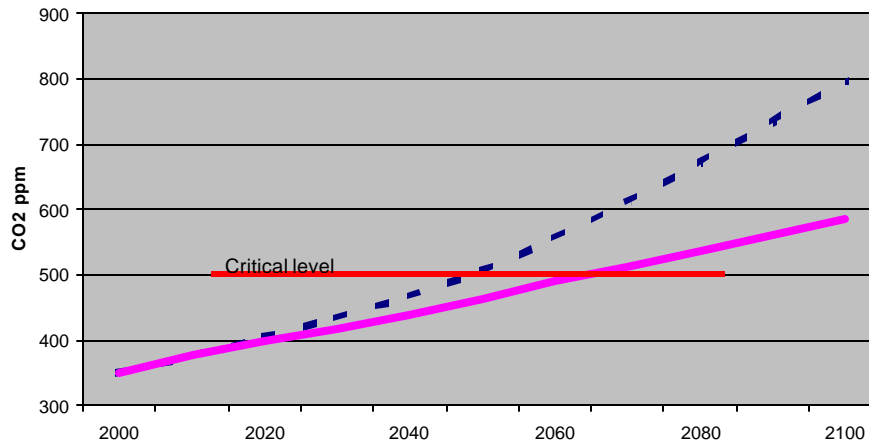
While many of the points raised by these NGO's are valid we argue that, on-balance, the exclusion of land use change and forestry activities from the CDM would do more harm than good.

1. Terrestrial ecosystems are essential to the Global Strategy for Reducing Emissions

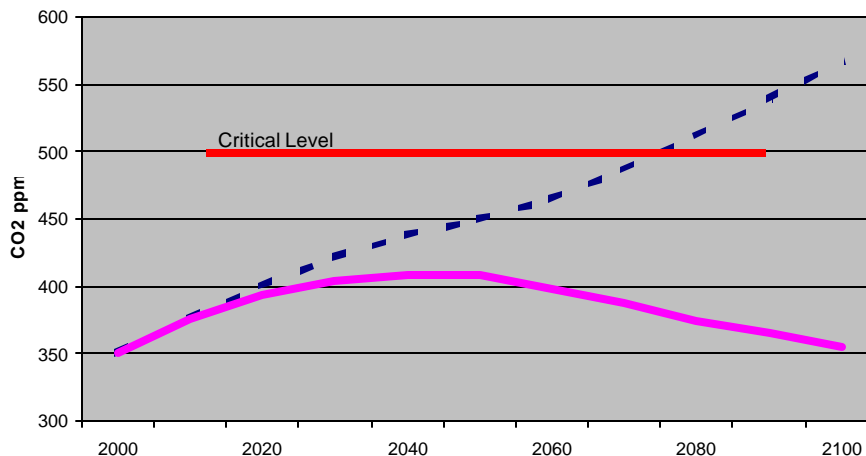
The NGO group correctly assert that relatively little political attention has been paid to the potential impact of climate change on forests. Recent research indeed shows that even modest changes in climate could have dramatic effects, not only on the ecology and viability of existing forests but on the carbon balance of many forest ecosystems.

To illustrate the range of possibilities for atmospheric carbon thrown up by the inclusion of terrestrial ecosystems within the we have superimposed a "best" and "worst" forestry scenario upon the two established fossil fuel emission scenarios (IS92a and IS92d), representing "business as usual and severely curtailed fossil fuel consumption, respectively.

Atmospheric CO2 Concentration Under "Best" and "Worst" Forestry Scenarios with Business as Usual Emissions



Atmospheric CO₂ Concentration Under "Best" and "Worst" Forestry Scenarios with Constrained Emissions



The dashed trajectories represent a “worst” forestry scenario – with deforestation continuing at present rates until much of the world’s tropical forests have been exhausted, a reversal of the natural “sink” in Amazonia, as predicted by a recent run of the Hadley model and no major programme of re-forestation. The solid trajectories represent a “best” forestry scenario – with deforestation rapidly brought under control, a significant but feasible programme of re-forestation and avoidance of any loss of the Amazonian sink.

If we consider a critical level for atmospheric CO₂ of somewhere around 500 ppm the, these figures illustrate that the only viable long-term strategy is to *combine* reduced emissions with an active programme of improved forest management, forest conservation and rehabilitation.

2. Forest products could make a major contribution to climate change mitigation by replacing energy intensive materials and fuels

Energy intensive materials such as cement, metals and petroleum-based plastics are all energy intensive materials, used widely by industry, infrastructure and urban societies in general. However, a significant proportion of this material is potentially substitutable by wood-based products in a large range of contexts. This use would not only avoid emissions associated with the products being substituted but would cherish the carbon stored in organic form. However, without a major programme of improved forest management these could not be supplied on a sustainable basis.

3. Forest and land use activities will require 15 to 20 years investment before making a significant contribution to emission reduction measures. Delay will increase the chances of the “worst” case scenario.

The implementation of a significant programme to mitigate carbon emissions in the land use and forestry sector will be a long-term process. As pointed out by the NGO group, there are still a

number of methodological issues regarding the quantification and evaluation of forestry-carbon benefits. These issues will require a concentrated programme of work, of perhaps 3 to 4 years before a robust system to guarantee high quality projects and transparent cross-border crediting can be agreed on. The time involved with preparation of investment plans, training, institutional capacity building, development of systems for monitoring and verification, stakeholder consultation and investment in local infrastructure imply a timescale of 5 to 10 years to scale-up or replicate the few pilot projects that currently exist into a programme of activities that amount to more than 2% of fossil fuel emissions. Finally, once initiated, the uptake and storage of carbon by these projects will itself be measured in decades, rather than years. This timescale has the following important implications:

- Even with the immediate inclusion of forestry and land use within the CDM, a significant contribution by forestry to mitigating atmospheric CO₂ concentrations is not likely to be felt until 2015 or 2020. The impact within the first commitment period, will be very modest and therefore diversion of significant resources away from energy efficiency and low carbon intensity energy sources is most unlikely.
- Emission reductions claimed by forestry activities in the CDM will be tiny by comparison with those occurring in Annex 1 countries under Article 3.3 (IPCC estimate Article 3.3 activities could contribute some 100 to 200 million tC towards the 800 million tC emission reduction required of the Annex 1 countries during the first) commitment period.
- However, exclusion of land use and forestry from the CDM could set this work back by as much as a decade, and could seriously increase the risk of negative changes to the terrestrial carbon sink from 2020 to 2030.

4. Industry will not rely on forestry as a method of compliance, even if it is included in the CDM

The NGOs' concern that forestry projects will be used *en-masse* by industry as a way of avoiding more expensive emission reduction measures are probably unfounded. Once the price of forestry carbon offsets have been adjusted to account for the uncertainties and risks listed in the letter, they will almost certainly be of similar or greater magnitude than many fossil fuel reduction opportunities.

Many forward-looking companies are already developing integrated carbon management strategies that include a wide range of activities including, improvements in energy efficiency, energy supplies from low carbon intensity sources and re-designed products. Given the risks associated with forestry projects, companies are reluctant to allocate more than a modest 5 to 10% of the total portfolio of activities to forestry.

5. Exclusion of forestry in developing countries from the CDM whilst including forestry in industrialised countries (under Articles 3.3 or 6) could inhibit fair trade and lead to trans-boundary leakage.

Afforestation activities since 1990 are already to be included as valid measures for climate change mitigation in Annex 1 (developed) countries, under Article 3.3 of the Kyoto Protocol. The scope for forestry measures may also be extended through Article 3.4 to include a number of other forestry or land use related activities. Also under consideration, is trade in forestry offsets

between Annex 1 parties through the Joint Implementation Mechanism framed in Article 6. Forestry incentives or carbon service payments are already being introduced in Australia and New Zealand.

However, if forestry activities are excluded from the CDM the forest sector in developing countries will not receive such assistance. In effect, forestry investment and management in developing countries will be put at a disadvantage.

Furthermore, assuming forestry companies in Annex 1 countries aim to maximise their income from carbon offsets, they will tend to delay felling longer than normal and keep a larger proportion of their forest estates under permanent forest cover. While this could generate both carbon and biodiversity benefits in these industrial countries the reduction in timber harvested will increase demand from tropical countries, much of which is likely to be provided from non-sustainable sources.

The CDM, while imperfect, provides an opportunity to correct this potential trade imbalance and to provide a more level playing field.

6. Good standards for project design are essential but if these can be achieved the benefits to rural livelihoods could be substantial

The concerned NGOs imply that forestry and land use projects financed under the CDM would have negative social impacts, despite the inclusion in Article 12 of a requirement that projects should contribute to sustainable development.

The only evidence presented to back up this view is the statement that “forest projects fail to deliver sustainable development objectives”. This in itself is a strange assertion, given the involvement or advocacy by many of these groups in initiatives to conserve or improve the management of forest ecosystems.

It may be true that forestry initiatives planned without the participation of local people and without consideration of social impact have in the past and could in the future be damaging to local livelihoods. However, it is also the case that many poor rural communities seeking to restore or regenerate the value of their local natural resources could substantially benefit by assistance through the CDM.

Some of the pilot projects developed under the UNFCCC programme for AIJ illustrate the range of potential local benefits – the sustainable management of woodfuel resources in Africa; the regeneration of degraded pine-oak forests used for timber and firewood in Mexico; the establishment of fruit trees by women in southern India; the reduction of soil erosion on steep slopes in Ecuador; and the regeneration of tropical forest in areas despoiled by gold mining in tribal areas of Amazonia.

In most of these cases, the carbon component of the land use activities is just one of several elements. However, the common theme is the capturing of a new economic value by local people for investment in their own pool of natural resource capital. Exclusion of forestry and land use from the CDM would close this door and maintain dependence on traditional development funding.

7. While several key issues of project evaluation remain to be resolved these are not unique to forestry and they are not intractable

Most of the NGOs' concerns about the problems of valuation of the carbon benefits associated with forestry are valid to some extent. However, most of these difficulties also apply to other sorts of technology or energy sector projects. Means of dealing with these issues are currently being developed and significant progress has been made in the past three years.

Baselines – There are concerns that the setting of baselines, particularly for deforestation prevention projects will (a) lead to the generation of “hot air” – the crediting of activities that would have taken place anyway; and (b) create perverse incentives to that could increase deforestation rates in order to generate more credits through subsequent conservation. These issues are genuine but apply equally to technology projects where industries may be switching to cleaner technologies without the need for carbon credits or where companies actually delay investment in energy efficiency to maximise their carbon related revenues.

There are currently a number of groups working on the design of standardised baseline methods or benchmarks that will minimise the incentives for negative behaviour and the opportunities for “gaming” the crediting system.

Leakage – The displacement of emission causing activities, such as deforestation or timber harvesting, from one area to another is known as leakage. Forestry projects that just focus on conservation or on the establishment of plantations may be particularly prone to leakage (in the first case the social pressure for land may be shifted to other areas and in the second case carbon-incentivised forestry may displace conventional timber growers from the market). However, leakage is also a feature of many technology projects – for example, the installation of fuel efficient water heaters in many homes has led to an increase in the consumption of hot water. Project assessors must therefore consider the whole of life impact of a given project, and set the boundaries of the assessment accordingly – for example, emission reductions associated with internet shopping might include reduction in fossil fuels required for heating and lighting retail space and reduction in consumers petrol consumption, but it will also be necessary to include the additional emissions associated with courier distribution.

In many cases it is also possible to design projects to reduce the incidence of leakage. For example, a land use project could combine forest conservation, agricultural improvement and afforestation components to ensure that the supply of foodstuffs, and timber products were maintained, but produced from more sustainable sources than would otherwise be the case. Regulations to ensure that any claims for carbon credits associated with the conservation of forests must actually address the underlying causes of forest conversion would almost certainly be an essential element of the CDM.

Permanence – Concerns about the sustainability of carbon emission reductions from forestry and land use measures arises from the fact that carbon fluxes from vegetation are dynamic two-way processes rather than one-off, one-way processes as in the case of fossil fuel combustion. However, the crediting of industrial and energy sector projects also raises difficult temporal issues, such as the length of time that new technologies should continue to accrue credits (assuming that the old technology would have to be replaced at some time anyway, the emission reductions are simply being brought forwards in time).

Many of the cornerstone policies that governments are already using to reduce emissions will have only temporary, or one-off benefits. Notably, the benefits from the switch from coal to gas

fired electricity generation in some European countries are likely to be cancelled out by increases in consumption over a 10 to 20 year period.

Several approaches for dealing with the reversibility of terrestrial carbon storage are under discussion, they include the staging of credits over time, the development of project portfolios and other risk management strategies.

Risk and Uncertainty – Forestry and land use projects in developing countries are certainly subject to many risks and uncertainties. However, businesses are already accustomed to adjusting the apparently low costs in some activities in developing countries to account for particular risks and uncertainties. If the global strategy to address climate change were to allow only low risk, high certainty projects its scope would be severely limited and all types of emission reduction activities in developing countries would be severely curtailed.

8. Excluding forests and land use from the CDM amounts to excluding the rural poor from benefits associated with the Kyoto Protocol

If the flexible mechanisms of the Kyoto Protocol are as successful as many observers predict, there could be significant investment flows to developing countries. However, if forestry and land use are excluded from the programme, these flows will be directed almost exclusively to urban and industrial areas, leaving little for the countryside.

The economic activity generated by these investments is quite likely to increase migration from rural to urban areas and put more pressure on local forestry resources countries, through the expansion of housing and other buildings. However, there will be little incentive to account for any leakage if the value of carbon in these forests amounts to zero.

9. Not valuing the carbon services provided by developing countries sends the wrong message

Environmental economists in the developed world have been arguing for years that ecosystems have additional values, apart from the tradable commodities that they produce. Now that the value of one of these attributes – carbon – is finally being realised it would be a significant backward step to block such a valuation mechanism.

Small farmers and forestry organisations in several developing countries are now beginning to appreciate the carbon value of their activities. Sales of carbon services are already beginning to provide some of the capital required to initiate small-scale plantations and agroforestry systems. If forests are included within the CDM these activities will be further encouraged but exclusion will halt this development.

Appendix 1. NGO letter:

CLIMATE SOLUTIONS * FRIENDS OF THE EARTH * GREENPEACE * NATIONAL ENVIRONMENTAL TRUST * OZONE ACTION * PUBLIC CITIZEN * RAINFOREST ACTION NETWORK * SUSTAINABLE ENERGY AND ECONOMIC DEVELOPMENT * SIERRA CLUB * U.S. PUBLIC INTEREST RESEARCH GROUP * WORLD WILDLIFE FUND

April 17, 2000

The Honorable Frank E. Loy
Under Secretary of State for Global Affairs
U.S. Department of State
2201 C Street, NW
Room 7250
Washington, D.C. 20520

RE: Land Use Change and Forestry Activities and the Clean Development Mechanism

Dear Under Secretary Loy:

The groups undersigned on this letter represent over three million members in the United States and operate in over 60 countries around the world. A number of us have extensive experience in forest issues (conservation, sustainable management, and timber industry) in all of the forested bio-geographical realms ranging from the high boreal forests to moist tropical lowland forests in the most endangered parts of the world. We are all concerned and most actively involved globally to slow and prevent deforestation and to protect the biological diversity of the planet.

We are however increasingly concerned over the prospect of land use change and forestry activities ("sinks") being included in the Clean Development Mechanism of the Kyoto Protocol and the US advocacy of this position.

We are opposed to the use of sinks in the CDM because relying on the CDM to address destructive land use changes and deforestation cannot solve the problem. In contrast, taking carbon credits, even for environmentally friendly land use and forest projects in developing countries under present conditions, is very likely to aggravate net environmental damages to ecosystems.

Below we have summarized our main concerns.

Impacts of climate change on forests

Less attention has been paid to the implications of climate change for forests. The Intergovernmental Panel on Climate Change (IPCC) estimates that at least one-third of the world's remaining forests may be adversely affected by changing climate, especially in the boreal zone where the warming will be greatest. More recently, the Hadley Center for Climate Change at the United Kingdom Meteorological Office has predicted that, by 2050, forests globally will

become a significant net source of CO₂ emissions. In this scenario, huge blocks of remaining forests, such as the northern Amazon, succumb to changing climate and die back, becoming grassland, steppe, or desert.

The prospect of broad-scale forest loss due to changing climate places a premium on slowing the rate of climate change. The prospect of this mitigates against relying on forest offsets to permit the release of more fossil carbon and other industrialized gases than is absolutely necessary.

Unlikely to help stabilize CO₂ in the atmosphere

It is well established that substantial reductions in fossil fuel emissions are the only way in which CO₂ levels in the atmosphere can be stabilized. There is significant doubt over the ability of sink projects in the CDM to contribute to this aim owing to concerns in relation to emission leakage, the non-verifiability of additionality and the essential impermanence of sequestered carbon. Furthermore it is scientifically incorrect to equate terrestrial storage with atmospheric carbon reduction. While most CO₂ is sequestered within 100 years, about 15% remains in the atmosphere for millenia. Taking the precautionary principle into account and the requirement under Article 12 that projects produce “real, measurable and long-term benefits” to the climate it seems more than prudent to leave sinks out of the CDM when there are far better alternatives available.

Leakage

Any credited and accounted-for carbon reduction should be permanent – i.e. the avoided carbon should neither appear somewhere else in the region nor later in the natural system. Most forest conservation projects that would qualify for carbon credits should ideally minimize anthropogenic interference in their project borders. However, poor people in forest rich tropics keep on clearing land for survival reasons as they lack fertile agricultural soil or simply do not own land. They would simply switch to adjacent areas. This leakage of deforestation activities from one place to another, so far cannot be determined or measured.

Permanence

Sequestering carbon should not be treated as equivalent to curbing fossil energy emissions. The continued transfer of carbon stored as fossil fuels to biotic sinks places increasing demands on a land base where the capacity to store carbon is finite and will shrink further as human population grows. The long-term security of stored carbon is also uncertain, due to the threat of illegal logging, forest fires, and climate change itself. Avoiding emissions at source is preferable and Kyoto rules must be tailored to favor such reductions.

On a global net basis forests do sequester substantially more carbon, as a result of nitrogen fertilization and atmospheric carbon increase, than they release following land use change, clearing and burning. However, many new research results suggest that this temporary terrestrial carbon sink may turn into a source in the next decades if global emissions stay on the rise. Forest ecosystems will ultimately become carbon-saturated. Even without global warming each forest ecosystem will finally reach a state of atmospheric equilibrium where on average over a few years carbon and oxygen uptakes are balanced by releases of these gases.

Rising global warming will speed up soil organic matter turnover, decomposition of leaf litter and respiration of the living forest trees. Moreover, non-biotic factors such as forest fires triggered by increased droughts will contribute to forests becoming sources rather than remaining sinks of greenhouse gases.

Credits for any sink projects must therefore ensure a high degree of sequestration permanence over at least 100 years, the mean atmospheric life time of carbon dioxide. So far that is not possible. Thus, under unstable conditions of progressing climate change forests are only temporary but vulnerable carbon repositories rather than long-term sinks. As long as emissions reduction targets for the main polluting countries are rather modest and do not prevent long-term climate change, only carbon dioxide reduction measures at source that leave carbon untouched in the geological formations of the fossil fuel reserves are thus eligible to fulfil the criteria of permanence of emissions reductions. In fact, by allowing sinks in the CDM and transferring carbon from below to above ground, governments would be making these forests even less resistant to climate change.

Impact on the Annex I Targets

The Kyoto Protocol framework allows that for every claimed ton of sequestered carbon there be a corresponding increase in the allowed emissions (assigned amounts) of the claimant Party. Thus the result of the CDM permitting sinks would be to increase the allowed emissions of industrial gases including CO₂ beyond that which would otherwise have been the case.

The main concern on the use of sinks in the CDM is the potential size of the loophole this creates. In our and the public's view, the CDM has not been created to give industrialized countries the opportunity to grow their domestic emissions unabated. It has also not been created to circumvent technological change in the sector primarily responsible for the problem of climate change – emissions caused by burning fossil fuels. The CDM rather has been created in order to help developing countries to achieve sustainable development and to support faster access to and dissemination of clean technologies. The Kyoto Protocol's spirit of prioritizing domestic action, however, is preserved by requiring that the CDM only provide part of a country's target.

Finally, if greenhouse gas emission targets for developed countries are ambitious enough to require both, actual reductions of emissions at source domestically and sink activities under the CDM, we can revisit the issue in subsequent commitment periods. However, with the current modest targets under the Kyoto Protocol and with a number of further loopholes lurking around the corner, the inclusion of sinks under the CDM would wreck the environmental integrity of the protocol. It would substantially contribute to an emissions increase over 1990 levels in developed nations without addressing the root causes for deforestation and poverty in developing nations, and without providing safety for the future of forests being threatened by climate change.

Ancillary Benefits of Emission Reductions not gained

Large health impacts and other environmental effects are caused by air pollution arising from fossil fuel use. Large and immediate health benefits can be gained from emission reductions at source, particularly in developing countries. By diverting CDM investment from activities which would reduce (or avoid) industrial emissions, sinks projects would have a significant opportunity cost in terms of the health benefits to be gained by direct fossil fuel emissions reduction. For example, reductions of coal use would also reduce acid rain problems and lower mercury contamination.

Unlikely to advance sustainable development

Despite the claims of advocates for including sink projects in the CDM, our own experience indicates that forest projects usually fail to deliver the sustainable development objectives claimed

by their proponents. There is no reason to imagine that the sudden entrance of the CDM into the forest policy equation will cause the current actors to change their modus operandi.

Biodiversity Conservation Potential Overstated

We believe that the biodiversity conservation potential of the CDM has been overstated. The inability to show additionality, the fact that the CDM will not address the underlying causes of forest loss and the existence of leakages means that a forest protected as a CDM project is likely to simply disguise the fact that forest destruction and/or degradation simply moves to another location.

Could undermine Public Support for the Kyoto Protocol

In order to gain public support in Annex I countries for the Kyoto Protocol, the focus of implementation needs to be in those nations. In countries such as the U.S., domestic emission mitigation is likely to bring substantial benefits to local populations in the form of reduced air pollution, reductions in damage associated with acid rain and reduction in mercury poisoning of lakes and streams. Such benefits are likely to be an important part of the political equation for gaining public support for action.

On the other hand funds spent on sink projects under the CDM are likely to become controversial. Some companies are proposing to use genetically modified tree plantations, others have engaged in clearing primary forest to plant plantations ostensibly for carbon credits and so on. As the public becomes more aware of such activities they will attract more and more public opposition.

Forest-generated carbon offsets are likely to weaken the pressure for technological changes in the energy sector. There is nearly universal agreement that a long-term solution to climate change will require fundamental changes in the energy sector, with a shift away from primary reliance on fossil fuels and toward renewable technologies and energy sources. Thus the Kyoto Protocol's success will depend on the signal it sends to markets that governments are serious about beginning this transition. Credit for carbon sequestration may shift emphasis away from curbing emissions in the energy sector thus reducing the drive for technologies to reduce CO₂ emissions at the source. In addition, reliance on sinks offsets represents an opportunity cost in terms of the longer-term economics of emissions reductions. By waiting to develop new technologies, countries would forgo the opportunity to extend the time for technological learning –an opportunity which is known to reduce costs in the mid-longer term. In addition, sink offsets would reduced the amount of technology transfer to developing countries.

Social and equity issues will affect the long-term security of biotically stored carbon

Land that policy makers perceive as degraded or unproductive can often be an important resource to the very poorest members of rural society. Experience in many developing countries has shown that large-scale tree planting schemes, often backed by foreign capital, can result in the displacement of poor and disenfranchised people from their traditional lands. Such schemes impact negatively on rural livelihoods, increase the possibility of social unrest, and ultimately threaten the destruction of the forest resource, through fire, unsanctioned livestock grazing, and cultivation. Even where a newly reforested area remains intact, displacement of local communities can lead to deforestation and consequent carbon emissions in adjacent forested

areas. Long-term security for biotic carbon storage in developing countries requires that the social and equity issues surrounding land use be fully addressed.

Conclusion

In summary we believe it is misguided to imagine that the allowance of forest credits under the CDM will somehow “effectively stem the tide of deforestation, conserve biodiversity, and foster sustainable development, as well as cost-effectively reduce the build-up of greenhouse gases in the atmosphere” as some have claimed. Such claims do not stand up to rigorous analysis. If they did our groups would be amongst the first to support this concept.

Sincerely,

Rhys Roth
CLIMATE SOLUTIONS
AND

Jon Sohn
FRIENDS OF THE EARTH

Gary Cook
GREENPEACE
Cabarle

Boni Biagini
NATIONAL ENVIRONMENTAL TRUST

Kert Davies
OZONE ACTION

Tom "Smitty" Smith
PUBLIC CITIZEN TEXAS OFFICE

Kelly Quirke
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