COMMONWEALTH OF AUSTRALIA

Proof Committee Hansard

SENATE

SELECT COMMITTEE ON CLIMATE POLICY

Reference: Emissions trading and reducing carbon pollution

FRIDAY, 1 MAY 2009

CANBERRA

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SENATE SELECT COMMITTEE ON

CLIMATE POLICY

Members: Senator Colbeck *(Chair)*, Senator Milne *(Deputy Chair)*, Senators Boswell, Cameron, Cash, Feeney, Furner, Ian Macdonald, Pratt and Xenophon

Senators in attendance: Senators Mark Bishop, Boswell, Colbeck, Feeney, Fisher, Heffernan, Ian Macdonald, Milne and Pratt

Participating members: Senators Abetz, Adams, Back, Barnett, Bernardi, Birmingham, Mark Bishop, Boyce, Brandis, Bob Brown, Carol Brown, Bushby, Jacinta Collins, Coonan, Cormann, Crossin, Eggleston, Farrell, Ferguson, Fielding, Fierravanti-Wells, Fifield, Fisher, Forshaw, Hanson-Young, Heffernan, Humphries, Hurley, Hutchins, Johnston, Joyce, Kroger, Ludlam, Lundy, McEwen, McGauran, Marshall, Mason, Minchin, Moore, Nash, O'Brien, Parry, Payne, Polley, Ronaldson, Ryan, Scullion, Siewert, Sterle, Troeth, Trood, Williams and Wortley

Terms of reference for the inquiry:

To inquire into and report on:

(a) the choice of emissions trading as the central policy to reduce Australia's carbon pollution, taking into account the need to:

  (i) reduce carbon pollution at the lowest economic cost,

  (ii) put in place long-term incentives for investment in clean energy and low-emission technology, and

  (iii) contribute to a global solution to climate change;

(b) the relative contributions to overall emission reduction targets from complementary measures such as renewable energy feed-in laws, energy efficiency and the protection or development of terrestrial carbon stores such as native forests and soils;

(c) whether the Government's Carbon Pollution Reduction Scheme is environmentally effective, in particular with regard to the adequacy or otherwise of the Government's 2020 and 2050 greenhouse gas emission reduction targets in avoiding dangerous climate change;

(d) an appropriate mechanism for determining what a fair and equitable contribution to the global emission reduction effort would be;

(e) whether the design of the proposed scheme will send appropriate investment signals for green collar jobs, research and development, and the manufacturing and service industries, taking into account permit allocation, leakage, compensation mechanisms and additionality issues; and

(f) any related matter.

WITNESSES

Committee met at 8.06 am

CHAIR (Senator Colbeck)—I declare open the ninth and final hearing of the Senate Select Committee on Climate Policy. On 11 March 2009, the Senate established this committee to inquire into policies relating to climate change. The terms of reference for this inquiry direct the committee to examine:

(a) the choice of emissions trading as the central policy to reduce Australia's carbon pollution, taking into account the need to:

(i) reduce carbon pollution at the lowest economic cost,

(ii) put in place long-term incentives for investment in clean energy and low-emission technology, and

(iii) contribute to a global solution to climate change;

(b) the relative contributions to overall emission reduction targets from complementary measures such as renewable energy feed-in laws, energy efficiency and the protection or development of terrestrial carbon stores such as native forests and soils;

(c) whether the government's Carbon Pollution Reduction Scheme is environmentally effective, in particular with regard to the adequacy or otherwise of the government's 2020 and 2050 greenhouse gas emission reduction targets in avoiding dangerous climate change;

(d) an appropriate mechanism for determining what a fair and equitable contribution to the global emission reduction effort would be;

(e) whether the design of the proposed scheme will send appropriate investment signals for green collar jobs, research and development, and the manufacturing and service industries, taking into account permit allocation, leakage, compensation mechanisms and additionality issues.

These are public hearings, although the committee may agree to a request to have evidence heard in camera or may determine that evidence should be heard in camera. I remind all witnesses that, in giving evidence to the committee, they are protected by parliamentary privilege. It is unlawful for anyone to threaten or disadvantage a witness on account of evidence given to a committee, and such action may be treated by the Senate as a contempt. It is also a contempt to give false or misleading evidence to a committee.

If a witness objects to answering a question, the witness should state the ground upon which the objection is taken and the committee will determine whether it will insist on an answer, having regard to the ground which is claimed. If the committee determines to insist on an answer, a witness may request that the answer be given in camera. Such a request may, of course, also be made at any other time.

[8.08 am]

CARRUTHERS, Mr Ian, First Assistant Secretary, Adaptation and Land Management Division, Department of Climate Change

RICHARDS, Dr Gary Phillip, Senior Principal Research Scientist and Branch Head, Land Management Branch, Department of Climate Change

BLAKERS, Ms Margaret, Director, Green Institute

CHAIR—I welcome witnesses participating in the roundtable on carbon accounting this morning. What we have done with our roundtables in the past is that we have gone along the table and had a quick introduction from each representative of four or five minutes, if it is deemed necessary, and then we have moved to questions. Dr Richards, would you like to kick off?

Dr Richards—I have been the Principal Scientist for the National Carbon Accounting System for several years and currently run the Land Management Branch of the Department of Climate Change.

Mr Carruthers—As Gary has already mentioned, his program forms part of my division. I am the First Assistant Secretary of the Adaptation and Land Management Division. If you wish, I will just make some brief opening remarks.

CHAIR—Sure.

Mr Carruthers—The Department of Climate Change very much welcomes this opportunity to join the committee to discuss carbon accounting. The Australian government has maintained a strong focus on carbon accounting for land systems which has been driven by the treatment of these emissions under the Kyoto protocol and the significance of land-based emissions to Australia's overall greenhouse emissions profile. In that context Australia over the last decade has built up a world leading and scientifically robust capability in carbon measurement and accounting in land systems. This capability being the first of its kind, we have focused very much on publication of our methods and data, access and transparency. This helps both the credibility of the system and its utility for users outside of the Australian government.

This has very much been a team Australia effort involving strong collaborations across governments, with states and territories, the science community and the private sector. The methods and data of Australia's national carbon accounting system are subject to independent international review processes of the United Nations Framework Convention on Climate Change. The development of national capabilities in carbon measurement and accounting is ongoing. The initial priorities have been on meeting the compulsory Kyoto protocol reporting requirements for deforestation and establishment of new forests, including commercial and environmental plantings. The accounting construct employed in the Kyoto protocol in relation to land systems is especially complicated and differs from the accounting approach used in the preceding United Nations Framework Convention on Climate Change inventory accounting. As

a side product of this national system, a national carbon accounting tool box has been made publicly available to allow development of project level accounts on a basis consistent with the national accounts. This tool box was released in 2005. It was very much a prototype that has been useful under existing government programs and for voluntary users. The government has indicated that it will further develop the national carbon accounting tool box to meet the estimation and reporting requirements for reforestation under the Carbon Pollution Reduction Scheme.

CHAIR—Thank you. Dr Richards, do you have anything to add to that?

Dr Richards—No.

CHAIR—Ms Blakers.

Ms Blakers—Thank you for the opportunity to speak today on behalf of the Green Institute. It is evident, I think, that climate policy depends critically on having a comprehensive, reliable and transparent set of greenhouse gas accounts. I want to focus today on the three aspects of Australia's land-use accounts. I will probably call them either land-use or LULUCF—land-use, land-use change and forestry accounts. This is the landscape side of the equation, the bio-carbon side of the equation. The critical aspect is that they are presented in a way that you can understand what is in them, what they are telling you, that the coverage is as complete as possible and that the data is reliable.

I should say that there are two sets of greenhouse gas accounts that Australia prepares. There are copies for people here. I will call them the UNFCCC accounts—this is what they are normally called—and the Kyoto accounts. The UNFCCC accounts are more comprehensive; still not completely comprehensive but leading in that direction. The Kyoto accounts are a subset of that. So the top set of accounts I have given you here is the UNFCCC accounts and I have given you in the first column the standard format, the set of numbers you would normally see if you look up on the department's webpage or elsewhere to see what Australia's emissions are. I want you particularly to focus on the land-use, land-use change and forestry sector, the LULUCF sector. The number that you see in the standard framework is 14. That is net emissions of 14 million tonnes of CO2, which sounds rather benign. If you look across into what I have called the rearranged format and what is enclosed in the black box, you can see that within that number 14 are some very large fluxes, some very large emissions and some very large uptakes and a lot of unknowns.

The main point that I want to make is that that net figure buries a whole lot of information, and it is that information which is crucial for deciding on policy. I will briefly give you the rationale for the way I have rearranged the accounts here. I have distinguished first of all between biocarbon and what I am calling fossil carbon—fossil carbon from fossil fuels primarily; that is, coal, oil and gas. I am not going to focus any more on that part of the accounts. I am not familiar with that sector and, as far as I understand, it is not highly controversial. I think the accounting system there is reasonably comprehensive and reliable.

On the biocarbon side—the carbon that is in the landscape—I think it is a different matter. Within biocarbon, I want to distinguish between green carbon and production carbon. Green carbon is the carbon associated with natural ecosystems in the vegetation and the soils—in the

ecosystem as a whole. The reason that I want to pull that out separately is that that carbon is, for all intents and purposes, permanently stored, provide the ecosystem is appropriately managed. Storage is crucial. That is what we want to do: we want to keep carbon stored where it is, whether it is in fossil carbon under the ground or in the landscape in natural ecosystems. Production carbon is the carbon in systems which are used to produce food, fibre or wood. There are, I think, plenty of opportunities to improve carbon storage in those landscapes, but your primary management objective is going to be production of whatever it is you are producing.

The critical thing about biocarbon as distinct from fossil carbon is that you have flows in both directions—you have got emissions and you have got uptake. I think one of the really confusing things in the way the accounts are presented is that, for biocarbon, you get net figures—the figures you are given are netting out the uptake and emissions—so you cannot actually see what is going on. For policy purposes it is crucial that you can see what is going on.

If you look at the numbers down the bottom and compare them with 1990, you can see what has happened over that period. These are the UNFCCC accounts. Fossil carbon emissions have gone rocketing up from 310 to 430 or near enough over the last 16 years. Green carbon emissions have gone down from 172 to 94. That is primarily due to land clearing being slowed down. We can talk later about the uptake number. I think what is really interesting is that agriculture and waste emissions really have not changed that much over that period of time.

As a footnote, we have to be really careful when we use the terminology 'agriculture', because agriculture in the greenhouse accounts is only the non-CO2 emissions; it is none of the land use. So there is a real confusion between agriculture as an industry sector and agriculture as a greenhouse accounting sector. We have to be very mindful of that. On the right hand side, the uptake by carbon of plantations has gone up because of the increase in MIS plantations over the last 15 years or so. If you break out the accounts this way, it is clear that you have a large opportunity to stop native forest clearing and logging and save a very large amount of emissions. But, because of the way the figures are netted out, that opportunity really has not entered the current debate in a very big way.

As to coverage, as I said, we prepared—like the other annex I countries—two sets of accounts: the UNFCCC account and the Kyoto account. The Kyoto account is on the second page. You can see that it is much more restricted. In particular, it does not include native forest logging, nor does it include the opportunities for carbon storage in the production landscape—in grazing lands and cropping lands, for example. And there are some other issues there.

Senator FEENEY—So only the highlighted categories appear? Is that correct?

Ms Blakers—It is land use change that is in Kyoto account. It is forests going to non-forest and it is non-forest going to forest. Forest remaining forest, grazing land remaining grazing land, and crop land remaining crop land are not in Australia's version of the Kyoto accounts.

I was not going to dwell on the reliability of the data because I was hoping that Professor Mackey would be able to speak to that, but I will just make a quick comment. On the green carbon accounting side, as far as I can see, a reasonable piece of work has been done on the clearing figures—as Mr Carruthers said, because it is a Kyoto sector. The native forest logging is, I think, way underestimated. It does not include soil carbon. Professor Mackey's work

through the ANU has pointed to consistent underestimations in the way the carbon quantities are estimated for green carbon. I have a number of recommendations, but perhaps I will wait to talk about those later in discussion.

I do want to point out one issue, which is the boundary issue in relation to emissions trading and the way that interacts with the accounting framework in relation to the treatment of biomass and biofuels as carbon neutral. Some of them may be. If it is crop waste which is annually recovered, possibly it is carbon neutral—but you would certainly want to have a good look at it to make sure it truly was. If it is coming from native forest clearing or logging, it is more than likely that it is not carbon neutral. The comment is made in the white paper, for example, that biomass and biofuels are to be treated as carbon neutral because the assumption is that the carbon which is lost through logging or clearing will be recovered. That may be true, but the question is: over what timeframe?

We are talking about an issue of climate change where we have to get our emissions coming down within five years. Anything that takes longer than that to recover is in no way carbon neutral. The reason that the IPCC recommends that biomass and biofuels be treated as carbon neutral in the energy accounts is that the emissions have supposedly already been accounted for in the land use accounts. When you are coming with an emissions trading scheme where native forest logging and clearing is not included and there is no liability attached to emissions from those sources within the emissions trading scheme, but biomass and biofuels are assumed to be carbon neutral, you are setting up a perverse incentive to get those biomass and biofuels from sources where you do not have to account for the emissions. I will leave it there but, as I said, I have a number of recommendations that flow from that kind of analysis.

CHAIR—That is probably a fairly reasonable place to start. We heard evidence in Hobart last week about the accounting processes. For example, in Tasmania, as soon as a forest is harvested, the assumption that is made is that all of the carbon, including that in the root system—and this is the accounting process that Forestry Tasmania use—is actually emitted. So I am interested in your concept that there is no accounting under the processes for the CPRS? Mr Carruthers might like to comment on that also.

Mr Carruthers—I am happy to comment on that. Regrettably, I think this business of carbon accounting and land systems driven by the present international rules is very complicated. This is something that Australia has been seeking to address in the international processes. In my mind, we can make an analogy here between financial accounts and carbon accounts. We have a capacity to measure the physical emissions. We have a sophisticated, scientifically advanced capability in Australia to measure the emissions. In the case of the financial system, we can measure a dollar. There are very good ways of measuring a dollar.

Then there are accounting policies, which are set by whatever institutions. In the case of a financial account, you can have a cash account, you can have an accrual account, you can have a profit and loss statement. There are various accepted forms of financial accounting and they serve different purposes. They have different coverages and constructs, and that is the case here. As both Ms Blakers and I said in our introductory remarks, in the UN climate change system there is a separate accounting approach for the land systems in relation to the climate change convention and for the Kyoto protocol, and we will see what comes to play out the current international negotiations leading to the Copenhagen conference.

The central point about Australia's national greenhouse gas inventory reporting for the convention and the protocol and the way that is linked to the Carbon Pollution Reduction Scheme is that Australia follows the international rules. Whatever they may be, we follow the international rules for carbon accounting of the land system and that involves various assumptions and propositions in the accounting construct. It does not mean to say that we necessarily think they are the best accounting construct, and indeed in appearances before the Senate committees previously I have stated clearly that we think that there are a number of simplifications and constructions in those inventory accounting approaches set in the international rules that are not the preferred approach and Australia is seeking to change those. Those assumptions are things like a presumption that biomass fuels are treated as zero emissions. Harvesting of trees are treated under the Kyoto protocol as an immediate emission when clearly this table here is not an emission; it is a carbon stock and there is a decision to be made at the end of the useful life of this table as to what happens with that carbon stock. We do follow international practice and the Carbon Pollution Reduction Scheme is designed to align with the international practice of the day.

CHAIR—Just on that, that has been one of the discussions that we have had through this inquiry in a number of areas. The CPRS is effectively designed and based around the Kyoto carbon accounting rules. What is your perception of what is likely to occur? We still have some time to go before Copenhagen, what are the things that are likely to change in that forum and how would that get dealt with as part of the process that we have in front of us right now? Will there be changes to the accounting processes? We have had a lot of discussion about soil and my understanding is that any potential changes there are further off than Copenhagen. Obviously there are discussions about other elements. What are the things that we are likely to see change and how do we deal with those in the construct of the CPRS, which is based on something that was designed in the 1990s?

Mr Carruthers—I think my crystal ball is not as clear as it might be in terms of what might come out of the current international negotiations. The reason for that is that the international negotiations around climate change policy for the land systems have been fraught and difficult, and that was very much the case with the Kyoto protocol. A lot of this complexity we speak about in carbon accounting around Kyoto is as a result of a lot of compromises that were made in the construction of the Kyoto protocol. All I can say is that in its negotiations in the current process, Australia has pointed to what we see as being the limitations and weaknesses in the current Kyoto approach.

In the negotiations, we have been strongly advocating for and giving considerable priority to the argument that we should have comprehensive accounting of the land systems that reflects the proposition that we measure, report and account the actual emissions that are occurring at the time and place at which they occur. In other words, we do not have spatial and temporal dislocation with things like assumptions about wood products—for instance, harvesting being an immediate emission when clearly in both space and time it is not an immediate emission. In the energy and industrial sectors, we follow a principle of emissions being reported at the time and place at which they occur, and that is the proposition which we think should underpin the accounting for the land systems. We think there are good prospects of securing that outcome, but at this point we would say that that is a long way short of being certain and we will have to see what happens in the process.

CHAIR—How do we deal with that in the context of the CPRS? If the rules change, how does that apply to the CPRS?

Mr Carruthers—The government has not made public any formal policy on that. The government has said that the CPRS is being progressed through the legislation and that its implementation is on the basis of the current Kyoto protocol accounting construct, because that is our current national commitment under the international treaty arrangements. But, as a matter of logic, if Australia were to take on new and different commitments in a post-Kyoto or post-2012 framework, we could expect to see the Carbon Pollution Reduction Scheme brought into line with those new international accounting requirements:

Senator FEENEY—Why isn't it possible for us to adopt an accounting standard that is obviously compliant with our international obligations but is perhaps more expansive in several important respects, if only for the benefit of Australian policy makers and the Australian community more broadly? Why can't we do both?

Mr Carruthers—The Australian government is promoting activities and programs that deal with the whole of the Australian landscape. For example, the Australia's Farming Future program in the Agriculture and Forestry portfolio under Minister Burke is addressing the issue of building our knowledge and technological and management capacities across the farming systems. But, to the extent that Australia and its farmers take action in those regards, we do not get credit for them towards our Kyoto target. So, yes, we can undertake the activities, we can measure the emissions and we can report the emissions; but, to the extent that they sit outside the accounting framework of the Kyoto protocol, we do not get credit for them.

Senator FEENEY—No, but there still might be good public policy reasons for doing it.

Mr Carruthers—Absolutely. One of the points here—

Senator FEENEY—Indeed, they might be structural changes that we argue for at future conventions.

Mr Carruthers—The policy principle that I spoke about in terms of measuring and accounting for the emissions at the time and place at which they occur links to the point that that is what the atmosphere is seeing. That is the actual effect on the atmosphere. You are right in the sense that, to the extent that these positive activities or, indeed, if they are negative management practices from a climate view point sit outside the Kyoto framework, they are having an effect on the atmosphere and the climate of the future, but that is not being recognised in terms of the accounting for the Kyoto target. That is an anomalous situation in terms of climate objectives, and it is why we need to get the international rules on to a stronger and more coherent footing.

Ms Blakers—Australia is not using the Kyoto framework in its CPRS. It does not include land clearing. It is an even more limited set of sources and sectors than the Kyoto framework. I think Senator Feeney is quite right: we can choose what we do within Australia in terms of both accounting and action. The only requirement to intersect with the international rules is that we are able to report in conformity with the international rules and that we meet whatever those targets are. We can clearly do a far better job at home and look at all those non-reported sectors—for example, upgrade the native forest accounts—and come to the international arena

with that experience under our belt and be able to then inform the international negotiations about what is doable and not doable. I think the continued insistence that we are following Kyoto in the CPRS is wrong; we are not.

I will just go through some of those other points that have been made. Let us have emissions at the time and place they occur. There has been a very large amount of work put into the wood products modelling which, if you look on the UNFCCC account—that is under 'other' at the bottom of the set headed 'Land Use, Land-Use Change and Forestry' sectors—it is minus four. It is four million tonnes per annum, and that is on a modelling outcome. It is not large in the total scheme of things. If you look at 'native forests available for logging', that figure is—

CHAIR—What is the basis of that minus four? Where does that research come from?

Ms Blakers—It is from these gentlemen from the department. The former AGO did quite a lot of work on modelling what happens to wood once it is logged and goes into the product stream. They can give you chapter and verse on that modelling. But my point is that that is a rather small number in the scheme of things and that there are some much larger numbers about which we know very little, and that is in relation to native forests which are available for logging and what in fact are their real emissions, including the soil. The minus 57, the uptake—which is the regrowth of all the forests that have been logged any time since Europeans arrived—is a constant. It is not a measured number. We do not actually know what that number is.

Senator FEENEY—How accurately do we understand or account for the amount of carbon stored in a hectare of native forest?

Ms Blakers—That is what Professor Mackey's work is starting to elucidate, and it is coming up with very large numbers indeed. The older the forest gets, the more carbon it stores. The storage is both in the soil and in the biomass—the roots, the trunks, the leaves, the branches and the litter.

CHAIR—Do you mean the fuel load on the forest floor?

Ms Blakers—It depends—

CHAIR—That is a flaw in that particular piece of work; it does not account for fire.

Ms Blakers—I am not an expert in this area, so what I am giving you is my understanding. Fires are part of the ecology. They are part of life. Fires take out mostly the finer fuel—so the leaves and twigs and so on. I think there was some evidence from Dr Keith earlier on that about 20 per cent of the carbon in a given area might be taken out by fire.

CHAIR—But it depends on the fuel load. The higher the fuel load, the more intense the fire and the higher the emissions. There is some very reasonable work on that as well.

Ms Blakers—I do not know that. My understanding is that the way in which it operates in a dynamic sense is temporary—that might be a decade of reduction in fuel storage. But you are not taking out the big elements of the forest: you are not taking out the big trunks; you are not taking out the soil. That storage remains.

In the very large picture of how the Earth's climate is going to respond to climate change, this is actually one of the limits. If we start to get up to two degrees or beyond, then fire frequencies and so on are going to increase and then we do have the potential to pass some of those tipping points, which are losses of forests and the carbon that is stored in them, which then sends you, potentially, into runaway climate change. To my mind, what we are operating within is a rather narrow limit of potential safety, and maintaining the storage of carbon in natural ecosystems is absolutely critical.

Senator MILNE—Mr Carruthers, I would like to follow up on you saying that the atmosphere does not really bother about what the rules are, how we measure things, that the atmosphere just understands how much carbon is going into it and what we end up with in terms of greenhouse gas intensity. So by choosing to use the Kyoto rules—UNFCCC rules, but mainly Kyoto rules in Australia—what we are doing is kidding ourselves about the real impact we are having on the atmosphere. We are also putting in place policy positions which generate even worse outcomes from the atmosphere, and we know full well that that is what we are doing, and we are doing it because we want to adhere to accounts. Wouldn't it be much better to develop a policy framework that gave us our best shot of protecting the climate by maximising the carbon outcome benefits at the same time as maximising the biodiversity benefits and land-use benefits and so on? What you seem to be saying is: 'Yes, we know that what we are telling people is wrong. We know that the logging from native forests is not accounted for, but we're sticking to the rules and the rules of these and, therefore, we don't have to count them regardless of the fact that we know that they're wrong in terms of the atmosphere.' How do you justify that position?

Mr Carruthers—I used the analogy of different forms of financial accounting. They are all correct forms of accounting—

Senator MILNE—Yes, but for some of them go to jail eventually.

Mr Carruthers—but they give you different pictures and different coverage of the story, and no one particular form of accounting is complete in terms of the full picture, and that is what is happening in the international accounts. Climate change is a global problem; it needs a global solution. That is why Australia is part of an international climate change treaty framework, and we work in conformity with the international provisions. As I have said, the international provisions are not ideal, and we are looking to better those in the negotiations.

Senator MILNE—Can I pick you up on that?

Mr Carruthers—But the Carbon Pollution Reduction Scheme, as I said, is designed around the international rules of today. One of the reasons why that is important is that in the announcement of the proposal for the Carbon Pollution Reduction Scheme, we are looking to link the Australian national carbon trading system with international carbon trading systems, the carbon trading systems that are in place in a number of other countries now, or are coming into place, such as has been announced by the new US government. So we want to have those linkages. If you want to link into international carbon trading markets, you need to be conforming to international rules, otherwise the carbon units will not be equivalent and not tradable, and it is quite an important reason for that scope and focus of the Carbon Pollution Reduction Scheme.

Senator MILNE—Let me get back to this: you do not have to allow plantations into the Carbon Pollution Reduction Scheme on a voluntary basis to comply with anything. You do not have to, but by choosing to you are driving a perverse outcome, are you not? You are providing incentive by putting the very resource which should be serving the sawn timber from the timber production system, taking it out of timber production and putting it into a carbon store and rewarding people for that through the CPRS. Therefore, you are driving the logging into the greatest carbon store, which is our native forests, because you do not have to account for the emissions. And now with the collapse of Timbercorp, you are going to see the receivers desperately wanting the plantations in the CPRS so that they can recover something from plantations that were designed to be for wood production. If you are going to take plantations out of wood production and put them into carbon, you are going to drive out into the forests, which have far more carbon density—or perhaps if you can answer this first: do the native forests have far more carbon density than the plantations per hectare? Do they have more biodiversity benefits per hectare and, therefore, why would you voluntarily choose to distort the system in this way?

Mr Carruthers—I cannot speak for the intentions of individual forestry companies like Timbercorp.

Senator MILNE—No, the system is driving this.

Mr Carruthers—No doubt you have had discussions with some of them during the course of your inquiry. We are looking to provide incentive, through the Carbon Pollution Reduction Scheme, to pursue land activities that will benefit the atmosphere. It is correct to say that there is not comprehensive coverage of the land systems. What is announced in the white paper is a two-step process: the inclusion, on a voluntary basis, from 1 July 2010 of the forestry plantations, a process of engagements and planning to have coverage of the agriculture sector that will go on, and, at the same time, engaging in international negotiations to get a coherent approach. That is really the best we can do today in relation to the Carbon Pollution Reduction Scheme. It has some features which may not be ideal, but that is a product of the international rules.

Senator MILNE—Could you answer the question: is there greater carbon density and biodiversity benefit in a hectare of native forest than there is in a hectare of pine plantations or eucalypt plantations?

Mr Carruthers—That depends which particular clusters of trees you chose. If you were to look at some sparse cypress pine native forest in western New South Wales and compare that to a softwood plantation in a fertile high rainfall area—I do not know what the answer is, but you may well find that there was more carbon in the plantation than there was in the native forest.

Senator MILNE—And what about the biodiversity benefits of both?

Mr Carruthers—That will depend on the situation. The Carbon Pollution Reduction Scheme cannot be principally a biodiversity policy. It can have benefits for biodiversity, but biodiversity outcomes that need to be dealt with through biodiversity policies.

Senator MILNE—Yes, but surely that is the whole point: if you just focus on carbon and Kyoto, you drive perverse, bad outcomes for ecosystems. That was what the whole green

roundtable on the first day was about. Every single one of them, from every perspective, said the best thing we could do for the atmosphere is to protect native forest and native vegetation first as a store.

CHAIR—I am not sure they actually said that.

Senator MILNE—They did. If you go back and listen to what they all said, they all said that is the first thing you should do. What they also said is if you took out the plantations from the CPRS, and then you developed a parallel—

Senator PRATT—Some of them said that.

Senator MILNE—no, they did not all say that—mechanism then you would provide an incentive for the things with the maximum carbon benefit but also have maximum biodiversity, water retention, all of those kinds of benefits. Do you agree that by taking out production forests from production forestry plantations, you are increasing the driver into logging native forests? And is that a good thing for carbon?

Mr Carruthers—I do not think that that follows, Senator. A carbon pollution reduction scheme has the objective of maximising the protection of the climate through reducing carbon emissions and increasing carbon removals in the land system. That is the objective. That is the design of the system. There will not be perverse biodiversity outcomes if we have sound biodiversity policies in place and there will not be perverse outcomes in relation to water resources if we have sound water policies in place. If there is a concern that conducting activities for the purpose of carbon outcomes could produce perverse biodiversity or water outcomes then we should look at our water and biodiversity policies and remedy those.

Senator MILNE—But don't you think protecting native forests and native vegetation would be a major contribution to protecting the carbon stores in Australia?

Mr Carruthers—Carbon policy will have a number of benefits for biodiversity outcomes. Similarly biodiversity policies will very likely have positive carbon benefits. But biodiversity policy is principally about biodiversity and can produce other ancillary benefits. Carbon policy is principally about carbon outcomes and can have other ancillary benefits.

Senator MILNE—Ms Blakers, would you like to comment on that?

Ms Blakers—Yes, I would like to comment on that. From a purely carbon perspective stopping native forest logging and clearing will have a positive benefit for the environment, for the atmosphere, by stopping the emissions, which are quite large—something in the order of 100 million tonnes a year. That is about 20 per cent of Australia's emissions. And it will have an ongoing benefit because as the previously damaged or degraded forests regrow they will be pulling CO2 out of the atmosphere. So you get a double whammy. Because it is biodiverse, the storage is permanent or effectively permanent. It is self regenerating, it is resilient and it will, if it is properly managed, stay put. I just do not think there can be any argument about that.

CHAIR—You talked before about over five years, and that is a very short-term thing. There is a lot of research, both here in Australia from CSIRO and from other institutes all over the world,

that shows that a managed native forest over time—if you account for the carbon that is locked up in stores such as we talked about before—can sequester up to 30 per cent more carbon over, say, 180 years if you manage it or harvest it on a 60-year cycle. So you are talking about a long-term process here. You are talking about sequestering more carbon over time. There certainly has to be some work done with respect to the life of the store. I accept that. But that research comes from North America and there has been work done here in Australia. Effectively we come back down to this: if you shorten the term to a five-year cycle and say we have to do something about it now then you get back down to the argument as to whether people have access to that resource or not without looking at the longer term issues that surround it.

Ms Blakers—Okay, the short-term issue is that we have to get our emissions down fast—the world has to.

CHAIR—No-one is arguing that.

Ms Blakers—And that means in the Australian context, where we have alternative sources of wood and fibre, that we do not have to log native forests and we certainly do not have to keep clearing them.

CHAIR—That is an important point though—where you have alternative resources.

Senator MILNE—We do.

Ms Blakers—No, sorry, with respect it is not a different point; it is the same point.

CHAIR—Not for everything we don't. Senator Milne just said that we do have alternative resources but we do not have alternative resources for all of the products that we get out of native forests. We just don't. So I am having an argument with Senator Milne not with you, Ms Blakers.

Ms Blakers—My understanding is that the vast majority—we are talking 90 to 95 per cent—of the wood requirements for Australia can be met outside of native forests. So we have native forest logging and we have native forest clearing. These are two different activities although they come together in Tasmania where forests are logged and cleared still. The absolute priority from the atmosphere's point of view—and this is what is coming through in the international negotiations; this is what the red negotiations are all about—is getting emissions from logging and clearing down internationally. The same applies in Australia. We can make a major reduction in our emissions if we can end or dramatically reduce logging of native forests and clearing of native forests.

Clearing of native forests is a Kyoto activity. It is not in the CPRS. We are not making any serious effort—there is no coherent policy—to look at how we protect those permanent stores of green carbon. Planting plantations or replanting environmental plantings is very slow. Forests are slow to grow and slow to accumulate carbon. You can see that because that 23 million tonnes that is in the accounts on the uptake side—mostly the MIS plantations, as I said—is a relatively small amount of storage; and that is after 16 years. So if the world's emissions are going to peak and start going down by 2015 then we cannot wait for another 10, 20, 30 or 40 years for new

plantations or new forests to soak up carbon; we have to stop the emissions from the existing stores.

CHAIR—But for a lot of these plantations the cycle is less than 15 or 16 years. They cycle them through at 13 or 14 years.

Ms Blakers—Correct, and that is even worse because you are not allowing the store to accumulate—you are taking it out.

CHAIR—So on a plantation basis—the source of timber that Senator Milne is saying we ought to be going to—the cycle is a lot shorter, particularly for certain products. They are quickly growing trees. You can have an estate that you can account for with a cycle that has been worked through to have a base store and if that store or that base continues to grow then you obviously have a growing storage of carbon in that resource.

Ms Blakers—I think we have to be clear about what we are growing these trees for. Are we growing them to produce wood or are we growing them to store carbon?

CHAIR—The CPRS looks at both of those options.

Ms Blakers—The CPRS looks at carbon, but it only looks at carbon in trees that have been planted since 1990. As I keep on saying, it is the MIS schemes and the young, fast-growing eucalypts, by and large, which are destined to be turned into paper products—

CHAIR—Or regrowth native forests.

Ms Blakers—Well, one of my questions is whether they are in fact included in the current accounts. It is certainly not regrowth in existing native forests. Whether new ecologically diverse plantings are included in the current accounts I am not certain. It is not clear from the methodology.

CHAIR—That is worth exploring.

Senator MILNE—Perhaps we could stop there and just ask if they are.

Dr Richards—Yes, approximately 30 per cent of the area of plantations that are called generally plantations, which are new forests on previously cleared land, is environmental plantings not intended for harvest.

Ms Blakers—And that is in the 23 million tonnes here.

Dr Richards—Yes, and we should be clear here: that is the annual uptake over the Kyoto period not a store so that is the net result of sequestration and emissions from harvest.

Ms Blakers—Just to follow up on that, I would really appreciate having a look at the methodology for that because I do not see it in your methodology document.

Dr Richards—We could provide the webpage where those documents are located on for you.

Ms Blakers—Thank you. Would it be an appropriate time to run through what I think—

Senator PRATT—Could you just outline if you have any recommendations?

Dr Richards—Yes. First of all, I think a lot of this discussion is predicated on accounts which are not clearly set out and where it is not totally transparent what we are dealing with. We also know that the data that is going into the accounts for the non-Kyoto sectors is not as good as it should be. I think the commitment in the government's work plan it to have full accounts for these sectors for 2008. We are currently working on the 2006 account so that is 18 months away at the minimum. I think we need something much more urgently than that and some kind of open process to upgrade—to have a look at where the accounts are now and put more money in if that is required to increase the resources so that we can get a decent set of accounts for biocarbon much more quickly than in two years time.

Secondly, I do not think that biocarbon should be incorporated in the emissions trading scheme. The only sector that is at the moment is the new Kyoto plantations. As I said, land clearing is not included and native forest logging is not included. Soil is not included. So it is a minor change and it removes one of the distortions in the scheme.

Thirdly, as I have said several times, green carbon has not received the attention that it ought to be receiving. Stopping emissions from logging and clearing native vegetation has to be a No. 1 priority in Australia, as it is globally. It is about 20 per cent of Australia's emissions and it is an arena where we can make a very big impact very quickly.

Senator PRATT—Could you go back to the point that you made before about stopping logging in native forests? I did not catch what you meant.

Ms Blakers—Take biocarbon out of the emissions trading scheme. I can go through the reasons. The measurement is just one of them. I think it distorts the emissions trading scheme. If it were restricted to fossil carbon, it would be a much more uniform measurement with more reliability, and it would be a more workable scheme.

Senator MILNE—I will just stop you there. Let us assume we did take it up because it distorts it—and I accept that. We do need something to incentivise the protection of the stores and to actually prioritise what has the maximum benefits and pay people for that. Otherwise, it is not going to happen. That was the point that the grain people have made and a number of other farming groups have made. At the moment they are being expected to do this stuff and not getting any reward for it. There is no incentive, they are doing it tough and so on. So in saying, 'Take it out,' you are actually taking away a potential income source from people who might voluntarily put it in. What are you suggesting we should do, then, given what the Grains Council and others have said?

Ms Blakers—I think that is absolutely right. If we are protecting the existing green carbon stores, we are promoting increased soil carbon storage and so on, so we need to pay for that. As a community we need to pay for it, and we need to pay for it in perpetuity. It is storage that we are talking about here. It is keeping carbon stored in ecosystems, in soils, forever. It is not simply about reducing emissions in the short term. It is about managing those systems in perpetuity.

Senator MILNE—Do you have a view about how that would happen? Forestry Tasmania objected to that notion, because they said they would only get paid once.

Ms Blakers—Correct.

Senator MILNE—And I said to them, 'Wouldn't we be better off to protect the forests and be paid for that as a carbon store as opposed to cutting them down? Wouldn't Tasmania get more?' They said no because, in the way they would see it operating, they would only get paid once. What would you propose as a mechanism so that farmers as well and anybody who does an environmental plan or whatever does not just get their one-off payment up-front? How would you see that happening?

Ms Blakers—That is also the reason why it does not fit well into an ETS framework, because with an ETS you are paying money on fluxes, so you only get the payment, as you say, when you stop for the one-off avoided de-forestation or avoided logging event, whereas what you actually want is a long-term income stream to enable you to maintain those stores in perpetuity. So I see it as two steps. One is the transition to stop logging and clearing, and there needs to be appropriate funding for that transition to happen for affected industries' workers. Step 2 is to set up what I have called a REDD-plus fund—'REDD' meaning 'reduce emissions from de-forestation and degradation', 'plus' meaning the soil carbon enhancement and the additional storage you can get by managing those natural ecosystems in perpetuity. Where the funding from that should come from is obviously an open question, but I think there are a number of possibilities. The fact is that carbon now has a value. That value does not have to simply be mediated through an emissions trading scheme. The government can also step in as the intermediary to collect funds and to distribute them, as it is doing for other sectors through its compensation packages for the emissions trading scheme.

Senator MILNE—Are you suggesting, for example, that if I were a farmer and I put in my environmental planting then I get paid something each year for maintaining and increasing the store if I go to further rehabilitation work or something like that, so that I get an ongoing income?

Ms Blakers—Yes. I think the primary objective has to be permanent storage, so I would link it to permanence in a legal sense as well as permanence in an ecological sense. Permanence in a legal sense means appropriate land tenure or covenanting or something that can assure the community that this carbon store is actually going to be there forever. The issue here is that you need an expert intermediary body to allocate funding because you want that funding to be allocated on a needs basis. So it is in need of the ecosystem for management rather than the quantity of carbon that is stored or accumulated. It may be that it is some combination of a low per hectare payment and then project funding for specific management requirements, or some combination like that. But I think the key point is that this is 20 per cent of the problem and it needs 20 per cent of the resources and 20 per cent of the policy attention put into solving it. It is a huge opportunity for Australia. Because in many ways Australia is a developed country with a developing country profile, I think what we do in Australia can actually inform what happens globally.

CHAIR—So a farmer who has some native forest on his property who wants to manage that is locked out of the system altogether at the moment, as Private Forests Tasmania told us when

they came to us in Hobart. Effectively under your proposal they would be locked out of one of the income streams, which is managing the forest and getting a return from the timber, which in a lot of those cases with these guys who do manage it is high quality are more likely to go into some sort of store. You give them one income stream and lock them out of another.

Senator FEENEY—It is more than just forestry, too, isn't it?

CHAIR—These guys see it as whole-of-farm management, and the witness that we had in Hobart last week I have to say I have a lot of faith in as a land manager. I have seen his property in the way he operates his property. His evidence to us was that if he had this opened up to him on those two fronts—the capacity to manage his forest and earn an income stream from the forest itself but also regrow it as a native forest, which is what he wants to do to manage his farm and maintain the biodiversity processes and all of those things we have been talking about this morning, but also get a return from it as a carbon store over time—that fits in with his whole of fund management planning process. It also takes his farm away from being a carbon emitter on a net basis to a carbon store on a net basis. That is what he would like to see as part of this process. But what you are suggesting to us is that he have one of those streams taken away from him, which is the capacity to earn income but still manage on a sustainable basis of forest on his property. If you look at Tasmania, where 50 per cent of the native forests that are managed are on private land, you are potentially taking a huge slice of income out of those people who are sustainably operating their farms.

Ms Blakers—Someone has got to do some numbers on all of this stuff. At the moment we do not even have an accounting system that properly accounts—

CHAIR—They have. They have used two models, and they put that evidence before us in Hobart.

Ms Blakers—The models are the problem. I am sorry Professor Mackey is not here to address that question, because that is what their work said: the models are the problem. We need to get a lot more data on the ground, and the number of data points that give you full carbon accounting for a slice of native forest is very low. But the work that they did showed that—

CHAIR—Mind you, that work is pretty widely disputed as well.

Ms Blakers—Well, there is certainly an attempt to do that. The obvious response to that is, let the government put some funding into getting this data upgraded very fast.

CHAIR—A very fair response.

Ms Blakers—It is a failing that that work has not been done in the last 10 or 15 years. I understand why the effort has gone into the Kyoto accounting but now we really need to compress and move very fast to get these accounts upgraded.

Senator PRATT—If a rich country like Australia cannot get this right quickly what hope do we have of trying to assist developing nations in protecting their native forests so that we do not accelerate climate change? Can you update us on that question internationally in terms of getting the world to maintain its native forests?

Mr Carruthers—The government has a major initiative in this area. The International Forest Carbon Initiative with funding of $200 million and a substantial component of that is directed at the measurement, reporting and verification of the carbon stocks in developing countries. We are especially talking here about the tropical forested countries, which are a large source of greenhouse gas emissions.

Because Australia was required for the purposes of the Kyoto protocol to invest in its national carbon accounting capability, we are very much ahead of the game in terms of capability in world terms. That is an experience that we are sharing with developing countries. For example, we are working very closely with Indonesia in developing the Indonesian national carbon accounting system. They are designing their system for their purposes directed at reducing deforestation emissions, but we are working very closely with them and transferring that experience, as we are with a number of other bodies such as the Clinton Foundation in the US. We are working in a number of countries. This is a very important extension of our national capability to deal with this international issue.

Senator PRATT—In that context, Ms Blakers, you mentioned a national REDD-plus fund. Can I ask what emerging prospects there are internationally for the kinds of things that can be incorporated into agreements—an exchange—with countries, particularly developing ones, being able to be paid for retaining their native vegetation.

Ms Blakers—I am not close to the international negotiations, except to observe how reducing emissions from deforestation and degradation is going to be brought into the game, because it is such an important source of emissions.

Senator PRATT—And no-one has yet been able to find a link between an ETS type trading system and one that effectively links, I suppose, the money that you have in the bank versus the money that you are trading. That is one way of looking at the issue. We have not been able to create a link that rewards that investment and saving yet, have we?

Ms Blakers—There are various proposals floating around. Greenpeace has one out that I looked at a few months back, but, as I said, I am not close enough to the international scene to know where things are at there.

Mr Carruthers—The Australian government has put on the table in the international negotiations a substantive proposal on how this can work. That submission is a public document and we would be happy to share it with the committee. We absolutely do think that, firstly, we can measure strongly what is going on in the tropical forests. By setting up these systems in countries, we can provide the incentive structures through funds and the like and look to being able to link these to international carbon markets as providing the strong incentives at a scale that is going to produce big results in the tropical forests.

Senator MILNE—If we can measure the full carbon-carrying capacity of an Indonesian forest and we can account separately for the emissions from logging it and the uptake from it, why can't we do that for Australia's native forest estate? And, if we are putting a substantive proposal on the table for how you could incentivise protection of those forests in developing countries, why can't we do it for Australia? Can't you see that the global community is going to

say: 'Why is it that Australia is prepared to do this kind of accounting in Indonesia for its forests but it's not prepared to apply the same at home'?

Mr Carruthers—We do have a comprehensive carbon accounting capability in Australia. That is really the basis on which we are able to sustain our accounts on deforestation or land clearing and to show for purposes of national and international reporting the results of vegetation management policies in Australia, which have made a big difference to the rates of land clearing and the deforestation emissions on our agricultural lands.

But, in relation to Dr Blakers's first recommendation, could I correct a point of fact. Australia began reporting in 2008 comprehensively for land use, land-use change and forestry—the LULUCF sector—in a UN inventory, and we will again do that in the 2009 inventory, which will be lodged with the UN very shortly. That covers the whole of the landscape, including the whole of the forest estate. It is true that not as much technical development effort has gone into the gathering of the data and so on in relation to the general native forest estate, because that has not been our first priority, but we are reporting on a comprehensive basis. We are continuing to improve the data and the methods for forest systems.

Senator IAN MACDONALD—Mr Carruthers, strange though it is, I agreed with Senator Milne in one of her earlier questions, although of course I never agree with her particular view and the Wilderness Society's views on the native forests. But, as I understand what you are saying, the Kyoto principles are followed because they are the principles but they do not really accurately determine what carbon is emitted to the atmosphere. Is that right?

Mr Carruthers—That is right. I think you may not have arrived in the room when we spoke about this early on, but I made the point early on that the Kyoto protocol, in its treatment of the land systems, is very much a compromise outcome and it gives partial coverage—

Senator IAN MACDONALD—I was here for that. Notwithstanding that, Australia is a very small emitter. There are some that think that, whatever Australia does in international forums, others will follow. So why don't we, regardless of Kyoto, just adopt a system which accurately, as far as we are concerned, records emissions from Australia and simply ignore Kyoto and use that at international forums? You did talk around this.

Mr Carruthers—We produce two forms of annual inventory of emissions. One is under the Kyoto protocol rules; the other is under the Framework Convention on Climate Change rules. The second of those is a complete coverage of the emissions associated with the land systems. The Kyoto inventory is not a complete inventory, for the reasons we have discussed. So we do report it already.

Senator IAN MACDONALD—And we do use that in international forums—the accurate carbon inventory?

Mr Carruthers—Yes, and that is a published document.

Senator IAN MACDONALD—We seem to mention landowners or land managers in a negative way, but we do not seem to take into account any impact of sequestration of range lands and other parts of land that farmers and landowners manage.

Mr Carruthers—There are various programs of the Commonwealth and the states which provide incentives for undertaking various activities on farms. There would be scope to introduce additional complementary measures to the Carbon Pollution Reduction Scheme that could expand—

Senator IAN MACDONALD—I am not talking about measures so much as much measuring. Do we measure what sequestration there is from all of our range lands?

Mr Carruthers—Yes. The UN inventory is a comprehensive account of the whole of the land system and all of the carbon pools above ground and in the ground.

Senator IAN MACDONALD—Does that take into account the CPRS?

Mr Carruthers—No, because the CPRS is done on the basis of the Kyoto scope.

Senator IAN MACDONALD—So we are designing a scheme in Australia that pays lip service to some international covenant which we all agree is not accurate and we will then penalise, fail to benefit or perhaps benefit wrongly Australians because of this scheme for Australia that is not based upon accuracy but on an international protocol; is that correct?

Mr Carruthers—In terms of the measurement and the reporting, we are able to present the full results. In terms of the incentive structures that are there to take actions out there on the land, there are various measures in place already. Governments could choose to expand those measures.

Senator IAN MACDONALD—The bottom line of all this is carbon emissions to the world. It is not really about what a technical, artificial international treaty might have said. It is all about what is accurate. Australia has an opportunity—

Mr Carruthers—I mentioned before Australia's farming future as an example of a program that is addressing encouragement of activities on farms where some of those activities do not come within the scope of the Kyoto protocol—building soil carbon stocks being an example.

Senator IAN MACDONALD—I might be asking the wrong person here, but why aren't we devising a scheme in Australia that actually deals with the issue, which is carbon emissions, rather than an international protocol. It is an Australian scheme. I am told that everyone is going to follow Australia anyhow if we do the right thing. So why wouldn't we do that in our own interests and as the world leader that we supposedly are?

Mr Carruthers—The problem to moving to that immediately would be that it would impede our ability to link the Australian carbon market with carbon markets of other countries because we would essentially have different units in the scheme and compromise their trade ability.

Senator MILNE—I will just interrupt Senator Macdonald for a moment. Mr Carruthers, you just said a minute ago that Australia is helping Indonesia and is leading the pack in terms of the accounting system and that it will actually be leading this. Senator Macdonald's point is: if we are already leading it, we are going to have a huge influence, so why wouldn't we do the right

thing and push them in the right direction rather than wait for them to put in bad systems? They have not got a system on land use globally for the next phase.

Mr Carruthers—No, and that is what we are pursuing in the international negotiations. We want comprehensive coverage of the land system in Australia and we want comprehensive coverage of the land systems internationally.

Senator IAN MACDONALD—That is one aspect. The other aspect is that, within Australia, we should be doing what is right. As I say, I am told that everyone is going to follow us anyhow, so why aren't we doing what is right? But, as I say, perhaps I am not asking the right person. I am not accusing you of deciding this.

Mr Carruthers—We have a multipronged effort at the present time. We are pursuing comprehensive outcomes in the international negotiations to get a better set of international rules in relation to the land systems and we are investing in the technical capacity to measure the emissions comprehensively in Australia. We do report them, as I have said. We also have a range of measures in place to support activities, even those activities which are not recognised under Kyoto.

Senator IAN MACDONALD—Thanks for that. We are running out of time so very quickly, Dr Richards, I am sorry if you said this earlier but what is the National Carbon Accounting Toolbox—your private assessment agency?

Dr Richards—I think that was the listing of one of the programs that we operate. I am with the Department of Climate Change and one of our products is a derivative from the National Carbon Accounting System and is a publicly available national carbon accounting toolbox which makes available the system to the individual users.

Senator IAN MACDONALD—Finally, you were talking about Indonesia. Do we measure Indonesian outputs from their coal, cement and aluminium plants?

Mr Carruthers—Each country is responsible for preparing its own national inventory, so Indonesia produces its own national inventory. We are assisting them, in this case, with their capability in the inventorying of their forests.

Senator IAN MACDONALD—So we are helping them with their forests, which means we know what the figures are—

Mr Carruthers—We are not doing the inventory; we are helping them do their inventory.

Senator IAN MACDONALD—Yes but you would be aware of—

Mr Carruthers—You would understand there is some sensitivity.

Senator IAN MACDONALD—Yes. But we are not doing the same thing with their accounting of the emissions from their cement factories or coal factories.

Mr Carruthers—Under the climate change convention, there is general assistance to developing countries through the Global Environment Facility which is funding them for capacity building on their inventories, and we provide our expertise into that kind of process.

Senator IAN MACDONALD—It came up yesterday that there are accountings and there are accountings, and there are certificates and there are certificates and, depending on where you get them around the world, they may not be uniform in what they tell you. Is that your understanding of things like what we are talking about? I do not necessarily mean Indonesia but also Colombia, Somalia or Russia.

Mr Carruthers—That is right. That is one of the problems, for example, with voluntary carbon markets. Whereas, with a market designed like the Carbon Pollution Reduction Scheme, there is an intense focus on the integrity of the carbon commodity or carbon units to conform to an accepted set of international rules.

Senator PRATT—In appreciating that we need to count all of this carbon, if it is not included in international agreements and we decide that we do want to abate that carbon without it being included, those costs get transferred to elsewhere in the community because someone else has to ultimately pay for it, don't they? Can you explain to me how that works?

Mr Carruthers—We have taken on a Kyoto target and there is basically a set of actions that are needed to reach that target. If we start taking action in areas that do not get recognition for Kyoto then that is increasing the costs to the national economy and to companies, because we still have to achieve the target but those particular activities are not being counted or accepted.

Senator PRATT—Is that why the focus is on trying to find an international agreement solution to this problem, so that everybody tackles it and the playing field is level in relation to that issue?

Mr Carruthers—Yes.

Senator MILNE—In view of the time, I will put a question on notice, if I might. Mr Carruthers, you said that we now have a comprehensive set of accounts on land use in Australia. Could you provide the committee with the annual full emissions from native forest logging? Disaggregate the net figure and give me an uptake and an emissions for native forest available for logging and for native forest for clearing, and the uptake from those not available for logging. If you could disaggregate that into emissions and uptake, I would really appreciate it.

Mr Carruthers—We will be able to give you the inventory accounts for the native forests as they are set out in the United Nations Framework Convention on Climate Change.

Senator MILNE—Can you give me the emissions or are you going to give me a net figure? I really want to know how much we are putting to atmosphere. You said you can do comprehensive accounting. In order to get a net figure, you must be able to disaggregate what goes up and what is taken down.

Mr Carruthers—We produce them as a net figure for each unit of land. Basically, both are going on at the same time. If you have a piece of land with forest, the tree will be growing and

taking up carbon, but simultaneously there will be microbial activity et cetera in the soil and emissions will be coming off. What is going on is a net emission at any point in time and that net emission and the fluxes are changing in time with things like droughts, wet periods and bushfires. The correct picture of what the atmosphere is seeing is the net emission from a particular land area.

Senator MILNE—Ms Blakers, can you assist me here? What I really want to know is what is going to atmosphere from logging activities.

Ms Blakers—Yes. The net which Mr Carruthers is talking about is an annual net. What is actually happening in clearing or logging is that on one piece of land you are getting an emission—the coupe that you are logging is an emission—but on all the other pieces of land which you are not logging, you are getting uptake. That is what you want to disaggregate.

Senator MILNE—That is what I am asking for.

Ms Blakers—And ditto for clearing. The clearing figure you are getting in here is a net figure; it is not disaggregated into how much land, what the emissions are from the land that was cleared in 2006 and what the regrowth is on the land cleared since 1990 which has regrown since 2006: two separate pieces of land and we want it disaggregated. If the 2008 accounts have been prepared—the ones which are filling in all of these gaps—when will they be public?

Mr Carruthers—They were published a year ago.

Ms Blakers—The 2008 accounts?

Mr Carruthers—In 2008. No, the 2008 inventory was for the period to 2006.

Senator MILNE—Please take it on notice because that is the question I am asking.

CHAIR—I think we have a full understanding of what is required.

Senator HEFFERNAN—Can you tell me the difference in the sequestration between a lucerne paddock that is harvested for hay and one that is left to seed?

Mr Carruthers—Yes.

Senator HEFFERNAN—Can you provide the committee with your understanding of what the US is proposing for its farmers, because our farmers at the present time are being walked up a very steep mountain—

CHAIR—That is probably a question for the roundtable later in the afternoon.

Senator HEFFERNAN—No, it is a question for the department.

CHAIR—We are having a roundtable with the department this afternoon. We are talking about carbon accounting at this point in time. Your question is for the roundtable.

Senator HEFFERNAN—I want to prepare the department so they can get the answer. As I understand it, the US proposes that the farming community will participate in the credit side and not on the debit side. Is that your understanding?

Mr Carruthers—I do not know whether the detail of the US approach has been determined yet. There are discussions—

Senator HEFFERNAN—That is what is proposed. Can you give us the details of what is proposed? If that is proposed and we go another way, we are dead—Australia's farmers are dead. I will get it off you later. That is a question on notice. We need to know the answer.

CHAIR—It is certainly something we can ask the Department of Climate Change.

Senator HEFFERNAN—Aren't you the department?

Mr Carruthers—Yes. We are having a specific discussion on carbon accounting at the moment.

Senator HEFFERNAN—That is part of the accounting, for God's sake. It is one of the fundamental rules.

CHAIR—Mr Carruthers has taken that on notice. If we can get some advice back from the department this afternoon, that would certainly assist us and we would appreciate that.

Evidence was then taken in camera but later resumed in public—

[10.30 am]

LYONS, Ms Elizabeth (Libby), Manager, Government Relations and Public Policy, Alcoa of Australia

McAULIFFE, Mr Timothy, Manager, Environment and Sustainable Development, Alcoa of Australia

WALLER, Mr Gerard Thomas, Manager, Business Improvement, Alcoa Australia Rolled Products

CHAIR—Welcome to the inquiry. I invite you to make opening statement, and then we will move to questions.

Ms Lyons—Thank you for the opportunity. As an opening statement, we will re-emphasise points made in the written submission Alcoa provided to the committee on 8 April. Alcoa undertakes several emissions-intensive trade-exposed activities in Australia through operation of Australia's largest integrated aluminium business. This network includes two bauxite mines, three alumina refineries and two ship-loading facilities in Western Australia; two aluminium smelters, a rolling mill, port facilities, a power station and a mine in Victoria; and a rolling mill and Australia's largest aluminium recycling plant in New South Wales. Alcoa has been investing in Australia for over 40 years, and the replacement value of this capital is in excess of $20 billion. Alcoa's Australian operations directly employ over 6,000 people and a further 1,500 full-time contractors, many in regional areas such as Geelong, Portland and south-west Western Australia. These facilities are vital parts of many local communities.

In recognising the importance of responding to climate change, Alcoa accepts that economic instruments such as emissions trading have a valid role to play in this response, provided it is done in a way that addresses the environmental challenge while strengthening the Australian economy and preserving the jobs and social benefits that spring from Australian export industries. Alcoa supports the introduction of a carbon price signal in Australia.

Fundamental to delivering this balanced outcome is a need to ensure that the international competitiveness of Australian industries is preserved such that jobs and carbon are not simply exported to lower cost centres in other countries. This risk arises because the prices companies like Alcoa receive for their exports are determined by the international marketplace and additional costs experienced in Australia cannot simply be passed on to customers. In economic terms, Alcoa is a price taker.

Mr McAuliffe—Most of the countries that are home to aluminium producers have not yet adopted carbon pricing, and those that have, such as the European Union, have implemented schemes that impose significantly less cost than the current Australian proposal. This establishes a real international competitiveness risk that may erode the value and viability of Alcoa's Australian facilities. Alcoa's competitors are located in places such as China, India, South Africa, the Middle East, Brazil, Europe, Russia, Canada, Jamaica, Guinea and the USA.

In relation to the CPRS, Alcoa believes there are a number of key changes that need to be made to its design to ensure it does not lead to carbon and jobs leakage from the Australian aluminium industry. In summary, the minimum changes that Alcoa believes to be necessary are as follows. Firstly, Australian EITE industries should receive a permit allocation equivalent to at least 90 per cent of their emission obligations. This would include refining, smelting and aluminium rolling businesses here in Australia. Secondly, critical issues associated with the calculation of the proposed electricity allocation factor must be rectified to avoid unsustainable impacts on the Victorian aluminium smelters and their local communities. Thirdly, we believe erosion of EITE permits should not occur before international competitors are subject to comparable carbon pricing. Furthermore, our aluminium rolling business is attempting to navigate its way through the value-add EITE assessment process, which has proven to be quite challenging. The definition for value-add is based on revenue minus the five highest costs. However, labour and maintenance, despite being our second and third highest costs, cannot be subtracted under the rules set by the department. This means our value-add number is then inflated, reducing the likelihood of qualifying for EITE status. We have suggested a couple of solutions to this problem, including using the Australian Bureau of Statistics calculations of value-add or using conversion revenue rather than just straight revenue.

The following will give you a feel for the overall potential impact of the CPRS on our businesses in Australia. If the CPRS was implemented as presented in the white paper, it would cost Alcoa's Australian operations something around $100 million in the first year of operation and would increase every year thereafter. The initial cost comprises the permit gap left after partial EITE allocation, cost paths through from upstream inputs such as domestic gas and substantial impact from what Alcoa believes is a poorly designed electricity allocation factor. These costs would naturally impact on international competitiveness. For example, work done by the Australian Aluminium Council shows that a white paper based CPRS may move individual facilities from second or third quartile positions on the international cost curve to third or fourth quartile positions. That would put some facilities on a path to closure. Even after the change Alcoa has called for, the CPRS would still impose significant additional costs on our business. In year 1 Alcoa would still experience a cost increase approaching $50 million. This represents a significant financial incentive to continue to reduce the company's carbon footprint.

In calling for changes to the CPRS Alcoa well recognises there is a need to respond to climate change and has not shirked this challenge. The following examples illustrate Alcoa's willingness to take voluntary action in relation to climate change, and I will make four points. First, globally Alcoa set an ambitious target to reduce its 1990 direct greenhouse gas emissions by 25 per cent by 2010. This target was reached in 2003, and we are now operating at around a third below the 1990 benchmark.

Senator BOSWELL—How much did that cost?

Mr McAuliffe—I have not got a figure globally. I can give a feel for some of it. My second point is that in Australia our aluminium smelters have reduced direct greenhouse emissions per tonne of product by 61 per cent since 1990, primarily through reduction of PFC emissions driven by environmental priorities. Third, Alcoa's Australian alumina refinery is amongst the most efficient in the world, and we have still been able to reduce greenhouse gas emissions per tonne of product by 12 per cent since 1990. Our aluminium rolling businesses have reduced direct emissions by 21 per cent since 1990. Alcoa has made good progress in responding to climate

change and intends to continue to do so. Alcoa supports well-designed emissions trading as part of a global response and asks the parliament to ensure that ETS design in Australia still encourages future investment in the Australian alumina and aluminium business.

Senator BOSWELL—Those reductions are very commendable. How much have you spent all up on the Australian reduction scheme?

Mr McAuliffe—It is very substantial. I have not got a total figure, but I can give you a good example in terms of energy efficiency in our Western Australia refineries. We have been able, in a joint venture with Alinta, to install cogeneration facilities that have increased the energy efficiency on site from somewhere between 35 and 50 per cent up to 75 per cent. Those investments alone are $500 million to $600 million. On top of that there are investments in smelters and other initiatives at the refineries. So very substantial sums.

Senator BOSWELL—Where is RET at the moment? Are you paying it? Are you in or are you out? Based on yesterday.

Mr McAuliffe—Based on yesterday we estimate that the RET would cost our Victorian smelters around $25 million to $26 million in 2020.

Senator BOSWELL—I am finding it hard to follow this debate. I understood that the Prime Minister said that EITE industries would be exempt from RET. Am I correct?

Mr McAuliffe—Our interpretation of yesterday's decision is that the smelters would still be exposed to the existing MRET, the mandatory renewable energy target, but would receive, assuming they get 90 per cent EITE status, which they are confident they will, 90 per cent exemption from the expanded RET, the new scheme. So we would still have to pay exposure for the first one and partial exposure for the second.

Senator BOSWELL—I do not understand that.

Mr McAuliffe—There are two schemes. There is the existing mandatory renewable energy target, the MRET. Our understanding is that yesterday's decision did not give any exemption in relation to that.

Senator IAN MACDONALD—What percentage is that, just to remind us?

CHAIR—It is 9½ thousand gigawatt hours by 2010.

Senator BOSWELL—It is 10 per cent, isn't it?

CHAIR—It was a notional 2 per cent at the time. It was 9½ thousand gigawatt hours by 2010.

Senator IAN MACDONALD—It is a notional 2½ per cent, just to put it in perspective.

Senator BOSWELL—So you are paying that. What is the increase? You are going to get 90 per cent of the increase.

Mr McAuliffe—That is right. The other one is the 45,000 gigawatt hours of the expanded RET. So, assuming we qualify for 90 per cent, we would receive a 90 per cent exemption from that component. So that would leave us around $4½ million or $5 million cost at a shortfall charge of $65, which was also increased yesterday, so we would have around $4 million to $5 million cost associated with the expanded RET and approaching $20 million cost for the MRET.

CHAIR—I just want to get another detail. Is there a decay factor that goes along with the changes to the RET that follows the—

Mr McAuliffe—The expanded RET actually has an increasing amount building up to 2020. Does the 90 per cent decay in the way that EITE allocations have proposed? My understanding is no, but we have only had a chance to briefly look at it.

CHAIR—But the 90 per cent continues to rise as 90 per cent of the annual allocation on an annual basis?

Mr McAuliffe—It stays at 90 per cent.

Senator BOSWELL—If you were carved out of the RET, does that mean the 20 per cent gets passed back to the people that are not carved out?

Mr McAuliffe—No, it should not. In the submission that we made to the government in relation to the expanded RET we said that, in our opinion, those facilities that are provided with exemptions should be removed from the total pool.

Senator BOSWELL—So the target comes down off 20 per cent?

Mr McAuliffe—That is our view.

Senator BOSWELL—I know it might be your view, but what is the government's?

Mr McAuliffe—I am not aware of that detail at the moment.

Senator BOSWELL—The RET is important and I understand the government is going to put the legislation in in the next couple of weeks. I would have thought the wise thing to do would be to leave it until after the ETS went through, or did not go through, and then build your case on that.

We have listened to many heavy industry people, so I will ask you some of the questions that I have asked them. Your competitors are carved out of emission trading. Do you face any competitors internationally, competitors that are going to have emissions trading placed upon them?

Mr McAuliffe—Some of our competitors are located in Europe, so they obviously already have a scheme, but the costs that they would experience would be significantly less than the costs that we would experience here in Australia if the white paper were implemented. There has been an analysis done by the Minerals Council of Australia. I assume they have provided a

submission to you that goes through that and that compares the costs of the European scheme to the CPRS. They would be significantly higher if the white paper were implemented.

Senator BOSWELL—What is the EPS going to do to your power bill?

Mr McAuliffe—It would very significantly increase it.

Senator BOSWELL—If it is not in confidence, how much power would an organisation like yours use?

Mr McAuliffe—The price that any of the producers pay for power is commercial-in-confidence, but I can tell you the amount that we use. For example, in Victoria, our two smelters consume about 8½ million megawatt hours a year. They are very significant consumers of electricity. That means that increases in the cost of power have an enormous potential impact on the viability of those smelters. That is why we have a concern about the electricity allocation factor. The CPRS white paper recognised the importance of indirect emissions or power and it proposed to provide up to 90 per cent initial assistance for the CPRS driven price uplift. Unfortunately, the way that the electricity allocation factor is proposed in the white paper it would deliver to the Victorian smelters significantly less than that—around 74 per cent initial assistance. That would increase the cost of the carbon signal to us in Victoria by $45 million more than it should.

I know it is a complicated matter, but let me put it to you this way: electricity allocation factor assumes that you will be able to purchase power at a carbon intensity of one tonne per megawatt hour. In Victoria, it is typically between 1.25 and 1.6. We believe, with considerable confidence, that the best we would achieve in the marketplace for a long-term contract is 1.22 to 1.25. That little calculation in the electricity factor could cost us an enormous amount of money in Victoria, which then impacts on the smelter's viability. It is discussed in our submission and we are happy to provide calculations on that, if you wish.

Senator HEFFERNAN—If the contribution that electricity makes to your carbon footprint were generated from power that has no emissions, what would that do to your footprint?

Mr McAuliffe—It would be very good. If it were possible, it would reduce it enormously. I will give you an example: in Victoria, the two smelters that we operate were responsible last year for about 1.1 million tonnes of CO2 as a direct emission—CO2 equivalents—whereas the power we purchased gave rise to more than 10 times that—10 million tonnes.

Senator HEFFERNAN—This committee is getting sick of me saying this, but the MBD company that has actually signed a memorandum of agreement with Loy Yang power station, Eraring power station and Tarong power station in Queensland is commercialising up technology with that algae which converts to biodiesel and feedstock, and which will give zero emissions from those coal-fired power stations. If there were prudence in the system would there not be a possibility that technology could overcome all these problems?

Mr McAuliffe—We are very interested in that sort of technology. We are interested in technology around coal drying. We have made some investments in those areas. I think what you have just described there is probably a very similar scheme to what we are looking at in Western

Australia around algae for the capture of CO2. We are very interested in all of those. The amount of power that we use in Victoria is a very large amount at 8½ million megawatt hours.

Senator HEFFERNAN—I think that earlier Alcoa said to me it could reduce your impost—the tax side of it—by 60 per cent if the power had no emissions?

Mr McAuliffe—No, I am not sure that I made that comment. But power is a very significant contributor to the overall emission profile that we have.

Senator BOSWELL—We had the cement industry in yesterday. They told us that a lot of their investment is being hung up—they are not going ahead, and holding off on reinvesting. Is the aluminium industry in the same situation?

Mr McAuliffe—Yes, it is—perhaps to a different extent, but you have representatives of the Australian Aluminium Council appearing later today and they will be able to give you examples across the industry. From our perspective, we have a couple of projects that are currently on hold until we are able to resolve power contracts going forward for Victoria. One of the contributions in terms of those power contracts and how they will look in the future is the CPRS, so it is potentially a very significant cost. That is why we would like to see it resolved.

Senator BOSWELL—You may have answered this, but I have got it written down here—how does your performance benchmark against your competitors? Where are your major competitors? China?

Mr McAuliffe—Spread around the world: China, India, South Africa, the Middle East, Brazil, Europe, Russia—

Senator BOSWELL—Let us take China, and the worst case scenarios and the best case scenarios.

Mr McAuliffe—I will give you two examples. In terms of alumina refining, we refine alumina at three facilities in Western Australia. They are at the leading edge of efficiency and environmental performance. I will give you a simple example: we produce alumina out of Western Australia at about 0.57 tonnes of CO2 per tonne of alumina. Some of the Chinese refineries produce alumina at 1.4 to 1.8 tonnes, so we are conservatively less than half the footprint. They are very, very efficient facilities in WA, and I can explain to you why they are so efficient.

In Victoria, our smelters—as I said before—have roughly 10 times the emissions profile due to power compared to their own direct emissions. So, like all Victorians, we rely on coal-fired power and are comparable to other facilities that rely on coal. They are more emissions-intensive than, say, the last smelter that Alcoa built in Iceland, which was on hydropower. They are constrained significantly by their reliance on coal.

Senator BOSWELL—What about the worst performances, such as China?

Mr McAuliffe—They vary. Some of those other smelters would have significantly more direct emissions, but their indirect emissions associated with power would depend on their fuel source and, if they are on coal, they will be similar to what I have described or worse.

Senator BOSWELL—What about their indirect—

Mr McAuliffe—It depends on their power source. If they are on coal then they will be as high as or higher than the ones I have described in Victoria.

Senator BOSWELL—Your plant in Victoria does not perform any better or any worse than the Chinese plants?

Mr McAuliffe—It does in terms of direct emissions.

Senator BOSWELL—That is what I am asking.

Mr McAuliffe—Certainly, in terms of direct emissions they are efficient. Those reductions that I mentioned in the opening statement are because of the investment we have made to reduce their direct emissions. They are very efficient in that regard.

Senator BOSWELL—We will have to pass some legislation under the CPRS, and we do not know what is in it. It will all be confirmed by regulation. Does this make you feel comfortable?

Mr McAuliffe—We have said in submissions to the government that it is impossible to assess the full potential impacts of the CPRS until we see the detail in the regs. Obviously, we have been able to make assessments based on the white paper. Having said that, I say there are still some unresolved matters. I am sure the committee is aware that most industries are currently going through the definition process, so I cannot tell you exactly what our permit gap would be until those definitions are resolved.

Senator HEFFERNAN—I do not think the government can, either.

Senator BOSWELL—It is not your problem; it is our problem. I do not know how we are expected to assess legislation when we do not know what is in it.

Senator PRATT—I understand the need for your industry to have certainty. You have very long-lived assets and, as a result, you have been tackling climate change and reducing your emissions profile since the 1990s, as I understand it. I want to talk to you about the need for certainty, going into the future. If we fail to get consensus in the parliament, we will end up with no scheme and a looming carbon liability that we are not quite sure what to do with. I want to talk to you about two scenarios: one is getting the detail in the current scheme right versus a delayed reaction—and we do not yet know if the whole world will delay it or get on with it—and the other scenario looming ahead of us could be a collective lack of action around the globe and a need for very severe carbon cuts at a much greater accelerated rate. I want to talk to you about the best prospect versus the worst prospect for managing this issue.

Mr McAuliffe—We have said in our submission and we have also tried to convey it in our opening statement that we would prefer to see this scheme start in Australia. We are actively

lobbying in America for the past administration and the present one to adopt a cap-and-trade scheme. That is our position. Having said that, I say it needs to be good policy. We are supportive of it, provided that the design still encourages investment and export industries in Australia. Getting the detail right is more important than starting soon. That is the balance that we hope the parliament will be able to achieve. We would encourage parliament to make some amendments to the CPRS so that we can start the process, but start it in a way that does not penalise Australian industries beyond what they can live with. That is our position. Not all industries are in the same position, but that is our position. We hope that the existing scheme can be modified, similar to what we have described in our opening statement so that it commences but it does it in a reasonable way.

Senator PRATT—What is your judgement about that other, more catastrophic risk, that if we do not do enough to manage emissions now, globally and collectively, we will have to close down big emitters in a rush to try to find a way of managing that problem?

Mr McAuliffe—It is up to others to talk about what is an appropriate global target and so on. We simply defer to the consensus via the IPCC. They are far more qualified to comment on it than we are.

Senator PRATT—But one of the issues that have come out in the Treasury modelling is 'act early and we will save' versus 'if we act too late, we'll need to make much bigger cuts and it'll cost more'. What is Alcoa's position on that question?

Mr McAuliffe—Acting early is desirable.

Senator PRATT—You have been doing that for a while already.

Mr McAuliffe—That is right. However, it would not in our view be sensible for Australia to take a very aggressive approach ahead of our competitors. All that that would do is drive investment and jobs offshore.

Senator PRATT—In relation to your competitors, you have responded positively in relation to America putting an agreement in place. Which are the key countries that we need to lock in to a global agreement to mitigate that? I imagine it is China and other parts of Asia. The European Union has a scheme up and running already. Clearly, it might not have the same liabilities, but once we start to get into a well-developed carbon trading scheme we can probably level those things out. But the real question is what—bringing Asia online?

Mr McAuliffe—Pretty much. There are two ways of looking at that. In terms of emissions, you are well aware that the role that America and China play in emissions. They are dominant. The other way to look at it is in terms of competition. I will give you a bit of the feel of it. In terms of aluminium, in 2008 these are the sorts of numbers our competitors ran: China was at about 32 per cent; other parts of Asia, including India, were at 10 per cent; Russia was at 10 per cent; Europe was at 12 or 13 per cent; and the USA was at six or seven per cent. Australasia was at five per cent, so we are a relatively small player in terms of that overall market. If we move ahead of our competitors then quite clearly we will end up suffering.

Senator PRATT—Lastly, as I understand it, one of the issues at play at the moment is electricity contracts, and those costs being passed on to Alcoa. You are claiming that you are going to have to bear those costs, but government cannot see behind your contracts to see whether that claim is true. How can you prove that you are a weaker party in those negotiations? Because you are such a big buyer of power, I would have thought you were in a pretty powerful negotiating position.

Mr McAuliffe—It is a complex issue, but let me say this: the capital intensity of the smelters requires them to operate on long-term power contracts—20 to 30 years—so some of the assumptions in the modelling that was done for Treasury work for a spot market. but not for a long-term contract. The power producers in Victoria will not carry the carbon risk for a long-term contract. They cannot do so because of their financing arrangements. That means that, when you are in the market for those sorts of contracts, you will experience full carbon cost pass-through. If you are in Victoria that means you will pay based on an intensity of around 1.25 to 1.5. How do we resolve this? We have made several suggestions to the department and to government. We think it is very easily solved. The white paper has a provision in it called 'the very large electricity user clause'. That was put in place because of this issue. It says that the regulator can choose to vary the electricity allocation factor based on the contracts. If they see a full carbon cost pass-through, they can vary it. That is for existing contracts. We understand the department's reluctance in terms of new contracts because they want to ensure there is an incentive for minimising the carbon footprint.

We have done a couple of things. In our submission we have said it would be quite appropriate for us to make all of that information available to the regulator—some of it would be highly confidential, but that is nothing unusual for government—so that the regulator would be able to satisfy themselves that we have done everything we can do to get a lower intensity power source and, secondly, that it was not practicable to get a lower intensity in the case of Victoria. We would be willing to share as much information as we can to give the regulator confidence.

We are also in the process of having independent consultants look at this issue. We are probably only a couple of weeks away from being able to provide the department and the government with a third-party expert view on whether or not there are alternative options. We are pretty confident that they will come up with a similar thing to what we have come up with because we have tried very hard to get a lower carbon intensity power source in Victoria. As I hope we demonstrated earlier, we are pretty committed to reducing our emissions profile anyway. So we will keep doing it.

Senator IAN MACDONALD—Thanks for your submission, and we have heard from Rio. You mentioned what emissions you have in Western Australia, 0.57 tonnes of CO2 per tonne, as opposed to China, 1.4 to 1.8. Is that anywhere in your submission, and do you have the same statistics for other competitor countries anywhere?

Mr McAuliffe—It is not in the submission to this inquiry but it is in our submission to the green paper, which is public. We could provide you a table of that. It varies around the world and it varies depending on the power source, the vintage of the facility and the technology that is being applied. In the Western Australian alumina refineries that Alcoa runs (a) we are able to do it on gas (b) we have co-generation in place not at all but at some and (c) they are relatively

modern facilities which we have kept modern—we continually reinvest in them. Those things keep them at the leading edge of that efficiency.

Senator IAN MACDONALD—Do you have the figure for your Victorian one?

Mr McAuliffe—It is about 1.1 million tonnes direct. The majority, 10 to 10½ million tonnes, is based on the power station. So it will vary on power source.

Senator IAN MACDONALD—But what is it?

Mr McAuliffe—Per megawatt hour or per tonne of product?

Senator IAN MACDONALD—Compared to the 1.4 in China, what is it?

Mr McAuliffe—It is a different product. It is aluminium as opposed to alumina, so it is a completely different comparison.

Senator IAN MACDONALD—But it would be higher there.

Mr McAuliffe—Yes. It is higher because it relies on coal fired power.

Senator IAN MACDONALD—Isn't Victoria's brown coal—and as a Queenslander from a black coal state this stuck in my mind—being given a bit more favourable treatment than black coal, or have I got that wrong?

Mr McAuliffe—You are talking about a different part of the scheme. You are talking about the assistance to strongly affected industries such as the coal sector.

Senator IAN MACDONALD—Yes, but it would flow through to your power source, wouldn't it?

Mr McAuliffe—Not necessarily. What will flow through to us is what is passed through in the contract. What they will pass through is the intensity that they have to pay at. If we had a contract with a power station that is operating at 1.5 tonnes of CO2 per megawatt hour, it will have to deliver permits based on that 1.5, and that cost will be passed straight on to us.

Senator IAN MACDONALD—What is the benefit they are getting over the black coal? Is that just a straight subsidy or something?

Mr McAuliffe—That is in relation to assistance to power providers. That is not something I am fully across.

Senator IAN MACDONALD—They will not pass that on to you?

Senator PRATT—That is the infrastructure transition payment, isn't it?

Mr McAuliffe—Yes, I suspect that is what the senator is referring to. That is the part of the scheme that is about providing assistance for the loss of capital asset value within the coal fired power station. The more important part of that question from our point of view is: will we benefit from that? We will not benefit from that because the power provider will pass on their full carbon cost to us.

Senator IAN MACDONALD—Again correct me if I am wrong, but do you have an interest in a plant somewhere in the Middle East—Bahrain, is it? Do you supply the bauxite to them?

Mr McAuliffe—We export alumina to the Middle East out of our Western Australian refineries.

Senator IAN MACDONALD—And they then process that into aluminium at—whereabouts is the plant?

Mr McAuliffe—Sorry, I do not know. I cannot tell you off the top of my head.

Senator IAN MACDONALD—Then you will not be able to tell me how that plant, which is fairly new as I recall, compares.

Mr McAuliffe—Some of that would be in the public domain. It may be fuel oil that you are looking at, which can be quite emission intensive.

Senator BOSWELL—In response to a Labor senator you said you wanted amendments. Have you ever heard the expression 'turning a silk purse into a sow's ear'? We are going to have to turn a sow's ear into a silk purse if this is to go through with amendments. I just give you a bit of a warning: do not be too gung-ho, because if you start trying to amend things in the Senate you will end up with so many unintended consequences that no-one will know who's who in the zoo.

CHAIR—I am not sure that is a question!

Senator BOSWELL—It is not a question; it is a statement. I know your head office establishes policy, but I am just giving you a warning.

CHAIR—Thanks, Senator Boswell. I am sure they are suitably warned! I will just ask about some of your investments in other carbon mitigation processes. I understand you have had some investment in a carbon biochar project—

Mr McAuliffe—Alumina Ltd has an investment in biochar.

CHAIR—Okay. So it is not you?

Mr McAuliffe—No. We look at biochar and a few other potential carbon sequestration projects. We are interested in them, of course. Alcoa or Alcoa Australia has invested, for example, a significant sum of money in a process called carbon capture, or carbonation, of residue. We produce large volumes of residue after we are able to extract the alumina from bauxite. We have developed a process that the research and development facility at Kwinana that

locks up CO2 in bauxite residue. We are quite proud of that. That is something we want to see implemented globally as well. So we are able to sequester CO2 in WA.

CHAIR—Could you give us the rough sense of your R&D investment in carbon reduction, and what your actual investment in carbon reduction has been, say, over the last 10 years?

Mr McAuliffe—I do not have the figure with me. I can give you some examples. To develop that carbon capture process up to the point where we have got running just at the Kwinana facility was in excess of $10 million. The investments that have been made by us in Alinta in co-generation, as I said before, are probably north of $500 million. We have currently invested, or committed to invest, over $70 million in trying to develop up some new gas fields because of gas's importance as a transitional fuel and also its benefits in terms of energy efficiency. They are just some examples.

CHAIR—Okay. You do not have a sense of what your annual R&D on that might be?

Mr McAuliffe—I do not have that with me. We can provide that.

CHAIR—Please provide us with that on notice.

Mr McAuliffe—I am sure some of it has been published in past sustainability reports. We will take that on notice, Senator.

CHAIR—Okay. Thanks very much. I think that clears us off, so thanks very much for being here this morning. We appreciate your evidence and your submission. Thanks for your contribution today.

Mr McAuliffe—You are very welcome.

[11.07 am]

MALLON, Dr Karl, Consultant, World Wildlife Fund Australia

TONI, Mr Paul David, Program Leader, Sustainable Development and Climate Change, World Wildlife Fund Australia

CHAIR—I welcome our next witnesses, from WWF Australia.

Mr Toni—Chair, I am going to tender a technical report and I would ask your leave for the author of the report, who is present in the audience, to sit with me in case you have any questions.

CHAIR—That is not a problem. Is a report a carbon sink or a carbon emission!

Mr Toni—Well, it is a carbon sink, and quite a substantial one!

Senator PRATT—Provided we hang onto it—

Mr Toni—Yes, that is true

Senator PRATT—and keep it in our files—

CHAIR—It depends on the international accounting rules at the moment!

Senator PRATT—and do not shred it and use it for biofuel or something.

Mr Toni—This is Dr Karl Mallon, from Climate Risk Pty Ltd.

Senator IAN MACDONALD—Could you tell us what Climate Risk Pty Ltd is.

Dr Mallon—Yes, Senator. We are an independent consultancy. We work for the private sector, so we do a lot of work with insurance companies like Zurich, also companies like Telstra, to advise them on how to adapt to climate change impact. We have been doing a lot of work with insurance brokers on how to advise their SME clients on how to adjust to extreme weather—flooding, bushfire et cetera—and also with companies on how to adjust to a low-carbon economy. We also do a lot of work with local governments under the federal government's scheme to assist local councils with implementing risk management plans for climate change, and we also do work for organisations like WWF on technical analysis of policies.

Senator IAN MACDONALD—Is it relevant who the owners are? Perhaps it is not if they are just ordinary people or an ordinary company. I just want to clarify that you are not owned by WWF or the Wilderness Society—well, it would not be the Wilderness Society if WWF were using you. Is that relevant?

Dr Mallon—No. We are independently owned by the directors.

CHAIR—Thanks. Mr Toni, do you have a statement?

Mr Toni—Thanks, Chair. Australia must drastically reduce its carbon emissions, and do so quickly. We believe that in order to foster a breakthrough agreement, as opposed to an international agreement that is business as usual, Australian should be willing to offer a 25 per cent cut by 2020 and an 80 per cent cut by 2050, provided other countries make comparable emission reductions. However, delaying this scheme will cost Australians dearly. While we would seek amendments to the scheme, including deeper cuts, WWF believe that the scheme should start in 2010 if we are to have any chance of reaching medium- and long-term pollution reduction targets.

The central thesis of WWF's argument is that we, Australia as a nation, need to do two things at the same time. The first is we must do what we can to foster an international agreement. An effective international agreement will see many of the competitiveness issues, which are causing difficulty in the debate in Australia and elsewhere in the world, being significantly reduced. The second arm of the thesis is that Australia as a nation must take substantial steps to reduce its own emissions. We are one of the most carbon-intense countries in the world. We will require enormous change to our energy, industrial and agricultural infrastructure and way of doing business to reduce emissions.

It is for this particular reason that I seek to tender this report for your consideration. This report is different from economic modelling. It is a report that reviews the feasibility of transforming Australia's industries to greatly reduce their emissions. Contrary to perhaps widespread belief, industries are constrained in the speed and depth with which they can grow. Typically, you see this in times of war, where there is an ultimate limit to the speed with which transformations can take place. However, it is visible in ordinary times, too, where we see things like a lack of skilled labour—a lack of nurses, for example, despite the fact that this country has a very large health budget, has had one for many years and will have one into the indefinite future. The modelling that Climate Risk has done for us shows that the transformation needed requires emission cuts in the region of 18 per cent to start this transformation in a sustainable fashion. So I would stress that this is not a negotiation, as it were; there is actually a threshold here that must be overcome.

I suppose the second part of the thesis is that the report identifies tremendous opportunities, and it is necessary for us to recall that economic modelling of the type that has been done, which has been very thorough in Australia, nevertheless does not model the opportunities that arise; it models the costs only. We know from transformations that have taken place in the past—the Industrial Revolution, the automotive revolution, the revolution in air travel—that while some doors shut others open, and the economy as a whole grows and transforms in the process. Thank you.

Senator FEENEY—Mr Toni, you said in your remarks—and I think you appreciated in your remarks—the fact that Australia is home to a commodity based economy. Our manufacturing base is emissions intensive and trade exposed. We are a nation that has largely dismantled our tariff and trade barriers and so we remain, in a lot of key parts, exposed to an international world price to an extent that I at least would contend is greater than that of Europe, for instance. In that

context, the transformation towards a low-carbon economy is particularly difficult for Australia in comparison to, say, the United Kingdom—a topical example for today. Obviously, that represents enormous upfront costs for Australian industry in terms of changing the trajectory of our emissions in this country. In that vein, and with you having said, I think, in your opening remarks that you fundamentally appreciate that dynamic, how is it that you imagine we can go for deeper and harder cuts without risking serious carbon leakage?

Mr Toni—We do appreciate that Australia is unusually exposed, and that is probably true of the United States as well. The EU and the United States are large, insular economies which have a certain amount of protection just because of their scale. I suppose I would divide the response into two. In terms of the fostering of an international agreement, a breakthrough international agreement will address many of the competitiveness issues because, in fact, the number of countries—developing countries, even—that have the sorts of industries that we have here, particularly alumina, iron and steel, is a comparatively small number, and so a breakthrough agreement would, in one way or another, start to reduce the scale of their growth.

Senator FEENEY—So you are only contending that our cuts should be larger and deeper if they are mirrored by similar targets in our trading partners?

Mr Toni—'Comparable targets' is the term I would use.

Senator FEENEY—So, in that context, then, you would support the government's legislation as it presently exists, in the sense that it does not realise your greater aspirations because of the particular circumstances of international negotiations at the moment?

Mr Toni—No. I think there are two key elements in a response to that. One is: it should articulate the ambition. So it should state, 'Australia will reduce its emissions at least 25 per cent by 2020 if other major emitting countries make comparable emissions reductions.' It should clearly articulate that, because that is an offer to the world that we are seeking a breakthrough agreement. International negotiations are largely incremental, as you all would know. We are in a circumstance where we should try to avoid incrementalism if we can and seek a breakthrough. Australia is as good as any country in the world to do that.

The second element is: in the meantime, how do you protect your industries while you make this transformation? One element is that a reasonable level of protection is appropriate, and the sort of protection that Professor Garnaut spoke of would be reasonable. The amount of protection that has been offered now is probably not reasonable because—

Senator FEENEY—You think it is too great.

Mr Toni—It is too large in the respect that, firstly, it will prevent the long-term transition of these industries to a low-carbon future.

Senator FEENEY—How does it do that? It still provides a price signal for their activities.

Mr Toni—It is a very modest price signal. It is probably going to be even more modest because much will be imported from overseas.

Senator FEENEY—That is carbon leakage, isn't it?

Mr Toni—Not really. It is important that we move—

Senator FEENEY—Import substitution for domestic production: that is carbon leakage.

Mr Toni—No, I am sorry. Many of the permits will be imported from overseas.

Senator FEENEY—I see.

Mr Toni—I beg your pardon. Really, the long-term future of these industries in Australia depends on us introducing transformative technology. They will just go to whoever has the cheapest price and, increasingly, an element of the cheapest price will be carbon. Australia is very unusual in that it is so energy rich by comparison to most countries and we have large-scale—

Senator FEENEY—You are not talking about being fossil fuel energy rich, though, are you? You are talking about solar—

Mr Toni—I am talking in terms of all sources of energy. The fundamental energy resources are the same. They have not changed in a thousand years: solar, wind, ocean, fire, geothermal and fossil fuels. Some fossil fuels will continue to be used for a long time, probably for the indefinite future, not just for power generation but also for the need for them in iron and steel and things like that. Australia has enormous wind, ocean, and geothermal resources, but to introduce those resources into our grid requires active government policy.

Senator FEENEY—It does.

Mr Toni—Part of that must be that—

Senator FEENEY—A renewable target, a CPRS—

Mr Toni—A CPRS.

Senator FEENEY—and a permit system that enables these—

Senator BOSWELL—What about one of those tariffs—

Mr Toni—companies to survive in the contemporary international environment while transitioning into their new technologies and their new—

Senator BOSWELL—You've got to have a feed-in tariff.

Mr Toni—And, arguably, even a feed-in tariff.

Senator BOSWELL—A feed-in tariff would be good.

Senator FEENEY—A feed-in tariff would be good. I think he was being sarcastic.

Mr Toni—We actually have to foster some of these industries, because ultimately, when the price rises to a certain point, the large resource firms are unlikely to abandon us. They will just run down their plant and the new plant will be Iceland or somewhere like that.

Senator FEENEY—Let me hit you with a final question about your remarks concerning the opportunities that a low-carbon economy offers in terms of employment. I wonder if you are able to be more forensic about identifying those job opportunities.

Mr Toni—May I tender another document which I did mean to hand up—

Senator BOSWELL—Just tell us. We have millions of documents.

Mr Toni—This is a summary of the report that I just handed up.

Senator FEENEY—So in this document I will find?

Mr Toni—You will find the data that supports it.

Senator BOSWELL—Where are all these jobs coming from?

Mr Toni—The document I am providing copies of is a graphic but robust representation of the low emission technologies that would achieve a 20 per cent cut in Australia with five per cent being imported from outside Australia in Australian emissions. You can see that it is a very large infrastructure project but it would generate a very large amount of economic activity as well. The renewable energy target in its present form will get us some way to achieving these emission reductions, but the structure of it will draw them into the market one at a time on the basis of lease cost. That is desirable in one sense, but in fact each time a new technology moves into the market it brings you up against industrial constraints such as a lack of labour, a lack of easements for pipelines and for transition lines, a lack of lawyers to draw the contracts and so on.

Senator FEENEY—I suppose we could bring in lawyers from India.

Mr Toni—We would have to bring them in, I am afraid. There will be a series of bottlenecks, whereas a RET, a renewable energy target, that actively fosters these or other government policies that actively foster these will lead to a smooth transition to very large scale cuts by 2020.

Senator HEFFERNAN—What would happen if the algae thing in coal fired power stations works and it gets up within four or five years, because it is now in the MOU stage along with Loy Yang and others? What would that do to this if we could actually prove that we could do coal fired power stations with zero emissions, which is what they are aiming to commercialise? Would that make all this redundant?

Mr Toni—It would not make all of it redundant.

Senator HEFFERNAN—It would make a fair bit of it redundant.

Mr Toni—May Dr Mallon answer that?

Dr Mallon—Just to clarify that technology—because we have investigated that quite carefully, as Mr Toni was pointing out—there are really not an infinite number of resources. With fossil fuels, we think of oil, gas and coal, and we have separate policies for each of them. With renewables, it is a very similar area. Essentially you have biomass, which you are talking about, solar, wind, geothermal and ocean based technologies. The particular capture option that is being discussed is quite interesting. In principle, it does not make those facilities zero-emission. What it actually does is recycle the carbon. So once you have pulled the coal out of the ground and you have burnt it, that carbon then enters the biosphere. It becomes part of the atmosphere and part of the biosphere. By bubbling it through the algae you are recapturing the carbon using solar energy. That is where the energy source comes from. It can then be used to make a fuel. So what you are doing is using solar energy to get an extra bang for your buck from the coal plant.

Senator HEFFERNAN—But if the more-bang-for-your-buck equipment were part of the power station and not external—and I have had this discussion with them; in other words, if it were leased to the power station and what came out the back gate of the power station went out the back of the algae farm—wouldn't that mean that it was zero-emission?

Dr Mallon—No. Roughly speaking, what it would mean is you used the carbon once to get your electricity and then you used it again to create, say, a fuel, like a diesel, to run in trucks—

Senator HEFFERNAN—The problem is the CO2 going up the stacks.

Dr Mallon—That is true. So what happens is—

Senator HEFFERNAN—It goes up the stacks and it converts into a feed stock. So if instead of feeding cattle something like wheat you feed them this stuff isn't that an efficiency?

Dr Mallon—But ultimately if you make that—

Senator HEFFERNAN—The cows will fart, but—

Dr Mallon—Exactly. I did not want to say it but you did. Ultimately it comes out, so it just means that you would probably halve the emissions. Imagine you have—

Senator HEFFERNAN—Let us just go with half.

Dr Mallon—Half would be a good indicator.

Senator HEFFERNAN—Isn't that going to alter this?

Dr Mallon—It would certainly add to it. Within there, we have assumed a high degree of carbon capture and storage, so that is potentially a replacement for the CCS component that we have included there. So it would probably be complementary to that mix.

Senator HEFFERNAN—If every coal fired power station had one of those plants the feed stock would be valuable for the future global food task. We are modelling energy here but we also have to model food. If that was a global thing, wouldn't that solve a lot of problems?

Mr Toni—I think it reduces it by about half on a full life cycle, so it is a significant reduction.

Senator BOSWELL—Why doesn't it reduce it by 100 per cent if you are taking it all out and putting it in a pond? Where does it go from there? Into a cow?

Senator HEFFERNAN—It converts into fuel—

Senator BOSWELL—But we are going to have a cow anyhow.

Dr Mallon—If, rather than imagining a cow, you imagine you turned that oil into diesel for a truck then it is quite easy. You can say first up you used it to get electricity, then you turned it into algae, which you turned into diesel fuel and then you burnt the diesel fuel but you could not capture it once it came out the exhaust. That is when it went out into the atmosphere. It has still got out there; you just got twice as much energy for the same process. That is why you could roughly speaking say it would halve the emissions but not remove them entirely.

Senator HEFFERNAN—You would halve the emissions just with that technology. Given that China creates as many emissions with a new power station as we do every year, would that not be a pretty good solution?

Dr Mallon—We are probably a bit more ambitious than that, because we actually assume an 80 per cent capture with carbon capture and storage. In our modelling, we are assuming—

Senator HEFFERNAN—But this is replacing the fuel component. The biodiesel is actually just replacing someone else's fuel, which is going to do the same. If the technology—which is now under a memorandum of agreement with three big power stations on the east coast—can give zero emissions out the stacks and convert into a feedstock and a fuel, surely the fuel was going to come from somewhere else? The only one that I know is the coal fuel, which reduces the emissions from cars by 35 per cent—which was part of evidence earlier this morning. Surely that would be an advance? It is in the up stage, but no-one is talking about it in the context of this legislation or how you would credit the process. Under the present legislation there is no credit to the power station because the CO2 actually leaves the power station down a pipe instead of out the stack. That is a problem for a start. Surely we should slow down until we get our mind around it?

Dr Mallon—You have probably hit the nail on the head, which is the process of how we get there and which technologies we choose.

Senator HEFFERNAN—I hope someone is listening out there.

Senator BOSWELL—I can tell you that they are not!

Dr Mallon—One of the problems that we identify here is not necessarily a shortage of technology. For instance, you, Senator, have identified one which has a lot of opportunity. We

have also suggested that there are others. The issue will be getting them to the scale in the required time. Imagine that you want to mobilise the algae capture technology at scale. One of the critical limitations will be getting those industries up to speed in sufficient time to make a real difference.

Senator HEFFERNAN—I appreciate that, but—

CHAIR—Senator Heffernan, we need to go back to Senator Macdonald, who I think—

Senator HEFFERNAN—Finally, should we not also be developing thorium?

CHAIR—Senator Macdonald has the call.

Senator IAN MACDONALD—Thanks, Mr Chairman. Gentlemen, thanks for your submission. I must say that I am confused. Did I hear you correctly saying that you are suggesting that Australia should have deeper cuts when the rest of the world moves?

Mr Toni—The WWF's position is that Australia should be making an offer that we will reduce emissions 25 per cent by 2020 provided other countries make comparable cuts. They will vary between developed and developing countries, but we would argue that developed countries make similar cuts and developing countries reduce the growth in their emissions significantly.

Senator IAN MACDONALD—I think if that were the case there would not be a great deal of division within the Australian community.

Senator PRATT—Does that mean that you endorse that position?

Senator IAN MACDONALD—If other countries cut by the same thing, yes, by all means—never any doubt. And I mean all other countries—the bigger emitters.

Senator MILNE—So the coalition agrees with 25?

Senator IAN MACDONALD—I am not the coalition; I am a member and this is my view.

Senator MILNE—I am interested that—

Senator IAN MACDONALD—My views have never changed. If Australia is not being hung out to dry, by all means go or it. That has been a consistent position of mine. But I am interested in WWF's position rather than my position. The corollary to that, of course, is: what happens if, as I suspect—and I hope I am wrong—that, come Copenhagen, we are not going to get any agreement and we are going to get, for example, the USA saying, 'Yeah, we're determined to do this but wait until congress agrees in legislation, and then we should move'? What is the WWF's position if that does not happen?

Mr Toni—I would partly answer that by saying that the report that we have just tendered shows that about 18 per cent is necessary to have sustainable industrial development of low-emission technology in Australia. But this is almost an issue—

Senator IAN MACDONALD—Are you saying that to get lower emissions you need 18 per cent to make it worth while—

Mr Toni—Yes.

Senator IAN MACDONALD—so we should do that in any case?

Mr Toni—But this is really a situation where we should be putting the best possible offer on the table that we can, and right now.

Senator IAN MACDONALD—I agree with that: go higher if the experts, and that is certainly not me, say so, but as long as everyone else is doing it. And I am pleased to see the WWF is continuing to justify my appreciation of the sense with which they come to conclusions. That is fine, but if it does not happen where do we go?

Mr Toni—I hope it does happen.

Senator IAN MACDONALD—I do not think it will, and informed observers, regrettably, agree with me.

Mr Toni—But nobody has put the offer on the table. We do have a lot of people attending meetings and I appreciate that they are much more experienced than me, but nobody has put this offer on the table.

Senator IAN MACDONALD—Have you, as part of WWF or anywhere else, been to many of these international negotiations?

Mr Toni—WWF attends—

Senator IAN MACDONALD—I know about WWF, but have you?

Mr Toni—No.

Senator IAN MACDONALD—It would be instructive, I think, to read Dr Brian Fisher's evidence on how these negotiations work. He indicated last night that the team from America to Copenhagen would be the same team that went to Kyoto, where they promised the world and delivered not a thing. But I do know that WWF is experienced in this and I am wondering what WWF's anticipation is of the outcome of Copenhagen?

Mr Toni—I am really not qualified to express an opinion. These negotiations are handled by the international team and not by me. Certainly WWF's view is that the Major Emitters Forum is a clear signal that America wishes to get back into being involved in a constructive way in these negotiations, and that it is an extremely good venue—not the only one—to foster a breakthrough agreement. But, especially in the case of the UN, a breakthrough agreement will only come if somebody steps out and joins the existing leader, which is the EU.

Senator HEFFERNAN—Most of those economies are insolvent.

Mr Toni—Which economies?

CHAIR—Comment on the economics of it is not helping.

Senator IAN MACDONALD—Just ignore my good friend and colleague while I have the floor.

Senator Boswell interjecting—

Senator IAN MACDONALD—Now you have made me forget the intelligent question I was going to ask! I will move to another curiosity as I look at this persuasive, as always, publication I have here. Are you in favour of small hydro power stations?

Mr Toni—Certainly. In a small-run-of-river hydro is quite a low-environmental impact form of technology.

Senator BOSWELL—You have got to find the water.

Senator MILNE—Dams.

Senator BOSWELL—What about the platypuses?

Mr Toni—The environmental impacts of most developments need proper assessment but small-run-of-river hydro should have a low environmental impact.

Senator IAN MACDONALD—The Wilderness Society and certain political parties do not have a great deal of time for you, which is perhaps why I do have a great deal of time.

Senator MILNE—Run of the river is not dams.

Mr Toni—That is not dams.

Senator IAN MACDONALD—I was just going to say that your photograph actually shows a dam.

Mr Toni—That is true but the fact is that a picture of the device would be so obscure that we needed to put something that was instantly appreciated.

Senator IAN MACDONALD—Suffice it to say that you are very much in favour of hydro. That was the point.

Senator HEFFERNAN—For hydro you need water.

Senator IAN MACDONALD—There is plenty of water in Northern Australia.

Mr Toni—Not large-scale hydro, but certainly there is still plenty of opportunity, particularly for small-run-of-river hydro.

Senator IAN MACDONALD—Do you have a view on why we do not do that in Australia?

Mr Toni—It is not at no cost. A lot of these things will be fostered once there is a price on carbon.

Senator IAN MACDONALD—I do not really want to get you into trouble with other groups that claim to be environmental groups but, given the problems with carbon emissions, what is your view on the European and Chinese proposals to increase their nuclear energy to save carbon emissions? Is that good, bad or indifferent?

Mr Toni—WWF has a long-standing policy to oppose nuclear power. This is fundamentally an issue of waste or industrial pollution, and to replace one sort of pollution with another sort of extremely toxic pollution would be imprudent.

Senator HEFFERNAN—Even thorium?

Senator IAN MACDONALD—Please ignore my colleague and great mate. You think uranium waste is a bigger problem than carbon emissions?

Mr Toni—I would say it is a problem of equal scale, yes.

Senator IAN MACDONALD—The Europeans and China of course, in their holier-than-thou attitude, keep opening power plants or proposing to open them. They then say, 'Aren't we good with our carbon emissions reductions?' because of it. But do you not think there is merit in that?

Mr Toni—No. There are ample low-emission technologies that are not nuclear, and that is particularly true in Australia.

Senator HEFFERNAN—Thorium does not have an afterlife of a hundred years.

Mr Toni—Yes, WWF really has a very long-standing policy. It has had it for 40 years and it is as a result of its experiences in Europe and—

Senator HEFFERNAN—Thorium was not known about then. Do you know much about thorium?

Mr Toni—I have read a single *Scientific American*, so I do not, no.

Senator HEFFERNAN—No, there you go.

Senator MILNE—I want to address your target. You are saying that Australia should agree to a target of 25 per cent if the rest of the world comes on board. If the Copenhagen agreement was for annex 1 countries to agree to 25, would that get us to 450 parts per million or less?

Mr Toni—If it were accompanied by some restraint in growth of developing countries, yes. It would give us a reasonable chance of achieving that.

Senator MILNE—No, it is the annex 1 countries we are talking about, because there is no agreement yet that developing countries are coming on board. This is about what developed countries would agree to as their carbon budget in order to allow developing countries to grow. If the annex 1 countries just said, 'Okay, the global agreement is 25 and we are the ones with the binding targets,' would that get us to 450 or less?

Mr Toni—No, other developed countries need to be further up the 25 to 40 envelope.

Senator MILNE—Okay, that is the point that I am getting to. Graeme Pearman, David Karoly and a lot of other scientists were here on the first day of our hearings. Graeme Pearman was saying that Australia would have to have at least 30 per cent on the table and Karoly was saying 40 in terms of what developed nations would have to do to give us a chance. They were all saying that 450 is too much and that we should be aiming for lower. I see that WWF's position is 400. Isn't 25 a pretty unambitious target and one that is jeopardising a global agreement going higher for annex 1?

Mr Toni—In the view of WWF, no.

Senator MILNE—Which scientists support you in that?

Mr Toni—WWF's global policy is a 25 to 40 per cent cut for developed countries. As a result of the past and Australia's carbon intensity, we are satisfied that Australia is in the lower end of that band but certainly, to achieve a 450 and ultimately a 400 stabilisation target, all developed countries would have to be in that band of 25 to 40.

Senator MILNE—But you would give Australia the lowest. Isn't that rewarding bad behaviour for getting an eight per cent increase in Kyoto?

Mr Toni—It is accepting an existing situation and trying to make a significant step forward from an existing situation. Even in Europe, which are the clear the leaders, I think, in this space, a 25 per cent cut would be recognised as a significant cut. It would also be a signal from a country that is extremely carbon intense—much more so than Europe, more so even than the US—that it is confident that we can make the transition to, ultimately, a virtually zero carbon economy.

Senator MILNE—Wouldn't you agree that, whilst we are a carbon intense economy, we also have a disproportionate, compared with other developed countries, resource for renewables, given our size and given our resource?

Mr Toni—Indeed. No question.

Senator MILNE—So capacity is absolutely there, contrary to other developed countries.

Mr Toni—No question.

Senator PRATT—What you are recognising, though, is a trajectory that we need to turn around, partly because we have been treated too generously in the past—is that right?

Mr Toni—It is partly that, but it is partly that you cannot grow the industries at the speed you need. It is a very large rate of growth. The poster you have in front of you, which is a summary of the report, is really a very ambitious rate of growth.

Senator PRATT—A higher target is too ambitious for us in terms of our actual capacity to transform ourselves. A very, very high target is too ambitious. But what you are talking about is a real path where we can realistically make those transitions, that industrial revolution, if you like.

Mr Toni—You can always achieve a higher target by purchasing credits from overseas, but that is an ambitious target.

Senator MILNE—Or by protecting your forests.

Mr Toni—Or by protecting forests or, indeed, by planting more forests.

Senator BOSWELL—Should the farmers be in or out?

Mr Toni—At this point in time? There are significant measurement difficulties at this point in time.

Senator PRATT—I wanted to ask about that transformative effect. So the target is one thing; the other thing is our capacity to innovate and compete in these new emerging technologies. I want to ask you about the price for carbon in relation to getting that signal out there. And I want to ask, if we do not act soon enough or quickly enough, how we might be distorting our rewards in favour of old technologies that will become stranded and how we get that balance right in the legislation and the proposals that we have before us.

Dr Mallon—I think that really goes to the heart of the issues that we are starting to identify. The report is called 'Industrial constraints'. As Senator Milne points out, the capacity and the resources are there, but that is not in discussion. McKinsey, government papers, CSIRO, all of those recognise that these resources are available abundantly. But, as you point out, it is the issue of how you harness the resources and what you need to do in order to get there. The rates of growth for industries that are in here would make any company executive smile. They are year-on-year growths of around 20 per cent per year. What happens if you start to delay that process—if you say, 'We don't need to do it now; we'll leave it till a little bit later'—is what I call the One.tel phenomenon. Where your growth starts to push past about 30 per cent, companies become unstable, because year on year you have to get 30 per cent more staff, bigger premises, more capital, more investors. What you have is champagne one day and bankruptcy courts the next day. So either you have an unstable industry, which means that you keep failing to deliver the targets, or you have prudent company executives that say, 'We're deciding not to grow that fast,' in which case the government's objectives become unachievable because the industry itself is choosing not to grow at the scale required.

Senator PRATT—But we are not at that point yet. We are still at the stage where we are trying to encourage those industries to get off the ground versus continuing to invest in technologies of the past.

Dr Mallon—Exactly. So in order to give those companies the longest lead time that you can, the crucial point is to plant the seeds. The seeds become crucial. With a carbon price alone, with emissions trading alone, what will happen is that it will be least cost first. Least-cost actions are things like avoided land clearing. The more expensive solutions like algal alternatives or geothermal options sit idle because they are not competitive. They wait 10 years or 20 years and all of that is development time which is being wasted. One of the conclusions of the report is that complementary measures to the emissions trading scheme are absolutely crucial and those complementary measures should be structured in a form that encourages a broad suite of resources to be harnessed at the same time. The United Kingdom have a very similar scheme to the RET, but the difference is that it is banded. They actually identify how much they want from wind, how much they want from biomass and how much they want from ocean technologies. Unfortunately under the current RET scheme, which is intended to be complementary to the ETS, we would largely have that with just one technology, possibly wind or maybe wind and a little bit of biomass.

Senator PRATT—Stimulating green jobs in new industries is one thing at stake, but we also need opportunities for existing industries to adapt and become as efficient as possible. Can you tell us about what you have looked at in terms of how the CPRS and the modelling assist transformation and broadly protect jobs in industry?

Dr Mallon—Within the context of the findings which are about achieving those low-carbon figures, the main finding is actually a skills and jobs shortage. At the moment, engineers are in short supply in Australia—in the order of 20,000-plus. That may change with the change in the resources sector of the economy. It has been long identified, especially in some of the impacted energy sectors like coal and gas, that those skills would be in high demand.

Senator PRATT—They would be transferable.

Dr Mallon—Absolutely, if anything, more would be needed as well. Because a lot of the fuel supplies are lower cost, these things are often more labour intensive—for example, renewable energy projects are twice as employment intensive as, say, the fossil fuels sector.

Senator PRATT—In talking about Australia's skills profile currently, if we get on this path, we have a good opportunity to transform the industry for people's existing skill sets. What would happen to those jobs if we delay taking action too long? It is probably in those circumstances where we will have the largest problem with unemployment in terms of leaving people in jobs without relevant skills. Surely, the earlier we start to make that transformation the better we are going to be in terms of employment prospects.

Dr Mallon—This is addressed in the report. There is a potential dislocation risk, which is essentially a social dislocation risk when you have such rapid changes. You could see the very rapid demise of, say, a certain project that was fossil fuel intense but on the other hand there would be a skills shortage in another sector. This is where a strategic approach makes sense in that you would potentially seek to cluster your new low-carbon industries in areas where there are existing skills. For instance, you might choose to put a development of certain technologies in the Hunter Valley or the Latrobe Valley because you already have a captive pool of skilled people there.

Senator PRATT—Are you saying it is possible to match these new industries with existing skill bases?

Mr Toni—Often it is a viable alternative. Geothermal is a good example. A lot of the drilling, pipeline and mining skill sets will be necessary for geothermal. Metal fabricators will be required for virtually every technology, so there will be a lot of overlap with existing trade and professional skills. But we do need to enhance a lot of skills. There need to be more structural engineers with the robust technology you need to sink into the ocean, and things like that. There will be a lot of overlap. I did a review—and unfortunately I left my computer on the plane—of reports that analysed the overlap between technology push of this sort and jobs. There have been about seven or eight reports—and if I have leave I can submit—

Senator PRATT—That would be great. A list of those reports would be terrific.

Mr Toni—All the reports really fell into one of two categories: those that saw this sort of technology push as producing more jobs, or those that said that there was virtually no impact. The difficulty with the 'virtually no impact' analysis is that it was all cost analysis, which is not taking into account the transformative impacts of this sort of technology push which does create jobs. We know that from getting rid of horses and developing motor cars.

Senator PRATT—And being left behind, for example, in the industrial revolution or the digital age or whatever, if we do not actually keep up with that change.

Mr Toni—We are working in an area where we energy rich; we have tremendous opportunities. If we shifted the aluminium plants to geothermal we would have lower emission plants than exist in Russia or the Middle East. We would have the equivalent of a Brazilian or an Icelandic hydro plant—a zero-emission aluminium plant.

CHAIR—Thanks very much, Mr Toni and Mr Mallon. We appreciate your evidence today and your submission. Thanks for coming along. I hope you find your computer.

Mr Toni—So do I.

[11.57 am]

ISON, Mr Michael Ronald John, Manager, Policy and Research, Australian Aluminium Council

PROSSER, Mr Miles, Executive Director, Australian Aluminium Council

CHAIR—Welcome, Mr Prosser and Mr Ison. I invite you to make an opening statement.

Mr Prosser—Thank you, Chair, for the opportunity to present to the committee. To begin with, to give it some context, we understand that the challenge being faced here is developing an Australian policy response to climate change. It is an issue that is global and long term.

Senator BOSWELL—On a point of order, Acting Chair, I ask Senator Heffernan to go outside the door if he wants to conduct a conversation. He is standing right behind the witness—

ACTING CHAIR (Senator Milne)—Senator Heffernan, would you mind leaving the room so that we can hear the witnesses, please.

Mr Prosser—It is an issue that is global and long term. We have got less than perfect information about the ultimate impact of different emissions levels, where action by countries is going to be uneven for many decades yet and where there are potential economic costs and few gains for individual countries that move ahead of others. These challenges are all well summarised in the Garnaut review. This committee will have heard from experts on many of these issues. We would like to focus our input on an issue where we think we have some expertise to offer and that is the potential economic costs of moving ahead of other countries and, specifically, the potential for carbon leakage from Australia's alumina and aluminium industry.

Australia is a global force in this industry. We are the world's largest producer of bauxite, the second-largest producer of alumina and the fifth-largest producer of aluminium. The industry directly employs 14,000 people in skilled and well-paid positions, many in regional areas, and we are a major export earner—$11 billion per annum at the moment—and approximately 80 per cent of our alumina aluminium production is sold into export markets.

It is worth noting that there are two activities in our industry that will be heavily impacted by the CPRS and RET. The first of these is producing alumina from bauxite at a refinery, and the bulk of the emissions in this stage of the process arise from a requirement for heat. The second is the production of aluminium from alumina at a smelter, and the bulk of the emissions in this stage arise from the requirement for electricity. The different structure of those two activities leads to different outcomes in terms of scheme design.

The Australian alumina and aluminium industry has developed competitive advantages in resource availability, skilled workforce, global supply chain management, energy supply and efficiency and capital investment. The current capital replacement value of the industry is in excess of $40 billion. The industry has expanded over recent years, including investments in

Rio's Yarwun alumina refinery, expansions at Rio's Alcan Gove refinery, Alcoa's Pinjarra refinery and Hydro's Kurri Kurri aluminium smelter.

The competitive advantages that we hold, combined with the future use of aluminium in a carbon-constrained but growing world economy, give reasons to be confident that further investment and expansion of this industry in Australia is achievable. There are possible additional potlines at existing aluminium smelters, possible alumina refinery upgrades at many refineries, including Wagerup and Yarwun, as well as possible new mines and refineries based in Queensland at Aurukun. This is an industry where Australia has a natural advantage in competitive markets and can be part of a strong, growing Australian economy.

The industry competes in global markets. The price for aluminium is set on the London Metal Exchange and the price for alumina is closely linked to the price for aluminium. Australia's major competitors are China, the Middle East, Russia, Canada, the United States and Guinea. The proposed CPRS and RET will expose Australian producers to higher carbon costs than any of our competitors in those global markets. We estimate the costs on the basis of the policy as currently proposed to be in the order of $500 million per annum. Those costs are far higher even than under the European scheme. Although Europe has introduced an emissions trading scheme, aluminium smelters and alumina refineries in Europe are largely shielded from the costs of that scheme and will be for many years yet. The costs that are being proposed in Australia are far higher than costs that will be proposed in our competitor countries for many years to come.

Globally, investment in alumina refining and aluminium smelting is attracted to the lowest-cost operations. That occurs within companies and also across the industry, and it applies to investment in new facilities, expansion of existing facilities and sustaining capital investment into existing facilities to maintain quality and competitiveness. Increasing the costs of alumina refining and aluminium smelting in Australia will shift our operations. At the moment, those operations are in the first and second quartile of the global cost curve. In the first and second quartile, we can be confident about future investment in those facilities and future expansion of those facilities. The policy proposals on the table will shift those operations to the third and fourth quartile. In the third and fourth quartile of the global cost curve, investment is far less likely and closure is far more likely when markets go through low points in the cycle. So the impact of this scheme on our industry is to shift us out of that zone where we could expect future investment and expansion and into the zone where we are vulnerable to market conditions and closure is possible if not imminent.

Senator FEENEY—Are you where you are in the cost curve because of the quality of the capital in Australia?

Mr Prosser—I listed earlier what some of the competitive advantages are. They include availability of the resource, the skilled workforce we have, the capital investment that has been made, resource availability and energy costs.

This is the manner by which carbon leakage would occur—by the impact on where investment would occur. It is not the simple shifting of plant, equipment and buildings to another country, and it is unlikely to be the immediate closure of facilities when a scheme is implemented. But it is that loss of future investment that leads to eventual closure of plants in Australia. It is an inevitable result of imposing a significant cost on Australian producers that is not imposed

elsewhere. It places future investment at risk, costing potential new jobs and jeopardising the operations that sustain current employment.

There is a lot of complexity in this policy area, but the view of our industry on most of these issues can be tied back to a single concern: the magnitude of the costs being imposed on Australian producers ahead of similar costs being imposed elsewhere in the world. We are concerned about the impact of that on future investment, and we believe the parliament should be concerned that these costs are proposed to be imposed with a high probability that there will be no meaningful impact on the environmental objective as a result of carbon leakage. Yet it is not a difficult transformation to go from the current policy proposal to one that will enable Australia to take early action—and, again, all those benefits—and not threaten the viability of this or other industries.

At a principal's level, the required transformation is to develop an alternative policy either by amending the existing policy or developing an alternative policy that achieves three key outcomes: minimising the cost imposed on Australian producers ahead of the cost imposed in other countries; explicitly linking the erosion of permit allocation to Australian companies to the rate at which action is taken globally; and, as a result of those outcomes, allowing for appropriately ambitious global emissions reductions but making them contingent on global action, and that in turn will create an incentive for global action.

Our written submission provides more detail on how to meet some of these issues, but I would specifically like to emphasise that we are calling for the decay in permit allocation to EITE industries to be explicitly linked to global action by other countries and not, as it is at the moment, to the expectation of global action; for alumina refining to receive 90 per cent permit allocation under the CPRS proposals; for the permit allocation for indirect emissions to reflect the actual increase in costs of electricity—you heard from Alcoa earlier today about their concerns for the electricity factor; and for a full exemption for aluminium smelting but not necessarily alumina refining from the current and expanded RET. From our point of view, the RET and the CPRS impact on our industry in the same way. They both lead to substantial increases in electricity prices, and it is electricity prices which are felt most keenly by these industries. The changes we are proposing are all relatively simple, albeit fundamental changes, to what is being proposed, and they can be achieved within a reasonable time frame. That concludes our opening statement.

Senator FEENEY—In your submission, you indicate your preference for a consumption tax—the Carmody model. I think your affection for the Carmody model is basically driven by the belief that it is trade neutral. Could you expand on that a little?

Mr Prosser—Okay. If I can, I would like to turn that around the other way. I am not sure that we exhibited a preference for the Carmody model. But it comes back to the point where we say that our concern is the relative impact of costs on Australian producers to those of our competitors. A consumption based model is one way to address that. If it is implemented appropriately, a consumption based model can ensure that those costs are distributed evenly. Equally, a cap-and-trade emissions trading scheme model can achieve the same outcome, with some changes to what is being proposed. Ultimately, the model that is used is of lesser importance to us than ensuring that the costs imposed on Australian producers are no different from the costs being imposed elsewhere.

Senator FEENEY—It would seem to me that a Carmody model, a consumption tax, is in fact only trade neutral if there are significant carve-outs. There would still be an impact on all of your manufacturing inputs through a consumption tax.

Mr Prosser—The basic issue needs to be addressed in whatever model is being proposed. Because there is a lack of global action, whatever model is proposed in Australia needs to consider the impacts on international competitiveness.

Senator FEENEY—Do you accept the fact that the cap-and-trade model does mean that there is a price signal that it is intended to drive continuous improvement in terms of abatement and mitigation?

Mr Prosser—Absolutely. You heard Alcoa give some figures earlier, and I can provide similar figures for the industry about the extent of improvement that has occurred since 1990 as a result of the existing cost of things like electricity, which is the bulk of the emissions for this industry. Exposing the industry to a carbon cost would increase the incentive to take on things like co-generation and other investments. We are not opposing there being a carbon price signal there. What we are concerned about is imposing that carbon price signal only on Australian producers and not imposing it on other producers. I go back to the point that 80 per cent of our product is sold into export markets. The other suppliers into those export markets are not facing and are not likely to face in any near future a carbon cost. So there is a way to put a carbon price in front of Australian producers that does not impact on their international competitiveness, and that is what we are calling for.

Senator IAN MACDONALD—Thank you for your submission, Mr Prosser. As you know, we have had two major companies appear before the committee and so we have already heard a lot of the issues. Is there anyone involved in alumina or aluminium in Australia that is not a multinational company, with plants in many other parts the world?

Mr Prosser—The ownership structures of the companies involved are joint ventures between other major companies. I think it is probably fair to say that every operation in Australia is part of a global operation.

Senator IAN MACDONALD—So it is easy for those companies, no matter how much they want to be good Australians, to source their finished product from other less costly places around the world?

Mr Prosser—That is true. The issue in terms of competing for investment is that they are competing internally within those companies. If there is a proposal to expand an Australian alumina refinery, it will be up against a similar proposal to expand a refinery in another country.

Senator FEENEY—It is quite a big thing to abandoned an investment of that size, isn't it?

Mr Prosser—Yes. There are a number of levels here. There is potential new greenfields investment—and certainly that could go anywhere in the world. Existing operations give you some ability to attract future investment, but there are existing operations all around the world. That is where we come back to this position on the global cost curve. Because of where we are at the moment, we have reason to be quite confident about attracting future investment. We have

the low-cost operations in the world that will attract that future investment. Imposing the CPRS and RET costs that are currently on the table would shift those operations to the third and fourth quartiles where they will not be destinations for investment within those companies. That investment will go to the new Q1 and Q2 plants, and they will be in countries without a carbon cost.

Senator IAN MACDONALD—Just along those lines, you talked about the proposed plant at Aurukun.

Mr Prosser—Yes.

Senator IAN MACDONALD—What stage is that at? Are they still just looking at it? Has any decision been made on it?

Mr Prosser—I will either take that one on notice or defer it to Michael.

Mr Ison—My understanding is that they are still proving up the resource. The decision about whether they place an alumina refinery at Bowen or Townsville is still under decision.

Mr Prosser—I think they are due to report back as part of one of their licence conditions—

Mr Ison—They are doing an environmental impact study, which I think will run over the next few years.

Senator IAN MACDONALD—Certainly they would be looking at the CPRS.

Mr Prosser—Absolutely.

Senator IAN MACDONALD—Is it right or is it just jingoism to say that Australia has the best natural supply of bauxite in the world, in Asia or in whatever area?

Mr Prosser—As I understand it, Australia has probably close to 30 per cent of the world's bauxite on that sort of level. I think it is the second largest in terms of bauxite reserves. Guinea appears to be higher on the list. If you compare Australia to Guinea, you can see why Australia would be a very attractive place to invest.

Senator IAN MACDONALD—There are grades of bauxite, I suspect?

Mr Prosser—There are different grades. There are different silica contents and a whole range of other factors like that. There is no question that Australia's natural resources in bauxite are one of the main reasons that we have a competitive advantage. What we are looking to do with alumina refining and aluminium smelting is to build on that advantage and turn it into a greater investment rather than just exporting bauxite.

Senator IAN MACDONALD—You may or may not know that I come from North Queensland and hang around a bit at Weipa. If we were not producing aluminium in Australia but simply shipping the bauxite from Weipa to Indonesia, China or wherever, Weipa would be okay wouldn't it? That would not really impact on jobs and development at Weipa?

Mr Prosser—One way to look at that issue is to understand that the final market for this product is almost certainly going to be overseas. We already export 80 per cent of our production, and a lot of growth in demand for that will be from overseas.

Senator IAN MACDONALD—Which production? Aluminium?

Mr Prosser—Alumina and aluminium.

Senator IAN MACDONALD—But not bauxite?

Mr Prosser—No. There are a lot of reasons for believing that Australia will provide much of the bauxite needed for future aluminium production globally because we have so much of the bauxite here. The question is how much we do to that before it leaves these shores and goes to other countries. Like a lot of industries, the amount of value and the amount of employment generated go up exponentially along that chain. If we were to only mine bauxite and export that, the amount of return to places like Weipa would be a lot lower than it is currently. If we convert first to alumina, we get the first stage of that increase in employment and value that have generated investment from that. If we take it to aluminium, we take a further step—and they are exponential type steps.

Senator IAN MACDONALD—Just to confirm: does the transmission from bauxite to alumina occur at Weipa?

Mr Ison—No. Weipa is just a bauxite mine. They export their bauxite by ship to the alumina refinery in Gladstone, QAL and Yarwun.

Mr Prosser—Just to clarify: when we say 'export', it is to another location in Australia and it is converted to alumina before it leaves Australian shores.

Senator FEENEY—How much bauxite do we export and how much do we use locally?

ACTING CHAIR—Senator Macdonald, we are going to finish at half past.

Senator IAN MACDONALD—Yes, quite right. Was there a proposal to set up an alumina plant in Weipa?

Mr Ison—Not in Weipa itself, no. They are looking at somewhere close; I think Bowen or Townsville were the two options.

Senator IAN MACDONALD—I thought Weipa was a third option.

Mr Ison—That is not my understanding.

Senator IAN MACDONALD—That is all I have.

ACTING CHAIR—I will go to that clarification question, Senator Feeney, and then I will come to you, Senator Boswell.

Senator FEENEY—I just wondered if you could tell me you what proportion of Australian bauxite is consumed domestically and what proportion is exported.

Mr Prosser—I think virtually negligible amounts are exported. Virtually all the bauxite is converted to alumina at the moment. One of the impacts of this scheme is that it may lead to a situation where it becomes more rational for a company to export bauxite overseas and do the alumina processing there.

Senator IAN MACDONALD—That was the final question I did not ask; thank you for doing it.

Senator BOSWELL—Can you explain to me what this new RET that was put forward yesterday is going to do to the aluminium industry? I know the aluminium industry did try to explain it to me. I got lost halfway through. Can you do it again?

Mr Prosser—I was there for the earlier explanation so I cannot guarantee I am going to do a better job. There are two components to RET. There is an existing mandatory renewable energy target—

Senator BOSWELL—That is two per cent.

Mr Prosser—Yes. What was being discussed was a proposal to extend that. The decision made yesterday, as I understand it—and we have only had a few hours to evaluate it—was that there would be an exemption at the 90 per cent level from the additional amount. That leaves an aluminium-smelting operation facing two costs, if you like. The first is the cost from the existing renewable energy target and the second is 10 per cent of the cost that would arise from the expansion. Those two costs together, on our quick estimates, we believe will come up to about $130 million a year by 2020 for the aluminium-smelting industry in Australia. And at that level it is as significant as the CPRS in terms of the cost.

Senator BOSWELL—That is the same cost as the CPRS.

Mr Prosser—So it is going to flow through in terms of increased power prices. That is how an aluminium smelter sees these policies.

Senator BOSWELL—There was some advance you put up—a figure of $65.

Mr Prosser—That is right. The surcharge was lifted from the previous $40 or $45.

Senator BOSWELL—Can you explain that to me? I am finding difficulty there.

Mr Prosser—Again, I might not do the best explanation. Basically, it is the cap to the price in the scheme, so if you cannot buy a renewable energy certificate you would be able to pay the surcharge, at whatever level it is. By lifting the surcharge, the price in the market is free to then float to that higher level. So, by raising the surcharge from $40 to $65, there is the potential for the price of renewable energy certificates to rise to $65—and there is an expectation in many quarters that they will almost definitely rise to that level.

Senator BOSWELL—All right. You cannot claim that $65 back on tax; that is a fine.

Mr Prosser—I am not a tax expert so I cannot tell you the treatment of that.

Senator BOSWELL—I will make this observation to you because in your presentation you were talking about amendments. You are aluminium producers; we are politicians. What I want to say is that when you get into that Senate and there are amendments going around, no-one knows what is happening except the three people who are handling it for the Greens, Labor and us. Confusion reigns. It is very difficult, particularly with a bill like this where most of it is done by regulation, not to come out with what we call unintended consequences. Murphy's law reigns in this place; the worst thing happens at the worst possible time. We have a job to do, and it is turning this sow's ear, as I would call it, into a silk purse. I do not think you can do it. I think the best thing to do is just dump it and come back again. So I just warn industry: do not get too carried away with amendments because you could end up in as much trouble as you are at the moment. We have heard from the steel industry, from the aluminium industry, from every industry of Australia, and it would be pointless my going over the same questions with you, because the same questions exist for the aluminium industry as for every other industry. I know what it is all about and I know your problems; we know your problems. So can I thank you for your submission and wish you all the best of luck when the RET comes up in a couple of weeks time and is followed by the ETS. God help Australia!

Mr Prosser—Could I make a comment on that?

ACTING CHAIR—Could you make it quick, because there may be a few other questions.

Mr Prosser—I fully understand and appreciate what you said about the speed at which policy is being developed. As an industry association we are feeling that as much as anybody. We see it as our role in that process to provide the best information we can within the time frame available, but I acknowledge your point that policy is being made quickly and sometimes it is hard to understand the full consequences. I think the RET decision is an example of that. We have both alumina refining and aluminium smelting being dealt with here. We were going to accept that alumina refining would not get an exemption under RET. It was much more important to us that smelting got nearly the full exemption because of the costs imposed on that industry. Without any consultation or proposals about this model put to us, we now have a situation where alumina refining will get partial exemption and aluminium smelting will get partial exemption. For us it was the wrong decision. We would much rather have all of that on the smelting and less of it on refining.

Senator BOSWELL—That is exactly what happens when you are taking policy on the run.

Mr Prosser—We had not seen that proposal at any stage publicly until it was announced yesterday.

Senator BOSWELL—And that is my warning to industry.

ACTING CHAIR—You said that if there is an emissions trading scheme you will consider putting your bauxite on ships and sending it somewhere else. In the decision on where you locate, apart from the cost of energy surely there are considerations like whether you have a

stable political situation, whether you have a skilled workforce, whether you have a reliable supply of cheap electricity and so on? Where would you consider going? Where would you actually go elsewhere in the world in those circumstances, also recognising that it is only a matter of time before all those other locations will be under an ETS as well?

Mr Prosser—You are quite correct that a range of factors are taken into account. Certainly any factor that contributes to the costs of production is a major factor, but there are also things like political stability, available skilled workforce and so on. It is worth pointing out that for aluminium smelting the price of energy is about 30 per cent of the production cost. It is such a large—

ACTING CHAIR—I come from Tasmania; I am very well aware of that. I am also aware of the free ride that the aluminium industry has had for years as a result of bulk power contracts. It is not as if you have not been given a lot of assistance over a long period of time. So could you answer the question about where he would go.

Mr Prosser—There are a whole range of countries around the world. I listed the major competitors as being China, Russia, the US, Canada and Brazil. There are a whole range of options there. What a company would do would be to look at all those factors, all those costs of production and consider where they are at and where they are likely to go. I take your point about a global carbon cost, and I do hope that we get to the stage where there is a global carbon cost, but I think that within these sorts of investment time frames you could look at a place like China and decide that it is unlikely to have a carbon cost of the scale being proposed in Australia within an investment time frame.

ACTING CHAIR—What about your costs of shipping? You are dealing with quite a bulky product.

Mr Prosser—The ultimate market for this is probably going to be in China or elsewhere in Asia. We already export 80 per cent of our production. It will be a slightly higher transport cost because it is a bulky product, as you said, but again that is just one of the costs taken into account. It would be a much smaller factor than the cost of electricity.

Senator IAN MACDONALD—Do Indonesia, the Philippines or any of the South-East Asian countries have alumina or aluminium industries?

Mr Prosser—I think Indonesia does at the moment. Certainly there are prospects for expansion of the alumina industry in Indonesia.

Senator IAN MACDONALD—But they do have it at the moment?

Mr Ison—They currently export bauxite to China. I am not sure about the alumina refineries there.

Mr Prosser—There are certainly proposals to do more with that bauxite, to have alumina refineries. Vietnam is another country where there are proposals to significantly expand.

Senator FEENEY—Whereabouts in Indonesia are the bauxite deposits?

Mr Ison—I would have to take that on notice. I am not aware of that.

Mr Prosser—We will take that on notice.

ACTING CHAIR—Thank you for taking the trouble to come and present your information today. Before I close the session for lunch, I say that a number of senators and the committee secretariat have put it to me that they are anxious to see the *Hansard* transcripts a little more quickly than we have been able to see them. We appreciate the huge effort Hansard puts him, especially on a day like yesterday and during an inquiry when there has been a lot of evidence and very little time for lunch or other breaks, so this is not a criticism of Hansard, but I would like to put on the record that we would like to see a faster turnaround, especially because our reporting dates are coming down on us quite quickly. With those remarks, I thank you all.

Proceedings suspended from 12.25 pm to 1.15 pm

BETZ, Dr Regina Annette, Joint Director (Economics), Centre for Energy and Environmental Markets, University of New South Wales

MacGILL, Dr Iain Ferguson, Joint Director (Engineering), Centre for Energy and Environmental Markets, University of New South Wales

CHAIR—We welcome representatives from the Centre for Energy and Environmental Markets at the University of New South Wales. I invite you to make an opening statement.

Dr Betz—Thank you for the invitation to appear before the committee. I am going to start and give you a little introduction to the centre, and then I will hand over to Iain MacGill. The Centre for Energy and Environmental Markets is an interdisciplinary research centre working in the area of energy and environmental market analysis and design. CEEM researchers have been investigating emissions trading and energy and climate policies more generally for the last decade in Australia and internationally.

I am going to stick to the terms of reference that were given to us. The first question was:

… the choice of emissions trading as the central policy to reduce Australia's carbon pollution …

A coherent and comprehensive policy framework will be required to achieve an effective, efficient and equitable transition, so it is not only one instrument that we need. Carbon pricing is going to be challenging but indispensable—one of the important components of the climate policy. Comparing the implemented carbon tax schemes today—for example, in Norway—with implemented emissions trading schemes—for example, the European Union one—suggests that the main policy challenge to date has been one of governance rather than of the choice of the instrument. Inadequate ETS targets or carbon tax levels for each year and inappropriate free permit allocation or tax exemptions to favoured emitters can all result in ineffective and inefficient schemes.

Multinational emissions trading schemes are possible—this was illustrated by the European Union—whereas harmonised taxes have proven to be very difficult to achieve; we have seen that in a 10-year negotiation in the European Union energy context. Other policies will be required to provide insurance against the possible failure of the Carbon Pollution Reduction Scheme governance, to correct the main potential other market failures even with such a policy, to facilitate social consensus towards behavioural change, to deal with equity impacts and to drive innovation.

I come now to the question of whether the CPRS is going to reduce carbon pollution at the lowest economic cost. The costs associated with climate change are now unavoidable. The real issue is therefore to manage the level of costs and to decide where, when and on whom they are going to be imposed. The critical issue for the economic cost of climate change is that of the price of inaction versus that of action. The evolving science suggests potentially catastrophic impact with unchecked climate change, whereas the costs of mitigation appear to be manageable. In this context, the key challenge is to provide a robust policy framework that drives assured, effective mitigation and adaptation regardless of the possible failure of one or

more particular policy efforts rather than attempting to develop the policy framework that potentially reduces emissions at the lowest cost.

Looking at the question of efficiency from a more economic perspective, is the Carbon Pollution Reduction Scheme going to be efficient? We see about six areas where there are improvements to efficiency to be made. The first one is in regard to the coverage of the scheme. A broad coverage is only appropriate for meaningful targets. Otherwise the transaction costs of coverage are likely to exceed the benefits of inclusion. In this area, shielding some emitters from carbon price—for example, with a transitional arrangement in the transport sectors—will involve significant transaction costs with little immediate benefit and may also establish inappropriate expectations among the Carbon Pollution Reduction Scheme participants in the future. The proposed legislation has areas of enormous complexity that add to transaction costs, including possible legal processes. For example, the definition of 'liable entity' is about 80 pages. In Europe, it was one page with one annex.

All free allocation rules will also introduce distortions. That is a lesson learned from Europe. Allocation based on average industry emission intensity and output, as proposed by the CPRS, weakens incentive to reduce output, which can be an important abatement option. These allocations therefore increase the cost imposed on the rest of the society. Free allocation can also damage the price discovery in carbon market liquidity.

The price cap which is suggested will also risk that some appropriate abatement options might be postponed, which is also inefficient. A unilateral link to the Kyoto mechanisms combined with a price cap is also inefficient from a global perspective because you might shield some of the low abatement options in Australia, which might be lower than anywhere else. Now I would like to hand over to Iain MacGill.

Dr MacGill—Moving right along to the issue of putting in place long-term incentives for investment, obviously a critical part of transformation is investment. There has certainly been a lot of discussion. No doubt you have heard a lot on the importance of future carbon prices being significant and assured. There is no shortage of that. But the other part we really need to be thinking about in the context of the Carbon Pollution Reduction Scheme is that investment also critically needs a place to invest in. You need space for investment. So exit is a really critical part of the role that the CPRS is meant to play. The challenge we face is that the way market based instruments work through price is that they drive exit by destroying value. That is obviously a challenging thing to be doing, but it is an essential part of it. If, for various reasons, you look to bring in measures that actually reduce exit—that perhaps, say, give free permits on the basis that industry stays or that coal plants stay on line and so on—you are effectively crowding out new investment from a place to come into. So, if you want to use market based instruments, you have to be ready to destroy economic value of some existing plants, processes and players. It is unavoidable.

Other policies beyond just this price signal are also necessary to drive investment. In terms of contributing to a global solution, the point has been well made through the Australian debate about the relative level of Australian emissions. Our very key role that we play is in supporting and facilitating global action, so we need to think, obviously, about the way that our targets and this proposed scheme might be interpreted by other nations. Unfortunately, we are in the situation where, even within the white paper here, we acknowledge that a 450 parts per million

stabilisation appears to be in Australia's interest but the current target range proposed does not actually appear compatible with such a global level. That creates a real difficulty. To say that we are prepared to pull our weight beyond 2020 just does not really cut it. At a more general level—we will pick up this point later—is the point of how targets should be set. Per capita emissions appear to be an unavoidable key aspect of the way that is going to be done.

The other thing with the emissions-intensive trade-exposed arrangements is that again we need to think about the way they may be seen overseas. The proposed arrangements basically create a subsidy for large emitters to stay here or perhaps even establish themselves here, even though we can envisage investment in other countries around the world which would actually see lower emissions. These other countries may not have a carbon price, but through some mix of natural advantage and perhaps industry development they have low-cost, low-emission energy available. What they effectively see is a scheme being introduced here which, in some ways, does look almost like a restraint on trade in some aspects—and I believe Professor Garnaut certainly raised some of these issues as well.

In terms of the relative contribution of complementary measures, one of the challenges with a broad based emissions trading scheme using carbon prices is that it impacts on all decisions. It is meant to move so that all decisions now in some ways factor this in, so it can be difficult to distinguish between what a complementary measure does and what the emissions trading scheme does. But in the more general sense we know that complementary measures will be an essential part of driving this change. If we think of other areas of critical public importance—such as, for example, public health—and look at the policy mixes we see there, we do not really seem to take the view in those areas that one price based policy resolves all the issues. It is really quite an unrealistic expectation—and I think this is well accepted—that one policy could actually solve everything we need to do in our climate and energy challenges.

In terms of the environmental effectiveness of this scheme, as we have flagged, there is a really key issue in how this is seen globally, and then there are some other specific issues involving things like price caps and the level at which that price cap is proposed to be set which also reduce the potential environmental effectiveness of the scheme. In part (d) of the terms of reference is:

… appropriate mechanism for determining what a fair and equitable contribution … would be …

Well, every country has its favourite way to determine targets, of course, but it is very hard to escape the principle of per capita emissions. You have a very hard case to make against that principle that it should be per capita emissions reductions or some estimate of cost, given the global nature of the problem and the solutions we face. It is inescapable. So contraction and convergence models as proposed internationally for well over a decade and most recently by Professor Garnaut's review are going to be a key part of the debate. One of the issues, of course, is: when does convergence happen? When is a fair time at which we all arrive at some global per capita level of emissions? If you look at it as an entitlement issue with trading between larger emitters and lower emitters in the early stages, there is nothing to stop that happening in a very early phase. You do not need to wait until 2050 to do that, and we may see increasing global pressure for that to occur.

I have two more points, the first about whether the design of the proposed scheme will send appropriate investment signals. We picked up the issue before that this scheme has to drive exit, but there are some other issues that are very important. On unlimited use of some international emissions credits and so on there are a couple of issues. One is that it does appear inconsistent with the very significant discussion on supplementarity which occurred during the Kyoto process and before—the idea that we need to be taking action at home and not just looking for ways to pay off people to do that. That debate has not gone away. If we look at the way this gets managed in the EU and some other proposed schemes, they are looking at limiting the access by which we draw upon international markets. Beyond that, some of these international markets—and this is the clean development mechanism—do not look to be appropriate measures in the long term to achieve effective global action, which is another point that Professor Garnaut raised.

Just under 'other matters', one of the key points and an area of work we focus on a lot is governance frameworks. We do a lot of work in the electricity industry. The electricity industry is another designer market. It is a market that was brought into being through the actions of politicians and government. It is a designer market. It is extraordinarily complex. It has even more pages of rules than the exposure draft legislation. If we look at the governance process there, we have clear separation of policy, with the Ministerial Council on Energy and COAG; we have rule-making, with the Australian Energy Market Commission; we have a regulator; we have an organisation looking after operational aspects, NEMMCO—so we have quite a separation of roles and responsibilities. The review processes there are very transparent. It is not just that it might turn out to be transparent; it formally is a very transparent process. Any party can put forward a proposed rule change at any time, and then a formal process begins. I do not think we see anything like that rigour in what is currently proposed for governance for this scheme. The one thing we do know is that, when the scheme initially goes in, we will make mistakes, potentially very significant mistakes. Our ability to correct those is going to be a key part of success or failure. Thank you very much.

Senator MILNE—Firstly, I would like to go to the governance issue. Under the legislation as proposed, the minister is the ultimate arbiter and there is every ministerial discretion—in fact, huge discretion—in terms of review processes and so on even though there are advisory committees to the minister. The minister is obliged to accept their advice but she or he, whoever the minister is, is not obliged at any level as to it. Do you see the extent of ministerial discretion and the lack of independence in the review process as a fundamental weakness? It is not one that other people have raised. It is interesting that this is the first time that a witness has actually talked about the governance arrangements. I wonder whether you would like to comment on that before we go on to another aspect of the scheme.

Dr MacGill—Perhaps I will make a start and Regina might have some comments on the European Union arrangements. At one level if you are very outcome focused then a great deal of ministerial, hence political, direction can go one way or the other. It might be very productive and allow very important changes to be made in the timescale that might be required. However, in the general sense we look to establish processes that provide guidance on how decisions will be taken with some view as to the boundaries of those. If we look at the national electricity market, there are opportunities for significant political discretion to play out. However, there is a very conscious attempt to establish a process by which you will establish a basis of fairness or appropriateness as to such discretion being exercised. It is very difficult to make a call on what

that balance is. One of the issues that I think are significant in the national electricity market is that perhaps while the governance process might sometimes be not a little bit slow the measured nature of it may mean important changes in time.

Senator MILNE—Yes, not flexible enough.

Dr MacGill—Given the problems we face as to climate change, fast governance is going to be very important. The principles of fairness and certainty are inescapable if you want people to put lots of money on the line, as we do.

Senator MILNE—Do you want to say anything, Dr Betz?

Dr Betz—Yes. Take the example of the European Union. The European Union really had a lot of learning over the first three years. You can see that what was the proposal in the 2005-07 period was going to change radically for the period after 2013. So just after three years of the scheme being in operation a lot of changes have been made. The method by which they were able to do that is this. They are now having a revised directive, so it is after three years that they are actually to put out a new directive for the longer term, from 2013 to 2020. From that perspective, there is a pilot phase and there is the possibility to change the legislation over time, something very important from those lessons.

Senator MILNE—That is the next point that I want to make. You say that if you have an inadequate target and an inappropriate free permit allocation to favour emitters it can all result in ineffective and inefficient schemes, ineffective in terms of reducing emissions and inefficient in terms of the economic path to the outcome. We have a system which has all those elements. We have essentially massive compensation as to stranded assets, we have a scheme that does not achieve the environmental outcome given that the aspiration is a 450 parts per million stabilisation, we have a target that does not give you that and we have no space for a driver to exit some of those assets that we are talking about with and without massive compensation. Could you comment on those aspects of the scheme? These are criticisms which have come up pretty consistently.

Dr MacGill—I think one of the challenges we face is that by their nature these sorts of market based policy approaches are meant to be uncertain. Part of the underlying rationale of them is that we do not have sitting somewhere someone who has all the necessary knowledge as to what needs to be done and we are looking for time, for experience and for innovative participants to actually find the path through which we reduce the costs. So the actual outcome of a particular scheme, and we are seeing this with the mandatory renewable energy target and other designer markets, can be quite uncertain. I think the key point here though is that there is clearly significant risk that the proposed scheme is going to be ineffective and inefficient compared to some other things we could do. It is that risk that is the key point. We do not need to know this scheme is going to fail to say that there really is a case to be made for very important change because with climate change failure should not be an option. So it is an assurance issue.

Senator MILNE—If there is a significant risk that it is going to be ineffective in achieving a climate target and inefficient economically and will not drive change, what are the suggested changes that you would make if you were in our position? What would you do to this legislation to make it different?

Dr Betz—The first point, the starting point, is the target. That was also the lesson learnt in Europe: if you have an overallocation there is actually not going to be a market. There will be a zero price so you will have all the transaction costs of monitoring and reporting without any benefit actually as to the atmosphere. As for getting the target wrong, there is quite a high risk. One of the risks is because with the monitoring and the necessary data that you actually need to set this target for the covered sectors there is always some measurement uncertainty. If you allow measurement methodologies to be changed over time, you actually might end up with a much lower emission target than you were thinking just because of a change in measurement.

So I would say a more stringent target is the starting point and then free allocation is the second thing I would change. The main reason is that we have seen, for example, that output related allocation mechanisms will not give you any incentive to reduce your output and you might well end up with windfall profits, especially if you give new entrants free permits based on past benchmarks. So the best of the available technology is most likely to be going to be more efficient than those and so you have already included windfall profits for these companies, which is then difficult to argue in a society while one of these companies, one of the biggest polluters, actually gets some benefit out of this scheme.

The third thing that I would say is about price cap mechanisms. The fear that the price is going to get too high seems to be going through the whole legislation, whereas the fear that the price is not going to be enough to actually drive any change is somehow not really included. As to setting the price cap, I was trying to find out what was the rationale behind the $40 that it was starting with. It is very difficult to get any information. If such figures are set wrongly we will actually not end up with the emission reductions we want to achieve and we might really end up with problems in the budget because the Kyoto target or the future international target is going to be met and then it is going to be met based on buying a certain amount of units or CERs from outside.

Senator MILNE—On the CERs from outside, do you have a cap? You mentioned a cap before. Do you have a recommended cap on those or does it depend on how stringent the target is as to what you think the cap should be?

Dr Betz—That is true. It is of course related. If you are linking internationally, you already have a price cap so the question is: do we need a price cap at all if we have a link to the Kyoto mechanisms?

Dr MacGill—To add to that point in a more general sense, one of the challenges with designing these schemes is that our traditional design approach is: 'What about this setting and now what about this setting?' Whereas in emissions trading they all just interact, so you cannot say that it is a price cap or that we can set this level on this, because everything interrelates: allowance for internationals, price caps, the overall target. So that is part of the design challenge that we face.

To pick up on Regina's points about the importance of the target, the challenge with a weak target is that you are talking about a small change in a large uncertain number, so whenever you do that your proposed change can get swamped by underlying uncertainty so it might do something or it might not. That is disastrous for a market and where you are really trying to

create some certainty and expectation in the market that there is serious change underway and you need to change your operational and investment decisions accordingly.

One of the real problems we face in compensation is the specific issue of the permits, but there is a more general problem for what we want this market to drive. A key thing we are trying to drive is innovation where people look for ways to get their emissions down and make this market into an opportunity. The problem with the compensation debate as it currently appears is that it is a victim debate. I go to Canberra and I am a victim. There is nothing I can do. Unfortunately, as part of victimhood, we are seeing a lot of innovation at the moment, but it is lobbying innovation, and that appears to be where the returns are in the governance arrangements as they currently stand.

The bigger point that comes out of the issues of compensation and targets and so on is that in the end this scheme—and climate policy more generally—succeeds or fails on its ability to create a social consensus where, across the political spectrum and across the community, there is enough of a belief and a view and a consensus that we have to change and that we are meaningful about change and that we are going to manage it in a way which is fair. Fairness will be the critical aspect of social consensus, and having free permits for some folks while the other people get to pay for all the activity goes in the face of the fairness that will be key to establishing consensus.

Senator MILNE—Are you saying auctioning?

CHAIR—You do not believe that a major change in policy that affects somebody's assets and not dealing with that in some way is fair? I noticed that, as part of your submission, you talked about destroying value. I understand what you are saying. I do not necessarily agree with it but I understand the concept that you are putting to us. But one of the fairness issues of sovereign risk is that if a government fundamentally changes the ground rules under which you are playing there should be some mechanism by which you are recompensed for that, and you would expect that in everyday life. If you have a contract with a finance company to do something and they fundamentally change the rules on you, there has to be some form of recompense. We expect that fairness all throughout our process.

I am not saying I do not understand your concepts, but part of the concept of our social society is that sort of thing. For example, our energy demand is projected to double by 2030, which is a significant growth, so while you are talking about destruction of value in achieving some of the things, my question would be: what part does growth of that scale have in this overall process? This morning we heard about the huge demand that is going to come through for additional energy, and that is what is driving China. China is putting in all sorts of different types of energy, and we have heard discussion about that. But they are doing it because they want to lay their hands on any form of energy that they possibly can. Their demand is what is driving it.

Dr MacGill—To pick up on your points, the great challenge of the political process in transformation is the way that consensus gets established among those who potentially benefit and those who are impacted. There is no doubt about that. Having said that, government does things all the time that significantly change the rules, whether it is changes to superannuation or tax brackets. There are a whole lot of things that happen there. The principle of compensation is very problematic in climate change because we have known about this problem and the

challenges for a couple of decades. We have had government commitments to take action for well over a decade. You can imagine people responding to that in different ways. Some people might take the view that there is a change coming. We are going to need to see a carbon price. Emissions trading was being discussed here in Australia in 1998 or even before.

CHAIR—Or back before that, and I understand that as a principle. But when it comes down to the specific rules of the process, which is what we are talking about with the CPRS, we have had the aluminium industry through here ad nauseam. I think we have had three or four representations from them.

Senator MILNE—And the coal industry.

CHAIR—But to use the aluminium industry as an example, they have reduced their emissions and their energy intensity by 50 per cent since 1990. They have other drivers—let us be prepared to put that on the table—but they also understand that this is coming. That does not mean that they do not have issues with the specific rules of the game. And they are investing. I could add up, from the evidence that we have had, billions of dollars that aluminium companies alone have invested in energy efficiency over the last 15 to 18 years. So they have known that it was coming. They have been reacting to it. But when the specific rules of the game place them in a situation where it is difficult, that is where we have the issue that you are talking about.

Dr MacGill—Yes, and as you say they make their points appreciated. There is no easy way around this.

CHAIR—No, that is why we are sitting around the table; and we appreciate what you are saying.

Dr MacGill—Of course. Tackling climate change will involve painful change, particularly for some parties. I think the pain will be widely felt and it is a price that we have to pay, because it is no longer a question of whether we can afford to pay or whatever. Payment is going to be made whether it is through damage from not acting or—

CHAIR—Well it is a fundamental tenet of the process we are going through, isn't it? It is a matter of who feels the pain—when, where and how—and what the impact of that is will drive the change in behaviour.

Dr MacGill—Let us consider the principle of compensation—the idea that an unreasonable imposition is being imposed. It is not an unreasonable imposition for governments to act to protect our future. That is not an unreasonable imposition. In terms of the specifics of transformation, it is going to be very industry specific. So for aluminium, particularly aluminium smelting, we have to ask the question: is Australia the right place to do aluminium smelting? It is extremely electricity intensive and as it stands our electricity options revolve around coal, black and brown. Whereas in other countries the smelting of aluminium is done off renewable power sources such as hydro, geothermal, gas-fired generation and so on—and that is where the smelting industry is moving anyway. There is no escaping that question—in a globally carbon constrained world as it stands and without the technologies that may or may not appear—is this the right place to smelt aluminium? There are jobs and investment issues there, but that is the sort of question that we have to ask if we are serious about addressing climate change.

CHAIR—It is a good question. We can go to the example of Rio Tinto. They set up in Tasmania because years ago there was cheap energy based on hydro but now because Tasmania is connected to the national electricity grid they are rated on a one-to-one basis as far as emissions goes based on the calculations under this process. So there is a raft of decisions that come right through this whole process that have to be taken into account. We are the bunnies who are dealing with that, with the assistance of evidence from people like you.

Senator MILNE—There are legacy issues as well that are not being taken into account on the issue of compensation. The coal-fired polluters have given us the problem and profited from it.

CHAIR—So has the Australian economy and the Australian taxpayer.

Senator PRATT—I wanted to ask about stranded assets and the capacity for industry to transition where viable and how we set those thresholds. I also want to ask about jobs and innovation and employment. Could you comment on both those questions.

Dr Betz—Picking up on your second question, I think what happens when an economy is in the process of transformation is that you will of course lose jobs on the one hand in the emissions-intensive industries—but there are also a lot of opportunities in areas we are going to move into like renewable energies. There will be substitution effects in everything. If there is nothing preventing the price signal going through in the right way then you will actually get these substitution effects which we would like to see and you will get jobs moving into the area of low emission technologies and low emission products. So I see it as a way of transforming. This will take time and we will have not only job losses but also job gains in other areas. The question is: how can the government actually support this transformation? My view is that free permits based on output might not be the best way. Maybe the money should be used as for example Professor Garnaut was suggesting in the area of coal production and used in another way to help the community to adapt and find other ways in what they actually can do.

CHAIR—Structural adjustment.

Dr Betz—Yes.

Dr MacGill—If I might make just one additional comment on stranded assets, the term itself is a little unusual. If we look at an industry such as integrated circuit manufacture, you build your factory and a couple of years later it is obsolete. Is it a stranded asset? No, it is just that competition means that you have to continue to invest or else you become uncompetitive.

CHAIR—But you understand that when you build the asset and you cycle that cost into your costs. These are assets that have a life of 30, 40 or 50 years so we are talking about making a change during the life of the asset. If the manufacturer of the circuitry had a change in circumstances halfway through the life of the factory that was building that circuitry then they too would be in the situation as is being put to us now. That is the point of the discussion.

Senator PRATT—Can I ask in the context of stranded assets, the prospect of becoming a stranded asset becomes more likely the longer we delay taking action, doesn't it?

Dr MacGill—I am not quite sure what you mean.

Senator PRATT—Well, say hypothetically you are a reasonably high-emitting asset then ideally you want the whole world to come to an agreement early in the piece so that the playing field is level, and that is your best chance of surviving. Clearly that is our goal. If there is too much inaction by Australia or the global community as a whole and we end up not abating our emissions and we have to take very steep cuts in the future then your likelihood of becoming a stranded asset because you are an emitter becomes greater under that scenario, doesn't it?

Dr Betz—Yes, we can see this now with General Motors. We see that they have maybe been investing in the wrong cars in the past. We have seen that if the worldwide demand drops for their specific type of car then they get into trouble. So being ready early and seeing the transformation happen is better than being too late.

Senator PRATT—If the energy revolution is the next Industrial Revolution—and clearly the Industrial Revolution initially was about energy coming on line and therefore changing manufacturing—how do we make sure that we are part of the future rather than the past?

Dr MacGill—I might actually use the example of the Industrial Revolution. It is an interesting example as obviously there were many things going on there. Part of what drove England's transition to coal was that it was one of the first countries to start running out of wood as they removed their forests. One view of that says: 'Poor, unfortunate England; it has run out of wood where other countries haven't. It is now at a competitive disadvantage.' But in looking for solutions they actually found a way that made them really the world's superpower for a century or more following that. So with challenge comes opportunity. You can imagine perhaps a bit of victimhood there at that time, but there was also this pressing need that drove opportunities for innovation and so forth.

Senator PRATT—It was a shame for England's biodiversity.

Dr MacGill—I totally agree. And we discover what coal really means 200 years later. So this is part of the process of change. That is the sort of framework we are talking about if we believe an energy revolution is something required if we want to protect the climate—and it certainly seems to be. Revolutions—

Dr Betz—Are what we need to look at.

Dr MacGill—Absolutely.

CHAIR—I will take us back to earlier in your discussion when you were talking about the capacity to correct mistakes. A number of us come at this from different directions. There are different perspectives about issues with the current CPRS. We have discussed the targets, which some people have a strong issue about. They are locked in until 2020. And there are a raft of other measures within the scheme that have this life that is locked in by the legislation.

You made a comment earlier about the capacity to correct mistakes. I would be interested in your views on that. You did mention the possibility of a pilot phase—that is not something I am suggesting, but it is something that I picked up from your comments. But how do we as a parliament voting on this in a short time deal with the capacity, or create the capacity, to correct

those issues that are locked in for a very long time frame as part of this process? I would be interested in your views on that.

Dr MacGill—The first point is that that certainly reflects a set of challenges which I do not feel our centre has particular expertise in. We do not have a political science aspect.

CHAIR—It reflects other comments that have been made to us. Your comments are not isolated. The issue of the inflexibility of the scheme has been raised with us before. Since, in raising it, you mentioned the possibility of a phased process or a pilot process, I thought you might have given it some more consideration.

Dr MacGill—I am not saying we have not given it consideration; it is just the basis from which we are about to speak.

CHAIR—Okay.

Dr MacGill—This is not a new issue. Governments change rules in a whole range of areas, and that has impacts on participants. The particular challenge we face here, of course, is that we bring a market into a place where there has been no market, and so there is no set of underlying understandings like, for example, 'This is how tax has been done for however many thousand years,' since our first tax collectors and so on. So it does raise particular challenges for this question of balancing investor certainty against the ability to change, and that balance will be difficult to set. I think the key context we need to apply here is the challenge that we face, given what looks to be the need for very significant change to be driven very rapidly. The idea of a very modest level of action with a great deal of investor certainty is not the right mix.

Senator PRATT—We have got a lot of interests trying to protect themselves from the effects of such a change. We know that the energy revolution has to come at some point in the future because of that looming carbon constraint. Where does that leave Australia in terms of our competitiveness advantage with the rest of the world, if we are too restrained in keeping up with that emerging energy revolution? If there are too many vested interests, which means that we do not get that transformative effect, what is the potential for us being left behind?

Dr MacGill—I might make a general comment, and then perhaps Dr Betz will want to add something. Of course, one of the great political challenges is to create new opportunities. You have a set of existing players, who are often quite comfortable where they are, and what you are offering against that is some new, open opportunity. So it is existing jobs in current industries versus the potential for green future jobs, and one obviously feels far more pressing than the other. But it is that sort of farsighted leadership which is the key to good political leadership in times such as these—the ability to get beyond the very pressing, immediate sets of challenges and have a vision for creating this—

Senator PRATT—And owing to—sorry; please finish.

Dr MacGill—Clearly, we are at risk. We shall see how things evolve in the US, but clearly their positioning, which their leadership there is taking, is that—

Senator PRATT—Just lastly, because I know we need to finish, economic modelling has not really dealt with that transformative effect, that inevitable innovation—the fact that the most profit will ultimately come from being at the head of whatever is going to be profitable next rather than what is profitable now. Really, we have just modelled our existing industries. Is that right?

Dr Betz—Yes. That is one of the problems, and what we saw, for example, in Europe is that many of the innovations which are happening, such as the reductions that came from moving from brown coal to black coal, were not modelled before. This was not modelled before. Coal was modelled as coal; this kind of switch was not included in the models, but this is what happened in reality. So this is just an example to show you that it is very difficult to model what is going to happen, especially with innovations we do not know about yet. These models will always be more conservative in a way and model the costs as being higher than they might be, because the innovation is not captured properly.

I want to add something to my answer to the earlier question: what do we see as ways into a pilot phase or something like that? The price cap, for example, for the first five years is something that, in my view, was put in to have some kind of trial first without leaving the price fluctuating too much. But it needs to be driven up much quicker because it has these negative implications. The other question is: could it also include a price floor? For example, as I said before, with this uncertainty about the measurement and setting the cap at the right level, could we say there is a price floor? And if we auction and we find out that the price would go below it, can we then cancel those permits or keep them for the future when the price is higher or something like that? Managing it in a way that will also give certainty to the people who want to invest in the change might be something necessary for such a learning period.

CHAIR—We are out of time. Thank you very much for your time this afternoon. We do appreciate it. I do not think there are any questions on notice, so you do not have to worry about that.

Dr Betz—Thank you.

[2.02 pm]

JACKSON, Mr Erwin Kenneth, Director, Policy and Research, The Climate Institute

CHAIR—Good afternoon, Mr Jackson. I invite you to make an opening statement.

Mr Jackson—Thank you for the opportunity to appear today and relay some of The Climate Institute's views on the nature of climate policy in Australia. Overall, I want to focus on three key messages. One is that an effective and strong policy package on climate change can produce double dividends. It can produce an effective global agreement, which is in Australia's interest, and an Australian economy prospering in a carbon-constrained world. The second one is that an effective CPRS can be a strong foundation, but by itself it is insufficient to drive the investment in clean energy and low-carbon industries available now in the emerging low-carbon economy. Australia also faces a fundamental choice, which is the third point. It can delay effective climate policy and be caught once again in the slipstream of global action, or it can join global efforts and reap the benefits that stem from that action.

An emissions trading scheme in itself is an important tool in the response to climate change. Without an economy-wide signal, it is unlikely that Australia can achieve the targets that are consistent with the stated national interests of achieving 450 parts per million equivalent or below. However, on its own it will not help drive the rapid investment in low-carbon jobs or deliver what is in Australia's interests in terms of global emission reductions. Achieving low-cost abatement in covered sectors and achieving emissions in those sectors that are not effectively addressed under the current design of the CPRS will rely on strong, well-financed complementary measures in addition to an effective emissions trading system. Most of these complementary measures will be interim policies, but they will be needed to implement the transition to a low-carbon economy in a timely, low-risk and cost effective manner.

In particular, we need policies to ensure that we have a broad range of low emission technologies commercially deployed by 2020. We need a strong national energy efficiency strategy. We need investments in public transport and urban design. We need early introduction of additional policy measures targeted at emissions from the agricultural sector, and we need financial regulations to enhance reporting of climate change rich and risk management portfolios. In this context we note the announcement by COAG yesterday and the solid steps that are being taken to implement the government's expanded renewable energy target and initial policies in the National Energy Efficiency Strategy. We see this as a very welcome and solid start towards stimulating billions of dollars of investment and creating thousands of new jobs in renewable energy and energy efficiency. COAG's announcements of yesterday, if they can be enhanced and implemented, will provide that good start to a low-carbon recovery.

In that context I want to note that there is actually growing momentum globally recognising that the current economic crisis provides an opportunity to build low-carbon industries and jobs that would be an integral part of a global economic recovery. At the global level this has been well recognised by many governments as well as business groups such as the World Economic Forum. For example, many countries are already placing low-carbon recovery at the heart of their economic stimulus packages. Generous assessment suggests around 23 per cent or US$430

billion of recent stimulus expenditure and financial guarantees has been committed to low-carbon infrastructure and investments. This does not include recent additional announcements from countries like the UK. That said, there has been significant regional variation between countries on this. With China, for example, it has been estimated that around a third of their stimulus packages have been directed towards low-carbon or green measures, while Australia sits in the middle of the pack with its initial stimulus at around nine per cent.

Yesterday's announcements on the renewable energy target and the foundations for the National Energy Efficiency Strategy in our view would, along with an effective—and I say 'effective'—CPRS and an enhanced research and development into new low-emission technologies, position Australia as a country prepared to reap the benefits of a low-emission recovery.

In the context, our view is that the failure to pass effective CPRS legislation this year and delay further action on climate change would be economically irresponsible for four main reasons. Firstly, the economy will eventually grow out of its recent and current turmoil and new jobs and investments in economic activity will be generated. Now is exactly the time to ensure that these new jobs and investments are in industries that will have competitive advantages in a carbon constrained world. Conversely, if we move out of the short-term economic downturn and the investments continue to prop up highly polluting and highly inefficient industries, governments will just compound future economic costs.

Secondly, uncertainty in the face of the government's response to climate change also makes investment difficult and underscores the importance of rapid introduction of effective climate change policies. The signals that government's send to markets at this time will be critical to driving long-term, low-carbon infrastructure investment—it is not just low-carbon investment, it is actually any investment in the electricity sector. In this context we note the conclusions of the former government's task group on emissions trading, which concluded that waiting until a truly global response emerges before imposing an emissions cap would place costs on Australia by increasing business uncertainty and by delays to or loss of investment.

Thirdly, the failure to promote energy efficiency in fuel and modal switching will expose the economy and vulnerable communities to higher energy costs at a later date as the demand for oil and other energy commodities increases when economies start to grow again.

Fourth, if Australia delays passing effective—and I stress the word 'effective'—legislation this year it will send a damaging signal to other countries that the current financial crisis is a reason to delay. This would further reduce Australia's ability to influence a global deal that meets the national interest.

While the Climate Institute believes that the exposure draft of the legislation provides a strong framework, which has avoided some of the mistakes made in other jurisdictions, at the moment the Climate Institute cannot support the legislation in its current form. We do not support the notion that any legislation is better than none or the notion that we cannot commit to targets until we have fully developed mechanisms. Other countries will have noticed that there is now bipartisan support for the current targets and indeed the speculation, at least from the Liberals, that they will be aiming for stronger targets.

For the above four reasons we would strongly prefer the passage of an effective and well-targeted legislation and we look to the government and the senators to improve the legislative framework. To help achieve the double dividend I referred earlier to an effective global agreement and an Australian economy prospering in a carbon-constrained world. In our view the key changes necessary are: stronger targets calibrated to the global agreement that sits with Australia's national interest of at least 25 per cent below 1990 levels by 2020—this would be Australia's contribution to a global effort that involves fair and comparable effort across all countries—stronger conditions on industries that receive assistance or free permits, which require them to demonstrate and achieve higher standards of energy efficiency and carbon productivity; clear and independent reporting of real and proxy carbon prices in competitive countries through emissions trading systems, other carbon policies or regulatory measures such as energy efficiency or renewable energy and an independent assessment of EITEI assistance as soon as a new global agreement is reached; deduction and dedication of a greater amount of permit revenue to low-emission technologies here and abroad, plus the funding of adaptation in developing countries, which will absolutely be critical in achieving an effective global deal. We will not get an effective global deal unless developed countries put on the table financing for developing countries. Without these and similar amendments we risk poisoning global ambition and rusting the Australian economy onto a highly polluting and inefficient base and burdening the broader economy with unnecessary shielding of trade-exposed industries.

Finally, I want to make a few observations on the current debate in Australia from the perspective of someone who spends quite a bit of time at international meetings that examine global climate policy. Many in Australia have concentrated too much on Australia as if it were a fishbowl. We are not. The role we play, and the role that the global systems will play, will have a very big impact not only on our national interests but on our economy and our lives. The main point here is that the 'low-carbon economy train' is already leaving the station. The speed at which it heads off is up for grabs at the moment, but it is leaving nonetheless. Countries which currently do not have obligations to reduce emissions under Kyoto are moving forward with emissions trading systems or considering similar policies. Notably, this includes the United States and advanced developing countries such as Mexico, South Korea and South Africa. Over 50 countries have now implemented policies to drive the development of renewable energy. This includes China, India and many other developing countries. As a result, in 2007, one-third of new electricity capacity installed globally was renewable energy capacity.

The International Energy Agency, not known for its wild statements, has described this as the beginning of the clean energy revolution. For years, Australia has largely been sitting on the fence and hoping to either free-ride on global action or catch up at a later date by importing Chinese manufactured wind turbines. As a result we have lost ground, intellectual capacity, jobs and investment to other countries that are prepared to drive new industries and wealth creation opportunities.

With the introduction of the CPRS into the Senate and the development of other national policies which are currently being discussed at COAG, among other places, we have the opportunity to catch up and put in place policies that will position our economy today for the low-carbon inevitability of tomorrow. The costs of climate change are upon us now, as are the jobs and the economic opportunities of climate action.

CHAIR—Thank you very much. I think I need to pull you up by one point. You might be a little premature in suggesting that there is bipartisan support for the targets.

Senator MILNE—I was shocked.

CHAIR—I was a little surprised to hear that. I think that is slightly premature.

Senator PRATT—What target would you suggest?

CHAIR—I am not going to be premature either! Mr Jackson, if some of my other colleagues had been here it might have been a bit difficult for you to finish your presentation! There is discussion about what could be achieved, particularly given some complementary measures. I understand why you might have come to your assumption, but I cannot let it go by without challenging it in a formal sense because it is certainly not on the table at this time. At the beginning of your presentation you spoke about the CPRS being strong and effective. That is effectively what you said, but you said you cannot support it passing in its current form. There is a suggestion that, if it does not get passed now, it may not get passed for a long, long time—and that is not necessarily something I support. It was put to us very early in our hearings that we ought to consider waiting until Copenhagen has been finalised and then take a stab at it once we have a better sense of what has come out of that process. Can you give us your perspective on that.

Mr Jackson—What Australia does at home matters internationally. People look at us very closely. I think it would be wrong to characterise Australia as a non-player in the international talks. What we are doing here is being closely watched in the United States in terms of the emissions trading design and features that we have here.

CHAIR—You said that you are on the international stage. Can you give us a sense of the timetable that might be occurring, particularly with what the United States are doing.

Mr Jackson—I will finish my answer and then I will go on to that. We have said that we think it is important that we get an effective piece of legislation through this year because, given our vulnerability to climate change and our economic vulnerability to the impact on the region, it is in our interests to move to get a good global agreement. If we are seen to be squibbing, that will reduce the level of ambition from other countries. My feeling from the international stage at the moment is that, because of the lower level of ambition that Australia and other countries have put on the table, China and industry are feeling fairly comfortable at the moment. They are not feeling any pressure on them to go further than they are already going. They are putting in place substantial policies but they are not feeling any pressure to go further.

In terms of the United States, there are two trains of thought. Firstly, they may have legislation through this year. But the broad view is that we probably do not want them to do that. The last thing we need is the US walking into an international negotiation with their position already sorted out—

CHAIR—A fixed position.

Mr Jackson—A fixed position—because then we will not be able to negotiate. But the indications are that we will start to see by the end of this year at least a very strong Senate debate on the US cap-and-trade system. I think the other interesting thing about the US system is that all of the things that are coming forward are becoming more ambitious, not getting weaker.

Senator MILNE—Just as a clarity issue, Mr Jackson, you said that the last thing we would want is the US turning up and saying, 'This is what we have agreed and that is it; you either agree with us or go away'. Isn't that exactly what Australia is doing by putting 15 per cent as a maximum position locked in to 2020? Isn't that what we are doing for the umbrella group that we are chairing—actually saying, 'It does not matter what you all do'? Isn't that lack of ambition considerably unhelpful, and how is it being regarded by the developing world? It essentially means that if the rest of the world took the same position, there would be no carbon budget for them to develop. There was an editorial this week saying that China thought that Annex 1 should do 40 per cent. That has been China's position for some time. I am interested in what people are thinking about Australia locking in a really low target and what that will do to the negotiations in terms of those issues I mentioned.

Mr Jackson—The sense that I get from Australia at the international meetings is that it is feeding a lower level of ambition by what it is saying.

Senator MILNE—Yes.

Mr Jackson—You have Australia stand up and say, '450 or lower is in our national interest,' and then we have a 15 per cent target as our maximum—

Senator MILNE—Yes, it is a credibility issue.

Mr Jackson—and the two things do not add up together. So what Australia is effectively saying is, 'We want this kind of agreement, which is 450 or lower, but we are going to freeride on global action to get that agreement until 2020', and it does not wash with many countries. That is why we think it is absolutely critical that Australia puts on the table at least a 25 per cent target in the upper end of its range as part of a global effort so it signals that it is actually willing to play its fair share in an effective global agreement.

In terms of how developing countries, and indeed other developed countries, are perceiving it, it is a mixed bag. But, in terms of some of our key strategic allies, I think it is fair to say that it has not gone down very well. There are behind the scenes comments around Australia having given up its moral and other advantages gained by signing Kyoto—that it has actually given up. We are not necessarily seen in some quarters as a key regional partner to delivering the bridging role that Australia could play between developed and developing countries.

Senator MILNE—To go on to another issue, you mentioned the compensation provisions, but you were speaking quite quickly, so I got a bit behind. Our last witnesses, and many other people, have pointed out that the level of compensation both to the coal industry for its assets and to the energy intensive trade-exposed, now compounded by the RET, is actually driving the system to be ineffective as far as the climate goes and economically inefficient and not driving the transition. You said something about reviewing the compensation arrangements after two years or something. There clearly is no provision for that in the bill. Would you like to articulate

how you would see that process going, given that any review of this is down to ministerial discretion and also given that, the way it is currently written, everything is locked in until 2020? So we are not talking about being able to make this now. People are saying, 'Let's get started and we will change it as we go', but my reading of it says that you cannot change it as it currently stands. We are stuck with what we have got for a long time.

CHAIR—If you do try, you are stuck with the same arguments that we are having now about stranding assets—

Senator MILNE—Yes, and about compensation.

CHAIR—and changing rules and compensation and things of that nature.

Mr Jackson—I just want to make an observation—and I will come to your question, Senator—that I picked up from the last discussion that we just had. We talk a lot about stranded assets and impacts in Australia. The issue is not what Australia does; it is what the world does. This is the fundamental issue, and this is why we are in some respects focused on making sure that there are appropriate review mechanisms and other things associated with it. There are a few other things we would like to see with the EITE assistance, but in terms of review and the governance structure we want to make sure that as soon as we have a new global agreement that we review the EITE assistance so that we are not unnecessarily handing over billions of dollars of free permits to industries when we actually do not need to anymore.

If you have an agreement anywhere near Australia's national interest, you will have very significant action in China and in South Africa et cetera. Our biggest criticism of the EITE assistance to an extent to date is that the government has not done that yet. We have South Africa about to implement a carbon tax. BHP operates in Australia and South Africa. Where is the assessment of the relative impact at a global level? We have China changing its VAT rules at the moment and are favouring making sure that its cement and steel industries are sending those products into its domestic market and not exporting them. The World Resources Institute has suggested that is the equivalent of a $50 a ton carbon tax in China.

Senator PRATT—So those companies that are saying that we are the only ones contemplating doing anything—

Mr Jackson—We are catching up.

Senator PRATT—They have said that time and time again. How do we draw that out and make sure that we recognise that playing field and whether it is level or not?

Mr Jackson—Every year we have suggested either something like a regular independent review or the Productivity Commission review what is happening with real and proxy shadow prices in other countries so we can have some transparency in how this is actually occurring. At the moment there is no transparency about who is receiving free permits and who is not. It is up to political arbitrariness, in a sense; whoever squeals the most gets the most money.

Senator MILNE—But they would then say that you are not giving them any certainty, that you are giving them X amount of free permits when the scheme starts and then in 2012 or 2014

you are going to take away half of those because suddenly you have decided that they are not as exposed to trade as they had claimed. Are they not going to want massive compensation payouts for you taking that away in that context? We have to change that in the legislation so you do not have to pay them.

Mr Jackson—I am not convinced that you do have to pay them.

Senator MILNE—I do not want to have to pay them, but the legislation as it currently stands would have you paying them.

Mr Jackson—This is why we suggest that as soon as there is a new agreement you do a review of the EITE's assistance to pull it off as soon as you can.

Senator PRATT—So rather than having it phase out over time, it is reactive to what is going on?

Mr Jackson—All the EITE assistance as it stands at the moment is set up to deal with the unilateral target. It assumes that Australia moves ahead of the rest of the word; that is how the system has been designed. Australia will not get a five per cent target.

CHAIR—Does it assume that it moves ahead of the rest of the world?

Mr Jackson—It is built around protection around the five per cent target.

Senator PRATT—That is right.

CHAIR—But it also assumes, particularly in the modelling, that everyone else goes through on certain time scales.

Mr Jackson—There is a difference between the modelling and the policy design.

CHAIR—I understand that only too well.

Senator MILNE—To get this very clear, let us assume for argument's sake the bill was passed this year with the compensation provisions that are in it. The energy-intensive trade-exposed assistance is to shield them from what a five per cent target would do compared with the rest of the world. Let us assume that in December the world reaches a global agreement and everybody signs onto it. We already have a bill in place that says what the energy-intensive trade-exposed are going to get for five years. Under the current circumstances, it is not the case that if we took away those provisions because we have now reached a global agreement they would still be arguing as it currently stands because we legislated for it?

Mr Jackson—What would happen is that, because there would not be a review until 2014 and you get five years to keep the assistance after the review, you are locking that assistance in till 2019 or 2020. We are suggesting that as soon as there is a new agreement in place or agreed you do a review then and lock that into the legislation now. On your point about transparency, I think business would want the transparency, but they want it for a different reason. They want it to make sure that it is not pulled off arbitrarily. It is in everyone's interest to make sure that there is

transparency in how the EITE assistance works. The other point about EITE assistance is that one of the key issues here is that, if we are going to build an effective response to climate change as the previous speakers were talking about, we need social consensus. EITE assistance reduces that consensus and it reduces the political support for the system, so the more transparency, the better.

Senator MILNE—I take it you are saying that you write into the bill a thing that says, 'If there is a global agreement the EITE assistance is immediately reviewed and,' blah blah.

Mr Jackson—And you independently set up an independent mechanism, whether it be the Productivity Commission or an independent review, to start to collate and build the methodologies that you are going to need to review that assistance.

Senator MILNE—The second thing is you did not mention the coal industry, who are arguing that they should have their stranded assets recognised and get a cash payment.

Mr Jackson—You mean the generators?

Senator MILNE—Yes, the generators. They also say they still support this issue of not going to 100 per cent auctioning and so on. Can you tell me what your view is of paying the coal generators for loss of capital asset value and also what your view is of auctioning?

Mr Jackson—What we said in our submission on the green paper was that, whether or not you agree to give them anything, if you are doing that it has to be one-off and it has to be once and for all. The other critical point that we made was that you cannot just do this and not expect anything back. Part of the problem that we have with all the compensation and structural adjustment packages at the moment is that there is a risk that they support existing industries without requiring them to clean up their own acts. So we suggested in our submission to the green paper that you either create conditions, which I appreciate is not as economically efficient as not creating conditions, or your create a compact with the industry where they all contribute to RD&D and deployment of these new technologies that we are going to need. That would be our preferred way to deal with it.

The other point to make is that we have done lots of modelling on the electricity sector using one of Australia's leading economic energy sector modellers and we do not find that they have any transitional problems, even in achieving fairly significant cuts in emissions. But the danger is, and my perception from the industry is, that they have, like us, at the time relied on the modelling of just the electricity sector, totally ignoring the fact that the emissions trading system will operate not only in a national context but in an international context and that some of the issues they may be worried about may be dealt with by the fact that they could do less because other parts of the economy are doing more or importing international permits.

Senator PRATT—I want to ask about baseline and credit schemes. I understand you have done some work on that. We clearly have a different proposal before us, but there has been a lot of debate about alternatives—attempts to divert our agenda and put other models together. Can I get you to make some comments about that.

CHAIR—So other opinions are out, are they?

Mr Jackson—I will make a general comment. I do find it fascinating, in some respects, that we are actually debating the relative merits of emissions trading versus taxes versus baseline and credits, given we actually had a very robust carbon tax debate in the early nineties and it was knocked on the head. On the baseline and credit issue, we commissioned MMA to look at this. I have also been talking to Canadian colleagues who have had some experience in dealing with what has been discussed in Canada. I have a few observations. One is that, as the previous speakers talked about, that kind of model does not promote reductions in output; therefore, you are not necessarily getting the full extent of the changes that you want in the economy.

The other point, which I am probably most concerned about, is that it potentially creates a system which is more uncertain in terms of meeting your international obligation. We are going to have an international obligation unless the government decides not to ratify the next agreement, and if you have a system which is based on baseline and credit you have less certainty that you are actually going to achieve that international obligation, which means one of two things—that you are non-compliant and then the taxpayer has to buy international permits or that you are non-compliant and you walk away from the international agreement, which is effectively what Canada has done. Those things weaken the global architecture and weaken the global consensus, which is not in Australia's interest. The other point is that it is incredibly administratively complex and very arbitrary in terms of how you set the baselines.

Senator PRATT—Can I ask you what that administrative complexity is based on, because there are others who have argued that it is in fact more simple and cheaper. If you could unpack that a little bit for us that would be good.

Mr Jackson—On the cheaper question, I find this fascinating because I cannot see where the free lunch is. If you get lower wholesale prices, someone has to pay for the renewable energy, or whatever you are getting, somewhere. So it is either going to be felt in the retail prices—

CHAIR—I think the argument is more that it flattens out rather than being cheaper. It actually flattens out some of the lumps and bumps. That is the argument. I hope I am not misquoting Senator Xenophon. He is obviously one who has an interest in this, and the point that he has been putting, particularly in the last few days, is that Canada is perhaps moving away from that as a scheme but looking at it as a transitional measure, as is the US also, perhaps. With your international experience you might be able to inform us more about that.

Mr Jackson—My view on the Canadian proposal is that it is dead, effectively. My interaction with the Canadian government officials and my Canadian colleagues is that the Canadians are now basically waiting to see what the US does before they do anything. If the US moves to cap and trade they will do everything they can to be part of that cap-and-trade system. So in effect it is now about to be relegated to the dustbin of history.

CHAIR—So the concept of it being used in the US as a transitional measure is where a lot of the angst in all of this process comes from—how you transition from one type of economy to another and the dislocation that is caused in some sectors to others. None of the modelling can pick that up because you do not know where the new stuff is going to be. You might have some sense of where the old stuff is going to go, but then of course other anomalies—as we have discovered through this process—pop up that nobody expected or had not been considered. That is not something that is part of the process?

Mr Jackson—No. The Waxman-Markey bill probably gives you the best indication of where the US is heading at the moment—and I noticed Todd Stern's comments overnight drawing attention to the fact that the White House is distancing itself from that bill and actually using it in the conversation that it has at a global level—and it is clearly a cap-and-trade system. There are lots of uncertainties around how they are going to deal with the structural adjustment issues. They have left those open, I think purposely and politically, which creates inflexibility in their domestic debate. But I cannot see a baseline and credit system gaining much traction in any country. I might be wrong but, certainly from the experience that we are having at a global level at the moment, it is going towards cap and trade, largely because of the certainty it creates around meeting your targets.

CHAIR—Thank you, Mr Jackson. Apart from our disagreement over the coalition's policy on targets, it has been very helpful.

Mr Jackson—I will leave that to your party room discussions!

CHAIR—I will have a talk to Andrew and Malcolm later! Thanks very much for your evidence this afternoon; we appreciate it very much.

Proceedings suspended from 2.31 pm to 2.43 pm

BAMSEY, Mr Howard, Deputy Secretary and Special Envoy, Department of Climate Change

CARRUTHERS, Mr Ian, First Assistant Secretary, Adaptation and Land Management Division, Department of Climate Change

COMLEY, Mr Blair, Deputy Secretary, Department of Climate Change

FRENCH, Mr Steve, General Manager, Industry, Environment and Defence Division, Department of the Treasury

HATFIELD-DODDS, Dr Steve, Assistant Secretary, Analysis Projects Branch, Department of Climate Change

LAURIE, Ms Kirsty, Senior Adviser, Energy and Greenhouse Policy Unit, Industry, Environment and Defence Division, Department of the Treasury

OWEN-JONES, Mr Robert Anton, Assistant Secretary, Multilateral Negotiations Branch, Department of Climate Change

QUINN, Ms Meghan, Manager, Climate Change Modelling Unit, Industry, Environment and Defence Division, Department of the Treasury

CHAIR—Welcome, everybody, to the final session roundtable discussion of our great adventure over the last three weeks. I am not sure that we need any specific opening statements so we might just launch into some issues that we have picked up as part of the process over the last three weeks and some issues that we would like you to deal with. I notice that Mr Carruthers is in the back of the room. I wrote your name down this morning when there was a question put on notice by Senator Heffernan. Has that message been passed forward and do we have an answer to that—as an opening gambit?

Mr Carruthers—There should be some information. It is about the US legislation and agricultural offsets.

CHAIR—That is what it was—whether the US were having their offsets in and their emissions not accounted for.

Mr Bamsey—Before we respond to that, I apologise on behalf of Martin Parkinson, our secretary, that he was unable to be here. He had intended to but was called away on urgent business. He had prepared an opening statement.

CHAIR—If you have something you want to put on the record, we are fine with that.

Mr Bamsey—I am happy to do so.

CHAIR—Go for your life. Then we will start on you!

Senator MILNE—We do not have much time.

Senator PRATT—I would like to get a couple of questions in before I have to leave.

CHAIR—Okay.

Mr Bamsey—I am happy to table it to save time, if that would suit you.

CHAIR—Is everyone happy with that?

Senator PRATT—Yes, that would be fine. It would be great if we could grab a copy so we can ask questions on it.

CHAIR—If you could provide a copy to the secretariat so they can slip it to us so we can start on that process. Thanks very much, Mr Bamsey. Mr Comley—Senator Heffernan's question.

Mr Comley—I believe the question relates to the Waxman-Markey bill in the US, which, as you know, is still in the early stages of legislative development in the US. My understanding is that the intention is that, for the agricultural sector, there will be offsets available which can be sold back into the main cap-and-trade scheme covered by the Waxman-Markey bill.

CHAIR—What is the process under which that might occur? Given the constraints that we are aware of through this process with respect to accounting rules, do you have any sense of what those offsets might be and how they might work?

Mr Comley—At the moment they have not specified the nature of those offsets, as I understand it. Part of the reason for that is the Waxman-Markey bill is very much framework legislation, with the US intending to develop regulations that support that bill and provide that sort of detail. The other thing that is probably worth noting is, because the US have not ratified the Kyoto protocol, they are not subject to the same constraints in needing to align with the international accounting to meet their Kyoto obligations.

CHAIR—Do you have any sense of what the time lines might be in this process?

Mr Comley—Mr Bamsey might also want to comment, but I was in the US a few weeks ago and the intention of Chairman Waxman was that the bill would come out of the full committee by Memorial Day, which is 25 May. There is not full agreement of the committee but, if the committee agrees to it, it can go to the house of representatives floor, and then it would have to proceed through the rest of their legislative process. So there is still quite a way to go in the US before that would appear, and I think any observers of the US system would say that is a proposal but there are likely to be other bills that come forward, and that would modify any final form of legislation in the US. Mr Bamsey may want to comment.

Mr Bamsey—I do not have much more to add. The usual practice in these sorts of matters in the US appears to be that a bill will develop in the house or the senate and be debated and probably voted on, and then there would be a conference between both houses and something would emerge from that conference. If that is the picture, we are still in the very first stages of action.

CHAIR—Do you have any sense how the timeline and end date of their legislative process might align with Copenhagen?

Mr Comley—My understanding is that it is unclear whether it will be finalised before Copenhagen.

CHAIR—So their final legislative process may well be informed by what happens at Copenhagen. They might very well take a position as a country to Copenhagen, but their final legislative process may very well be determined or informed by what happens at that forum.

Mr Comley—That is possible, or it is possible that it occurs before Copenhagen. It is unclear at this stage.

CHAIR—I understand that.

Senator HEFFERNAN—Will anyone at Copenhagen care, by the time you get there, whether agriculture is in or out?

Mr Comley—Mr Bamsey may want to comment on this issue. I think that the primary focus on Copenhagen will be more a question of what the total commitment of a developed country is in terms of emissions reductions over a period. There will also be significant interest in the accounting rules that contribute to that. The interest in whether—if you are asking—a specific sector is within a particular domestic policy response, I think—

Senator HEFFERNAN—I am referring to energy and food.

Mr Comley—In terms of emissions, it depends on country to country—

Senator HEFFERNAN—But the two big global models which concern human beings for the future are energy and tucker—food modelling and energy modelling. Where is the food modelling in all of this?

Mr Comley—The international agreements require that the emissions associated with the food production are included in the accounts for a particular country—

Senator HEFFERNAN—All very well and good, but if the food task is going to double in the next 40 years, and two-thirds of the productive land of Asia, where two-thirds of the world's population live, is going to go out of production, shouldn't we be modelling that in terms of whether agriculture is in or out? As you know, Mr Bamsey, the US is giving consideration to being in on the credit side and out on the debit side. Would you like to comment on that?

CHAIR—Senator Heffernan, we did just deal with that as you were coming in. We asked the question that you asked us to ask earlier in the day.

Senator HEFFERNAN—And was the answer yes or no?

CHAIR—It is being considered, as you have said. We have got senators who need to leave on time frames, and I want to go to—

Senator HEFFERNAN—I am here for the duration, so could I ask those questions when everyone else has left?

CHAIR—We can come back to that perhaps later on, but I want to go to Senator Pratt, who has the most immediate priority.

Senator PRATT—Thank you. I want to ask about carbon leakage and the experience of other countries—for example, the European Union—as they established their scheme. they had to make a whole lot of concessions in order to prevent that. We have had industry come to this committee and tell us that we have not done enough to prevent carbon leakage. Clearly it will be in their interests to get as much as they can out of the government to secure their position. We in response need to make sure that what we actually have is a balanced framework that does not overcompensate and still has that transformative effect. How can you reassure us about whether we have got that balance right or not?

Mr Comley—Senator, perhaps I will make a few opening comments and then my Treasury colleagues can add to them, because the Treasury modelling looked at the question of carbon leakage. The overarching comment is that the government, through the scheme, has put in place the emissions-intensive trade-exposed assistance. I think it is important to point out that that assistance actually has two objectives. One is pure carbon leakage and the other is transitional assistance. In previous evidence that I and the department have provided to Senate committees, we have made the comment that in some cases the amount of assistance provided would not have to be as high if you were looking purely at a carbon leakage approach. In terms of studies in the European Union, my understanding of those studies, including by the International Energy Agency, is that there has been limited evidence of carbon leakage. Perhaps I will ask Ms Quinn from Treasury to add to that.

Ms Quinn—As Mr Comley stated, the International Energy Agency has looked at the evidence of carbon leakage amongst companies within the European Union—in particular companies related to the steel industry and other big users of electricity. While they were not necessarily covered in the initial phase of the European Union scheme, they did face increases in electricity costs related to the first phase of the EU scheme. That report said that the analysis suggests that any negative impact on competitiveness and emissions abatement may be small, and they did not find much evidence of movement in production.

There is other evidence from other organisations more in the modelling context, and it has looked at scenarios that suggest that as countries are covered by emissions constraints, the concerns about leakage are significantly reduced. And there has been some analysis about what is happening under the Kyoto regime—countries that have already committed to reductions within the Kyoto regime.

A modelling organisation called CICERO, which is a reputable organisation within Europe, estimates that carbon leakage would be under three per cent for the entire Kyoto regime between developed countries and developing countries. Similarly, in the modelling produced in the *Australia's low pollution future* report, we found that, once emissions-intensive trade-exposed industries had been allocated permits under the 90-60 per cent ratio in the green paper, there was little evidence of carbon leakage in the economic models that we used.

Senator PRATT—In that context, some industries have come before us saying they are the only ones being exposed and no-one else is taking the kind of action that Australia is contemplating. What is the Australian government doing to stay up to speed with the developments that other countries are in fact taking—those liabilities can of course take many different forms and can be difficult to compare—so that we can be sure when the playing field is level and, I suppose, lift assistance once it is?

Mr Comley—We monitor, in terms of our bilateral contacts with a range of countries, the nature of international developments. We also attend a range of international conferences, seminars et cetera to keep abreast of that. We have also commenced a work program within the department to look at the nature of emerging carbon constraints around the world. We intend to take that forward progressively over the coming years so that we are in a better position to have quantitative estimates of constraints around the world.

Senator PRATT—I want to ask whether the modelling fully accounts for all the economic benefits of acting early—I suppose it is being purported that we are acting early when internationally we are perhaps not completely at the front of the pack—specifically the long-term competitive advantages to Australian industry that we might obtain by developing new low-carbon industries early and the first mover advantages. We have had lots of revolutions in the past, whether they be in digital technology, energy or aviation, and I know that some of that technology transformation, in terms of what the profitable industries of the future are, has been picked up in the modelling, but I am not really confident of how that has been accommodated and whether there is some untapped potential there that has not been revealed.

Ms Quinn—In the modelling that Treasury undertook, we did detailed analysis of the electricity generation sector in Australia and overseas. That involved looking at the different technology options that are currently available and potentially available going forward. That was quite detailed analysis and included possible solutions through advances in solar technology, geothermal technology and carbon capture and storage, as just three examples. We also did detailed analysis of the technology options going forward in the transport sector in terms of the possibility for improvements in energy efficiency and electrification of cars once electricity becomes low carbon. Also in the modelling for the Garnaut review, looking out over 100 years, there was more speculative analysis about the introduction of hydrogen and things like that. There was also similar analysis of the potential breakthroughs in different parts of the industry sector for low emissions.

Any economic modelling that is based on current information has to make guesses about the technology future. Typically, in the past, analysis that has tried to do this has tended to be a little bit pessimistic. The general perception is that surprising things happen in terms of innovation through technology processes. So when we did the longer term modelling for the Garnaut review we examined sensitivities around different technology options. Similarly, we published those sensitivities in the government report.

Senator PRATT—Yes, I understand that.

Ms Quinn—So we did high-technology assumptions where we did not articulate exactly what the technology breakthrough might be but we had a hypothesis that it would occur and then looked at the sensitivity of the cost assumptions of the result.

Senator PRATT—Thank you. That almost answers my question, bar the early mover versus late mover question in terms of whether, if we do not get a scheme like this up soon and we continue to lock in old technology for too long, we will lose some of that adjustment capacity. Can you talk us through that?

Ms Quinn—Sure. When we looked at the scenarios where we delayed action for the world or compared countries that acted early versus later, that was captured, in the sense that there is a 'learning by doing' component in some of the technology areas. So the quicker we move to a technology the cheaper it gets over time. So, in that part, especially in the electricity generation sector, that was taken account of. But it was not fully taken account of in all parts of the modelling. Certainly, in the electricity generation and transport sectors, which are two of the big emitters for the world, that possibility—that if you acted early and therefore moved along the technology frontier you would get earlier breakthroughs—was captured in our economic modelling.

Senator PRATT—Lastly, I want to ask about targets. We have had a lot of discussion about industry saying, 'we need to do something, but this is too ambitious', versus those who are saying, 'our current targets do not match the science'. You have worked with government to put the current targets together. Give us your pitch about why they match the international circumstances in terms of Australia's negotiating position and why they fit the science.

Mr Bamsey—In terms of comparability with other targets, you can think of the Australian target range in different ways—in particular, depending on the baseline you use. If you think in terms of the baseline being the targets established by the Kyoto protocol, you can see that the Australian target range is equivalent, in terms of change from now until 2020, to what the EU have put forward. It is not a complete picture of the comparability question, and other people would take different perspectives, but it is certainly a valid one, I think, and demonstrates that the level of ambition the government has stated for the next decade matches that of the European Union.

Senator PRATT—There are those who say our targets are not ambitious enough but basically we have got to make up for the fact that at the Kyoto agreement we were allowed an increase. Some people argue that, therefore, we have not done our fair share and we need a stronger target. But, in fact, that makes our trajectory harder to turn around and that is part of the justification for our target. Can you explain that to us, please.

Mr Bamsey—I do not think I would have much more to add to what you said.

Senator PRATT—Well, I cannot quote myself when we write the report, so you might need to say it back to me. Thanks.

CHAIR—So, this is all about spoonfeeding evidence?

Senator MILNE—We do not need to spoonfeed the government line. I do not think we need to do that, do we?

Senator PRATT—No.

CHAIR—Belled the cat at the last hour.

Senator MILNE—Mr Bamsey, on this question, in the draft legislation and the government's policy, it says that a global 450 parts per million stabilisation would be in Australia's interests; yet everybody agrees that the five to 15 per cent target does not put that option on the table for Copenhagen. So how do you, as the envoy for Australia, explain to the rest of the world the scientific credibility gap that Australia is hawking around the world?

Mr Bamsey—I am not sure that I can give you the perfect bureaucratic answer, but I suppose I can say that—

Senator MILNE—Just tell me how you explain it to other countries.

Mr Bamsey—I say that it is really important to get started and get moving. And so do a lot of other people. Our efforts, as I have said before, are comparable with those of others, and if we can build momentum—and here we are getting to the policy question behind your question—

Senator MILNE—No, I am just asking—

Mr Bamsey—That is what I say: that it will—

Senator MILNE—Okay, thank you.

Mr Bamsey—One other important point to mention is that one of the inhibitors of global action at the moment is the relative lack of confidence that we see in the UN negotiations and beyond. One of the best remedies to that lack of confidence, which has been very long term, is getting moving, getting started, building momentum, establishing that action can take place and that it can be effective and that it will not impoverish anyone, indeed it can accelerate development in some circumstances for some countries. In moving towards solving the problem, as we well know, we will reduce costs in the long term.

Senator MILNE—In the opening statement which you have now tabled from Mr Parkinson, he says that only a cap-and-trade scheme will, for the first time in Australia's history, enable a halt to the growth in emissions and deliver the deep reductions necessary into the future at least cost. We have had an incredible amount of evidence—well summarised today by the Centre for Energy and Environmental Markets at the University of New South Wales—which says that an inadequate emission trading scheme target and inappropriate free permit allocation can all result in effective and inefficient schemes. Their paper basically says because of the inadequate target and the inappropriate free permit allocation it is going to be ineffective in achieving the environmental outcome and inefficient economically. They refer to a number of things and I will not go through them all, but one of the first things they say is that arrangements to shield some emitters from the carbon price involve significant transaction costs with little benefit and may establish inappropriate expectations among the participants, and in particular they were referring to transport, to the decision to mute the signal. Would anyone like to explain whether that is economically inefficient or how it is efficient?

Mr Comley—Can I start with your first part about least cost and the point about the nature of the targets. I think the context and the way that we always talk about least cost is for a particular

target. You can have a discussion about whether the targets are adequate for the objective that you are seeking, but the argument is that for that given target the actual approach is the least-cost way of doing it.

On the question of fuel, the reduction in the price incentive for fuel in the first three years will reduce the signal for emission reduction in that area and, other things being equal, will lead to a higher overall cost associated with meeting a particular target. The extent of that overall cost depends on how much you think people would have changed their behaviour as a response to that price signal, because you have effectively shifted that to the rest of the economy as a result. Most of the studies of transport demand show that at least in the short term they are relatively unresponsive to changes in price. The responsiveness or the so-called price elasticity over the longer term tends to be higher and therefore it is important that the longer term price signal is such that people can make that choice. So when people are coming to replace a car or decide where they live or make larger investments at the government scale on public transport they take account of that forward-looking carbon price. So in the short run the relative efficiency costs of muting that transport signal are relatively low because of that unresponsiveness, but it is important to have that long-term price signal when people have more opportunities to change the way in which they go about things.

Senator MILNE—On the other hand you are letting them live in a fool's paradise until it hits them in the face when it runs out.

CHAIR—It is more about putting the price signal beyond the election, I would have thought.

Mr Comley—An important thing about all these things is that it is not so much what the carbon price today is but what people perceive is going to be the path of that carbon price over the medium term. That is true in the transport sector but it is just as true in the electricity sector and the other things. The most important thing is to establish the credibility of the scheme so that people believe that in five, 10, 15 years time they must be factoring that into long-term decisions.

Senator MILNE—But you are muting that signal by muting the real impact of the price. I come to the next point they make, and it is particularly about coal. It talks about the purpose of the scheme being to drive change—which we have heard is supposedly one of the reasons we are doing this. It talks about the fact that:

One key investment factor is 'space' to bring new plant and processes into—the CPRS should play a key role in driving the exit of high emitting players but this requires that the scheme be permitted to destroy the value of their operations. Some proposed rules of the CPRS are specifically designed to avoid exit:

- free allocation to coal generators depends on future availability.

- free allocation based on output for EITE including for new entrants subsidises outputs of those high emitting firms and works against the restructuring process needed for a low emissions economy.

That is arguing, essentially, that you are giving a windfall gain to people with better technologies when they come in.

Mr Comley—The first proposition is about the nature of the transition. The policy has clearly been put together on the basis that there are efficiency objectives in terms of meeting emissions reduction objectives at lowest cost. But there are also transitional issues which seek to make that path as smooth as possible. The two schemes that you have referred to—the coal sector adjustment scheme and the emissions-intensive trade-exposed—try to balance those two things.

The coal sector scheme is being designed in a way that tries to maximise the incentives to reduce emissions in the coal sector. It is designed with the idea that there will be an historical baseline of emissions entitlement which is a proportion of the total liability—certainly not the full liability of a coal mine. If people reduce emissions during the five-year period that scheme operates they benefit fully from that, so they still have that full incentive to undertake that abatement activity. It is time limited for five years so, beyond the period of assistance, there is a strong incentive to be in a position where you can compete in a carbon-constrained world.

The emissions-intensive trade-exposed policy is also about managing that transition, but also taking account of the fact that there is an issue of how strong carbon leakage would be. But in a completely unassisted world the concerns about carbon leakage would be higher than they would without some transitional assistance. Again, the emissions-intensive trade-exposed policy has been designed to try and maintain the incentives to improve emissions efficiency. So again, a fixed historical baseline is used for the allocation of permits and therefore any firm that finds a way to produce their product at lower emissions per unit of output benefits fully from that. The rates of assistance are such that no firm receives the full assistance—it is either 90 or 60 per cent, so there is some incentive to think about the level of output. The rate of assistance is reduced over time at 1.3 per cent, and the policy says that should international carbon restraints emerge it is in a situation where the government can withdraw that assistance with an appropriate notice period.

Each of those elements is trying to maintain the incentive to drive down emissions in those sectors. It is true that is not as strong an incentive as if you had no assistance for those sectors. But if there were no assistance for those sectors, and you did move into a situation of carbon leakage, you would be in the situation where you have a reduction in emissions in Australia that may, in fact, have no reduction in emissions overseas. There has been an attempt to strike a balance, and at each point of the design process there has been an attempt to maintain incentives to the maximum extent possible to reduce emissions, even in those sectors that are assisted.

Senator MILNE—I would prefer it if we did not mix up the stranded assets compensation to generators as opposed to the trade-exposed. I come back to your point on trade-exposed—you said 'with appropriate notice'. Let's assume that in Copenhagen the world, by some miracle, decided that there would be a global agreement—

CHAIR—That is Macca's argument.

Senator MILNE—I am very happy to ask what Senator Macdonald asked. Let's assume that the world did agree to 25 per cent, say, or 40 per cent in Copenhagen. We have got this legislation locked in for compensation for trade-exposed industries, and trade-exposed no longer applies in that circumstance. You said 'with appropriate notice'—how does the legislation actually work? Let's assume it becomes law in July, and we have locked it in for five years or whatever.

CHAIR—What would be appropriate notice?

Senator MILNE—What is appropriate notice? What does that mean—if the world decides in December, does that mean they all understand that the deal is off?

Mr Comley—Before I answer that, I was not actually referring to the coal generator assistance previously; I was talking about the coal mine assistance policy. I am happy to return to the coal sector later.

Senator MILNE—I will come back to that, yes.

Mr Comley—The first point to make is on the appropriate notice period. The government has made a policy commitment to provide five years notice. It is not captured in the legislation, so technically a parliament could be in a position to amend the legislation at any time, but the government has said that the policy commitment is that it would intend to provide five years notice.

Senator MILNE—So they would get a windfall gain at the rest of the world's expense because we have given them five years even though everybody else has to move sooner.

Mr Comley—I think the next point to make is that, let us say you got an agreement at the end of they year that was consistent with 450 et cetera, the timing of an agreement is not necessarily the same thing as the timing of the rolling out of policies in each domestic jurisdiction to give effect to that policy. So just as we are starting a carbon pollution reduction scheme and we are not going to 100 per cent optioning at day one, even though the government has a long-term intention of getting there, you would not expect the rest of the world from day one of ratifying or signing a treaty to put all domestic policies in place that would give that effect. So what the government would be in a position to do following the advice of an expert committee is take account of the implementation timetables around the world. I think in practice part of that notice period is going to be taken up by countries around the world putting in place the policies that will be required to give effect to those commitments.

Senator MILNE—Just explain to me why we should compensate coal fired generators for their so-called stranded assets when they have known for 20 years this was coming?

Mr Comley—There are different views on the extent to which this policy change was foreseen. There are different dimensions to that. One is the issue of whether some form of carbon constraint policy was foreseen. That is the first question. The second question is about the precise nature of that carbon constraint and the nature of the transitional arrangements that were put in place. There are quite different views on the degree of foreseeability people had of the nature and extent of the carbon constraint.

Senator MILNE—That is the tobacco industry argument.

Senator FEENEY—They were under contractual obligations in some instances, weren't they?

Mr Comley—I cannot comment on the nature of the contractual obligations. I think it is true that some players did not foresee that the policy would take the form it did. Whether they reasonably should have is a separate question.

Senator MILNE—Why are we rewarding them for a failure to take into account the risk of the value assessment into the future? Why are we rewarding them for a failure of due diligence? We did not do it with the tariff? Factories closed down.

Mr Comley—I think the tariff comparison is actually quite a good one, because in the tariff reform process that commenced in the late eighties—my Treasury colleagues might want to comment on this, but I think I can too—we did not move the tariff regime from the high level it was at to zero overnight. In fact, what the Australian government did was announce a very long-term intention to move down tariffs and phase it over time. Interestingly, if the same approach had been adopted with electricity generators—for example, if you had started essentially with zero-carbon price and you got 90 per cent of your permits in the first year, 80 per cent in the second year, 70 per cent the next and you phased it over 10 years—the level of assistance would be substantially higher than is captured in the government's current policy. Perhaps one of the reasons that a lot of focus is on the electricity generators is that explicitly it is provided a lump sum payment, which brings attention to the size of it. Bt if we had had a phasing approach which started even with 50 per cent of permits the first year then 40, 30 et cetera, it would have been a substantially higher level of assistance. The reason the government decided to do it that way was because it meant full incentives to reduce emissions from day one because the first day the scheme is operational a generator faces the full carbon price when they are deciding whether to dispatch brown coal, black coal or gas. If there had been a phasing approach that would have muted that incentive from day one.

CHAIR—I want to address some other issues that have cropped up during the inquiry. We have had evidence, particularly from representatives from coal seam gas and landfill operators about where they sit within this whole scheme. Effectively, their business becomes unviable. This is particularly true for the coal seam guys. The GGAS system in New South Wales drives their business and we were told that it provided up to, I think, 60 per cent of their income. Under the proposed CPRS, that income disappears—which makes them unviable as of the commencement of the CPRS with the current settings. You would undoubtedly be aware of the evidence that has been given to us. Has there been any consideration of dealing with both of those particular groups, the landfill operators and the coal seam gas guys, particularly given that methane emissions are 21 times more toxic than CO2? They mitigate that by transforming the methane to CO2 before it is discharged. It is one of, I suppose, the anomalies that have cropped up out of the system. Where do those guys sit? And the latent impact, particularly on local government from the landfill, is potentially going to provide a huge burden.

Mr Comley—There are really two points. The first point to make is that in the white paper the government committed to having negotiations with the New South Wales government about the exit from the GGAS, and those negotiations are still ongoing. So the government is well aware of the issues that have been raised by those operators, and they are part of the discussions that are currently going on with the New South Wales government for the exit from the GGAS. The second point I would make is that, without wanting to comment in detail about the commercial arrangements of those participants—because I do not think that is appropriate—a large part of the issue is that some of them may have been engaged in long-term contracts that did not foresee

the carbon price. So the issue is not in many cases that methane is not handled appropriately within the CPRS. It is that they entered into contracts that presumed a particular treatment of methane and who would get the financial benefit of that, and that has changed with the introduction of the regime. So those full transitional issues are being dealt with in the discussions with the New South Wales government.

CHAIR—That is all very well for the GGAS. What about landfill? That is a national issue.

Mr Comley—In general landfill, the first point to make is that if you turn landfill into gas you actually get the benefit of the power source. Landfill emissions count to Australia's national inventory and so they contribute directly to our obligations internationally by having emissions going into the atmosphere, and, as you say, methane is a powerful greenhouse gas. What the CPRS attempts to do, though, is handle the transitional issue by saying that the real challenge for landfill operators is related to the so-called legacy emissions—waste that has been put into the ground before they could have foreseen the carbon price and therefore priced it to their customers. What the white paper and the legislation do is outline transitional provisions that ensures that legacy waste is not subject to a liability at least until 2018, at which time the landfill operators have had a 10-year period to plan for the introduction of legacy waste emissions and, because of the profile of legacy waste—they literally decay over time—the volume of legacy waste emissions will be less in 2018.

Senator FEENEY—You would appreciate that a lot of those operators are in fact local governments.

CHAIR—And that is all very well that they can use the gas to generate energy—which some of them are doing on some of the landfills—but you still have to take into account that the generation cost of that energy is significantly higher than energy provided by the grid at this point in time. The issue is being able to get some equalisation of that cost through whatever process—and that is where the GGAS system has come in in New South Wales, and I know that that has worked not only in New South Wales; some coal seam gas operators in Queensland are taking advantage of that as well—or of energy generation costs becoming high enough to allow them to economically do that. They put forward an option to us that they be part of the MRET scheme as a way to actually manage the cost differential for energy generation cost. Perhaps that is not an ideal way to do it because they are not strictly a renewable energy. There is a genuine issue there for both of these different groups, the coal seam guys and the landfill operators, particularly in generating energy using that methane, because of the cost of the energy they are generating. They are going to get a return from the gas; no one is disputing that. The problem is that the cost of generating is so much higher than the cost of energy in the market at the moment. Until the price comes up with the entrance of other technologies into the market, they just are not viable. You effectively put them out of business.

Senator FEENEY—I support that. If the gas is not used for generation it will simply be flared. In CO2 emissions terms that might be a zero-sum game, but it is better to generate power that can substitute for another source somewhere else in the grid than it is simply to flare it. It seems to me that you might inadvertently create a situation where we are flaring for no foreseeable gain a resource that can otherwise generate power.

CHAIR—We are talking about 400 megawatts of energy in the national grid. That is not a small amount. There is capacity to increase it and further mitigate emissions. But there is a bug in the current design of the CPRS, and our interest is to know if it going to be dealt with. I do not think there is any argument, despite some other differences.

Senator FEENEY—I would not characterise it as a bug; I would simply say that it is open to you in transitional provisions to fix this very elegantly.

Mr Comley—I think that is important. I do not think it is a bug. What does the CPRS do? It ensures there is a strong incentive to get rid of the methane; there in fact will be a methane liability associated much higher than CO2, so there is a very strong incentive to at the very least flare the emissions so that you have CO2. If you are burning the gas to put it into the grid, you have a unit of power that has CO2 released. It is then competing with the rest of the electricity grid. The rest of the electricity grid then has a carbon price on it. The amount of emissions per unit of electricity from a gas source is less than from a brown coal or black coal source, so the CPRS is actually driving a relative cost advantage for gas compared with the current situation—putting GGAS aside. Over time what you are effectively doing is delivering an effective subsidy to the gas energy producers as the higher content of coal drives up the pool electricity price in the national electricity market. So I think the CPRS is doing exactly what you would want it to do—that is, recognising the more efficient energy production of the gas in terms of CO2 and providing a relative advantage to it compared with brown coal, black coal et cetera. There is a genuine transitional issue for some participants because they have put in place business models that assume that they get a direct positive financial benefit from the methane destruction, and that is what the transitional issues are trying to address, but I think the ongoing system is sending the right signals for the level of methane gas production and the level of methane destruction from landfills and coal seam methane gas.

CHAIR—The question we are looking at is whether the transitional measures actually deal with the issue that is at hand. I think we agree now that there is a genuine transitional issue with that.

Senator FEENEY—Clearly, if you just price waste gas power generation per megawatt-hour, it is difficult for it to compete, but if the equation is to burn the resource rather than use it, that seems pretty—

CHAIR—And it is potentially displacing other CO2-emitting energy generation from the system.

Mr Comley—That is right. As I explained, it will have a cost advantage compared with those with higher CO2 intensity. But I do not think I can comment a lot more on the nature of those transitional negotiations at this stage.

CHAIR—The dairy and beef sectors are placed in a very difficult position as part of this. We have heard that the modelling caters for that. We congratulate the modellers for their confidence in that, but we do not believe it and neither does the dairy industry. We had evidence from the dairy industry last night that the impact per farmer—and I understand this is potentially a notional amount—is between $6,000 and $8,000. That is passed through from processing back to the dairy farmer, because that is the only place that will go. Anyone who understands the

agricultural sector knows that the farmer is the one that generally pays for those imposts. In the dairy industry alone the impost from the CPRS is between $40 million and $60 million in the processing sector. The beef industry has a similar liability—something like $62 million. It comes from truncating the industry—the farm sector at farm gate—and we all understand the arguments about leaving the farming sector out at this stage in the proceedings.

There is no question that there is a perverse outcome for the farming sector based on the impact on the processing sector and the additional costs from the CPRS that is being applied. One of the things that we are really concerned about is how we mitigate that particular issue. They are intensive enough to have to buy permits but are not reaching the thresholds to get any EITE certificates for exposure. They are certainly trade exposed. Dairies globally trade at a commodity and even the domestic market prices are determined by the global trade. Beef is similarly impacted. We have a ridiculous situation where one company has some plants that are in and some plants that are out. That drives a further perverse outcome. They would have to consider closing or scaling back the productive plant that has lower emissions and opening up one that has higher ones.

Mr Comley—I am not in a position to comment on the particular estimates that you have put forward but I can pick up—

CHAIR—They are the only ones that are in existence. Nobody else has been able to provide them.

Mr Comley—But the general issues you raise are essentially about a sector that is facing a permit liability but is not emissions intensive enough to be emissions-intensive trade-exposed. The government, as a policy matter, has set a threshold and that threshold leads to the implication of allocating a certain proportion of permits to the emissions-intensive trade-exposed sector. If you were to drop the threshold for emissions-intensive trade-exposed treatment lower than it currently is, you would necessarily be doing two things, one adding to the administrative complexity of the scheme, because you would increase the number of people that need to be assessed for EITE assistance; and the second increasing the proportion of permits that have to be allocated.

If we go back a step, why did the government set those thresholds? Because it was a threshold test of the materiality and the likelihood of driving carbon leakage or acquiring transitional assistance. So, to put that into context, what is the bottom threshold—the thousand tonnes per million dollars of revenue? It is equivalent at a $25 carbon price to around a 2½ per cent increase in costs per unit of revenue. That was the policy decision the government made—that was the threshold below which it would not seek to bring in EITE assistance as a way of balancing the extent of free permit allocation with the need to have each part of the economy contribute to the emissions reduction task.

In terms of the other issue you have mentioned—the fact that some entities are in and some entities are out—that is something that has been raised with us in the sector, because the nature of these facilities is that they do tend to straddle the 25,000 tonnes of emissions per year. Again, that can be a genuine competitiveness issue, but save lowering the threshold completely further, which would have the effect of pulling in a range of other things, it is difficult to see how you could do that on an economy-wide basis. The alternative would be to raise the threshold, but as

you raised the threshold you would reduce the coverage of the scheme and so you would have a much weaker alignment between the national targets you set and the mechanism you have to ensure those targets are set. So I think what you have highlighted are some genuinely challenging policy issues but they are not specific to those industries and they would have implications for the rest if the government decided to change those parameters.

CHAIR—And you do not give us any confidence that the government has any sense of how to deal with it. Coming out of the dairy industry and understanding it well, we have been asking the government about this since estimates in November, when the modelling came out. It is not as if it is a new issue. It has been something that has been on the table for a long time. The industry came in here last night completely desperate because they see absolutely no place that they have to go to deal with this, and you give us no confidence that there is any sense of dealing with it today either.

Senator HEFFERNAN—Shut this one; open that one.

CHAIR—It is a major industry. It employs 40,000 or something like that, I think, in the Murray-Darling region alone—just in north-east Victoria there are 40,000 people working in the industry—and to leave them sitting out there like a knot on a log is just unconscionable.

Senator FEENEY—But isn't it fair to say that the centre of this debate is the fact that you do not believe the modelling?

CHAIR—I think it is more to do with the modelling. The industry has done the modelling and done their numbers, and they are going to be screwed. If you take politics and everything else out of it, they are in real strife because of this process.

Senator HEFFERNAN—Talk about bureaucratic claptrap!

CHAIR—I will come back to some other issues; we can spend all day on this.

Senator BOSWELL—Do not take your frustration out on them, Senator Heffernan; they are writing to instructions. There is not much you can do about it.

Senator HEFFERNAN—I will get out of your way.

Senator BOSWELL—Okay. Mr Bamsey, you are our No. 1 negotiator, I understand. It says on here that you are.

Mr Bamsey—You could put it that way.

Senator BOSWELL—It says 'deputy secretary and special envoy'. You must know a lot of these guys over there. You must meet—what is it?—three times a year when you go over to discuss these issues.

Mr Bamsey—Quite a few.

Senator BOSWELL—We heard last night that the same group that were negotiating for the Clinton administration are now negotiating for the Obama administration—the same people. Is that right?

Senator FEENEY—You are referring to Dr Brian Fisher's evidence.

Senator BOSWELL—I am, yes.

Senator MILNE—Do not feel obliged to comment.

Senator BOSWELL—Look, Senator Milne—

Senator HEFFERNAN—He is asking the questions.

Senator MILNE—That is uncalled for.

Senator BOSWELL—I honestly believe that you have to be reasonable. If someone does not like something they can take it out on me.

CHAIR—Senator Boswell, we have 25 minutes to go and I am closing it then.

Senator BOSWELL—Are the same operators as in the Clinton administration now negotiating for Obama?

Mr Bamsey—I think it is true to say that some of the people who worked on climate change for the Clinton administration are working on climate change for the Obama administration, but I would not characterise it in the way you did.

Senator BOSWELL—All right. Can you tell the committee what is a plausible path for international engagement from now until whenever that will lead to a global agreement of a form comparable to the assumed Treasury modelling? How are we going to get there? We have not been able to get there before. We are told there are no rules for negotiating. Can you take us through the process of how you negotiate?

Senator HEFFERNAN—In a couple of minutes.

Senator MILNE—In two minutes.

CHAIR—In 25 words or less.

Mr Bamsey—I will be as quick as I can. There is a UN forum of 192 countries; there are 192 sets of instructions to the negotiators for each meeting. Obviously it is going to be very difficult in that circumstance, no matter what the issue, to reach consensus, but this issue is a particularly complex and difficult one so the UN negotiating path is a difficult one. What has happened as a result is that a number of support processes have also been initiated. One to mention, because the first meeting of this has just taken place, is the Major Economies Forum on Energy and Climate. That is initiated by the US government—the Obama administration. It is intended in part to create political momentum in support of the UN negotiating processes. There are some analytical

activities which are also intended to do that. So you get a picture in which right at the centre there are the negotiations taking place amongst all of the parties to the climate convention and around that there are a series, gradually developing speed, of support processes.

Senator BOSWELL—It sounds very complex.

Senator HEFFERNAN—It sounds very UN, doesn't it?

Mr Bamsey—It is certainly UN, Senator. That is what it is all about.

Senator HEFFERNAN—The UN is the largest and most corrupt body on the planet.

CHAIR—Senator Heffernan!

Senator FEENEY—Not being a diplomatic corps—

Senator BOSWELL—The prospects of coming to some conclusion would be very difficult. Would you consider that you are going to walk back with an agreement? Are we going to have an agreement struck, do you believe, between Russia and China and America? Are you going to bring the bacon home for us?

Mr Bamsey—I hope so, Senator. It is going to be very difficult but the stakes are very high—that is increasingly understood. I think that you can see every day that there is increasing focus on getting a result. We do not know the extent of the agreement in Copenhagen but we are certainly working as hard as we can to see if we can get the best and strongest result.

Senator BOSWELL—I am not discounting your diligence; I think that you are probably working as hard as you can. But one does not come out with a lot of confidence when there is a resolution passed in the Senate in America—as it was last week or a couple of weeks ago—which virtually said that they would have an ETS as long as—

Senator MILNE—Time, Senator Boswell, time!

Senator BOSWELL—I know you do not like this, Senator Milne, but it did actually happen. I have sat here for 20 minutes while you got your point of view out. The resolution said something like this: we will have an ETS as long as it does not put the price of electricity or fuel up and does not cause any financial damage. I was wondering whether you could negotiate one like that for us.

Senator FEENEY—I do not know whether there is any point—

Senator BOSWELL—And it was carried, 55 to 44. Why does that generate confidence in you and make me not confident?

Mr Bamsey—Senator, I will not respond to that precisely, but I just repeat that I think that there is every sign that, difficult as this task is, political leaders around the world increasingly understand that it is vital to the future of their peoples that the problem is resolved.

Senator BOSWELL—What do you walk away with? Do you walk away with a signed agreement? How do you know whether you are successful or not? Do you come back with a piece of paper that everyone signed up on? How do you work it through?

Mr Bamsey—There are a number of different possibilities. The ideal result would be a treaty document which was agreed by consensus and which would then become open for signature and after that for ratification. But there is a range of possibilities given the extent of agreement at any particular point. That would be the end point.

Senator BOSWELL—So you are hopeful that you will come back with a piece of paper that people have signed?

Mr Bamsey—We are hopeful that we will come back with an agreement in a very strong, solid form, which has achieved consensus at the Copenhagen meeting.

Senator BOSWELL—So we achieve consensus but how do we then lock in the idea that all our legislation will be similar and that we will all be doing similar things?

Mr Bamsey—That will be in the nature of the negotiation. We will want to be sure—all 192 participants—that the set of commitments in that agreement are satisfactory. So it is complex. It is very difficult, but that is what we are after.

Senator BOSWELL—Just before, you said that our efforts were comparable with the rest of the world, and I think that you were referring to the legislation that is coming before us. Was that your statement?

Mr Bamsey—I was making the point that the target range that the government has enunciated is comparable with that that the European Union have committed to.

Senator BOSWELL—Yet we are told that the European Union has excluded mining and aluminium—it has carved out a number of these industries.

Mr Bamsey—I think that you are referring to their Emissions Trading Scheme, but all of those industries were within the compass of their national targets or the European Union targets.

Senator BOSWELL—I know, but their targets are set so low. Their targets carve out a number of industries. How can we be comparable?

Mr Bamsey—The two trading schemes are different in those respects but the national targets take into account all emissions required to be accounted for within the geographical boundaries.

Senator HEFFERNAN—Yet no-one knows where agriculture fits.

Mr Comley—The point that Mr Bamsey is trying to make is that, for the purposes of the international agreement, the emissions that come from steel, cement or agriculture in Europe are measured in the international system and they count towards the emissions that Europe will be held accountable for. As a matter of domestic policy, it is open to them to consider whether they include within their particular scheme—

Senator HEFFERNAN—All followed, but what is the hurdle? Why don't the Yanks—

CHAIR—Senator Heffernan, there are members of this committee who have been sitting around this table for three weeks. This is our final session, and it is fair that they get a chance to ask their questions. There are some questions that relate to evidence in the inquiry that still need to be brought out as part of this process in the last 15 minutes. Have you finished, Senator Boswell?

Senator BOSWELL—No, I have not. I will ask Ms Quinn a question; I have asked her this before but maybe she can explain it again. Treasury modelling shows emissions reductions under the RET to cost more than emission reductions under the CPRS. Treasury modelling, I believe, says that it is three times higher. How does that work? Why do you say that it is three to four per cent when Treasury says it is 200 or 300 per cent more?

Senator FEENEY—The industry says that.

Senator BOSWELL—No, Treasury says that.

Ms Quinn—We looked at the scheme where the renewable energy target was expanded combined with the emissions trading scheme in its own right. Our analysis suggested that including the renewable energy target would increase the cost of achieving the same environmental outcome. It is the case that we thought the modelling showed that electricity prices would be between two and four per cent higher between 2010 and 2020, and overall the average cost was about three times higher in terms of the per unit emission.

Senator BOSWELL—So the average price is going up. You say that, including the ETS and the RET, it will be by three times.

Ms Quinn—No. The retail electricity prices would be between two and four per cent higher than they otherwise would be, with just an ETS alone, between 2010 and 2020.

Senator BOSWELL—How much would it be with a RET?

Ms Quinn—The total rise, including the ETS and the RET together, would be about 20 per cent for average Australian household electricity in the period 2010 to 2015. Under the CPRS it would be minus five.

Senator BOSWELL—So you say it will go up 20—

CHAIR—So that is five more than it would normally have been.

Ms Quinn—Yes.

CHAIR—So that is the differential—

Senator BOSWELL—So you say that they will go up 20 per cent with the RET?

Ms Quinn—No, 20 per cent with the combined emission price from the CPRS and the RET.

Senator BOSWELL—And the RET?

Ms Quinn—Yes.

Senator BOSWELL—The generating industry believe it will be 60 per cent.

Ms Quinn—For household? There are different ways of talking about electricity prices. Wholesale electricity prices—

Senator BOSWELL—How much will it go up for household?

Ms Quinn—Household is expected to be about 20 per cent higher, but the wholesale electricity price is about 48 per cent.

Senator BOSWELL—How much will it go up for industry?

Ms Quinn—It depends on how they source their electricity. Some would pay the wholesale rate, which is the 48 per cent increase. Some would pay a retail rate, which is between the wholesale and the household and would be about 30 per cent.

Senator FEENEY—I am interested in hearing whether you have done any research, perhaps some modelling, on the proposition that if the target were higher, there would be capacity constraints preventing us from achieving that target—that is, the capacity constraints in terms of being able to simply get that much renewable energy and/or the infrastructure to facilitate those renewables into the grid, into the system. The proposition is, I suppose, that the target embodies the sheer physical capacity of our economy to make the transition.

Mr Comley—Senator, can I just clarify? Are you talking about the renewable energy target on its own?

Senator FEENEY—No, I am talking about the five to 15 target.

Mr Comley—For the electricity sector?

Senator FEENEY—For the economy as a whole.

Mr Comley—The first and probably most important point to make is the emissions target is actually for our national emissions net of international trading permits. At one level, if it turns out that the domestic economy within our borders cannot make a particular adjustment, then what you will do is import more permits to meet any international target that you have. You will hit the international price of permits and then you will continue to import permits. So I think that that question is predicated almost on a closed economy world where we do not trade in permits—

Senator FEENEY—Yes, I see your point.

Mr Comley—and that you have to do a certain amount of emissions reduction within Australia's borders.

Senator FEENEY—Clearly, the whole purpose of this, or at least a significant part of the purpose of the CPRS, is to transition us into a low-carbon economy. We can only make that transition at the pace at which it can be physically made. Perhaps I will reframe the question. Is there any advice you can give us about the capacity constraints in terms of us transitioning to low-carbon energy sources?

Mr Comley—Treasury may want to comment, but certainly the modelling embodied within the Treasury report does include detailed electricity sector modelling, which is really the sector where you worry most about these sorts of constraints. It does try to model issues to do with: if you deploy a renewable energy source have you got distribution and how much does that cost in the process? Treasury may want to add to that.

Ms Quinn—We did look at the requirement for capacity constraints in various parts of the economy. Some of that is in the electricity generation sector and some in the transport sector. We did not find that we hit any of those barriers in the economic modelling but we did consider them—certainly not in the first 10 to 20 years. But, as an illustration of what Mr Comley was saying about harder targets in the near term, the 2020 targets, in the economic modelling that did result in more permits being bought overseas in a shorter time period. For example, in the 2020 target, the CPRS minus five, the modelling suggests we would buy about 46 megatonnes in 2020 from overseas while in the Garnaut 25 it would be 100 megatonnes from overseas. So part of the additional target would be sourced from overseas.

Senator FEENEY—Okay. So the purchase of those permits becomes an indicator, at least to some extent, doesn't it, of perhaps not capacity constraints but the price of—

Ms Quinn—The relative cost.

Mr Comley—The relative cost of doing abatement in Australia versus overseas. The only other thing to add is that, as the rest of the world acts more ambitiously, you would expect that the international permit price will rise and, therefore, you will start exploiting more of the abatement opportunities that have slightly higher costs but are still below that new international price to get additional abatement. So there is an interaction between how ambitious you are domestically versus how ambitious the world as a whole is.

Senator FEENEY—Turning to the ESAS compensation proposition, we have obviously had industry representatives speak to us about how that compensation regime is inadequate. I am sure that of itself will not shock or astonish any of you, but I am wondering what you can tell us about the design of that ESAS compensation and, most particularly, the $3.9 billion—I think that is the number. What can you tell us about the settling of that number?

Mr Comley—First of all, it is important to point out that the policy intent was never to have full compensation of the model change in asset loss for a sector. For some of the reasons that Senator Milne alluded to earlier, there is a genuine case of the foreseeability that should have been there at some point in the process and that fed into part of that assessment. So there was never an intention that this was full compensation.

What we did was to commission three modelling firms to provide estimates of the change in asset value associated with the introduction of the scheme. They came up with different estimates, and there was quite a lot of variation between those modelling estimates.

Senator FEENEY—Can I just interpose there. I understand too that some of the generators opened their books, so to speak, to—I do not know if it was you or some other government entity. Can you weave that into your tale?

Mr Comley—There were certainly some discussions with generators about their estimates of their own asset losses, which were provided on a commercial-in-confidence basis.

Senator FEENEY—Of course.

Mr Comley—One of the difficulties with these things—and it actually drives a lot of the differences between the modelling estimates—is that you have to estimate what that generator would have earned over the next 20 years if nothing happened. So what you are doing is projecting for if no CPRS happened and then you are saying—

Senator FEENEY—Business as usual.

Mr Comley—Business as usual—what would have happened with the CPRS. So, as you can imagine, there is quite a high degree of uncertainty about just how profitable those businesses would be over the next 10 to 20 years, and some other higher estimates are often driven just as much by very bullish forecasts of future revenues as the CPRS effect. Then, the thing that really drives the CPRS effect for generators is the assumption about how much they will be able to pass on to consumers. So what drives a lot of the modelling differences is that some models say most of this will get passed on to consumers and others say, no, more of it will actually have to be absorbed by the generators.

So we looked at the quantum of estimated asset loss, bearing in mind that that 'business as usual' model is difficult because 'business as usual' almost assumes implicitly there could have been no foresight about a carbon price.

Senator FEENEY—And that is your modelling and their alternative self-analysis?

Mr Comley—They all work from that basis. You have to understand that that is the basis on which the numbers are being generated; when you interpret how to use it for policy purposes, you have to take account of that fact. You then take the asset value changes from those three models and you come down to a judgement about the amount of assistance that is required. Also take into account that the underlying policy rationale is to maintain investor confidence in the sector. Once that quantum is determined, the idea is to distribute that quantum of assistance according to those that are likely to be the most emissions intensive and therefore to have the largest change in asset values.

Ms Quinn—Can I just add something to that. As Mr Comley said, some of the estimates that suggest the possibility of higher asset loss result in less pass-through of electricity prices to the rest of the economy and therefore would suggest lower economic cost to the rest of the economy as a result of the scheme. For instance, with the analysis that has been put in the public domain,

if those numbers were taken into the general equilibrium modelling, you would end up with much lower economic costs in the entire Australian context. So it is something that needs to be kept in mind—that looking at a partial sector has consequences for how you think about the rest of the scheme.

Senator FEENEY—The chair is telling me I have to move on. What I might do is put some questions to you on notice on that issue of ESAS compensation. So this is my final question. We had some evidence given to us earlier by Perdaman Chemicals and Fertilisers Pty Limited. That was in-camera evidence, so I will not go to any of the commercial-in-confidence issues, but are any of you familiar with that company and its circumstances in particular? They have met with the minister and the department. If the answer is no, I will—

Mr Comley—The name is familiar, but I have not personally dealt with them.

Senator FEENEY—Very simply, a precis of their situation is that they are proposing to make an investment in Western Australia—

CHAIR—Senator, I am not sure you can go down this track in a public forum.

Senator FEENEY—I think what I can say is this: they are—

CHAIR—Actually, Senator, I think we should leave it at that at this stage. We might do something through a question on notice on that one, I think.

Senator FEENEY—Okay.

CHAIR—Senator Heffernan.

Senator HEFFERNAN—A lot of what I have been hearing is about the global energy task et cetera—you have modelled it till you have run out of models. What about the global food task? There is a pretty serious situation facing the planet over the next 40 years, with the need to double the food task. Two hundred and fifty million people in the great northern agricultural area of China are going to have to be moved regardless of what we do about climate change. What is going to be the trigger for the world to make up its mind whether agriculture is in or out? What is the great unknown that we do not know and the Yanks do not know?

Mr Comley—The UN accounting framework has decided agriculture is in.

Senator HEFFERNAN—All right; so it is in. Have you modelled the impact of that on the food task?

Mr Comley—Yes, the models that are always done on the agricultural sector—

Senator HEFFERNAN—What is that going to do to the global food task and its cost?

Ms Quinn—In the international modelling we looked at agriculture being covered by emission pricing from 2015. In our reference scenario—a world without emission pricing—we

have a significant increase in the demand for agricultural land and an increase in demand for food—

Senator HEFFERNAN—For food production—but what does it do to the cost? Thirty-five per cent of the production costs at $40 a tonne for red meat is the tax.

Ms Quinn—Perhaps I can take that on notice and provide the exact numbers from the report. We did look at this.

Senator HEFFERNAN—Why is the US—and you blokes are familiar with that, I understand—ticking over with the question of whether we put them in on the credit side and out on the debit side. What is the contrary?

Mr Comley—My understanding, following discussions with the US people, is that there are two main reasons why they have gone down this path, at least in the Waxman-Markey bill. The first reason is that measurement methodologies, at least at the point where you would want to consider, in some cases, point liability across agriculture, are less accepted than in some other areas, so mandatory coverage across the whole scheme can be more problematic in some people's eyes than it being voluntary. If you have an offset scheme, you can make it voluntary to opt in. That is one motivation. But probably the primary motivation in the US context relates to the nature of the income flows. If you move to an offset regime, which is what the US are proposing, you can design it to have similar incentives to reduce emissions as you would in a covered sector, but the net effect of that is to transfer income from the rest of society to the farming sector.

Senator HEFFERNAN—The global food task is going to have to be funded.

Mr Comley—My understanding is not so much about the global food task; it is a question of domestic political consideration in terms of the income transfers. The observation I make is that different countries will come to different domestic political judgments about how that would occur.

Senator HEFFERNAN—If there is this unknown situation and we go to Copenhagen and do not look at agriculture—no, do not look over there—Australia's farmers could be lead up a very dry gully by all of this. For God's sake, we are entitled to know what the future holds. The banks are interested, and you blokes are saying, 'Oh, we'll think about it in 2015.'

Mr Comley—Again, the Copenhagen question is separate to the domestic policy response.

Senator HEFFERNAN—Well, I am a farmer. Do you think I should just tell the banker to wait until 2015?

Mr Comley—The government said it would not make a decision before 2013 but that it would make a decision in 2013 following consultation with the industry and other stakeholders about the possible inclusion of agriculture.

Senator HEFFERNAN—But part of the problem that I have is that if the science on the planet is right, and bearing in mind the predictions for having to reconfigure rural and regional

Australia, which I cannot really run here—we are doing another inquiry into these exact issues—the cost of reconfiguring agriculture, not only here but globally, and then doubling the food task and losing 30 per cent of the productive land of Asia where two-thirds of the world's population live and where 1.6 billion people will possibly be displaced, is a hell of an impost on the agricultural sector, and you blokes have not modelled any of that. You have not thought about it.

Mr Comley—That is not correct. Firstly, the agricultural sector has been modelled in the Treasury modelling.

Senator HEFFERNAN—Have you in included global displacement—

CHAIR—But it is a different situation from the processes that apply to it. We have been through the arguments plenty of times with ABARE. The impacts on agriculture of the CPRS are not well understood because of the truncation of agriculture at the farm gate and the non-consideration of the manufacturing sector. That is quite clear.

Senator HEFFERNAN—At some stage of the game we have got to pass costs forward; otherwise, how do you have affordable food, a viable farm and a sustainable environment if you cannot pass some costs forward.

Mr Comley—The idea that costs will have to be passed forward is not one that I would dispute at all. I just want to reply to that idea that no thought has been given to these questions.

CHAIR—I am saying that the modelling does not apply. I am not blaming anybody, because the models do not do it. We understand that. The models just do not do it because of the way they are set up. It is a flaw in the model. They just do not consider it.

Senator HEFFERNAN—It is just a flaw.

CHAIR—There are three models that I think the government has used in its considerations.

Senator FEENEY—I think it is really an argument rather than a consensus.

CHAIR—It has been confirmed to us by someone who did the modelling when they gave evidence to us in Melbourne that they just do not consider that. It is an issue because there are impacts that are going to be imposed on the agricultural sector. We have seen an example of it expressed through dairy and beef, and I am sure there will be others that will come out of the system as people start to wake up as to what is going on, and it will get passed back.

Ms Quinn—Can I clarify that the computational general equilibrium models used do link together agriculture and processing industries back and forward, just as occurs in the economy.

CHAIR—I can give you the written answer to a question on notice. We have not modelled the impact on agriculture of the processing sector.

Senator HEFFERNAN—The production side of it is not modelled.

Ms Quinn—Without seeing the precise question that you are asked—

CHAIR—That was the question.

Ms Quinn—ABARE have produced a report, which I referred to yesterday, that models the impost of the CPRS on the agriculture and agriculture related industries.

CHAIR—We have seen and read those.

Ms Quinn—So they have expanded the analysis that was undertaken in the Treasury analysis. They have taken one of the models that were used in that process, expanded the industry processes in agriculture and the agricultural sectors and looked in more detail at that as part of the ongoing analysis in the government for engagement with stakeholders on this issue. In that analysis they do link agriculture production and agriculture industries, and it goes back and forwards just as it does in the real economy.

Senator HEFFERNAN—What is in the fridge is going to be far more important than what is in the garage in the future. But we do not know—and I would love to know—what credits we get for what is not recognised as going on the farm. I do not get any credit for when the lucerne goes to—

CHAIR—I think we get the point. I hope they get my point. There are some questions on notice. Senator Milne specifically asked me to mention that she had some questions on notice. I have some questions on notice. Ms Quinn, you mentioned earlier that there was a little evidence of carbon leakage in the EU. I would be interested in your definition of carbon leakage and over what time frame the study was taken.

Ms Quinn—Sure. I can forward you the precise study that I was referring to.

CHAIR—There seems to be a perception being put around that carbon leakage means people are going to shut their shop and walk out today, whereas what we are being told is that it is a long-term process that takes place over a period of 10 or 20 years through noninvestment and slow decay rather than someone just saying, 'That's it; I'm walking out the door.'

Senator FEENEY—Import substitution as well.

CHAIR—That is part of the decay process. I would be interested in seeing that report.

Senator HEFFERNAN—We are going to be held to ransom in the meantime.

CHAIR—Thank you very much for your evidence this afternoon. That wraps up the public hearings of the inquiry. To those colleagues who are left: thank you for your assistance during the period of the inquiry. We look forward to the next stage, which is the discussion of the report.

Committee adjourned at 4.08 pm