COMMONWEALTH OF AUSTRALIA

Official Committee Hansard

SENATE

SELECT COMMITTEE ON CLIMATE POLICY

Reference: Emissions trading and reducing carbon pollution

THURSDAY, 23 APRIL 2009

HOBART

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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 Abetz, Bilyk, Boswell, Bob Brown, Cameron, Cash, Colbeck, Ian Macdonald, Milne and Xenophon

Participating members: Senators Abetz, Adams, Back, Barnett, Bernardi, Birmingham, 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 9.01 am

CHAIR (Senator Colbeck)—I declare open the sixth 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 …

and:

(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 certain 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, of course, may also be made at any other time.

[9.04 am]

HUNTER, Dr John Robert, Sea-Level Oceanographer, Antarctic Climate and Ecosystems Cooperative Research Centre

PRESS, Dr Tony, Chief Executive Officer, Antarctic Climate and Ecosystems Cooperative Research Centre

ALLISON, Dr Ian, Program Leader, Ice, Ocean, Atmosphere and Climate, Australian Antarctic Division, Department of the Environment, Water, Heritage and the Arts

GUNN, Mr John, Chief Scientist, Australian Antarctic Division, Department of the Environment, Water, Heritage and the Arts

RIDDLE, Dr Martin, Program Leader, Environment Protection and Change, Australian Antarctic Division, Department of the Environment, Water, Heritage and the Arts

CHAIR—Welcome. I invite you to make an opening statement.

Mr Gunn—Good morning. As you may know, the Antarctic Division has a science branch, in which about 130 scientists and support staff conduct research into many aspects of the environment in Antarctica and the impacts of humans on that environment. Although the boundaries of what does and does not constitute climate change research are somewhat fuzzy these days, I would estimate that somewhere around 50 per cent of the research we conduct is of direct relevance to climate change. In Hobart, we work very closely with CSIRO and the University of Tasmania. With me today are my colleagues Dr Press and Dr Hunter from the Antarctic Climate and Ecosystems CRC, of which the Antarctic Division is a very major player.

As with most of the work done on global climate change or global change and certainly all of the work done in Antarctica, our research is very collaborative; we work in large collaborative frameworks on a global scale. As for our relevance to your committee, our core expertise is in ice dynamics and the impacts of global change on the Antarctic and Southern Ocean ecosystems. I just want to differentiate primarily between CSIRO and UTAS, who focus primarily on ocean and climate change dynamics and on the extent of change in the biogeochemistry of the oceans. In terms of sharing questions and giving you the best advice today, I propose to focus AAD's answers to questions on ice dynamics and the impacts of climate change or global change on Antarctic systems' ecosystems. Thank you.

Dr Press—Our role is to look at the role of Antarctica and the Southern Ocean in the global climate system and in climate change. We are a collaboration of research institutions: the Australian Antarctic Division, the CSIRO and the University of Tasmania. We have collaborations internationally with the Alfred Wegener Institute, the New Zealand NIWA and Silicon Graphics. We have five major programs: climate change and variability; sea-level rise, of which John Hunter is one of the key leaders; oceans and carbon dioxide; the Antarctic marine ecosystem, much of which is done with the Australian Antarctic Division; and a small policy program, which is responsible for putting information about the role of Antarctica and climate

change into the public domain. In the last couple of years we have published a paper entitled *Ocean fertilisation: science and policy issues*; on the IPCC AR4 Report, we have done an update on sea-level rise entitled *Climate change, sea-level rise and extreme events: impacts and adaptation issues* and another on *CO2 Emissions and Climate Change: ocean impacts and adaptation issues*; and we are about to publish two position papers, one on ice sheets and another on sea ice, which we will make available to the committee, if it wishes us to. Dr John Hunter, on my left, would like to make an opening statement at some stage.

CHAIR—We will take your opening statement now, Dr Hunter.

Dr Hunter—Thank you very much. I am an oceanographer from the Antarctic Climate and Ecosystems Cooperative Research Centre. I have handed out a two-page document, which I will just read through reasonably quickly. I might miss out a few little bits, but I will try to point you to a couple of diagrams that are on the back and will just lead you through those. I am a physical oceanographer with about 10 years experience in sea-level rise and climate change. I have worked on scientific aspects of sea-level rise and also on the policy application of this science, for example, in setting risk guidelines for sea-level rise. I will only address term of reference 1(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 …

Dangerous climate change is generally thought to start when the global average temperature has risen by about two degrees above what it was in pre-industrial times. In addition, it is generally thought that stabilisation of greenhouse gases in the atmosphere at a 450 parts per million CO2 equivalent will give rise to a global temperature rise of about two degrees centigrade above that of pre-industrial times—in other words, the threshold temperature for dangerous climate change that I have just noted.

The issue addressed in term of reference 1(c) depends strongly on the way in which emission reductions are allocated between countries; therefore, it is not answered simply by the science. There is no way a scientist can directly answer the term of reference 1(c), because it depends on what everybody else does. Therefore, I will not comment directly on Australia-specific targets but will look instead at two significant effects that happen when you stabilise greenhouse gas at a specific level and at what it does to the sea level.

It is widely considered that stabilising below a 550 carbon dioxide equivalent will be very difficult. We may be aiming for 450, but a lot of people think we are not going to get short of 550, in fact. The attached figure, which is the first coloured figure and is page 3, indicates what we might expect if we do stabilise at 550. The second dot point indicates the expected range of global temperatures above that of pre-industrial times. Roughly, you will get within a range of two to four degrees centigrade if you stabilise carbon dioxide concentrations into the atmosphere at 550 parts per million. So that is just a graphical representation and the mauve bar represents the temperature range expected if you get to 550. All this information is from the *Fourth assessment report* of the Intergovernmental Panel on Climate Change. So it is slightly old data and I would suggest that it is actually conservative. Since the IPCC AR4 came out, there have

been suggestions that it was certainly conservative as regards where we will be at these levels of carbon dioxide.

The third dot point indicates the range of global temperatures at which snowfall over the Greenland ice sheet is exactly balanced by melting. We are looking at what will happen over Greenland. At the moment, if temperatures are lower than this—which, of course, they are—snowfall over Greenland will exceed melting. So more snow is falling on Greenland than is melting. Most of that balance then is taken up by calving of icebergs. As you warm up temperature, both snowfall and melting increases, but the melting increases faster. So you get to this limit of temperature, which again is in the range of about two to four degrees centigrade. At that temperature, melting equals the snowfall. This means that Greenland has to shrink. No matter what happens to the calving of icebergs or the flow of glaciers, you have to lose parts of the Greenland ice sheet. Once we get to that threshold, which is shown, as I say, by the third dot point as between two and four degrees, Greenland has to shrink, no matter what happens to glaciers. This is completely independent of information that you might have heard, since the *Fourth assessment report* came out, about the increased sliding of glaciers into the sea and the increased calving of icebergs; this is completely independent of that. This is about only the mechanisms of snowfall and melting. There is some evidence that, if you do get this shrinkage, it will be irreversible in that, if you remove the Greenland ice sheet in the future and then bring temperatures back to present day temperatures, you cannot get back the Greenland ice sheet.

The two mauve bars in the figure overlap almost symmetrically. This means that, if you stabilise at a 550 parts per million carbon dioxide equivalent, there is about a 50 per cent chance of Greenland going into this phase of what could be irreversible melting. So we are basically tossing a coin. If we go to 550 parts per million, based on what we know at the moment, we are tossing a coin for the future of the Greenland ice sheet. If that does shrink significantly, the potential sea-level rise will be about seven metres. However, the time scale for such a process is largely unknown; it could be millennia, or it could be shorter than that. That is the first point that I want to make about stabilising at levels that we quite likely will get to.

Secondly, if we stabilise greenhouse gas concentrations at the present level, relative to present levels, the global sea level will ultimately rise by at least half a metre. No matter what we do, we have half a meter of sea-level rise in the pipeline. This will lead to a significant increase in the frequency of flooding events from the sea. The second figure illustrates how, for 29 sites around Australia, the frequency of flooding events will increase with a half-metre sea-level rise. As I say, this is in the pipeline and we cannot avoid it. The map shows a series of red dots around Australia. The size of the red dots represents the factor by which the frequency of flooding events will increase after you have had half a metre of sea-level rise. You can see numbers which are large. Looking at, say, Sydney, you have a number of around 1,000. The average for Australia is about 300. This means that a flooding event—which now happens only once every 100 years—after half a metre of sea-level rise, will happen several times a year. I want to emphasise that we are now committed to such a rise in the future. We cannot avoid that, whatever we do with emissions. Thank you; that is all I want to say.

CHAIR—Thank you very much, gentlemen. Whoever wants to respond to this can do so. There was a fairly significant article in the *Australian* last week talking about ice in the Antarctic.

Senator IAN MACDONALD—As there was again this morning.

CHAIR—You might be able to enlighten us about that.

Dr Allison—My specialty is in ice. I have been working in glaciology for about 40 years, in both ice sheets and sea ice. I am not sure how familiar the panel is with ice in Antarctica, but a lot of misinterpretations get into the press about what is going on and why it is going on. I have a cartoon here, which I might try to talk to. I have a few copies that I will hand out. A lot of the reports that you see in the press confuse ice on the land, ice that originates from snowfall—what we call 'meteoric ice'—which is in ice sheets, glaciers and ice shelves, with what is called sea ice, which forms largely by direct freezing of the ocean in the polar regions. I have not seen the *Australian*, but there has been a recent report on an increase in the extent of Antarctic sea ice. I will put that aside for a moment.

Senator CAMERON—That scientific magazine!

Dr Allison—I am happy to answer questions about that later, but I will concentrate now on ice sheets and sea level. Ice sheets are enormous masses of ice resting on land. In the Antarctic, the volume of ice is more than 50 meters of sea level equivalent. But this is a very thick piece of ice; on average, it is over two kilometres thick. Most of it is very stable on the time scales that we are talking about here of hundreds of years or so, but changes can occur.

We talk about the mass balance of ice sheets, which John Hunter mentioned before. That is the balance between how much snow is added to the ice sheets and how much is lost. It is exactly the same as with a river drainage basin: you get rainfall in the interior of the basin and the water is eventually lost—if you do not drag it all out for irrigation, as is done in some cases—when the river flows into the sea. In Antarctica and in Greenland, any imbalance between the amount of snow added and the amount that drains out and is lost means a change in sea level.

For a long time we have been trying to answer the question: what is the present balance of the great ice sheets and how will they change in the future? The first part we are now starting to get an idea of from some very sophisticated satellite systems, so we now have a reasonable idea of what is happening at present. We believe that, at present, both Antarctica and Greenland are adding water to the oceans and increasing sea level. There are differences in different parts and different ice sheets are behaving differently.

John spoke about the difference between melt and snowfall. One way you can take the ice or the water in the ice out of the ice sheets and add it to the ocean is simply by raising the temperature and melting that ice. To a certain extent, that is what is happening in Greenland. That is one of the causes for Greenland losing mass at the moment: there is more melt around the edges than there is snowfall at high elevations. That is not happening in Antarctica, although it is happening in the Antarctic Peninsula. The main ice sheets are very much colder. Their typical surface temperatures are below minus 20. So, even if you raise the temperature five degrees, it still will not melt. East Antarctica is fairly stable in that respect. But, as we raise the temperature in Greenland, there will be increased melt, which will overwhelm the amount of snowfall and Greenland will lose mass. That effect is included in the last IPCC assessment report projections. That wide range of an 18 centimetre to 59 centimetre sea-level rise, which depends upon

emission scenarios and the models used to calculate that range, includes warming and that simple increased melt over snowfall, which is accounted for in the estimates.

There is another way that ice sheets can lose mass to the ocean—that is, by the discharge from the large ice streams with an increase in the breaking off of icebergs or floating tongues of ice. We are seeing an increased discharge of ice in Greenland from the many streams around the edge, particularly Jakobshavn, which is the fastest glacier in the world. In about a five- to six-year time span, the speed at the front of that has increased from a bit under 10 kilometres a year to over 13 kilometres a year. We are also seeing increased discharge from West Antarctica. Antarctica is losing mass not because of surface melt. Greenland is losing it from a combination of melt and increased discharge; Antarctica is losing it from the West Antarctic by increased discharge. I probably should stop there, in order to see which direction you want me to go in and whether you have any questions.

Senator MILNE—Perhaps I can clarify. I think what is really being put is that your comments have been reported in the sense of suggesting—this contributes to the arguments of the sceptics—that global warming is not really happening, because there is a build-up in East Antarctica and that, therefore, negates the notion that there is global warming.

CHAIR—I am not sure that it is necessarily a sceptics' argument; I was after clarification from the witness—

Senator MILNE—No, I was not necessarily reflecting that. That was reported was as though from a scientific journal, as Senator Cameron suggested, contributing to the argument of that particular media outlet. We just want some clarification: because there is more ice in East Antarctica and the west is melting does not mean that you cannot draw a conclusion that global warming is not happening. We want your response to that.

Dr Allison—In my opinion, the newspaper article that you are talking about was selective. It concentrated on a rise in ice in East Antarctica. There is a very much greater loss of ice from West Antarctica. There is clear evidence now that overall the Antarctic ice sheet is losing ice at a rate of somewhere between 0.2 and 0.3 millimetres of sea level per year. The East Antarctic is very close to imbalance. There may be a slight increase, but it is more than offset by the loss of ice from West Antarctica by discharge and from the Antarctic Peninsula.

Senator MILNE—I will continue with a few questions on the science. Dr Hunter, I know that you said you were not particularly interested in commenting on the government's targets, but the five to 15 per cent is something that we have to vote on. If the world adopted, let us say, a maximum 15 per cent reduction in greenhouse gases against 'businesses as usual' by 2020 on 1990 levels, what does that mean for ocean acidification? Perhaps someone could talk to me about what that means in terms of the food chain, and so on, and the haline conveyor, saline density and ocean currents and so on.

Dr Hunter—Martin Riddle will talk about the acidification issue.

Dr Riddle—I will talk to your question of ocean acidification. I will not link the emission standards but will tell you what an atmospheric CO2 level would mean to ocean chemistry and some of the biota. At 450 parts per million, wintertime—

Senator MILNE—Could you just be clear about whether that is CO2 or CO2 equivalent?

Dr Riddle—That is 450 parts per million CO2 because we are talking about ocean acidification. Ocean acidification is independent of the modelling of climate change. Ocean acidification is a direct effect of the chemistry of CO2, carbon dioxide, and its dissolution in sea water. Carbon dioxide dissolving in sea water shifts the chemistry of the sea water; it changes carbonate to bicarbonate, which shifts the balance of carbonate ions. Under current conditions, at the sea surface, carbonate is saturated, which means that it is a saturated solution of carbonate. Saturated solutions cannot take up more carbonate. For that reason, seashells do not dissolve at the ocean's surface. If you decrease the amount of carbonate—that is, if the carbonate ions become under saturated—simple thermodynamics force the carbonate to dissolve. So the saturation of carbonate is an important threshold. It is a switching in the chemistry of calcium carbonate from stable to unstable.

The latest research from CSIRO and the universities is that, based on modelling, at 450 parts per million, during the wintertime, the surface of the Southern Ocean will become undersaturated. That is a shift from how it is currently, switching the threshold to undersaturation. The models predict that, under current emission scenarios, that will happen somewhere within the next 30 years—around 2030 to 2038.

Senator MILNE—What does that mean?

Dr Riddle—Many marine organisms use calcium carbonate for shells, both planktonic organisms and organisms that live on the seabed. For those that live on the seabed, if the saturation horizon passes them—if it moves towards the surface—at the point of moving past them, they will have to invest metabolic energy in maintaining their skeletons, which means that they will have to put energy into maintaining something that was previously done at a lower energy cost; however, they may not be able to do that. We do not know. Scientists do not know the full effects of that. A similar thing will happen for those animals in the plankton. They have the option of possibly migrating upwards but, clearly, they cannot migrate beyond the surface. This is why the point when undersaturation reaches the surface is clearly important because those planktonic organisms have nowhere else to go.

There is an extra level of complexity in this, as there are two types of calcium carbonate: aragonite and calcite. The important point here is that the aragonite form is more soluble. So the aragonite form and the organisms that use aragonite will be more sensitive to this change than the forms that use calcite. There are some important organisms in the Southern Ocean that are key to food chains: the tetrapods that use the aragonite form. That group will be more vulnerable than other types. The reef-building corals use the aragonite form, so they will be more sensitive.

Senator MILNE—So, at 450 parts per million of CO2, we have a chemical change that threatens the food chain and coral reefs.

Dr Riddle—No. At 450 parts per million, we have a change that certainly threatens the food chain in the Southern Ocean and we also have a change that threatens cold water corals in the Southern Ocean, but I cannot extrapolate that to tropical coral reefs or reefs in other parts of the world—certainly not to that level. That is not my area of expertise.

Senator MILNE—Yes, but in the Southern Ocean.

Senator CASH—Gentlemen, I am not a scientist, so please excuse my next question being a basic one. I have listened to you and you obviously say that we need to take action. However, in talking about taking action, do you mean the need for global action in the context that it has been put to us: that, without meaningful global action, any action taken by Australia in isolation or relative isolation to reduce carbon emissions would have no impact on total global emissions whilst costing Australian jobs? Putting the jobs issue aside, are you talking about taking action in the context of global action, or are you saying that, by Australia taking action, there will be a meaningful impact on the reduction of carbon emissions?

Mr Gunn—I think there is absolutely no doubt that the scientific consensus is that this is a global problem that needs to be fixed up globally. I do think it is inappropriate, sitting in a public servant's chair, to comment more broadly on policy within Australia, but—

Senator CASH—That is why I asked that political issues be put aside.

Mr Gunn—It is a very simple question. This is a global problem and needs to be addressed globally.

Senator CASH—If it is not addressed globally and Australia, with 1.4 per cent of the world's total emissions, goes ahead and introduces its scheme, will there be a meaningful impact on the reduction of carbon emissions?

Mr Gunn—That question goes to how long is a piece of string. I do believe that, as long as the targets are met on a global scale, you would see the projected impacts or lessening of impacts.

Senator CASH—But it gets back to our needing a global response.

Mr Gunn—How you engineer that is really up to policy and governments.

Senator CASH—But we need a global response.

Mr Gunn—You need to reduce global emissions of carbon.

Dr Hunter—Perhaps I can answer that as well. To a certain extent, the response of the climate system will be proportional to the emissions and over small ranges. If the emissions turn out to be 1½ per cent smaller than they would be otherwise because Australia reduced its emissions, say, to zero, that would have a significant effect on the climate. I do not like people saying that there will not be any effect. There will be an effect. There is a lot of uncertainty in these things. It is a bit like the weather. We are used to the weather being variable from year to year but, on average, we certainly know when it is getting hotter overall and we know if it is going to get colder overall.

Senator CASH—I am a little bit confused now. You have now stated that, if Australia were to reduce its emissions to zero, it would have a significant effect; therefore, why do we need global action?

Dr Hunter—It would have an effect that would be 1½ per cent of the effect there would be if everybody reduced their emissions. Think of the response of the climate system as being approximately proportional to the emissions. From things like the ICCP report, the Stern report and the Garnaut review, everybody accepts that the cost of climate change will be huge if we do not do anything about it. However, doing 1½ per cent of that will have some significant effect.

Senator CASH—On the basis that Australia at present is not going to reduce its carbon emissions to zero, we obviously still need a global response to get the significant effect that you refer to.

Dr Hunter—I do not think it is one thing or the other. We are going to have damage that, to a certain extent, is proportional to emissions. The more we reduce those emissions, the more we reduce the damage.

Senator XENOPHON—I have questions for Drs Riddle and Hunter. Dr Riddle, further to Senator Milne's questioning in relation to the 450 parts per million and the changes that could cause in the oceans, at what level could we avoid the sorts of potential changes you are talking about? Is it 350 parts per million or some other figure?

Dr Riddle—I cannot tell you of a specific level that would avoid any of these changes. However, I can tell you that the change in CO2 levels that has occurred so far—that is approximately a change from pre-industrial of 280 parts per million to 380 parts per million—is already seeing, through the process of ocean acidification, detectible effects in some parts of the Southern Ocean. A recent study showed that the weights of foraminifera shells—these are small planktonic organisms that are about the size of a grain of sand—are 30 to 40 per cent lower than they were in pre-industrial times. That data was based on measuring the weights of shells that were captured in sediment traps recently and measuring the weights of shells that are preserved in Holocene weights in recent but pre-industrial sediments in the sea floor in the same environment. So the increase that we have seen so far from 280 parts per million to 380 parts per million has already brought about a change in the calcification of these planktonic organisms.

Senator XENOPHON—But, from a policy point of view, what do you, as a scientist, say that we should aim for? Should we aim for 350 parts per million, as some scientists in Europe are now saying? What level do you say we need to aim for to minimise that risk?

Mr Gunn—I do apologise if this sounds like a lesson in uncertainty and precaution. I understand personally that, in giving a lesson to someone, saying somewhere between 400 and 470 does not quite have the impact of stating a number. I think what Martin and science are saying is that the impacts of acidification are already happening. We are seeing those impacts on a range of systems around the world. The number 450 sits in a range of uncertainty. At the bottom of the range, we are seeing 380 already having an impact. We know that at 450, which is in the middle of a range of impact, it is starting to get very, very serious for animals that need aragonite saturation as one of their key physiological inputs. At a higher rate, we know that it will be more draconian. So, like most things—Senator Macdonald has dealt with fisheries for a long time—a number of what is sustainable is, in fact, a band of what is sustainable. With policy, you have the choice of being precautionary or less precautionary. That is the answer that I would give to your 'how low do we go'. The question is: in a policy sense, how precautionary do you want to be in mitigating the risk of impacts?

Senator XENOPHON—Dr Hunter, your evidence is that there is roughly a 50 per cent chance or probability of irreversible Greenland melting based on 550 parts per million. What is your understanding of the possibility of that at 350 parts per million and 450 parts per million? You may want to take this on notice, if you do not have it in front of you.

Dr Hunter—I would have to take that on notice. I do not think those numbers are even in the literature at the moment. There already is an effect of sea-level rise due to carbon dioxide emissions into the atmosphere; we know that. Throughout the last century, the sea level rose by something like 17 to 18 centimetres. If we want to return to pre-industrial times, we need to bring back our greenhouse gas levels in the atmosphere to those levels; so we need to bring them back essentially to around 280 parts per million. As John Gunn says, any amount above that gives us some damage, basically, or some change to the environment. The further you go away, the worse that damage is.

Senator XENOPHON—It would be good if you could take that on notice. Thank you.

Senator CAMERON—Gentlemen, thank you for appearing before the committee. I have just had another look at the inquiry's terms of reference. Those terms of reference do not cover a threshold issue that we have spent a lot of time debating at the inquiry, and that is whether global warming is actually taking place and needs to be dealt with along with associated issues. On that basis, we had evidence from a couple of scientists who indicated that they do not believe there is carbon-induced global warming. Given that there are some in politics who still need to be convinced of the reality, what do you say about the argument from some geologists that global warming is not taking place? Professor Stewart Franks, I think, is one; I am not sure whether you are aware of his work. Can anyone comment on that threshold issue?

Dr Press—I think now that the vast majority of scientists working on this issue believe that global warming is happening and is aided and abetted by the increased carbon dioxide that we, as humans, have put into the atmosphere since industrialisation. It is a very complicated story, but one of the things about Antarctic research is that the ice cores in Antarctica—those that we have so far that go back 860,000 years—can tell us a lot about the atmosphere, temperature and changes in climate over that period of time. Ian Allison is an expert in that area and he might like to make a comment.

Senator CAMERON—The two scientists that I have spoken of are Professor Robert Carter, an environmental geologists from James Cook University, and Associate Professor Stewart Franks, who is with the School of Engineering at the University of Newcastle. I do not want to say anything that they did not say, but I will summarise by saying that Professor Carter said that this is a natural phenomenon and not about CO2; and Professor Stewart Franks said that this argument about global warming is all rubbish. That is the evidence we have had from those two scientists and is the issue I would like you to address.

CHAIR—Perhaps it could be made fairly succinct, as we are getting close to time.

Senator IAN MACDONALD—Do not feel obligated to attack other people in the same field as you, if you do not feel comfortable in doing so.

Dr Allison—No, I cannot comment on their individual work. I will just reinforce that the last IPCC assessment report came up with the conclusion that warming is unequivocal. This is not the work of a bunch of eco-terrorists, as some would have you believe. The IPCC work relies totally on peer reviewed scientific literature, which is stuff that has already been out there. It undergoes intense peer and government scrutiny. Every word in the report is subject to review. I was involved in one chapter and it was probably one of the smallest chapters; there were something like 1,600 review comments that we had to respond to for that one chapter alone, before the final report went out. All those responses are available on the web—they are open responses—and the review comments were all published. That report is not a consensus, as you will never get a 100 per cent consensus, but it is evidence that a very clear majority of scientists active in that field hold that conclusion.

Senator IAN MACDONALD—Dr Hunter, I am going right back to the beginning because between Dr Allison and yourself, rather than clarifying it, I have become more confused. First, is there anything in today's *Australian* report that has been attributed to you but that you say were not your words?

Dr Hunter—I do not think there is anything in the *Australian* that I have said; it is from Ian Allison, I believe.

Senator IAN MACDONALD—BAS Project Leader John Turner. I am sorry; I beg your pardon. Were you involved in that project, Dr Allison?

Dr Allison—No, I was not involved in that project. For a long time there has been some indication that the extent of sea ice—that is the area that sea ice covers in the ocean—perhaps has been slightly increasing. The last IPCC report showed that there was an increase in Antarctic sea ice.

Senator IAN MACDONALD—Who or what is John Turner?

Dr Allison—John Turner is an atmospheric scientist at the British Antarctic Survey in Cambridge. He did this work with colleagues from the US, from NASA, particularly Joey Comiso, who is one of the lead workers in the interpretation and estimation of the extent of sea ice from satellite data.

Senator IAN MACDONALD—Is that your field? Are you his counterpart?

Dr Allison—I have worked in that field and I agree with their conclusions. However, you must realise that they are not measuring the total volume of sea ice; they are measuring the area of the ocean that is covered by sea ice. That can be changed by changes in the wind. Sea ice is moved by wind and current. So, if you get a change in wind systems, the sea ice can move further out and cover a greater area of ocean; but it may be thinner. We do not know how thick sea ice is, because we cannot measure that with radar systems.

Senator IAN MACDONALD—He is quoted as saying that it got colder and there was more sea ice because of the ozone hole. Now we have fixed the ozone hole, we are going to get warmer.

Dr Allison—That opinion has been around for a couple of years. He is not saying that it is getting colder; he is saying that the wind systems have changed.

Senator IAN MACDONALD—The wind systems are getting—

Dr Allison—Stronger, so that the ice has flowed further out.

Senator IAN MACDONALD—I am not arguing in a scientific way; I am purely quoting the *Australian* report of what Dr Turner allegedly said.

Dr Allison—A change in the wind systems will change the ice. It can even lead to more ice. If you export or push ice at high latitude—and it is naturally cold at high latitude—further south, you will have left open ocean behind and more ice will grow there rapidly. So changing wind systems can change the movement and export of ice—remember that we are talking about sea ice and not ice on the land—which can change the extent of sea ice.

Senator IAN MACDONALD—I cannot understand what he suggests, not that I really need to—and, before my democrat colleagues criticise me for being a sceptic, I would say that I am not.

Senator BOSWELL—They are the Greens actually. The Democrats have gone.

Senator MILNE—We are the Greens; it has taken a while.

Senator IAN MACDONALD—I meant small 'd' democrats, those who encourage differences of opinion. If you do have a difference of opinion, you are pilloried and sneered at—but I am not one of them. However, those who do have a different point of view should not be sneered at in the way that some of my colleagues do—and you are seeing an example of it now. The suggestion is that, as we repair the ozone hole, we will make the climate warmer.

Dr Allison—Yes, that is a scientific opinion. It is based on models. We have not repaired the ozone hole yet.

Senator IAN MACDONALD—But as we do.

Dr Allison—It will take decades for high-atmospheric chemistry to restore it.

Senator IAN MACDONALD—I will be accused of urging this, but I am simply asking the question: why don't we then leave the ozone hole to get global cooling to counter global warming?

Dr Allison—If you want to wait 100 years and swim or die of cancer tomorrow, that is your decision.

Senator IAN MACDONALD—Swim?

Dr Allison—That is with sea-level rise. Many of the climate change issues we are talking about are slow but relentless.

Senator BOSWELL—What is a good example?

Dr Allison—With changes in UV levels, we have concerns about ecosystems.

Senator IAN MACDONALD—I under the UV levels. However, we are saying that the ozone hole, because of winds or whatever, is making us cooler and, in repairing it, we are getting warmer, which is what carbon emissions are doing as well.

Dr Allison—The whole earth system is interconnected. We cannot change one part of the system, whether it is the ecosystems, the oceans or the atmospheres, without affecting another part of the system. We are affecting it at a number of different levels. We are affecting it with our carbon emissions and other greenhouse gases. We have affected it in the past with CFCs and their impact on the ozone. These processes are interrelated.

Senator IAN MACDONALD—But does it not follow then that, if something makes the globe cooler and something else makes it warmer, they balance each other out?

Dr Allison—No, not completely. The ozone effect on climate is occurring only in the immediate Antarctic region.

CHAIR—I think Dr Press has something he wants to say quickly.

Dr Press—I know that you are coming to an end, but I want to make the point that the conversation with Senator Macdonald emphasises that it is very difficult to put together the complete story by picking up little bits of information from a couple of paragraphs in a newspaper quoting a part or a summary of a scientific paper that might have been published on the internet as a prelude to the complete paper being published in a physical form. The climate change story is very complicated and has interactions with ozone, acidification of the ocean and various other things. One of the important things about the Intergovernmental Panel on Climate Change process is that, with the amount of peer review that is done, you do not chase a rabbit down a burrow.

Senator IAN MACDONALD—Are you suggesting that this BAS work was not peer reviewed?

Dr Press—No. I am just referring to the picking out of one bit. I have seen a summary of the paper. I have just come back from Washington and the 50th anniversary of the Antarctic Treaty Meeting; that paper was being discussed there and people were not disagreeing with it. Apparently, you are getting more sea ice—not glacial ice—in some parts of Antarctica, particularly around the Ross Sea, However, around the Bellingshausen Sea and the Antarctic Peninsula, you are also getting loss of sea ice on the scale that is happening in the Arctic. So, just taking one bit of the story without being able to look at all of it, you cannot be misled but form a picture in your own mind that is not as complete as the author had when he wrote the story.

Senator IAN MACDONALD—A quote there states:

While there is increasing evidence that the loss of sea ice in the Arctic has occurred due to human activity, in the Antarctic human influence through the ozone hole has had the reverse effect and resulted in more ice.

Dr Press—This is correct.

Senator IAN MACDONALD—Your point is about snippets of information but, unfortunately, most of the world relies on snippets of information about all sorts of scientific and political, I might say, life. We are disadvantaged, but that is the way life is. Thank you for that.

Dr Allison—Perhaps I could make one very brief comment. If you go to the original paper by Turner and his colleagues, the conclusion is that the increase in sea ice extent is still consistent with overall global warming.

Senator IAN MACDONALD—That the increase in sea ice—

Dr Allison—That the increase they see is not inconsistent with global warming. While any warming is occurring over the planet, these regional differences are possible.

Senator IAN MACDONALD—That is why you guys are scientists and we are but mere politicians.

Dr Allison—We can have floods in Queensland and droughts in Victoria.

Senator IAN MACDONALD—Which we have had all along. Getting back to Dr Hunter—accurately this time, I hope—you told Senator Cash that, if we shut Australia down, it would make a significant difference, being a 1.4 per cent less—

Senator CAMERON—I do not think he said that.

Senator CASH—It is exactly what he said.

Senator IAN MACDONALD—I think Dr Hunter is clever enough and brave enough to tell me if I am quoting him incorrectly; thank you, Senator Cameron. Again, for us mere mortals, are you able to somehow quantify what 'significant' means? I do not think we are having fewer cyclones. We are going back to the number of cyclones that we used to have 20 years ago—that is my observation, although I am not a scientist—but will we have fewer floods and fewer droughts, if Australia completely cuts out its 1.4 per cent of the world's emissions?

Dr Hunter—I mean 'significant' in the scientific sense. We can tell from the physics of the problem that, if you change an input to the system, there will be a change in the output of the system. I do not mean by 'significant' that it will be large or important, but it will be a difference. In other words, the only way that you can predict what is going to happen in the future is basically to run things like computer models. If you change the inputs to the models, if you decrease the emissions to a certain extent by any amount, you will probably get some kind of decrease in the output of that model. That is what I mean by 'significant'.

Senator BOB BROWN—Dr Allison, I read the *Australian* this morning too and went down to the beach to see how far the sea had fallen, as Antarctica sucked up the water, but I found it was a high tide. I just want to summarise what you are saying because it is very important for the committee.

CHAIR—Senator Brown, could you actually ask a question rather than make a summary? We have heard the evidence, but I really would like a question. We are over time. Please ask a question and then I have to go to Senator Boswell for a question.

Senator BOB BROWN—In exactly the same way as other senators, Chair, I will. Let me put this in question form, for the chair's edification.

CHAIR—Thank you, Senator Brown.

Senator BOB BROWN—Is your evidence to the committee that this century there will be a two- to three-centimetre rise in sea level worldwide on the current Antarctic water discharge into the ocean?

Dr Allison—Yes. We now have evidence that both Antarctica and Greenland are adding to sea level. Together they have probably increased ice loss a little bit from the IPCC assessment, so both ice sheets are probably adding about 0.6 millimetres per year to the ocean. That 0.6 millimetres comes to six centimetres over a century. However, that is if it continues at the present rate and does not allow for accelerated discharge of glaciers. I have not included in there, of course, the other effects on sea level, which are the melting of temperate glaciers all around the world, which are contributing as much as one centimetre a year at the present, or the other important component of thermal expansion of the ocean. So the ice sheets are adding. The other important point is that we are talking about what is going to happen in the next 100 years. But, with a warmer climate, this increased contribution of the ice sheets will continue for millennia. If the world stays warmer, they will keep adding to ocean levels over thousands of years, possibly at slow rates.

Senator BOB BROWN—If we go to 450 parts per million atmospheric content, will this rate of water discharge from north and south into the oceans increase?

Dr Allison—Certainly it will increase at a level of a few tenths of a millimetre a year. However, we are uncertain about the possibilities of rapid climate change—change due to the discharge of the glaciers due to processes such as basal lubrication and the removal of buttressing from floating ice out the front. We know what will happen directly as a result of warming; we are less certain how the glacier dynamics will respond.

Senator BOB BROWN—The figures you were giving a while ago indicate that Antarctica is discharging almost the same amount of water as Greenland is.

Dr Allison—Yes. However, with Greenland we also see evidence of an increase over the last 15 years. We do not have clear evidence of that for Antarctica. I should mention that we have only been able to measure these total contributions over the last 10 to 15 years.

Senator IAN MACDONALD—Thank you for your six-centimetre comment. Someone was telling us that they were going to rise by six metres.

Senator BOSWELL—That was my comment. I was just going home to sell my waterfront property. Now that I know it is only six millimetres, I will leave it for a couple of years. That was my question, Dr Hunter. I have lived on the water all my life. I have sailed boats all my life.

You could throw a stone from my back veranda into the water. I am not challenging you—before I could do so, I would have to go and get some readings off tide gauges—but, from my own observations of living on the bay and sailing just about every weekend when I was a kid, I cannot see there having been any rise in water over the last 10 to 15 years. I am not saying that it is not there, but I cannot pick it.

The other matter I want you to comment on is that you said that, if we get down to the levels of CO2 going into the atmosphere pre-industrial times, we will make a significant change. I suggest that we probably would too, but we would all have to go and live in a cave. In addition, you say that, if the ice melts in Greenland, it may never recover. I am a seller of paint brushes; that was my expertise before I came to the parliament, so I am very appreciative of being able to ask you these questions and getting some scientific deliverance of an opinion. I am told that thousands or maybe hundreds of years ago there was climate change in Greenland. People were farming and growing wheat there and the climate changed and now it is changing again. But why did the ice recover then but it will not recover now? They are probably basic questions for the uninformed, but I wonder whether you could answer them for me.

Senator IAN MACDONALD—Remember the Ice Age too in Gondwanaland.

Senator BOSWELL—Yes, I take all that.

CHAIR—Perhaps we could go to the witnesses.

Dr Hunter—From satellite observations, we know that the sea level is rising at the moment at about three millimetres a year; therefore, if you are talking about the last 10 years, it will have risen about three centimetres. I suspect that, if you live by the coast, it would be quite difficult to actually notice a three-centimetre sea-level rise. We know from, as I say, satellites that the sea level has been rising at about three millimetres a year for the last couple of decades.

Senator BOSWELL—That is a bit different from six metres.

Dr Hunter—Pardon?

Senator BOSWELL—You have in your paper 'half a metre'.

Dr Hunter—Half a metre is the amount that sea level will rise, if we stabilise at current greenhouse gas levels in the atmosphere. If we stabilise at the present level and carry on forever, we have about half a metre of sea-level rise yet to come because of the inertia in the system. But at the moment we are heading for about three millimetres a year upwards.

Senator IAN MACDONALD—Didn't you say six centimetres in 100 years?

Dr Allison—That is the present rate.

Senator IAN MACDONALD—He is saying three centimetres in 10 years.

Dr Hunter—The sea-level rise at the moment globally is at about three millimetres a year.

Dr Allison—I was talking about just the ice sheet contribution. There are larger contributions from glaciers and thermal expansion.

Senator BOSWELL—No wonder we get confused.

Senator IAN MACDONALD—Okay; I am sorry.

Dr Hunter—The second point concerned our returning to pre-industrial levels of CO2. I am not suggesting that we do that; I am saying that, if we want to completely or partially reverse everything that we have seen since pre-industrial times, we would need to reduce carbon dioxide levels in the atmosphere back to that level. We are stuck with what we have at the moment.

The third question concerned Greenland. The reason that Greenland is cold on top is that it is high. The reason that Greenland could shrink irreversibly and not be able to build itself up again is that, by removing Greenland, essentially the surface is lowered and therefore the temperature gets warmer. You must not think of Greenland as being a mountain on which there is a bit of thin ice; it is actually a huge thick ice sheet. It is not something that you can remove in a matter of hundreds of years.

Senator BOSWELL—That was not the question I asked. The question I asked was: we have heard—I think scientifically it has been proved—that people were farming on Greenland. I do not know when; probably a thousand years ago. If at that stage the ice had melted to allow farming to take place and the ice shelf had repaired itself, why won't the ice shelf repair itself now? You have said that, if the ice shelf goes beyond a certain point, it will not recover. It did recover.

Dr Allison—For it to disappear totally and not rebuild, it has to go past a threshold, a tipping point. The changes that occurred in the medieval warm period did not go that far. People were farming not over all of Greenland but just around the edge. The ice sheet still existed and was a little bit smaller than it is now, but it did not go below that tipping point.

Senator CAMERON—Can I ask a question?

CHAIR—Senator Cameron, please put your question in writing. We are over time.

Senator CAMERON—Can I ask—

CHAIR—No, you cannot, Senator Cameron. We are over time.

Senator CAMERON—That is ridiculous. There is one Labor senator here asking questions. I have asked only one question.

CHAIR—Senator Cameron, if your colleagues cannot come, I cannot help that.

Senator CAMERON—I have asked one question; that is all.

CHAIR—We are 20 minutes over time and I ask you to put your question on notice, in writing, and let the answer come back. Gentlemen, I thank you for your time this morning. We

appreciate your evidence. There will be questions on notice and we would appreciate your assistance with them.

[10.05 am]

FLITTNER, Mr Nick, Manager, Drought and Climate Change, Tasmanian Farmers and Graziers Association

CHAIR—Welcome. Thank you for your time this morning. I invite you to make a short opening statement, after which we will move to questions.

Mr Flittner—Thank you. As I am sure you are all aware, the TFGA is Tasmania's peak farming body. We represent about 65 per cent of the farmers in the state at the moment. In my position of Drought and Climate Change Manager, I have been dealing mainly with the drought for the last two or three years and I am moving now more into the climate change implications for the state. I guess my key role is to help our farmer members understand what this is all about, which is no easy thing.

My opening statement is that TFGA, as part of the family of farming peak bodies around the nation, supports the National Farmers Federation's submissions to this committee. We are an active part of the National Farmers Federation's Climate Change Working Group and, as such, feed information into and take information from the NFF. A lot of the heavy lifting in this topic is well beyond the means of a small organisation like ours, so we do rely on our national body to do that for us. I know that the NFF have put a submission into this committee and presented as well, so I will not cover all of that again. I will be talking on behalf of our local farmers here and only about the implications of the Carbon Pollution Reduction Scheme for our farming community.

Like the NFF, the TFGA has concerns that the CPRS will not serve agriculture very well, at least in the short term. We believe that the sector will be hurt by the negatives that come with that scheme and that it will have very little opportunity to take advantage of any positives, if I can put it in those simple terms. Despite the conversation that you have just had, members of our organisation do accept that climate change is a real factor. What percentage is caused by natural factors and by human factors is a matter that we could argue until the cows come home, literally, but our members accept that agriculture must play a part in any regime or scheme looking to the future to try to control climate change.

I will talk about two distinct aspects of this whole climate change agenda, as we see it; I call them the reality and the policy. There is a reality of climate change. Go out to a farm and you will see farmers seeing temperatures changing. They are seeing rainfall patterns changing from those they are used to, which has implications for the types of businesses that they can run. They are real things and we have a job on to help our farmers work out what those things mean for them, their businesses and their futures. There is also the policy agenda, which is the entire global and national attempt to do something about the pollution that is causing climate change. The two things are linked but also distinct, and we need to treat them like that because our members have certain needs in that regard.

To cope with the reality, as I call it, farmers need to do two things: adapt to the new environments and situations; and, through that, to innovate, which means they need to create

new farming enterprises and businesses based on the new realities of the climate in their area. Policy is really about net emission reduction, and there are only two ways of doing that. You either prevent emissions going out in the first place or you capture them once they have been emitted. That is what all these agreements and this policy are about.

We do not believe that the CPRS, in its current form, does either of those two things very effectively, especially not for our agricultural sector. An immediate impact of the CPRS on our sector would be increasing costs into the sector, which would include direct input costs from the covered sectors. So we would expect to see increases in things like fuel, energy, fertiliser and other manufactured items. All sectors covered by the CPRS will have increased costs; they are significant costs in any farming enterprise and they are expected to go up. We also expect there to be increased costs to the processing sector, as that is being considered an industrial processor, which includes abattoirs and things like that. They will have increased costs because they also will be covered. We believe that, because the agricultural sector is a price taker and we cannot pass costs on very effectively, processing plants will offer lower prices to our farmers for their produce to offset the additional costs of those processing plants. So that is another negative, if you like, for the farmers. On top of those two things, as I say, agriculture is a price taker in the world markets, and we do not really have a great opportunity to pass those costs on elsewhere.

We are a bit concerned about the opt-in forestry provisions in the CPRS, mainly not because of forestry per se but because, effectively, forestry now will be the only avenue by which farmers and landowners under this scheme will be able to gain any benefit from the CPRS. Anything else is not allowed, has been excluded or is not in Kyoto, so forestry or timber is the only one left. While many of our members will take advantage of that factor, it has the potential of distorting land use decisions. Therefore, we are a bit concerned about that as well.

We believe that, at the moment, there is little incentive for farmers to adapt to emission reduction techniques and things like soil carbon sequestration, because they are just not on the immediate agenda. Also, as you would be aware, the current regime will exclude opportunities for offsetting from agriculture to other sectors until a decision has been made as to whether agriculture is in or out. So that really takes out another whole raft of opportunities for our farmers. In addition, the CPRS really does not provide any real incentives for best management practices or renewable energy production on farm, which we believe could have great potential for our farmers. So we do not believe that the CPRS, at the moment, does a good job for our members.

We are looking for a system that does not penalise our agricultural sector and landowners and that does not disadvantage our sector internationally. We do not want to see our businesses disadvantaged because of cost increases here, when such cost increases are not occurring elsewhere. As you would be aware, in the rest of the world, I think only New Zealand at the moment is even considering including agriculture. We would like to see incentives and rewards being provided for both the adaptation and innovation that our farmers will need to undertake and also for emission reduction. In addition, we would like to see a recognition of past and present achievements in carbon reduction and emission control; our farmers have done a good job over the last few decades in many areas, which is not recognised under the current regime. Also, we would like to see encouragement for R&D investment in adaptation, innovation and emission reduction.

CHAIR—Thank you.

Senator BOSWELL—To meet our Kyoto protocols, farmers in Queensland have been banned from clearing and now are being banned from clearing regrowth. Is the situation similar in Tasmania?

Mr Flittner—No, not that I am aware of; we do not have any bans on clearing per se.

Senator BOSWELL—So, if you have a grazing property, you can go out and clear it.

Mr Flittner—As far as I am aware, there is no—

Senator MILNE—Tasmania is well behind the rest of the country in that regard, Senator Boswell.

Mr Flittner—Under certain conditions, you need permission.

Senator BOSWELL—You have a very healthy dairy industry in Australia. We have been told that it takes as much power to dry milk powder as it does to dry cement. The cement industry is being covered by an EIS. How is your dairy industry going to compete with the rest of the world, if you have to pay very significant costs for drying milk into powder?

Mr Flittner—Obviously that is an issue we are concerned about. If all the other countries are not doing that in their sectors, we will be disadvantaged; there is absolutely no doubt about that. One of the main concerns that we have with the current structure is that the cost imposition on our sector will be there from day one, and we will not have any opportunity to defray those costs or have them included in an emissions intensive scheme.

Senator BOSWELL—I have mentioned this in the committee on numerous occasions: in Queensland there is a Golden Circle factory. I think the equivalent in Northern Tasmania would be McCain.

Mr Flittner—Yes.

Senator BOSWELL—Golden Circle is struggling against imports at the moment. Whether or not they are subsidised is another matter for debate, but they are losing market share rapidly from imports. It was a cooperative and was saved by Heinz going in and buying it. What will happen if your food processing plants have to carry the consequences of an ETS and an RET and then compete against countries that do not have to cope with similar consequences?

Mr Flittner—As I say, as far as I am aware, processing plants such as that will be considered an industrial process and not part of the agricultural industry; therefore, they will be covered by the industrial section of the ETS or the CPRS, which means there will be increased costs. Again, I think it is true to say that only those factories or businesses in those covered sectors that produce more than 25,000 tonnes a year will have to be part of that system; I do not know whether Golden Circle will be in that situation, but it probably would be. Assuming that it is, it will have increased costs. We are forecasting that across the nation, because they cannot pass the

costs on internationally into the consumer market, they will pay less to the producers of the fruit in the first place. That is the problem.

Senator BOSWELL—Whether or not they will have to buy certificates, they will come within the ETS by virtue of the fact that the cost of power will go up for every electric motor, skin puller and chain—everything that works—in an abattoir or a processing factory. But the point I want to make is that you are perfectly correct: last year, in Queensland, the growers were told that they would have to take a 40 per cent cut in their quota; the factory would be taking 40 per cent less because of imports. Effectively, those imports were mainly but not altogether house brand products that they were in competition with. Do you see a problem with that?

Mr Flittner—There is always a problem when our producers are being disadvantaged by what, effectively, are created mechanisms, and we would rather not see that. As you would be aware, Australian agriculture is amongst the most open in the world. The least amount of government money comes into agriculture here than almost anywhere else, so we do not like those things happening.

Senator BOSWELL—I think New Zealand is slightly better than us, but not much. I know that you are not a big cattle producer, but how many export abattoirs do you have?

Mr Flittner—That is a moot point at the moment.

Senator MILNE—That is a moot point, absolutely.

Mr Flittner—A couple and one on the edge.

Senator BOSWELL—So two—

Mr Flittner—As I said before, we as an organisation have not done that work, as we just do not have the resources. We depend on the NFF to do that work and they have done some numbers—I know they have presented them here—of the cost they are forecasting it will be. I think it is $5 per head of cattle or something like that.

Senator BOSWELL—We will be receiving some information from an abattoir. They have informed me—they do not mind me saying this—that it is about $7 a head, plus $7 a head to build the certificates. But then they say that, if and when agriculture is included in the ETS in 2015, it would go up to $34 per head. You make the point that there will not be a magnanimous buyer out there who will pay the grazier more. Therefore, where we export against countries that do not have an ETS, we are going to be severely disadvantaged. I make the point that, if any industry is covered or has done their heavy lifting on this, it is the primary industry. It has kept—

Senator CAMERON—Point of order, Chair.

CHAIR—Senator Boswell, can we get to the question?

Senator CAMERON—Get to the question without talking about—

CHAIR—Senator Cameron.

Senator CAMERON—Give us a break.

CHAIR—Senator Boswell, can you bring it to a point, please?

Senator BOSWELL—Yes, I will. The point is: do you believe that primary industry has carried its share of keeping Australia's emissions lower than—

Mr Flittner—Our view is that we have a big role to play here. Obviously, because we are not being included initially in the scheme and do not know whether we ever will be or, if we will be, how, there is a great opportunity that the country might be missing out on. Obviously, with the landmass that is under the ownership of farmers and the rural sector, soil and timber et cetera are areas that could add significantly to emission reduction in this country. But, as we are not part of it initially—there are reasons for that, I know—we do not want to feel that our industry will be disadvantaged by that factor; however, it looks as though it will be, if the current regime goes ahead as planned.

Senator CAMERON—Mr Flittner, thank you for coming to give evidence today. I am glad to see that you have said you accept that climate change is a real factor. I just wonder whether your association has done any analysis as to the effects that climate change could have on Tasmanian agriculture.

Mr Flittner—We ourselves have not but, as you may be aware, a number of research projects are occurring in Tasmania. The principal one is Climate Change Futures, which is reporting next year. This will give us some real data on quite small geographic areas right across the state and will tell us exactly what the science says it will look like. Say, if you are living at Ross or on the east coast, it will say, 'The temperatures will do this and the rainfall will probably do that,' and that sort of thing. That will give us the best science we can get on that sort of thing.

Obviously, with the current drought, we are seeing what could be climate change. Tasmania is still in the worst drought it has ever had, mainly on the eastern side of the state. So, when we say that climate change is real, our members, especially in those areas, are fully aware of that because they are seeing every day that something is going on. A lot of the traditional ways of farming and the records they have kept, which they have relied on, will just not be of any use to them in the future, so they are looking at where they go from here; it is real for them on a daily basis. That is why I differentiate, in this discussion, between the reality of that and the construct we are working on with carbon trading, carbon tax or whatever global system will be created; they are distinct things. Our member farmers have to be helped to make decisions today and tomorrow about whether they will have an actual business and what it will look like, as that is very important.

Senator CAMERON—Do you say that farmers should be in this scheme?

Mr Flittner—No, not particularly. In international debate about the scheme, a scheme or a response to climate change, as you would be aware, emissions trading is only one tool and is being put forward by only some countries. We do not have international agreement on this yet. There is not an international trading scheme. There could be a range of other ways of doing it, as you would all be aware. I know that some people are keen on a carbon tax rather than a trading scheme. The Chinese seem to be quite keen on—

Senator CAMERON—I am happy to go into the nature of the schemes, but I would ask you—

Mr Flittner—Okay. I do not think we, as a sector, have a firm view on the best way of addressing the international emissions problem.

Senator CAMERON—Do you know what amount of emissions agriculture contributes to the total amount of CO2 emissions in Australia?

Mr Flittner—I think the number is about 17 per cent. It is significant.

Senator CAMERON—It is about the second highest amount, isn't it?

Mr Flittner—Individually, which obviously is why people want it included.

Senator CAMERON—So do you think agriculture should play its part in resolving this issue; and, if so, can it play its part without there being some cost in resolving the issue?

Mr Flittner—We believe so. As you would all be aware, one of our problems is that things like soil carbon have not been included in the Kyoto agreement; therefore, we cannot use soil carbon at the moment. This may be changed with the next Copenhagen round, which will occur at the end of the year. We believe that renewable energy has huge potential for agriculture or landownership. We have stacks of wind, soil, biomass, sun, biofuels and other things. A lot of our members talk to us constantly about this area. We run forums around the state, talking to farmers, and usually the biggest single topic of discussion is the opportunities for renewable energy on farm.

Senator CAMERON—Basically you are saying that, with every challenge, there is an opportunity.

Mr Flittner—Absolutely. To put it simply, our farmers see it in positives and negatives: the negatives are the costs of emission and having to buy credits and whatever; and there is a whole bunch of positives or pluses, which is earning income through things like renewable energy, soil carbon or those sorts of things. At the moment, I think the view is that they are going to be hit with the negatives and are getting almost no opportunity for the positives or the pluses, and they want to get involved in those things. Farmers have always had to be and are very adaptive and entrepreneurial. You will find that, if they are given the right signals, they certainly will get on board in a big way. But that has to be done in a way that builds their business and makes them viable and sustainable. It could be huge, if we get the settings right; we are arguing that they are not right at the moment.

Senator CAMERON—I come back to this issue that there is a cost on the globe in trying to deal with this problem. Farmers would accept, wouldn't they, that they have to make a financial contribution for future generations? Isn't that a reasonable proposition?

Mr Flittner—I suspect so. The contribution could be a positive financial one. If we can do things in better ways with better technologies, such as with renewable energy, we can all be

winners and be in a win-win situation because the capacity is there; however, we just do not have the settings right at the moment.

Senator MILNE—To pick up that point, I trust then that the TFGA would support a national growth feed-in tariff that would give farmers a return from renewable energy.

Mr Flittner—Yes, that is a big issue right across the state. There will be states doing it differently, as you would be aware, which is a big disincentive. If that could be achieved, farmers would do this thing by themselves without having to have any other initiatives. So, yes, absolutely.

Senator MILNE—I want to pick up your 'distortionary' point about including plantation forestry as an opt-in to the Carbon Pollution Reduction Scheme. I thought it was interesting that you made the point you are concerned that it might distort land use decisions, particularly since we have no effective land use controls in Tasmania. When it commenced, this committee had a biocarbon roundtable. The general consensus there was that we need to incentivise the things that make the biggest difference; therefore, we need to incentivise the protection of native vegetation and forests and then finding ways of having stewardship programs—for example, restoration of ecosystems and so on. None of that is advanced by this. In fact, we also have the carbon sink forests incentive. On top of the opt-in for forestry, that will drive a further distortion to plantation establishment as opposed to native vegetation.

What is the TFGA's position? Do you say that you would support taking out the opt-in for plantation forestry? In addition, would you support a complementary measure, which would be parallel to any emissions trading scheme, that would actually be a processes for land use managers—farmers obviously are land use managers—that incentivised the things with the maximum value for carbon and biodiversity?

Mr Flittner—The TFGA has a very clear forestry policy that essentially says that farmers should be able to farm as they see fit. We do not have a problem with MIS schemes per se or with forestry as an opt-in in this scheme. The point I made was that, because it is the only option on the table, it does run the risk of distorting those decisions because farmers cannot take the soil carbon option, because it is not allowed. So there is potential distortion simply because it is the only one being left. In a way, it is the same as the MIS schemes: it is the only MIS left; all the other have been taken away. While we think that is fine in itself and we encourage farmers to make their decisions based on their own circumstances—and a large number of our members do have forestry on their properties—because it is the only game in town, if you like, it is a problem.

If you go on to a farm and look around, you will see large areas of soil and grasses, timber of different sorts, animals, machinery, buildings and so on. Every single bit of that potentially could be part of the solution to this issue of climate change. At the moment, it is only plantation forestry that is allowed, and that is not the best way forward. Potentially, our farmers have a lot of other opportunities, if we can get the system right.

Senator MILNE—However, the problem we have is that there is no way agriculture is going into the scheme at start-up. That position is supported by the NFF and a large number of people, on the basis that the accounting rules are not there yet and so on. As you are not going to get

agriculture in, I am putting to you: you have recognised the distortionary impact of having opt-in forestry. Since it is distortionary and you cannot get the rest in, wouldn't it be better to take plantation forestry out and put it in the context of a complementary measure that incentivises a range of things so that it does not have that distortionary influence?

Mr Flittner—I would like to reserve my comment on that. I am not certain and I would have to go back and have some discussions.

Senator MILNE—But are you sympathetic to the idea of developing a parallel incentive scheme that would have a financial benefit to farmers for things like restoration of remnant vegetation, and so on, as well as other things?

Mr Flittner—We have discussed this at NFF level and it is certainly the view of a lot of our members that a raft of other complementary measures needs to be in the system.

Senator XENOPHON—Senator Milne's logic is pretty compelling on that, though, isn't it?

Mr Flittner—It is compelling, yes. I am not in a position to make policy on the run for our members, but they are the issues that we are discussing constantly. To some degree, we have to deal with what we have. We have to work out what we can do with what we have and, at the same time, build an alternative vision.

Senator XENOPHON—But, going back to the broader issue, if we can fix up the accounting standards at Copenhagen—because there is a flaw there in that soil carbon and the like are not included—would you agree that the CPRS in its current form is fundamentally flawed or inadequate in that it does not take into account the potential that agriculture has with respect to abatement?

Mr Flittner—That would be the view we would argue, yes. Right from the beginning, we have said that it is not a mechanism that really helps the agricultural sector. But there are reasons for that, as we say. The rules do not allow for lots of things, but you can change the rules.

Senator XENOPHON—But there is enormous potential for agriculture to do its bit on the—

Mr Flittner—Absolutely. Yes, there is huge potential.

CHAIR—Is the TFGA concerned that, effectively, there is no modelling that shows the impact the CPRS will have on agriculture flowing from the impact that will occur in the manufacturing sector?

Mr Flittner—Yes.

CHAIR—Effectively, the CPRS truncates agricultural at the farm gate; all the manufacturing that is applied to that is lumped into industry. We have had evidence that there is no modelling at all that demonstrates the impact on agriculture from the imposition of CPRS onto dairy processing, meat processing and, potentially, vegetable processing. No-one really knows what will happen to agriculture as a result of the impact of the CPRS on the processing sector. Is it a concern that nobody has done any work at all on that?

Mr Flittner—It is. A work plan is in train, which the government always had as part of its agenda. That was that, once they got their CPRS worked out, the process between now and 2013 would involve some research and modelling into things like biofuels and so on. That would give the government information on which they could then make a decision in 2013.

It does concern us. We and the Farm Institute have done some work on this. I know that the NFF has been looking at some modelling of estimations of the costs at abattoirs and things like that; that has been done. But obviously, the more information we can get, the stronger will be the arguments that can be made. I understand in a way why it has not been done. The emphasis really has been on the sectors that will be covered: 'Let's deal with them and not spend a lot of time on those that will not be covered'—such as ours, which is unfortunate for us. However, I believe that it is planned that some of that work be done.

CHAIR—But surely there should be an understanding of its impact, even though you are not going to be included. We spoke to the Farm Institute in Sydney and they said that their modelling does not include that particular element; so they have not modelled it. No-one else, including the Farm Institute and Treasury, has modelled this at all.

Mr Flittner—Yes, it is a concern. However, as you would know, one of our biggest problems is that there are almost no certainties in this debate at the moment, especially for agriculture. The international rules are all over the place or they exclude things that could be included. We do not really know whether it is feasible effectively to account for emissions from animals, for example; no-one has really done that yet. This is a completely new thing in the world, so it will take a bit of creativity to work out exactly the best way that things might work. The point of obligation is a big issue. If we use the current model, which is only businesses emitting more than 25,000 tonnes, barely a farm in the country will fall into that category. Will that be a model used in 2013-15? We just do not know. There are so many unknowns, and I guess that we are sort of inching our way forward.

Senator CAMERON—On these points, you do accept that the government is undertaking consultations with the farming and agricultural industry; as we speak, these consultations are taking place.

Mr Flittner—Yes, and we are engaged with the government in developing the work plan onwards.

Senator CAMERON—Some modelling work has been done by Treasury on the agricultural industry. Are you aware that Treasury says that, even with the introduction of a CPRS, there will be robust growth in the economy and there will continue to be robust growth in the agricultural sector?

Mr Flittner—Yes, I know. I think we are all aware that around the world, since the financial or economic crisis, the agricultural sectors have been the ones that have held up pretty much in every country, in terms of employment and growth. Yes, that is accurate. However, it is obvious that any negative impacts on the scheme will diminish that.

Senator CAMERON—But I come back to this point again: really nobody anywhere can escape from the fact that there will be some cost to dealing with the global challenge of CO2

emissions. I thought you had considered that everyone would have to make some contribution, including the agricultural sector. Is that still the case?

Mr Flittner—I still think so. I think that would be accepted. But, again, if we get the best scheme we can, it will minimise those costs and maximise opportunities, which I think is the bit that is missing for us at the moment.

CHAIR—I thank you for your interjection, Senator Cameron, because it reinforces the point that the Treasury modelling is flawed in that it has no idea about the impact on agriculture—

Senator CAMERON—That is your view; it is not mine.

CHAIR—because it does not include the impact from manufacturing. Nobody knows the answer to that—

Senator CAMERON—You are the chair, but that does not mean to say that you have all the answers to this.

Senator IAN MACDONALD—He is doing pretty well.

CHAIR—and that has been conceded by a number of people.

Senator CAMERON—That is your view again.

CHAIR—Mr Flittner, just going to a further point, you have concerns with the CPRS, it as it stands at the moment, and you would like to see some modification, particularly to provide for some incentive that would allow farmers to take part in respect of complementary measures.

Mr Flittner—Yes.

CHAIR—Thank you for your evidence.

Proceedings suspended from 10.40 am to 10.59 am

LORD, Mr John, Private capacity

DICKENSON, Mr Ian, Chairman, Private Forests Tasmania

TAYLOR, Mr Peter, Senior Forester, Private Forests Tasmania

CHAIR—We welcome representatives from Private Forests Tasmania. I invite short opening statements.

Mr Dickenson—I am chair of Private Forests Tasmania Board. On my right is Peter Taylor, one of our senior people at Private Forests and on my left is John Lord. Mr Lord is also a member of our Private Forest board, but has asked to give his own perspective of the issues surrounding his family forests, so he has not been part of putting this presentation together today. I would appreciate it if Hansard could record that.

Thank you for the opportunity to talk to you today. The comments we make are quite preliminary in this particular issue. We feel that we still have quite a lot to learn on the issue of climate change and reducing our carbon emissions. We certainly have some thoughts about fairness and equity but, first of all, I think it would be useful if Mr Taylor made some comments about setting the scene of the importance of private forestry, particularly in Tasmania.

Mr Taylor—There is about one million hectares of private forest in Tasmania. That is made up of native forest areas and plantations of about 200,000-odd hectares or thereabouts. It is owned by a variety of people. Most of the native forests are owned by individuals—farmers, family farms and that sort of arrangement—and most of the plantations are owned by large industrial owners. We have two sets of clients, the industrial people who own and process wood and then, as we refer to them, the non-industrial owners, those that just own plantation or native forest as part of their farm and their wider land-use pattern.

In terms of volume of wood we are just under 50 per cent of all the wood produced in the state and obviously, with the growth of plantations, we will exceed that part of it. We unfortunately or fortunately made a dichotomy in our organisation in terms of we work with industry and we also work with individual private landowners. Many of my comments today relate to that part of our activities, the non-industrial, or the farmers out there that we deal with on a daily basis. I have some material here that I will run through quickly as part of the overall material.

Senator IAN MACDONALD—Can you tell us about your association or group?

Mr Taylor—Private Forests Tasmania is a statutory authority with an act of parliament, the Tasmanian Private Forests Act 1994. We have a board with me as chair and we have employed staff of some 12 around the state. Although the act was passed in 1994, the origins of the organisation were in 1985. We actually have people who have been working with our organisation that have had dealings with the same family of landowners for some considerable time. As forestry is a long-term activity, so the relationships that we build up are long-term relationships.

Senator MILNE—Can you just clarify something? I understood you to say that today you are speaking on behalf of the farmer component. Is that correct?

Mr Taylor—I am reflecting on the effect of the scheme on the non-industrial landowner set.

Senator MILNE—They are the non-industrial ones. What percentage of the forested area are we talking about?

Mr Taylor—Some 84 per cent of the native forest components owned by non-industrial owners—that is not the big companies—and it is almost the reverse in terms of most of the plantations, which are in some way controlled by the large industrial companies.

Senator MILNE—Thank you.

Mr Taylor—I would like to pull back and look at this issue in an overview position. One of the things that we are expecting out of this scheme is the way in which we are managing carbon in the landscape. We expect a lot from our landscape. We expect food, fibre, biodiversity conservation and a whole range of other environmental services such as good quality water, plus we expect to recreate in it, we expect tourism, we expect it to look good and we expect it to provide homes and space for communities. Action to address greenhouse gas levels means that we are adding another burden to that landscape. There are two key factors that we need to consider when we do that. It is the interaction between various demands that we are now going to place on the landscape as we ask for landscape to be managed for carbon purposes.

We already see across Australia, and in some cases quite intensely in parts of Tasmania, debates about food production versus land to produce wood; about plantations, plantings and water flows; about safe homes, communities and the biomass fires, and the issues that we see often encountered with MIS funded plantations with land-use change. We have got to acknowledge that as we put more plantings into the landscape those conflicts are not going to go away and, in some cases, potentially could get worse. Recognising the reality that we are going to encounter those problems, we need to move forward better informed about what we are going to encounter. Part of being better informed is about the way we do things.

We have seen in various submissions and other promotions groups, such as the CO2 Group, having what they call reforestation solutions, ways of putting trees into the landscape. They have a very good argument that they are putting trees in the landscape where some of those pressures about water, community and biomass would be less obvious. They are perhaps the easy solutions. Perhaps they have picked the low hanging fruit in terms of these interaction questions. There will be a whole range of other reforestation solutions which will encounter those conflicts and, as a society, we have got to be prepared for that.

I am also keen to reflect on the position of the Wentworth Group of Concerned Scientists in their submission to this inquiry where they say landscape management—that is we need to help nature do a better job in putting carbon into the soils and trees—is 25 per cent of the solution. If it is 25 per cent of the solution, let us just reflect on that and what that means. I often refer to the forests in Tasmania and the forests on private land across the whole of the nation as Australia's forgotten forests. There are 38 million hectares of privately owned forest across Australia. That is 26 per cent of the forest area of Australia. There are 65 million hectares of forest on leasehold

land. That is 44 per cent of the forest of Australia. Basically, 60 per cent of all those forests in Australia, that landscape out there that we can manage that type of carbon, is either leasehold or privately owned.

We need to ensure these areas receive the appropriate management and, more importantly, those people who are leaseholders or owners have the right level of support to enable them to capture that carbon in the landscape. The support must include support to individual landowners where their asset, their land and forest, must be managed to capture carbon. Although markets created by cap and trade systems, or any other system, will hopefully create incentives to manage land for carbon, the practical aspects of managing land for carbon in the landscape are not simple or easy. As a community, we have already seen dramatic failures in land management, as evidenced by the Victorian bushfires. We are not good at managing our landscape as a community. We need to recognise this, and recognise it is going to be a daunting task for individual landowners to manage their particular part of Australia for carbon storage purposes.

There is a large issue to consider that falls within the gamut of government, and that is one of consistent government policy. Landscape carbon issues can only be dealt with in the long term. Within this state the policy and attitude of various groups have changed with respect to plantations. At one point, establishing a plantation was regarded as a noble and sensible thing to do. Today, they are portrayed in some quarters as the major force destroying the land and rural communities. Neither position is likely to be entirely supportable but, as with plantation for wood, plantation forest management from carbon storage needs long-term committed support. This support must include research support and support to ensure that communities understand and accept the landscape level changes this scheme envisages.

Let us bring it down to a practical level. Many of the forests that you see on private land across Tasmania and Australia are not in prime estates. They are not primary forests. They are forests that have been used for decades for all sorts of reasons. If we are going to go into those forests and to manage them to increase their carbon storage we are going to have to use the tools that are available to us. One of those tools is fire. The reality is that if you want carbon in the landscape then you need to have the people responsible for capturing the landscape with the right set of tools. As soon as you start restricting tools for them, you restrict their ability to achieve the outcomes. One can also reflect on the use of chemicals in establishing plantings as well, which is exactly the same story; if you do not control your weeds, you do not get good growth, you do not get good survival and you are not getting the big tree that is going to hold your carbon.

At the property and individual decision-making level there are some things to consider as well. The most important thing, which the chairman alluded to, is that these are early days. We really do not know where we are going with a lot of this stuff. We do need assessable information that is accurate and where all the options are examined and risks for each of them explored. We already have telephone calls in from various landowners being approached by people with various schemes. As is often the case with the development of a new market, there are some entrepreneurial individuals that dive out there seeking an advantage, often to the disadvantage of others. The assistance that I am referring to needs to be provided when considering about entering the market and, to some extent, beyond that point.

Managing land for carbon is a relatively new type of land management. The withdrawal of government support for private forestry networks and the continued preference for generalised support for NRM bodies, using short-term funding, is not creating a platform that is enduring or with a level of expertise able to address the challenges ahead.

I would finally like to reflect on three more detailed elements of the scheme. One is the use of the national carbon accounting tool in terms of estimating the carbon that we have stored. There is some feeling that this is a fairly restrictive approach: one tool fits all. I believe a clearer pathway to enable other tools to be accredited for this purpose may be worthwhile. Indeed, Private Forests Tasmania, in conjunction with a range of other people, invested large amounts of money into what we call our Farm Forestry Toolbox which could do a similar thing but, of course, our further development of it, our encouragement of people to use it and supporting the use of that is tempered by that fact that it may not be accredited, or the pathway to accreditation for greenhouse purposes is not clear.

The other issue that I want to touch on is the five-year limit to back claiming carbon. On a practical level, a landowner might not even know whether or not their management of their vegetation or plantings will yield carbon storage levels able to provide a tradeable amount within this five-year period. That will be a disincentive for people to go out and be innovative, to try something, because, as I said, if it does not succeed in five years and we do not get enough carbon for trade then we have lost our investment and it is not worthwhile. This five-year limit is a disincentive for people to go out there. You need to remember that a lot of the land that I am talking about is quite dry country. It is not rich, deep soil with high rainfall. The growth rates are slow, survival of plants is difficult and all the technologies in terms of revegetation, although we do have a suite of them, are by no means regarded as an entirely mature science in this area.

The other element that we must reflect upon is the 130 years in the legislation. It is difficult to find in Australia a situation where land has been managed for single or multiple purposes for that period. Some national parks may have 130 years of dedication as national parks and management as such, but rarely does private land. In some cases, rarely does some public land as well. We have had continual change of land use and land control, both in public and private areas. We have not had consistent land management. The proposed scheme, even if a pool approach is adopted, means that the land use will become fixed; you have got to hold it there for 130 years, which is something that we have never done before. The two possible impacts to consider when we go down this track are that if land is devoted for carbon purposes and the rights are being traded, we can have a situation where a parcel of land, if you like, has no income and has no value to it so when someone buys it; they effectively just own the land. They cannot generate an income off it because the carbon has been sold off and they have got to keep the land as it is. This is despite the fact they would still have to pay rates, taxes and other general costs of owning land. We maintain, in our experience, that land perceived as having no value receives no management.

The obvious solution to this dilemma is to encourage integration of carbon storage initiatives within an integrated framework, the idea being the whole is greater than the sum of its individual parts. It is not hard to envisage carbon plantings with an integrated farming system where you can afford to look after them because, essentially, by looking after them you are increasing your productivity and sustainability in other parts of your land.

The second impact must be considered in terms of failure of the carbon project. It is inevitable that we are going to have carbon planting projects fail. The approach of the regulatory body is key to this element. First of all, we need early identification of projects at risk. We also need to recognise that a regulatory authority needs to be both a regulator but also a custodian of the system that is proactive in managing the scheme. Too often we have regulators turn up after the disaster and clean up the mess. We have got to ensure that we avoid getting to the mess.

Indulge me in a final comment. To my mind, I have found it difficult in separating some of the concepts out in the various submissions and publications. I have finally come to a fairly simplistic approach which I would like to share. First of all, it is the way we measure and understand things. We have a situation where carbon and greenhouse gases are a complicated biological system that is worldwide. We are endeavouring to understand that global system. We will improve our understandings of that global system. That is an ongoing activity. Secondly, we have an accounting system that has international reporting. That is simply trying to measure that system. As a forester, I know that I may not fully understand the dynamics of the forest, but I can choose a few key things in that forest to measure to give me some idea of the trends of where that forest is going. I see the carbon modelling at the global stage as looking at the whole, which is very important. I see the international reporting processes and the accounting processes are picking up the key things in the system to see how we are going. The third thing is the Carbon Pollution Reduction Scheme, which is a scheme to change behaviour, to change the way our society and our businesses work.

Obviously there needs to be a relationship between the three of them, but the purpose of each of them should be clearly understood. You can have a carbon pollution reduction scheme missing elements for your international accounting systems and missing elements of what occurs globally, but it can still achieve its outcome of behavioural change. I suppose it is a plea not to think that we can construct a system that would be entirely integrated in terms of what is happening globally and what is happening in individual purchase decisions for every member of Australia.

CHAIR—Thank you. Mr Lord, would you like to make some comments about your personal involvement? We need to keep it really tight because we are running out of time.

Mr Lord—I will chop bits out of it. Is five or six minutes possible?

CHAIR—Two or three is what I need, because there is going to be demand for questions.

Mr Lord—I will read really quickly. My wife and I live on a small farm in the north of Tasmania and I appear in a private capacity. Our families have actively managed some land in Tasmania for the last 20 years, which is basically forested. I am not a scientist, but my wife and eldest son are. Our family has been keenly interested in biodiversity, the benefits to the land that we get from this and the ways in which we may be able to sustainably manage our land. We are very interested in the way in which land managers in Australia may be able to sequester carbon in wooden plants, both for the usefulness in sequestration, but also as a potential source of renewable energy.

Our family's objectives are economic, social and environmental. We have been able to measure the economic and social benefits in managing our land. We have not been able to do the

third until recently. Scientists did work looking at the biodiversity and measured that we were actively managing our forests. We have a little better biodiversity than where the section of the forest is not actively managed. The results of this have been published.

What is the relevance of this to your committee? We believe that a significant opportunity exists in Australia because of our land mass and relatively low population, particularly in a place like Tasmania where, if we actively manage our native forests, plant trees and tend them on farms, to really get a win-win, not only to enhance the biodiversity which is so important to us, but also to capture solar energy in the process. If that were done, then as a nation we would have three choices. We can leave the trees standing, which is fine. As we know, we will sequester carbon until the forest matures and then the forest will become a storehouse for that carbon. We could harvest some of the trees, in which case we might be able to use the material to reduce our dependence on other materials which are more energy intensive and emit more carbon—aluminium, steel and concrete, for example.

I note the result of the Commonwealth Office of Greenhouse's research into this where they tracked the use of forest products—paper, wood and so on—and where forests are actively managed, according to their research, over a couple of hundred years we sequester double the carbon compared to simply growing a forest and leaving it in a steady state.

The third option is that we might cut down some of the trees and use them for bioenergy. Of course, this would enable us to replace the use of fossil sourced fuels. Your committee is no doubt aware of the work being carried out in Australia in this region—that is, looking at bioenergy. I am not talking about biofuels from fats, oils and grains, but making energy from cellulose. We plant a crop of wheat, we harvest the wheat and then we use the straw, the cellulose. I am not a scientist, but what I have read tells me that there is work being done to use the cellulose and hemicellulose to potentially make methanol and ethanol. I know a little bit more about the ethanol project through Ethtec, which has built and is trialling a fairly large-scale pilot plant in New South Wales. This is world-class technology. It is the first time that it has been done on this scale and in this way in the world. Dr Russell Reeves assures me that one tonne of cellulose, whether it is straw, waste paper, municipal green waste, wood waste, sugar cane bagasse, cotton waste or what have you, will produce two 44-gallon drums of ethanol. That is 400 litres from one tonne of cellulose. At home, I burn the garden clippings on a burn heap and I actually burnt it yesterday because there was no wind. We burn it only when it is very dry so there is no smoke. That is the way you should burn this sort of stuff. You stand back and here is this great big red flame. I have always marvelled at the amount of energy that is there from a relatively modest pile of garden tree prunings.

My son warns me that if we are going to harvest from a forest for the production of biofuels then we are only going to be able to take a small amount out, because to take more would mean that we would not be managing the forest sustainably. He counsels me that when we come to do this the amount that we will be able to take out will be less than I, perhaps, have in mind. This is the nature of my son.

Whilst biofuels will not provide an alternative for base load energy for Australia, the work that Dr Reeves and others have done, I believe, says that it will provide the opportunity of replacing a significant portion of our present fossil fuel sourced liquid fuels, and that would then give the consequent reduction in greenhouse emissions. To achieve this, we would need to secure the

active participation and the goodwill of the land managers and these are, by and large, pretty practical and resourceful people. Farmers that I speak to, from Queensland down to Tasmania, wish to embrace a carbon pollution reduction scheme, CPRS, and realise that with the current proposed model, even though agriculture is not in at the beginning, they will be having to pay through additional costs on their inputs from day one. However, these farmers wish to be able to manage their enterprises in a carbon neutral way. They would like to do it and be able to offset their emissions from livestock and fuel use by way of growing trees and sequestering carbon on their farms, and perhaps one day in their soils. To them, this does not appear to be proposed in the CPRS, and that is causing concern.

We also need a practical, simple system where, as we sequester carbon in something such as wood, the responsibility for that carbon passes when the legal title to that commodity passes. For example, if I am a farmer and I grow a tree. I might use that to offset emissions from something on my farm, or if I have a net sequestration I might get a credit for sequestering that extra carbon. I am responsible for that carbon. If I cut it down, then I pay. If I sell it to someone else then that responsibility should pass to that new owner. If the new owner burns it for fuel, they pay, but if they build a house with it they do not pay, and then the system would work.

In summary, our family's submission to your committee is, with respect, that any CPRS needs to pass three tests. It needs to be simple. It needs to be fair. It needs to stand the test of time. Secondly, any CPRS needs a simple mechanism to enable farmers and land managers to balance their emissions through the sequestration of carbon by way of locking up atmospheric carbon in cellulose, and hopefully to encourage them to this. Thirdly, there needs to be a recognition that bioenergy generally—and the bioenergy produced from cellulose could be part of that—will aid us in achieving reductions of our emissions. Above all, any CPRS needs to be based on good science.

I speak as a Tasmanian now. Our family looks forward to the time when the people of Tasmania can look at the measurement of carbon emissions in Tasmania and say, 'I live in a state where we, as a state, are carbon neutral.' Our family's vision is that this state can achieve that. Thank you.

CHAIR—Thank you.

Senator IAN MACDONALD—There is nothing that I need to ask, except to say congratulations on the work that your association has done over a long period time.

Senator MILNE—I would like to go to the Carbon Pollution Reduction Scheme, as it currently stands. One of the criticism made in the biocarbon roundtable was that the way it currently stands it is distortionary in that it allows for plantation opt-in, but it does not include any incentivised mechanism for the protection of native vegetation, native forests and so on. The conclusion of Dr Ajani from the ANU at that particular roundtable was that the problem is the way the carbon pollution reduction scheme is designed. It actually drives the logging into native forests, which are the major stores, and incentivises plantations being carbon stores when, in fact, it should be the reverse, that plantations are better suited to wood production and that native forests and native vegetation should be protected to maximise carbon stores.

We have just heard from TFGA. They think that by allowing the opt-in for plantations it is distortionary because it rewards the planting of plantations, but it does not reward other activities which would be more beneficial in the carbon cycle. Do you support taking out the opt-in plantations, because with the MIS provisions and carbon sink forests, this distortion of the CPRS is actually incentivising plantations at the expense of everything else in the land-use sector? Would you support it being taken out and handled in a complementary measure that looked at devising a financial incentive to maximise the carbon benefits in the land-use sector?

Mr Taylor—I read the submission. It was in recognition of the arrangements associated with managed investment schemes for the woodlock system. They have deeds and those deeds require them to harvest and sell their wood. That is the investment vehicle that they have. An academic approach that discounts who owns it and how it was funded does not touch on reality. That is the only comment that I would make in relation to that.

Mr Dickenson—I have to admit that I do not understand all the CPRS implications, but as a farmer and a land manager, one of the most sustainable enterprises I have on a mixed farm is my native forests. Forty per cent of our farm is native forest or plantations and 60 per cent is used for agriculture. We have just tested two tools that allow us to do a measurement at a farm scale. One has been development by the Melbourne University and the other one is a New Zealand tool. Seventy-six per cent of my emissions are produced by methane. When the report came back to us it spelt out all our emissions, and we included energy and fuel. Under any scheme that the government introduces it would mean that you would be getting paid double for that because that will be dealt with before it comes through the farm gate.

I am sorry, this is a long answer to your question, but the report said in the offsets on my property that the native vegetation and the plantations more than offset any emissions we create through our agricultural enterprise. In theory, we are in credit. In practice, under the current rules, because we are tied to Kyoto, we are not. Whether plantations are in or out, I think we would very much like to focus on the science and the reality of what is happening on the ground so that we understand which forests are sequestering the most carbon and how we maximise that. My understanding is that once a forest becomes about 50 years old it tends to plateau off and keeps the store of carbon there, but your ability to sequester is reduced because your trees reduce their growing potential.

We need recognition of stored carbon and we need to put a policy in place that encourages land managers—in our case, we are arguing for farmers and private forest owners—to maximise that sequestering opportunity. When you look at a whole-of-cycle accounting process for our different building materials, I am sure that timber is going to come up looking pretty good. Those policies have got to be set to achieve that.

Senator MILNE—That is the point that I am making. What is incentivised is the planting of plantations for carbon. What is not incentivised is looking after your native forest as a carbon store or restoring a native forest to its maximum carbon capacity. The distortion is to drive the logging into the native forest because it is not counted and the carbon sequestration into the plantations because it is, when in fact the uses in the system should be reversed. That is why I was asking whether you would consider, as Private Forests Tasmania, having the plantations not as an opt-in, but into a separate complementary measure which looks at maximising the incentives for the best use for each of the vegetation types. I will leave that with you.

Senator CAMERON—Thank you for coming along, gentlemen. I have a threshold question that I have been asking most people. Do you accept the science of climate change and the implications in terms of CO2 emissions?

Mr Dickenson—Certainly the science is indicating quite strongly that they are real. From a farmer's perspective—we had this discussion at the TFGA, and I am not wearing their hat today—generally speaking it is irrelevant as to whether it is real or not because the politics have now picked it up and we have to deal with the politics.

Senator CAMERON—I am simply asking your view.

Mr Dickenson—You have to take seriously what the scientists are telling us.

Senator CAMERON—I saw Mr Lord nodding furiously.

Mr Lord—That is my son's advice. My son has worked with Graham Pearman and his advice to us, as a family, is yes.

Senator CAMERON—It is a given. I do not want to pursue this too much; I think I am getting the general idea. I suppose, Mr Taylor, that you are in the same boat, that you accept the science?

Mr Taylor—I am tempted to decline to answer that question. The science is there.

Senator IAN MACDONALD—I might say what your own view is does not add to the inquiry.

Mr Taylor—It is a reality that we have got to deal with out there.

Senator CAMERON—Thank you for being up front about your position. Given that there is a general acceptance of the science, there are global implications and that there is now going to be a price on carbon, would not the forestry industry be a beneficiary of a CPRS?

Mr Dickenson—It depends on the rules. Potentially it can be, but if there is no recognition of stored carbon or we do not deal with the natural disaster type issues then, as a private forest owner, I would be reluctant to opt in now. We are tending to want to rely very heavily on the science and develop our approaches based on science, and hopefully government policy matches that. That is our wish.

Senator CAMERON—According to the Treasury modelling, with a carbon price of $20.88 there would be a potential to increase forestry to 5.8 million hectares. There are other implications. There is a benefit in one hand, in terms of the CO2 mitigation, but there are other run-off and management issues. What have the Private Forests group done to analyse the implications of this type of massive growth on run off and other environmental downsides? Has any work been done on that?

Mr Taylor—Yes. There is some work that Private Forests Tasmania have been involved in with the CSIRO on contract to the state government to work out a sustainable water yield for

Tasmania. As part of that modelling exercise, they are looking at scenarios about what happens if you get land-use change, that is on agricultural land you put trees in. We await the results of those sorts of studies to see whether expanding the planted resource out there would affect water, for example.

Senator CAMERON—If we get the rules right and we get the environmental management right, the CPRS could be a benefit for Tasmanian industry in terms of moving forward?

Mr Taylor—My only plea is the additional thing of the support. It is all very well having the rules there and having a social licence because the environmental effects are deemed to be acceptable, but if people do not have the capacity to make those changes, then it is a bit academic.

Senator CAMERON—If we can get these rules right, get that organised effectively and deal with the downside issues in terms of the environment, then it could be a net positive for Tasmania.

Mr Lord—The answer is yes and it jolly well should be a benefit. In a farming landscape it is possible in a place like Tasmania, I am assured by lots of people, that we can plant 10 or even 15 per cent of the farmland with trees in the right places for shelter, aesthetics and what have you, and still achieve the same agricultural production from the 85 per cent or 90 per cent of land that is left to farm. I am not personally in favour of block plantings in these areas because we need this land to produce food and so on, but we can genuinely get a win-win.

I am concerned when I read that people are promoting potentially the planting of trees forever to lock up carbon. The initial plantings may be appropriate, but the scientists will tell us that we can do better than that. You do not plant them and lock them up forever. You can do, as the Office of Greenhouse accounting research showed and as was in the point I was making in my family's submission, we think there is an opportunity for a win-win here in relation to the native forests, as in Senator Milne's question. Our view is that the big opportunity for a state like Tasmania is to manage our native forests because half the state is covered in forest. The areas outside reserves are a large part owned by private families. It is there. We are not going to knock it over. We do not want to knock it over. We do not want to convert it. It is not going to be converted now. As a community, we do have the opportunity to actively manage it, to sequester carbon net, and to provide economic and social benefits through doing that. I think it would be a tragedy if we were not able to do that.

Senator CAMERON—Has there been any analysis or modelling done by your organisation as to the profitability of planting on prime agricultural land? The argument has been that all this prime agricultural land will disappear. Another argument that I have heard is that it would not be profitable to put these carbon sinks on prime agricultural land. Is that your view?

Mr Dickenson—We did a fairly extensive study almost two years ago on the actual areas that are planted by different land classes and by municipality. We came up with the result that there is very little plantation on prime agricultural land, and that is by the state government's definition of 'prime'. Usually the market will not allow the MIS companies on to prime agricultural land because it is just too expensive for them.

At the end of the day a farmer will make a decision on what the market signals are, and I would be very surprised if the carbon market was strong enough. Given what is happening with world agricultural production, there are more people who can afford to buy our food now than there were before. I think food production will be under pressure and the market will reflect that.

Senator CAMERON—Thank you.

Senator BOB BROWN—There are eight high-intensity forest regeneration burns in the private sector taking place in Tasmania today. Can you tell the committee what the amount of greenhouse gas emissions will be from those regeneration burns?

Mr Dickenson—No, I cannot. I probably share your frustration that they are taking part because we should be utilising that resource into some sort of bioenergy. There seems to be the ability in other parts of the world to utilise this resource that we are currently wasting, and we are getting to the stage where we really do need to give this a serious push.

Senator BOB BROWN—There are figures extant that the regeneration burns produce as much greenhouse gas as the whole of the rest of the Tasmanian economy. Therefore, on the figures you gave, the private sector may be producing 25 per cent or more of the greenhouse gas emissions from Tasmania in toto due to these regeneration burns. What is the discussion within Private Forests about this quite huge emission of greenhouse gases coming from the regeneration burn process?

Mr Dickenson—We share your view. It should not happen. I do not know whether we can get enough horsepower from industry and government to change the way we do that. Many of the plantation areas now are not being burnt; they are just being harvested and replanted. Of the eight that is taking place today, I cannot tell you. I expect they are mostly originally native forests, but I cannot tell you that. There is some frustration that forestry burns, regeneration burns, are not a long-term option.

Senator BOB BROWN—You mentioned research and said that landowners must get research support. What is the research budget from the Tasmanian government into the greenhouse phenomenon and related studies as it applies to private forests in Tasmania?

Mr Dickenson—There is probably very little on that specific issue. The state government is currently doing a wedge analysis on emissions by sector in the state. That is underway now, as I understand it, so once that is completed we should have a handle on which sector in the state, whether it is agriculture, forestry or government business and so on, those emissions are coming from. The next step will be to work out how we can mitigate it.

Senator BOB BROWN—Copenhagen is coming up and there will be a debate there about whether forestry and forests should be part of the accounting system as the world moves forward to reduce greenhouse gases. A subcomponent of that is developing countries. It seems to be very much on the agenda that developed countries are not so much so. Have you had input to government policy and do you know what the minister's position is, or what her position will be at Copenhagen? Do you have an opinion about whether private forests should be counted for carbon accounting purposes for tackling climate change at an international level?

Mr Dickenson—I cannot tell you what Minister Wong's position is. I would like to make a comment on how we might deal with the native forests on private land. I would like to go back a step. In the last decade, or since the signing of the RFA, there have been significant areas of private forest that have been taken out of production and put into some sort of reserve, either through the permanent forest estate, rare and threatened species or whatever.

Unlike the public sector, we have received very little compensation and recognition of the cost of that. We now have quite a substantial area of private forest that is no longer able to be managed for timber production or conversion. The Tasmanian Community Forest Agreement that was signed between Prime Minister Howard and Premier Lennon took another approximately 200,000 hectares out of the production system on private. Effectively, that has transferred the asset from the landowner to the community, but it leaves the liability of management with the landowner. Mr Taylor touched on the fact that if it is not seen to have a value, it does not get managed.

We like to think that all those discounted areas, for good reasons, like the Forest Practices system and the reserves, are our equivalent to the World Heritage area. It is not the same value, but they are secure reserves that will never be managed. To restore some of the goodwill to allow the owners of those areas to manage them in the long term it would be great if they were recognised for the ability to sequester carbon.

That is a long-winded answer, but we would like to think that, at a farm level, at a property level, we can measure what we are sequestering within those property boundaries against the emissions we may be making through other agricultural activities. We have already tested two tools on our property, one by the Melbourne University and one by New Zealand, but I am not allowed to count them.

Senator ABETZ—If it has got to be a final question then I will make it this one. Mr Lord or Mr Dickenson said, 'If we get the rules right then the CPRS would be a good way to go.' Would it be your view and assessment that to get the rules right will require a lot more time than the projected starting date that Senator Wong and Mr Rudd are trying to foist on us?

Mr Dickenson—I can make a short comment. If you look at the history of how these things move, my answer to your question would be yes. My dad used to say to me, 'Where there is a will, there is a way, and where there are two, you are on a certainty.' I suspect that it depends on the will.

Mr Lord—When I tackle or attempt to tackle issues like this, I try to have the discipline of dividing it into two parts to settle 'what' first and leave 'how' to second. If we define what we want and we have the mental rigor and clarity to be able to define what we want, which may be a system which is simple, practical, fair and what you, we then do that. Your question, with respect, is how it is implemented. I would divide it into two parts.

Certainly, my family would offer as a comment to your committee that we need to get the 'what' right first, because we all know that if we do not then it is a dog with a bad name and never going to go anywhere. If we can get 'what' right then we can marshal up all the land managers in the country and they will put their shoulder to the wheel and say, 'This is a good

idea. I can understand it. It is sensible. Okay, I'll have a go.' If we can get the goodwill there, we will have a huge engine in Australia to tackle climate change. I think it is really exciting.

CHAIR—Thank you for your time. We appreciate your evidence. I do not think that there are any questions on notice to you.

[11.47 am]

HICKS, Mr David William, Performance Manager, Norske Skog Paper Mills (Australia) Ltd

LAUGHER, Mr John Thomas, Performance Manager, Norske Skog Paper Mills (Australia) Ltd

CHAIR—We welcome representatives from Norske Skog Paper Mills (Australia) Ltd. I invite you to make a short opening statement before we go to questions.

Mr Laugher—As a brief introduction, we at Norske Skog appreciate the opportunities that have been afforded for dialogue on this most important issue—dialogue not only as represented by today, but certainly intense dialogue with the Department of Climate Change. We appreciate that opportunity because it gives us the chance to have input into the process and also to provide clarification so that there is a solid understanding of the potential impacts of what is being proposed.

The Albury and the Boyer mills combined presently supply around 65 per cent of Australia's daily newsprint consumption. We are today, and have historically been, the only newsprint producers in Australia. The company commenced production in Boyer, Tasmania, in 1941 and we have subsequently grown in line with Australia's needs. The Albury Mill was constructed in 1981. Through that period we have sustainably managed our business and have continuously supplied newsprint to meet the market needs now for almost 70 years. Together our two mill operations employ 600 people directly. We create an estimated 1,670 full-time equivalent jobs and contribute around $250 million annually to regional economies, specifically the local communities of the Derwent Valley here in Tasmania and around the border town of Albury in New South Wales and Victoria.

For the most part we have been owned or named as Australian Newsprint Mills. Today we are owned by Norske Skog, originally a Norwegian company. Norske Skog is one of the world's largest producers of newsprint and certainly one of the largest recyclers of old newsprint and magazine grades. Indeed, 53 per cent globally of the fibre input for newsprint production is from recycled fibre. In Australia, the recycling volume is world class—in excess of 75 per cent of old newsprint comes back into the fibre stream for use both at the Albury and Boyer mills and at other recycling plants.

In terms of our response to the proposed carbon trading scheme, both operations have worked collectively together, and we have a team of representatives from both mills. My colleague Mr Hicks leads that team so I will hand over to him briefly to cover the CPRS proposal.

Mr Hicks—I will provide you with some background to where we are at with the CPRS process in Australia. Norske Skog has always been conscious of our environmental footprint, or what we leave. We believe in sustainable development and support needed to address climate change. Globally Norske Skog has set a goal to reduce its total greenhouse emissions by 25 per cent by 2020 compared with 2006 levels. We did that early last year. The Australian operations

will contribute to that ambition. Since 1990 we have reduced our greenhouse gas emissions per tonne of production by 25 per cent—over the last 19 years.

In Australia we are a foundation member of the Greenhouse Challenge program. Over the last 12 months we have made detailed written submissions to a lot of requests to the Garnaut review, the government's CPRS green paper, the RET consultation process, the Treasury financial modelling and the Wilkins review. There have been a lot of processes in place. We have been working closely with the Department of Climate Change and the pulp paper industry to develop an activity definition for newsprint manufacturing. We believe this definition, at the moment, categorises newsprint manufacturing as an EITE activity and will provide the CPRS transitional assistance framework.

From our perspective, a key outstanding policy issue is to gain clarity on the level of assistance that will be provided for RATE under the expanded RET scheme. The combined impact of a supported CPRS and an expanded RET will not be insignificant, but we understand that there is a COAG process in place to progress this concern. Finally, we would like to commend the officials of the Department of Climate Change for their professionalism and their willingness to discuss, explore and listen to our input on these complex issues.

Senator ABETZ—Thank you for your submission. You indicated that your organisation produces 65 per cent of Australia's newsprint needs. Where does the other 35 per cent come from?

Mr Laugher—In the 2008 year, around 20 per cent came from New Zealand, with 15 per cent from Asian countries, predominantly Korea, China and Indonesia.

Senator ABETZ—If Australian production were to be subsumed by imports, especially from the Asian countries, we would not only be dealing with the carbon miles of bringing the product to Australia but I would assume there would also be the difficulty of there not being a carbon reduction scheme in those countries that you mentioned—Indonesia, China and Korea?

Mr Laugher—Yes, that is correct.

Senator ABETZ—As the CPRS is currently planned there is what is called a decay factor, that you might be given 90 per cent. Have you been given an indication that you will be EITE classified and provided with 90 per cent or 60 per cent?

Mr Hicks—Where we are currently at with the definition, as drafted, it appears to qualify us at 90 per cent.

Senator ABETZ—Let us take that as the hypothetical, because nothing much rides on whether it is 90 or 60. For you guys it does, but not for my questioning thereafter, and that is about the decay factor of, as I understand it, 1.3 per cent per annum. Would that be cumulative?

Mr Laugher—Yes.

Senator ABETZ—Each time that occurs that would make your enterprise less competitive in relation to your world competitors?

Mr Hicks—That is correct.

Senator ABETZ—It would be fair to say that the newsprint industry is very much an international industry and, indeed, you are internationally owned by a company that has how many newsprint mills around the world?

Mr Laugher—There are currently 16.

Senator ABETZ—In relation to the employment aspects, you indicated there were 600 staff.

Mr Laugher—There are 600 direct at the operations.

Senator ABETZ—Are there many contractors or subcontractors engaged as well?

Mr Laugher—They fall into part of that 1,670 indirect full-time equivalents that help support our operations.

Senator ABETZ—The name escapes me, but Senator Xenophon will help me.

Senator XENOPHON—Frontier Economics.

Senator ABETZ—Thank you. Frontier Economics has in fact undertaken an analysis of the current CPRS and says that whilst the global figure for Australia might be right as to the impact on the total Australian economy its impact in regional areas could be very severe? Would you like to indicate what you think the impact may be if it were implemented as planned with the ongoing decay factor, irrespective of what the rest of the world does in relation to the Derwent Valley and Albury, which are both very important regional areas of Australia?

Mr Laugher—It is probably obvious that the Boyer mill is the older of the two mills. Therefore, the Boyer mill would face the more significant challenge. The impact of Boyer is half of the numbers that we talked about in an employment sense. Relative, though, to the question about the decay rate and the potential impact, as my colleague suggested earlier the manufacture of newsprint is an energy intense business and the focus on energy efficiency and energy reduction has been something that we have been actively working with for many years. I think he described a 25 per cent reduction since 1990. As a global company we have taken a target of a further 25 per cent by 2020. Obviously even with the CPRS a one per cent decay is still a cost, but we believe it is still within the realms of our capability to meet that challenge.

Senator ABETZ—That is the CPRS. What about the renewable energy targets? There has been an unfortunate discussion in Australia virtually stove-piping three elements, which is the CPRS, the renewable energy targets and energy efficiency, as though the three can operate separately, but of course they all have an impact and therefore the totality of that impact needs to be looked at.

Mr Hicks—That is correct. That is the level at which we look at it. It is the totality of it and not as individual policy goals. We certainly look at it as a total and what is the combined impact. We have done some work to try to understand the impact of the CPRS. We might be incorrect, I hope we are not, but we are assuming that we will qualify for 90 per cent permits under the

CPRS, which puts a certain burden upon the industry or our operations to improve. At the moment the draft paper for the expanded RET has set the thresholds a lot higher than the CPRS, so even within the newsprint industry we would not qualify under the current discussion paper levels. We have submitted that that level is too high. If you have a supported CPRS and an undersupported RET the impact to us would still be very significant.

Senator ABETZ—Where does your energy source for the Boyer mill come from?

Mr Laugher—The electrical energy is from the Tasmanian grid.

Senator ABETZ—Would that be mainly hydro power?

Mr Laugher—That is mainly hydro power.

Senator ABETZ—Is any credit given to you for that in the scheme?

Mr Laugher—Under the proposal so far the electricity factor of one would apply across Australia. We understand that reflects the potential price signals that would exist in the electricity market. There is a difference between the cost of electrical energy going forward and the CO2 emittance from the generation of that electricity.

Senator IAN MACDONALD—When are you likely to know whether you are 90 per cent or 60 per cent?

Mr Hicks—My understanding is that the regulation gets released some time in June and that will list if you qualify as a trade exposed energy intensive industry. To answer the second part of your question about what level we qualify, I am not sure exactly when that gets finalised. I know when we have to have data provided, but I am not sure when the finalisation of that occurs.

Senator MILNE—I would like to follow up the issues that have been raised already. I congratulate your company on recognising that global warming is real and taking action for quite a long time to reduce emissions across the company. Getting to the Boyer plant, do you have a bulk power contract with the hydro?

Mr Laugher—Boyer does, yes.

Senator MILNE—For how long have you benefited from heavily discounted power subsidised by the Tasmanian taxpayer?

Mr Laugher—It is correct to say that when we created the industry in Tasmania back in 1941 there were incentives provided. That is a well recognised and documented position. Certainly those times are long past. We operate in an internationally competitive market and we operate with internationally competitive input costs. Our contract that we now have with the Tasmanian electricity market is a new contract and it is based upon the current competitive nature in the Australian energy market.

Senator MILNE—Going forward, if you could reduce your demand significantly that would make you more competitive. As to the investment in energy efficiency, do you have co-

generation? Is there a plan to have co-generation or what other initiatives have you taken? Would it be better under the CPRS, rather than going for compensation in the case of free permits, to have auctioning of permits and then money being given back for accelerated depreciation for those sorts of capital investments that would make a big difference over time?

Mr Laugher—We are specifically talking about Boyer and generally talking about the newsprint manufacture. Energy efficiency, in terms of electrical energy, is difficult because it is not easy to reduce the amount of electrical energy we are using. Most of our improvements and our future improvements will come in reducing our thermal energy areas. Co-generation, as you mentioned, is something related to thermal use. Our aim and our focus has been to reduce the amount of thermal energy that we are using. That brings it down to a size where co-generation becomes more difficult.

Senator MILNE—In answer to my question about the design of the scheme, from your industry's point of view, if we went for a system that was 100 per cent auctioning but incorporated some of that money being returned to industry through accelerated depreciation or indeed capital grants for investment in those sorts of reduced demand initiatives, would that be a better way of going, in your view, than free permits or do you not have a view about that as a company?

Mr Laugher—In terms of electrical energy and what we could produce at, say, the Boyer mill, co-generation would potentially be about 10 per cent to 15 per cent of our energy needs. Whilst co-generation is an ideal way for producing energy, it is a small proportion of our total needs. The proposal you put forward does not replace the cost impacts that would come.

Senator MILNE—Are you suggesting that you are more trade exposed than 10 per cent to 15 per cent?

Mr Laugher—Yes, absolutely.

Senator MILNE—Thank you.

Senator CAMERON—I want to raise a proposition that has been put to the committee on a number of occasions, and that is that Australia is acting in a unilateral manner in terms of trying to deal with climate change. I notice from your website that you are involved in international cooperation with 16 other countries in terms of trying to reduce emissions in your industry around the world. Can you give me an explanation of what is happening and whether you think we are acting unilaterally in this approach?

Mr Laugher—We are here today talking about the level and area of expertise that we have, which is in the operation of the Albury and Boyer paper mills. To be able to offer a view about the global position is perhaps a little outside our area of expertise.

Senator CAMERON—Do you not understand the company's international values statement?

Mr Laugher—I absolutely understand the values statement.

Senator CAMERON—The values statement on sustainability is the one I am looking at. I am asking whether you understand it. You are working with 16 other international companies to reduce greenhouse gas emissions.

Mr Laugher—Can you repeat the question? I have obviously misunderstood the intent of the question.

Senator CAMERON—Your values statement says:

Our mills work continuously to reduce emissions and discharges.

Mr Laugher—That is correct.

Senator CAMERON—It continues:

Research reports on climate change have given fresh impetus to the environmental debate. Industry must accept its responsibility for reducing greenhouse gas emissions. We believe that this has to be accomplished through international cooperation and have accordingly participated in the launch of a global industrial initiative on cutting greenhouse emissions called Combating Climate Change (3C). This effort is currently supported by 16 international companies. Our attitude is that industry must participate actively in this process. The goal is to achieve market based and international solutions.

I am just asking you this in the context of people coming to this committee and saying that we are acting unilaterally. It does not look to me as though you are acting unilaterally as a company or that there is not a recognition around the world of the issue of global warning.

Mr Laugher—As you have eloquently read from our website, that is our company's global policy position and we stand by that position.

Senator CAMERON—I claim no authorship at all of this; this is Norske Skog.

Mr Laugher—The only other comment I would make is that I do not think anything we have said or anything we are doing as a company is anything other than supporting our global position.

Senator IAN MACDONALD—He is trying to make a political point. It is falling on deaf ears.

Senator CAMERON—They get so agitated at times.

Senator IAN MACDONALD—You are wasting time asking these people things that are self-evident.

Senator CAMERON—Senator Abetz indicated that you could be subsumed by imports. Obviously Norske Skog is not sitting back waiting to be subsumed by imports and that is not in your forward planning, given all the things that you are doing in terms of improved productivity and dealing with climate change. Wouldn't that be the case?

Mr Laugher—We are absolutely not sitting back. The issue of newsprint as a global commodity, and the newsprint industry, is in a difficult supply and demand position. Effectively the future of our operations depends upon our cost base. That is a high focus for us. As we described in our green paper, there does not need to be much of a movement in our costs relative to other global producers for there to be great incentives for them to be importing and for Australian consumers to be buying from other than locally produced product.

Senator CAMERON—You may have to take this on notice. I think this is a legitimate question to put to the company. Could you provide us with information on who these 16 other international companies are, where they are based and whether they are only in your industry or in a wider group of industry areas?

Mr Laugher—This is Norske Skog companies?

Senator CAMERON—Both. I could ask this question: where are the Norske Skog companies based and also these 16 international companies that are involved in combating climate change, the 3C proposal?

Mr Laugher—3C is an industry group. Therefore, all pulp and paper companies have the opportunity to take membership in that group.

Senator CAMERON—Arising from that, companies that are in international competition with you are trying to deal with CO2 emissions; is that correct? There are costs on these companies as well to try to deal with CO2 emissions and it is not a cost that is simply applying to Norske Skog in Australia; is that correct?

Mr Laugher—Yes. The 3C group is a clustered group in Europe, particularly. The import risk to Australia is more likely to come from Asian countries.

Senator CAMERON—Are you saying that the Asian countries are doing nothing on CO2 emissions?

Mr Laugher—No. I am suggesting that I do not think that they are part of this cluster group in Europe.

Mr Hicks—From our market position, our biggest concern is twofold within the whole carbon debate at the moment. One is about carbon leakage. In other words, the threat to our business that it could possibly move somewhere. That is if we cannot get the right level of transitional assistance. Certainly, our clear competition comes out of Asia. To my knowledge, a lot of our major competitors out of Asia do not have or are not proposing a carbon scheme at this stage.

Senator CAMERON—You believe that the ETS assistance that you are currently looking at would be adequate—that is the word that you used—and that the targets are within the realms of capability of the company to still maintain international competitiveness?

Mr Hicks—We are working within the framework that has been proposed and we are trying to work our way through that. Within our submission we did suggest a delayed decay rate, which would give companies more time to adjust and also give a carbon trading scheme more time to

settle down. At the moment, the proposal is a decay rate from year one of 1.3 per cent. At the moment we are working our way through that.

Senator CAMERON—I would like you to take this on notice. Could you provide us with some indications of the opportunities arising from a company dealing effectively with carbon emissions? What job opportunities arise? What new skills are required to deal with it? How would this be beneficial to the Tasmanian economy by being at the forefront of dealing with CO2 emissions?

CHAIR—You can come back to us on that.

Mr Hicks—Could you send those questions to us?

CHAIR—The secretary will send that to you.

Senator CASH—In relation to the line of questioning that Senator Macdonald was pursuing with you, we have had serious concerns presented to this inquiry about the lack of detail in the legislation setting out support for the emissions intensive trade exposed industries—in fact, just six pages—and that the Senate is being asked to take the government on trust that it will regulate this space. Could you elaborate for me on the concerns that you have surrounding the lack of legislation or regulation in relation to these industries and how it has impacted upon your ability to go forward and prepare?

Mr Hicks—In the draft legislation there is a lack of information. The way that we have been dealing with it is to deal with what has been put out in the white paper and clearly waiting to see what comes out in the draft regulation.

Senator CASH—Does this impact on you, not knowing and not having any certainty in going forward?

Mr Hicks—It certainly creates some non-clarity. There is no doubt about that. That is the way we have dealt with it. We have dealt with the white paper as the last policy position and have worked with the Department of Climate Change through that.

Senator CASH—Would you have preferred to have certainty surrounding the issue?

Mr Hicks—It is always better to have certainty and to have more information available in draft form. There is no doubt about that.

Senator CASH—In relation to your submission to the green paper, on page 14 you referred to additional financial impacts not considered for assistance by the emissions intensive trade exposed proposal. You state that it is important for the government to realise that there will be additional financial impacts on industry as a result of the scheme. You have given evidence today that even a small imposition of costs would have an impact on your business. Could you expand on what you say those additional financial impacts are on your business and what you think the government should do?

Mr Hicks—We provided a lot of information to the Department of Climate Change and some of it is under a confidentiality arrangement at this point in time. Things that we do not clearly understand are going to be the impacts of transport and raw materials. They are what we call an unknown factor. We can clearly understand the impact around the price of electricity or what the apparent price may be, given that we can work within a framework of $20 a tonne or $40 a tonne of carbon. They are clear things we can work with. There are lots of other things that are unknown under the scheme around transport, forestry, raw materials and the carbon imposts that will be put in there. They are things that we do not understand yet. Yes, we clearly believe they will be an impost, but we do not know what the impact will be until it becomes clearer.

Senator CASH—In terms of an impost, what would the effect of the impost be on your business?

Mr Hicks—We cannot answer that if we do not know what the impacts are.

Senator CASH—What is the worst case scenario in terms of carbon leakage?

Mr Hicks—It is hard to answer that question of what that impost will be. We know the impact of what the carbon pollution reduction scheme will be within a range. We hopefully know the potential, if things work out, around the expanded RET. We understand that. They are clear numbers and there is a marketplace out there that will govern that. The things we are not clear about are some of the inputs—transportation and raw materials. What is going to happen to forestry? What effect will that have on input costs? We do not have a feel for that yet because we have no numbers to work with.

Senator ABETZ—That creates a lot of uncertainty for you.

Mr Hicks—It causes stress.

Senator CASH—Did you say it causes stress?

Mr Hicks—Yes, mine.

Senator IAN MACDONALD—Never mind; we had evidence from a stress psychologist to our committee, so we will refer them to you.

Senator MILNE—I would like a clarification. You just said that you are uncertain about how the input costs might go with a range of things, but you said forestry in relation to that. Do you have a long-term contract for supply?

Mr Hicks—We have a range of contracts with forest companies.

Senator MILNE—Can you clarify, in your view, why there would be an input increase in the forest resource cost to you under the carbon pollution reduction scheme as it stands?

Mr Hicks—Until we understand where forestry ends up within the carbon pollution reduction scheme, and whether those costs get passed through or cannot get passed through, and what contracts look like, then I really cannot answer your question.

CHAIR—An area where there may be a cost is that transport and harvesting is not included in the compensation for fuel.

Mr Laugher—That is correct.

Senator IAN MACDONALD—Is certainty what you need at the earliest possible time?

Mr Laugher—Certainty allows us to make investment decisions or prioritise investment decisions going forward.

Senator IAN MACDONALD—Would you rather the material that is going to be subject to regulations down the track sometime, which will obviously need to be there before you know whether you have got certainty or not, be in the legislation which the parliament and, therefore, the whole of Australia will see before the parliament decides whether to approve this or are you happy to leave it in regulation that might come through some time in the future?

Mr Hicks—I am not an expert on law and where it should reside. In business we deal with some descriptive nature within legislation and others are in regulation. I do not think we have a position on where it should lie.

Senator IAN MACDONALD—Most regulations can be disallowed by the Senate, which then creates another set of procedures and another set of uncertainties, which would be the last thing you guys would want.

Senator ABETZ—The difficulty is the Senate cannot amend regulations. We either accept or reject. Whereas with legislation we do have the capacity to seek to amend. That is the fundamental difference.

Senator IAN MACDONALD—I am really wasting a bit of time, because I think you said this before. Senator Cameron confused the issue. Your real concern is that for countries that are not involved in an ETS scheme their mills will have an unfair advantage to you if you have a cost and they do not; is that your position?

Mr Hicks—It is a key concern.

Senator MILNE—It is the same concern in Europe, surely, and they are still operating there.

Senator XENOPHON—I would like to ask a question on benchmarking in terms of the energy intensity of producing a tonne of newsprint at the Boyer plant compared with the Albury plant, and what your understanding is of the energy intensity of plants in, say, New Zealand and Asia. You may want to take it on notice, but is there any solid evidence on that so that we can adequately benchmark different mills?

Mr Laugher—Electrical energy intensity categorised in kilowatt hours per tonne of pulp produced depends on the virgin fibre input, the type of tree. Between Albury and Boyer we are using radiata pine. That level of intensity kilowatt hours per tonne to make the pulp necessary to make newsprint is pretty well benchmarked around the world on radiata pine. With different

wood species it might be slightly different. The energy input between Albury and Boyer on our thermomechanical pulp would be the same.

Senator XENOPHON—In terms of overall energy usage, is the Boyer plant less efficient than the Albury plant and how does it compare with plants overseas? Or is it just a one-size-fits-all?

Mr Laugher—Less efficient in terms of energy use. As I said, I think we are the same. Was that your question?

Senator XENOPHON—I am just trying to work out—leaving aside the issue of carbon miles—if we get newsprint from overseas whether those plants are more or less energy efficient than plants in Australia.

Mr Laugher—I refer to what I said earlier. To make the quality of pulp that we require to make the newsprint grade that we supply to the marketplace does require a certain level of energy input in kilowatt hours per tonne. That would be the same around the world. Whether or not overall the operations or those mills are more or less totally energy efficient than we are I cannot comment.

Senator XENOPHON—I can put it another way. One of the arguments is that, if we get carbon leakage with, say, an aluminium plant, if its operation shifts to somewhere else, then that would be a dirtier plant than what we are doing here in Australia. Does that argument apply here or are you essentially saying that it does not make any difference when it comes to newsprint?

Mr Laugher—Again, it depends upon the total energy efficiency of what would be a lower cost operation. I cannot comment.

Senator BOB BROWN—I also congratulate the company on a 25 per cent reduction and the aim of another 25 per cent. Does that include the forest operations?

Mr Laugher—Initially in the days of the greenhouse gas challenge, yes, there was consideration for what was sequestered in our forestry operations, but going forward that is not part of our 25 per cent reduction.

Senator BOB BROWN—How much is released from your forest operations?

Mr Laugher—You are in an area where I am certainly not qualified to provide that data for you.

Senator BOB BROWN—Could you take that question on notice to see, both in Tasmania and on the mainland, what amount of greenhouse gas emissions there are on a per annum basis from Norske Skog's forest operations?

Mr Hicks—We can take it on notice for Boyer because we do not own any forests in New South Wales.

Mr Laugher—We only have Tasmanian ownership now.

Senator BOB BROWN—I am looking at the resource supply, whether it comes from your own ownership or not, if you could.

Mr Hicks—Yes.

Senator BOB BROWN—And then particularly your own ownership. Yesterday there was a re-generation burn just west of Maydena. Is that a Norske Skog operation?

Mr Laugher—I do not know.

Senator BOB BROWN—I think there were some Norske Skog personnel. Can you take that on notice, too? Can you give the parameters of that re-generation burn, and any other re-generation burn this year that will involve Norske Skog. Do you know what the greenhouse gas emissions from that regeneration operation will be? Finally, could you let the committee know—which might be needed on notice, too—the area of forest that Norske Skog has and what component of those forests are due for logging for supplying the Boyer mill and your operations, and what form of logging will take place over the lifetime of those forests? Also, has there been a greenhouse gas inventory made of that process and, if not, whether there will be one made by Norske Skog?

Mr Laugher—We would like to take that number of questions on notice. Out of all of those the only one that I can answer right now is that in Tasmania Boyer's forest ownership is around 18,000 hectares. It is radiata softwood plantation ownership. I would also take this opportunity to make the point that at the moment the Boyer mill is spending $50 million to upgrade our plant and move entirely to radiata softwood plantation wood and exit from regrowth Eucalypt timber.

Senator BOB BROWN—When will that happen?

Mr Laugher—The plant will start up in October this year.

Senator BOB BROWN—Is this the Boyer plant?

Mr Laugher—This is the Boyer plant.

Senator BOB BROWN—It will transform to 100 per cent—

Mr Laugher—Radiata softwood.

Senator BOB BROWN—Again, congratulations.

Mr Laugher—In the context of that perhaps we could review the questions that you have asked that we take on notice.

Senator BOB BROWN—Thank you very much.

CHAIR—Senator Boswell.

Senator BOSWELL—We were told yesterday that steel production and mining was excluded from any CPRS in the EU. Is paper excluded from any emissions trading scheme in the EU?

Mr Hicks—In the EU?

Senator BOSWELL—Yes. I presume that is where you have plants.

Mr Hicks—Some plants are in the EU.

Senator BOSWELL—Nowhere else would have an ETS.

Mr Hicks—They were a part of the scheme.

Senator BOSWELL—No. The question is: does an ETS apply to paper mills in the EU, because it does not apply to steel mills or mining. They have been carved out.

Mr Hicks—Can we get back to you on that?

Senator BOSWELL—Yes, you can.

Mr Hicks—I will need to look it up.

Senator BOSWELL—That will be fairly fundamental.

Senator ABETZ—I think it does, but could you tell us how it applies, at what levels and so on? That is, to me, a more important question underlying the threshold question of Senator Boswell.

Mr Hicks—I think that it is correct, that they do, but I will need to go and check their numbers because I am not 100 per cent sure.

Senator ABETZ—It is very glib to say, 'The European Union has an ETS so why can't Australia?' Of course, if you are comparing apples and oranges there might be significant differences. That is what I am seeking to explore.

Senator BOSWELL—Some people, including Senator Cameron, Senator Milne and probably Senator Brown, although I have not heard him say it, have said that they believe the compensation to emission intensive trade exposed industry is largely being dished out to maintain the profitability of the companies that operate in industries that will eventually die out as a result of the transformation to a low carbon economy. Is it given to you to transform or to maintain your profits?

Mr Hicks—Newsprint manufacturing is a very competitive commodity market. It is not a high margin market, which I think is globally accepted. That is not trying to brush off the answer. It certainly is a commodity market and a very mature market. It is not a high growth market. To us, the whole EITE process is absolutely paramount in providing a good base to move forward for newsprint manufacturing within Australia.

As Mr Laugher said earlier, we have been manufacturing newsprint in Australia now for over 70 years. We invented how to make newsprint out of eucalypt originally. We have a long-term commitment and desire to continue manufacturing within Australia, but we need to make sure that we have good transitional assistance to get through that. To me, the answer is, no, it is not to maintain profitability. It is to maintain a good viable business going forward.

CHAIR—The modelling presented from Treasury assumes 100 per cent take-up internationally of emissions trading schemes. Aside from New Zealand, which you have indicated is one of your main competitors, how many of the others in the near region do you expect might be having a trading system imposed on them?

Mr Hicks—We have global benchmarking around different newsprint manufacturing companies globally, but the key ones to us come out of China, Korea and Indonesia. They are the key competitive companies to us. Our price is set on an international price mechanism, so it is an internationally priced commodity. They are really the key companies who are a threat to us.

CHAIR—Do you have operations in New Zealand as well?

Mr Hicks—We have one.

CHAIR—How does the treatment between the two schemes compare?

Mr Hicks—I am not 100 per cent sure about the New Zealand scheme, but at the moment I believe it is suspended or in review with the new government being elected there. We can get that information.

CHAIR—I would appreciate it if you could bring that to us on notice. You talked about the global cooperation within the industry about energy efficiency and the work that everybody is doing. Obviously the company has a very strong and proud record with respect to energy reduction already, and there is an effort going on to continue to reduce energy use. Are the CPRS costs that are being potentially imposed on Norske Skog additional to those costs, which is the concern that you, as a company, raised with these current issues?

Mr Hicks—I can answer that two ways. The answer is, yes. In order for us to change our carbon footprint in Norske Skog, the Albury mill has probably got the worst footprint because we are based on black coal. That is just the state of where our indirect emissions lie. The Boyer mill has a different footprint. To change that footprint, which we are committed to doing when we can work our way through it, will require capital investment. If the CPRS does not provide good transitional arrangements, you will not have enough funds to fund the capital to change. It will incur more costs because of the CPRS, but that is the incentive to try to improve. We would rather put our funds to the right area.

CHAIR—You said that you were hoping to have a 90 per cent recognition of your emissions intensive and trade exposed costs. If it is 90 per cent, what is the real effect of that? Is that a full 90 per cent or is it reduced by the fact that it only recognises certain elements of your business? The government tells everyone that it is 90 per cent, but what is the real support that you get? I understand that it may not be 90 per cent.

Mr Hicks—If it is 90 per cent it will be under that until we get clear data.

CHAIR—You have not finalised that calculation yet?

Mr Hicks—No. We need to put the data in and then continue discussions with the Department of Climate Change.

CHAIR—You are still working on doing the calculation to work out which part of the business is indicated?

Mr Hicks—Yes. The data is not due until 1 May.

Mr Laugher—We are still finalising the definition, which will determine the data.

CHAIR—Can you take on notice the level of investment you have made in energy reduction over, say, the period since 1990 when you have had that 25 per cent reduction?

Mr Laugher—Yes, certainly.

Senator ABETZ—I have one more question

CHAIR—It will have to be on notice.

Senator ABETZ—They may have the answer straightaway. Sixty-five per cent of the Australian market is provided by your company. What about on the world market? Are you 65 per cent of the world market of newsprint? I would suggest it is a lot less.

Mr Laugher—Norske Skog?

Senator ABETZ—Yes, Norske Skog worldwide.

Mr Laugher—Australia is less than one per cent of the global position.

Senator ABETZ—What percentage does Norske Skog provide of the world's newsprint needs?

Mr Laugher—We will take the exact number on notice, but it would be less than 10 per cent.

Senator ABETZ—That is what I was thinking.

Senator BOB BROWN—On the reference to black coal, does Norske Skog in Tasmania base its calculations on hydroelectricity or imported brown coal—the burning of brown coal and the electricity that comes down Basslink? If not, what is the proportion in its assessing of its greenhouse gas usage? Can you let the committee know that?

Mr Laugher—I can answer that right now. In reporting our greenhouse impact, certainly whatever has been imported over Basslink is factored in and reported as our greenhouse gas

position. Obviously, in terms of CPRS we are talking about an electricity factor of one, so it would be our total electrical energy use that we are reporting.

Senator BOB BROWN—The second question was: does the complete conversion across to use of pinus radiata in October mean the end of logging of native forests for Norske Skog? Is it the same thing?

Mr Laugher—In terms of?

Senator BOB BROWN—Does that mean the end of any logging of native forests on Norske Skog's 18,000 hectares of land?

Mr Laugher—It is 18,000 hectares of plantation softwood.

CHAIR—Thank you. We appreciate your time. It has been valuable information for the inquiry.

[12.43 pm]

MATEAR, Dr Richard, Private capacity

RISBEY, Dr James Sydney, Private capacity

CHAIR—We welcome Dr Risbey. I invite you to make a short opening statement before we go to questions.

Dr Risbey—I am a research scientist with the Centre for Australian Weather and Climate Research and CSIRO Marine and Atmospheric Research. It is very important that I stress to you that I am not speaking to you in connection to either of those organisations, I am speaking to you in my own private capacity and these are my own private opinions.

I will attempt to speak to the bigger picture in terms of what is at stake with the climate system. In that regard, I commend you on your choice of venue here today. This hotel is the very hotel where Roald Amundsen stayed when he returned from his trip to the South Pole on top of the ice sheet and announced to the world that he had made it to the South Pole.

My comments today, as per my submission, will only address term of reference C, which is regarding whether the CPRS emissions targets are sufficient to avoid dangerous climate change. Of course, that question in turn, if they are not sufficient, has corollary questions in what sorts of emission targets would be safer in this regard and, in turn, what might such targets imply for carbon policy.

In short, the CPRS targets of five per cent reduction by 2020 and 60 per cent reduction by 2050 are not sufficiently stringent to avoid dangerous climate change. The reason I form that conclusion, as others have, is that if you take these targets globally this emission path implies a CO2 equivalent concentration somewhere above 450 parts per million. At 450 parts per million there is a 50 to 90 per cent chance of exceeding the dangerous threshold of two degrees Celsius. In other words, it implies a temperature change greater than two degrees Celsius. In practice, the CPRS targets actually imply a larger temperature change than this because that level of concentration assumes that everybody follows the same path to reach those targets, whereas in practice the developed nations will have to cut more strongly than the developing nations in order to reach those targets.

What are the consequences of exceeding 450 parts per million or two degrees Celsius? If I were to answer this question 10 years ago or if we were doing this 10 years ago, a lot of us would not have terribly strong opinions about that, but the science has come a long way in the last 10 years and unfortunately, in most cases, the science has progressed so that we have a greater understanding, in some sense, of the sensitivity of the system and our exposure to the kind of feedbacks that make the problem worse and make us much more worried than we were 10 years ago. If you ask the question today, you will find that many of us feel that 450 parts per million is too high, that that does expose us to dangerous climate change. Essentially, it sets us up for a different climate system well outside the climate system that we adapted to as a

civilisation. We lived through the Holocene through about 280 parts per million, so at 450 we are talking about a concentration well above that.

As to the consequences of that, you have already heard today some of our colleagues speak about the risk to the ice sheets, particularly Greenland and the West Antarctic ice sheets. At 450 parts per million we have reached the level of warming of two or three degrees, where if we look back to previous times in earth's history, we see the ice sheets in Greenland and West Antarctic would break down or start to break down. The worry is that we get to a point where that breakdown is irreversible; we cannot go backwards. Again, that is something that this morning's speakers also spoke about. The rates at which that breakdown would occur have consequences for sea level rise. It is very hard to categorise precisely how fast the sea will rise but again, as a rough guide, we look to the rates that sea level rose during past transitions out of interglacial periods. That means coming out of past cold periods, moving into glacials and into interglacials, how fast the sea rose. There are periods when for multi centuries, 400 years at a time, sea level rose at five metres a century.

There is some debate about how applicable those sorts of rates are to our current system. There are two key differences. One is that in our current system we do not have the additional ice sheets on North America which are responsible for some of that high rate of rise of sea level, but on the other hand we are forcing the system much harder. The way in which we are forcing the system through increased greenhouse concentrations is much harder than the forcing through the orbital variations.

Just to give you a bit more context on that from the paleo climate records. The last time the temperature was two degrees Celsius warmer than at present, or one to two degrees Celsius warmer, was about 130,000 years ago. That was in the peak of the last major interglacial period. At that time sea level was about five metres higher than present levels. The last time temperature was three degrees warmer than the present temperature was about three million years ago, in the Pliocene where sea level was about 25 metres higher than at present. Just to put that in some perspective, we are sitting here, again in this historic place, the Hadley Hotel, at about 16 metres above sea level, so we are looking at another nine metres on top of where we are sitting right now.

The risk of warming at 450 gives a 50 to 90 per cent chance of exceeding two degrees, but also gives us about a 10 to 25 per cent probability of exceeding three degrees, so it exposes us to a significant risk of putting us into that climate regime as well.

Some of the other consequences of 450 parts per million relate to ocean acidification. Essentially research indicates that this level of carbon dioxide dissolved into the ocean interferes with the ability of calcifying marine organisms to form shells. My colleague, Dr Matear, will speak to that in more detail. It also increases the risk of releasing methane clathrates and carbon from the natural biosphere. The problem that exposes us to is that can potentially provide a large positive feedback to the warming, which would take the emission concentrations out of our control, as it were.

Another significant issue is the breakdown of high mountain snow packs. Again, at 450 or at about a two degrees Celsius warming, the hydrological systems of all the big mountains—the Himalayas, the Rockies and the Andes—work essentially by taking rainfall which has a strong

seasonal cycle falling in one part of the year, storing it as snow and then releasing it gradually through the rest of the year, through the drier seasons. Agricultural systems for hundreds of millions of people are based around these particular snow pack based hydrological systems, so at 450 parts per million we would see a breakdown of those snow packs and radical changes in the regime. Essentially, what happens is that the precipitation that used to fall as snow falls as rain and that which does fall as snow melts earlier so it floods earlier in the season and you do not retain the water during the dry season.

As to other consequences more locally, at a regional level we expect an intensification and perhaps a poleward extension of the subtropical ridge. What is that? That is just the high pressure system that dominates the areas immediately outside the tropical belt. The Australian continent, for example, sits underneath the subtropical ridge. All the world's major desert regions, looking around the globe, sit underneath the subtropical ridge, so that is why we have deserts in our interior, and we are looking at an intensification of that, with consequences for our rainfall systems.

I stress at this point that the major uncertainties related to these different issues that I have spoken of relate more to their timing and rates, not to the actual consequences. These kinds of consequences will eventually occur; it is just a matter of when, not if, should we push the system too hard. Although there are uncertainties, the things that I am talking about here do not depend on results of particular climate models, they come from an understanding of the physics of the system and looking at the past earth history.

What would be a safer target? Again, deferring to my colleagues this morning, there is really no such thing as a safe target, but a safer target would be something that would be closer to 350 parts per million, because that would reduce the risk of exceeding two degrees Celsius to more moderate levels, so back down to the 10 or 20 per cent levels rather than the 50 to 90 per cent levels. That raises the question which has been discussed to some extent, in this committee, which is whether it is possible to attain 350 parts per million. I am guided here, in particular, by the work of NASA GISS scientist, James Hansen, who has done analysis to show that stabilisation at around 350 parts per million is possible, but what is required to stabilise at that level is essentially a phase-out of coal. The reason for that is clear. If you look at the figure in the handout that I have passed around, figure A shows the reserves of carbon from oil, gas, coal and land-use changes. By far the largest reserves of carbon stores are in coal, and if we are to try to keep CO2 stabilisation at the 350 level then it is imperative that we begin phasing out coal now. Unfortunately, we no longer have the luxury of delaying the time at which we begin the phase-out of coal. The reason for that is that as we keep emitting we push the system into a point where we cannot get it back down beneath 350 again.

For illustration, I refer you to figure B, which is a figure from James Hansen that shows in the initial part the concentration of carbon dioxide up to the present time and then he has scenarios going forward to achieve a reduction to 350 parts per million, and the upper red curve is based on high estimates of reserves in oil and gas. In the scenario that Hansen has outlined, essentially in order to attain 350 we build no new coal plants and we phase out existing coal plants by 2030. Then, to get below 350 there needs to be an end to deforestation within the next five or six years and use reforestation agriculture to draw down the concentrations below 350. That is technically possible, but it would require targets much more stringent than those in the CPRS. The targets for 2020, instead of being in the five to 15 mark, would be nearer the 40 per cent mark, and for

2050 it means essentially 100 per cent reductions, so we need to be more or less carbon neutral in order to attain these targets with more moderate risks.

CHAIR—Thank you.

Senator MILNE—Thank you for coming today to appear and having the courage to speak out as an individual. I would make a comment that I am sorry the science institutions do not have the same courage. I would like to go to your graph on the second page. I would like you to comment. There is the question of urgency. We are hearing a lot of people saying that we need to get to these figures over time, but it would be too dislocating to do it too quickly. I would like you to comment on why the urgency.

Secondly, you have here the role of forestry and soil as being critical if we are to get to 350 and we stop releasing the carbon from coal, so we leave that sequestered as it is, and your view about deforestation and reafforestation. I take it from what you are saying that we should immediately stop the release of carbon from any of the existing carbon stores, that is the native forests and native vegetation, and then maximise the soil and reforestation potential where we can have it. In the Tasmanian context, that would mean stopping the logging and clearance of native vegetation, and in Gippsland, New South Wales, south-west Western Australia and so on.

Dr Risbey—In broad terms, yes. The assumptions underlying Hansen's figure here is that as deforestation is wound down and we cease deforesting the world's forests by 2015, from thereabouts forestry is used as a sink. Yes, if deforestation continues, you can see the draw down from forestry and agriculture is about 60 parts per million in this figure, so the final concentration, instead of bringing down below 350, we end up above that. In this scenario there is no way to attain that without ending deforestation.

Senator MILNE—It is a really critical component of getting to the target. Dr Matear, will you speak on ocean acidification?

Dr Matear—Yes. I am happy to comment now. I am here to support Mr Risbey's submission. I am here to talk about specifically this idea of ocean acidification. I am here to emphasise the seriousness and the urgency of dealing with this issue. The story I have is that atmospheric CO2 levels are rising. We know what is causing that. It is human activity that is causing the rise in carbon dioxide in the atmosphere. That carbon dioxide is going into the ocean. It is changing the chemistry of the ocean. Again, that is well known. That is not uncertain. The big chemical change that we know of is the change in the ability of organisms to calcify. Why do we care about that? Key organisms, like corals, calcify. They are going to be impacted by these rising CO2 levels. The message I really want to leave you is that if you look, particularly at the Southern Ocean, for example, in the next 100 years we will put enough carbon dioxide in the atmosphere that will dramatically change the chemistry of the surface water of the southern ocean. It will be so dramatic that organisms that currently are forming calcium carbonate will be in such an acidic environment that calcium carbonate will dissolve. I can show you from my research that roughly at about 450 ppm a large tract of the Southern Ocean will become so corrosive to calcium carbonate that organisms that form calcium carbonate will not be able to survive. By not acting on this issue you are condemning some ecosystems in the Southern Ocean to disappear. Cold water corals that have been found along the continent of Antarctica will not exist if we go beyond 450 ppm. I want you to be aware of that.

Senator MILNE—Why does that matter?

Dr Matear—We think of the ecosystem, the Southern Ocean, this iconic marine ecosystem, and I leave it to you: is that going to be our legacy, that we are going to dramatically change that ecosystem? It gets a little bit worse than that. I have focused on the Southern Ocean, but this impact is relevant to the whole of Australia. Let us look at the Great Barrier Reef. The Great Barrier Reef is based on corals. Corals calcify. Corals will be impacted by ocean acidification. Again, there have been some studies that suggest that 450 ppm in the atmosphere is kind of a threshold where we might move from corals growing at the moment to not being able to grow as effectively into the future and a demise of that potential ecosystem. We can all think about what the potential consequences would be on the economy of Australia if we lost something like the Great Barrier Reef and the tourism associated with that. I really want to leave you with the message that 450 ppm is a nice threshold to think about in terms of avoiding some of the really serious consequences of carbon dioxide in the atmosphere.

Senator MILNE—With that question of 450 parts per million, can you tell me about the marine food chain? It is not just the Southern Ocean cold water corals. What does it mean for the whole marine food chain?

Senator ABETZ—The krill.

Senator MILNE—Yes.

Dr Matear—There are many organisms in the ocean that calcify. Krill may not be as impacted because they do not form calcium carbonate. There are, for example, fundamental parts of the food chain, like phytoplankton. A large number of phytoplankton species calcify. Coccolithophorids may be one that you have come across. They are the foundation of the food web. Unfortunately, I cannot tell you what the consequences of changes to the food web will be. I can confidently say that there will be consequences. How the current food web works and how it will work under 450 parts per million atmospheric CO2 will be different.

I feel like we could go around Australia and pick on different organisms. There are corals. We could pick on organisms that we find in the Great Australian Bight. Bryozoans are another calcifier, another organism that plays an important foundation to the marine ecosystems. It will suffer under rising CO2 levels. I have not quite answered your question in some ways, but I am trying to give you a picture to show that there will be big pictures because these organisms play an important role in the marine ecosystems.

Senator CAMERON—Could you give me some idea of the nearer term consequences for Tasmania if no abatement program is put in place, either here or globally?

Dr Risbey—What do you mean by 'nearer term'?

Senator CAMERON—Over the next 10 to 20 years.

Dr Risbey—It is much harder to characterise the nearer term consequences because we have to try to separate out what is climate signal and climate change from the noise of natural variability. For example, we are in the middle of a substantial decadal drought here in eastern

Tasmania, which has had fairly significant impacts on the agricultural economy and it is also a major concern to the hydroelectricity corporation. The extent to which that drought is a consequence of climate change and natural variability, we cannot tell you. As I mentioned earlier, we expect an intensification of the subtropical ridge, which we now start to see in our observations. We expect a drying of the Australian continent, particularly the southern half of the continent, which would include eastern Tasmania. The sorts of things that we are seeing in rainfall are consistent with what we would expect from climate change, but we cannot, and will not be able to, give you a rigorous answer to that question for some decades, post fact.

Senator CAMERON—The Department of Climate Change has indicated that they believe that there will be a massive lessening of agricultural land available across the country. Does that include Tasmania?

Dr Risbey—I am not sure to where they refer. We have very different climate regimes in Tasmania. The west is a mountain based rainfall regime and the eastern half of the state is a regime more typical of the other parts of south-eastern Australia, so has more in common with Victorian and South Australian climate than it does with western Tasmanian climate. We can lump eastern Tasmania in with that and say we expect the drying in the east. What really matters is essentially the prevalence of westerly flow over the mountains, because that is what generates the rain in the west. We hope that is much more robust and much less likely to be disrupted than other parts of south-eastern Australia because its mechanism for rainfall is different.

Dr Matear—The drying that we are seeing in south-east Australia also applies to Tasmania as well, as Mr Risbey has pointed out. Dams are at extremely low levels. Rainfall has been extremely poor in the midlands part of Tasmania. Based on that, you might get the feeling that there might be some consistency between what happens in south-east Australia, in general, and Tasmania in particular.

Dr Risbey—The other factor in response to your question is that temperatures have risen across Australia consistent with the rise in temperatures globally. Those rising temperatures are having impacts on our ecosystems and on the species mix in our ecosystems. We are also seeing rising temperatures in the oceans in the areas around the Australian continent, and that is also having an identifiable impact on the species mix and the distribution of species in those waters. Species that used to exist further around mainland Australia are now prevalent around the Tasmanian coast. We are seeing temperature based responses already.

Senator CAMERON—One group of scientists, based around geologists, have come up with a different view. In fact, we had evidence to say that climate change was rubbish. That is what one scientist put. That is exactly what was put.

Dr Risbey—Can you tell us on what basis he said it was rubbish?

Senator CAMERON—Based on his research work.

Dr Risbey—There must be an argument somewhere.

Senator CAMERON—The point I want to make is that would be a minority view among scientists now, would it not?

Dr Risbey—Yes, that is a minority view. Most climatologists are of the view that it is a serious issue. People who say that it is rubbish tend not to be published in the climatological research community or tend not to be climatologists. The reasons climatologists think that the issue is serious is that the basic physics underlying the greenhouse effect, the radiative properties of carbon dioxide and the other trace gasses in the atmosphere, is very well understood. As to the implications of that in terms of how it plays out on the planet, we have a lot of framework to guide us on the basis of past changes in trace gas concentrations and orbital parameters for the planets, so there is a large body of evidence over really the last century when CO2 was first identified as an issue, but accelerated since about 1980. There is an enormous body of research that supports this.

Contrary to the view that is often put forward that the foundation of our views is the numerical climate models and it hinges on that, what the numerical climate models do is help give us a bit of guidance about what some of the regional impacts might be, but they are not the reason why climatologists, in the main, believe this is a series issue.

Dr Matear—This ocean acidification issue is independent of how the climate system will respond. It is simply rising carbon dioxide levels in the atmosphere getting into the ocean and changing the chemistry. Unless you do something about carbon dioxide levels in the atmosphere, this affect will happen. It is even simpler than that. I go on and say that there is even evidence that is happening now. There are observations done in the Southern Ocean that show biology is responding to the chemical changes we have impacted on the system over roughly the last 150 years.

Senator CAMERON—Thank you.

Senator CASH—In your article in *Global Environmental Change* titled 'The new climate discourse: alarmist or alarming?', on the final page you have a number of dot points. One of the dot points is:

Because of the inertia in the energy system and built infrastructure the transition to more energy efficient infrastructure and the phase-out of carbon sources must begin very soon to achieve the required stabilisation of CO2.

Yesterday we had evidence from two experts from within the building infrastructure area that the built environment can play a role in contributing to overall emission reduction targets from complementary measures. I would like your thoughts on how you see the role of the built environment in contributing to a reduction in the CO2 emission levels?

Dr Risbey—The built environment has an essential role to play in this. Given that we need to draw down carbon dioxide concentrations and do it rapidly, and given that the only way to do that is to phase out coal and to start phasing out coal now, we have to find alternatives to coal through renewable and alternative sources of generation, but you also need to use less energy.

In Australia in some sense we are fortunate in both those regards in that we have fairly abundant sources of solar and geothermal energy, so in terms of alternative generation we are in a good position. Also, we happen to be a very urbanised population so most of our population is in cities. That makes it, in some ways, easier to draw down the required use of energy. If you look to places like Melbourne and Sydney, for example, they have drawn up vision plans—

Melbourne 2020 and Sydney 2020 plans. A key element of those plans is changes in buildings, so making all new buildings very high star rating in terms of their energy efficiency, but also changes in urban form. A key element in terms of both our water and our energy use is the spread of suburbanisation of the cities, so we need to essentially redesign our cities so that we concentrate around urban hubs, if you will, which makes building more efficient and transportation more effective for people. That, in turn, will reduce the need to generate excess power.

Senator CASH—Would you agree with the statement that we need a suite of measures to ensure that we have actions in place to reduce our CO2 emissions?

Dr Risbey—That always sounds like a good thing.

Dr Matear—It is a huge job to transition from where we are at the moment in terms of carbon emissions to where we want to be in 20 or 50 years. It is a huge transition. We are talking about reducing emissions, not by 20 per cent or five per cent, we are talking about reducing emissions by 80 or maybe 90 per cent. To limit yourself to one sector of the economy is not possible. We do need a whole range of initiatives to get us there.

Senator CASH—Another issue raised yesterday was that we need an effective policy framework in order to get the reductions in the built environment. Does the CPRS, as it stands, provide that effective policy framework or do we need to do more?

Dr Risbey—I cannot speak to the CPRS's incentive structure more generally.

Senator CASH—That is fine. If you cannot, that is not a problem at all. Thank you.

Dr Matear—I would emphasise that five per cent is not going to be enough. That is how I would feel. I cannot speak to the actual policy.

CHAIR—I have indicated to other colleagues that we would have one question from each side so that we can keep to our program. I am happy to take questions on notice to the witnesses because then I want to close. We are struggling for time for this afternoon's program.

Senator IAN MACDONALD—I would like to put a question on notice.

CHAIR—That is fine.

Senator IAN MACDONALD—I am one of those that do not really understand, but go along with the majority of the scientists. I do not really have a question directly germane, but while we have experts here, on notice, could you explain to me the difference between what is happening now with the melting of the ice and what happened millions of years ago when we lost the ice cap from this planet? Can you give us a simple explanation?

CHAIR—I would like you to take that on notice. I apologise, but we really do not have time to go into answers. We have a tight program this afternoon.

Senator IAN MACDONALD—Keep it simple.

CHAIR—Senator Milne has a question on notice as well.

Senator MILNE—I did ask earlier about urgency. The question that I would ask regards the difference of opinion that if we went to five to 15 per cent now and then after 2020 we ratcheted it up and after that we ratcheted it up more, do we have the time to start with five to 15?

CHAIR—Thank you, colleagues. I appreciate your forbearance on that.

Senator BOSWELL—When we come back we will be pushing for time. I wonder if I can read into the *Hansard* now; if you rule that I cannot, then I accept that.

CHAIR—Do it now, quickly.

Senator BOSWELL—I wish to correct my statement made in committee in relation to the Waxman bill—the draft bill released by the US House of Representatives Energy and Commerce Committee on 31 March 2009 proposing a framework for a cap and trade scheme. The statement I made was made in relation to the debate on the commitment of the US to get on board and forge an international climate change agreement the likes of which would draw together coordinated and significant global undertaking on climate change. I incorrectly attributed the clause in the Waxman bill, saying that the scheme proposed in the bill was bound by a condition that it would not increase 'the overall burden on consumers'. The clause is, in fact, contained in an amendment to a US Senate budget bill debated on 1 April 2009 that allows Senate committees to design a cap and trade system.

I read into that the Boxer amendment. Mrs Boxer proposed an amendment to the concurrent resolution S Con Res 13 setting forth the congressional budget for the United States government for the financial year 2010 revising appropriate budgetary levels for the year 2009 and setting forth the appropriate budgetary levels for financial years 2011 through to 2014. It reads on page 33, line 21, after the economy insert:

… without increasing electricity or gasoline prices or increasing the overall burden on consumers through the use of revenues and policies provided in such legislation.

That should now be called the magic pudding amendment. I quoted from the 4 April edition of the *Australian* newspaper.

Lost in the Greens' and the environment lobby's enthusiasm in Australia over the Waxman bill was an indicative vote in the US Senate earlier this week to give Senate committees the flexibility to design a cap and trade carbon system.

The vote was made as non-controversial as possible by adding the clause that it would be a system that did not increase "the overall burden on consumers". But not one Republican supported the innocuous amendment that was attached to a budget bill.

The article also reported:

While Australian Greens senator Christine Milne characterised the Waxman bill this week as a sign the US had seized the leadership role and was surpassing countries such as Australia, the reality is very different in the US capital.

That is a direct quote. These are my assumptions.

Senator MILNE—This is your assumptions.

Senator BOSWELL—No, these are the assumptions of the journalist.

Senator MILNE—It is in the *Australian*, that scientific journal!

Senator BOSWELL—I am just reading what was in the paper.

CHAIR—We need to adjourn.

Senator IAN MACDONALD—He would be finished now if he had not been interrupted.

Senator BOSWELL—I have been challenged by Senator Milne.

CHAIR—Please finish the statement.

Senator BOSWELL—The article continues:

At least three Republicans would be needed in any future vote on climate change to get a bill passed in the US Senate.

The vote was carried. The yes vote was 52 Democrat, two Independent; the no vote was two Independent and 41 Democrat. Two people did not vote. That is my statement. I thank the committee for allowing me to correct something that I said.

Senator CAMERON—I would like to make a statement on this after lunch, if you do not mind, because I think it has totally confused the committee.

CHAIR—I will consider that. Thank you, Dr Risbey and Dr Matear.

Proceedings suspended from 1.19 pm to 1.50 pm

DRIELSMA, Dr Johannes (Hans), Executive General Manager, Forestry Tasmania

JEFFREYS, Mr Kenneth (Ken), General Manager, Corporate Relations and Tourism, Forestry Tasmania

STONE, Mr Martin, Manager, Resources, Forestry Tasmania

CHAIR—We welcome representatives from Forestry Tasmania. I will indicate to colleagues that we are very tight for time. We are already 20 minutes behind so we have about 25 minutes per witness. We need to be disciplined with respect to our questions this afternoon. I will attempt to ensure that all parties get a fair crack at this, but I need you to be prepared to work with me in respect to the rulings. Welcome, Dr Drielsma. Thank you for taking the time to come here this afternoon. Would you like to make a short opening statement?

Dr Drielsma—Yes, thank you. We are pleased to accept the committee's invitation to appear before you today and I hope that we will be able to assist the committee in understanding the important, but sometimes complex, role that forests and wood play in the carbon economy.

I will firstly outline Forestry Tasmania's role. We are a government business enterprise, owned by the government of Tasmania, charged with the management of Tasmania's publicly owned working forests, that is, those public forests designated by parliament to be managed for multiple uses including wood production. We manage 1.5 million hectares of state forest, which includes about 38 per cent of Tasmania's forest, the remainder being public forest managed predominantly by the Tasmanian Parks and Wildlife Service, about 31 per cent, or held by private property owners—another 31 per cent. Of the 1.5 million hectares managed by Forestry Tasmania over half is excluded from wood production.

Forestry Tasmania manages its forests according to sustainability principles, and I will leave with you today a copy of our sustainability charter, which outlines in some detail the objectives and aims that we have developed with public consultation to direct our management. Forestry Tasmania's environmental management system is certified to ISO14000 and its forests are certified to the Australian Forestry Standard AS4708.

The 2008 *Australia's state of the forests report* tells us that Australia's working forests currently offset 10 per cent of the nation's carbon emissions, made up of 5.5 per cent in our managed native forests, 3.5 per cent in our plantations, and a further one per cent from the carbon stored in harvested wood products. Globally it is recognised that managed forests lead to increased wood storage and reduced emissions over time. This is as a result of three interrelated factors—the storage of carbon in the forest themselves, the storage of carbon in harvested wood products—whether in use or disposal—and, finally, the avoided emissions or substitution that arises from the use of wood products, including wood based energy production, instead of more energy intensive products or fossil fuel based energy sources. This has been well illustrated by a diagram that I have here, and I will leave a copy with you. It is produced by the consortium for the research on renewable industrial materials based at the College of Forest Resources at the University of Washington. This diagram attempts to illustrate—

Senator ABETZ—I would just interrupt. That is headed 'Forest Product and Substitution Pools', for the *Hansard* record.

Dr Drielsma—'Forest Product and Substitution Pools'. I will leave a copy of this document. It shows, over time, the carbon effects of a forest. Essentially it is showing the growth of the forest, with harvest cycles shown by these dips where there is a reduction as the forest is harvested, and shows a maintenance of a carbon pool in the forest. It then shows the effect of harvested wood products, the storage in harvested wood products over time, produced from that forest. You can see that keeps increasing because the forest is acting as a carbon pump, if you like, in terms of storing and putting wood products out into service. If you then take into account the added benefits of the substitution of the use of fossil fuels as a result of using wood, you get this added effect as well. The net effect is that a managed forest being managed to produce wood products over time produces more and more storage of carbon or an offset in terms of the use of fossil fuels. Similar findings apply to Australia.

I will also leave with the committee a copy of a document from the CRC for Greenhouse Accounting, which has looked at similar parameters for Australia with similar sorts of diagrams. We thought we brought a copy, but we will certainly get a copy of that publication for the committee's information. This material highlights the important role that wood products play, but which unfortunately to date is not reflected in international protocols. We believe it is vital that wood products are explicitly recognised in emissions trading frameworks.

As for all other human activities and industries, forestry results in the emission of CO2 into the atmosphere. This results from the use of fossil based fuels in harvesting, and management activities as well as directly from such activities as the burning of forest residues. Our response, as with other sectors, is to strive to reduce emissions as far as possible, consistent with productivity needs, and to seek offsets where necessary for emissions. We have adopted a proactive carbon management policy, an outline of which I can also leave with the committee.

Forestry is fortunate that inherent in its production processes, when undertaken on a sustainable basis, is the maintenance and regeneration of large areas of forest, in our case, 1.5 million hectares, which are continually capturing carbon to balance that which is emitted during the harvest production phase. Forestry Tasmania has modelled its carbon inventory over a 50-year timeframe. This has taken into account the effects of harvesting and net growth in both the commercial and non-commercial forests that are maintained by Forestry Tasmania, together with the carbon stored in wood products derived from those forests. It demonstrates that over that period we are projecting around a 17 per cent increase in above-ground stored carbon.

Our modelling has been preliminary, admittedly its precision is low, and there is much we need to do to improve it. We are participating in discussions with a range of research institutions, including the CRC for Forestry, University of Tasmania, CSIRO and Forest and Wood Products Australia on a research agenda that can be progressed to address these matters.

One of the areas where we know that we can reduce our emissions and improve the overall carbon contribution of our forests is through the use of forest residues for the production of biomass energy. We are actively pursuing options to develop such opportunities in Tasmania, and indeed, we have development approval for a biomass energy plant at our Southwood Huon site investment ready for the right proponent. We are concerned to ensure that the MRET rules and

scheme are based on science and that their interpretation by the regulator is consistent with the objectives of the legislation, that is, to promote the use of renewable energy in Australia.

Another avenue for improving carbon capture is through the establishment of plantations on existing cleared land. We have established a program, in its early stages, where we will partner with private land owners to control noxious weeds such as gorse through the establishment of plantations on their land with the sharing of profits on harvest. Such programs have the opportunity to improve agricultural productivity, diversify farmer incomes, increase forest production, store carbon and enhance rural biodiversity and soil stability. By targeting weedy areas we will not have conflicts with agricultural productivity, and indeed the project could involve extended shelter belt plantings with positive production benefits. Such programs have the opportunity to opt in to the proposed CPRS and we support that position provided the rules of engagement are operationally practical for farm and forest owners.

We have also adopted an aggressive strategy of seeking to achieve a greater level of domestic processing of our wood resources, particularly into higher value long-life solid wood products that not only support a higher level of employment in Tasmania but reduce carbon emissions and increase carbon storage. In recent years we have been successful in establishing the Huon and Circular Head wood centres and in the establishment of two new rotary veneer plants. The Huon wood centre has reduced cartage volumes, thereby reducing fuel emissions, and the diversion of around 300,000 tonnes of wood from export wood chip to rotary veneer, which is incorporated into plywood flooring, has significantly increased the longevity of carbon storage.

We also strongly support the building of the proposed pulp mill, which will lead to a positive emissions result, both because the mill itself will be a net producer of biomass energy and because the transport of pulp involves only a quarter of the mass of green woodchips, resulting in significant savings in the use of transport fuels.

The Tasmanian Forest Industry Council is in the process of developing a forest industry strategy. As part of that process it commissioned a report on global climate change and the Tasmanian forest product sector. That report provides a useful analysis of the opportunities for the forest sector in a carbon economy, and I am happy to provide the committee with a copy of that report today.

CHAIR—Thank you.

Senator ABETZ—Firstly, I will go to the chart that you showed us. Do I interpret that correctly to say that the vast majority of the CO2 benefit is, in fact, in the substitution or the offset of the use of wood products?

Dr Drielsma—Certainly in this diagram. This is a case from North America. It obviously will depend on the nature of the species, the productivity of the forest and the nature of the products into which those forest materials are going.

Senator ABETZ—The substitution argument, in brief, is that it would be better for the environment, from a CO2 point of view, to have, say, wooden window frames rather than aluminium window frames or to have cardboard packaging rather than polystyrene packaging?

Dr Drielsma—Absolutely. There is no question about that. This is recognised by the Intergovernmental Panel on Climate Change—that wood production forests, or the production of wood, is probably the single most important element that we can build into a climate change policy, and that a carbon economy must be a wood economy.

Senator ABETZ—If we were to limit our wood and wood fibre production it would mean a substitution by other non-renewable products such as aluminium, polystyrene and so on. I will move on to the issue of biomass energy and the issue of regeneration burns. I understand that Forestry Tasmania is in fact actively seeking to be able to use the residue for the purposes of power generation?

Dr Drielsma—Absolutely. As I indicated in my opening remarks, we have development approval at the Huon wood centre site for the development of a biomass energy plant and we see that as a very important element, both in utilising a resource which is currently waste and is burnt, which produces community concerns because of the generation of smoke, and is essentially a lost opportunity in terms of recovery of biomass energy. We are very focused on that. We have been engaged in discussions with a number of interested parties for quite a while. At present it does revolve a lot around the introduction of some sort of a carbon signal, whether through an emissions trading process or through a renewable energy scheme of some sort that will give some recognition and benefit to the greenhouse positive nature of that sort of energy production.

Senator ABETZ—Within the Australian regulatory framework have you achieved acceptance that the burning of wood waste is a renewable energy?

Dr Drielsma—One of the difficulties at the moment is that the regulator will not provide approval to a scheme before the building of a plant. The position taken is that you have to make an investment, sometimes many tens of millions of dollars, and then the decision will be made as to whether the energy does or does not meet the requirements. We have in fact put in place a small biomass energy plant, a gasification plant, and through that process we have generated a renewable energy credit, but that was the only way that we could satisfy ourselves that such an activity would in fact be acceptable. We think that is a very significant constraint on any investment in that sort of technology, that these sorts of matters cannot be resolved beforehand.

Senator ABETZ—I happen to agree with you on that. Elsewhere in the world is there much dispute about wood waste being considered to be a renewable energy source?

Dr Drielsma—None at all. It is widely adopted in other countries, including Finland, Sweden, Denmark, Austria, Switzerland, Canada, the USA and the UK. There are many numbers of plants. We have visited a number of those. They are quite significant generators of power, heat, steam and electricity. They operate without any air pollution at all.

Senator ABETZ—In relation to your comments regarding the pulp mill, you say that would have a positive carbon footprint. Is that on the basis of the power that might be generated from the waste lignin?

Dr Drielsma—Yes. The production of paper breaks down wood into its constituent fibre and the glue apparently holding those fibres together. The recovery of that waste material through

recovery boilers generates energy. Pulp mills of this nature are in fact power plants. They generate an excess of electricity. My understanding is that the proposed pulp mill would generate something like 180 megawatts of electricity, about half of which would be used in the process itself and the other half would be available to the grid. That is a major benefit. Of course the other benefit is actually in the transport.

Senator ABETZ—The carbon miles of the shipping?

Dr Drielsma—Absolutely.

Senator ABETZ—You indicated that it goes from four to one.

Dr Drielsma—That is correct.

Senator ABETZ—Forestry Tasmania is now developing integrated wood centres which, if I might say, make better usage of our timber product. Can you give a brief explanation as to how that operates or the purpose of an integrated wood centre such as you have in Geeveston and also in the northwest at Smithton?

Dr Drielsma—We have developed two. The Huon wood centre is the first that we developed. The concept was to bring together a range of different processing opportunities into the one site so that there would be economies of scale and production between them in terms of generation of electricity, use of residues and that sort of thing. Put it close to the forest—in fact, in this situation virtually in the forest—so that you reduce again the carbon miles of log transport, water and other constituents of wood that do not end up in the final product. We developed an investment ready site for that purpose. We have attracted to the site at the moment a regrowth sawmill, a veneer mill. We have development approval for a biomass energy plant and we have a merchandising yard where we bring large logs into that centre. We then merchandise them so that we can extract the maximum possible value, put the high-grade logs to the sawmill and the lower grade logs to the veneer mill.

Senator ABETZ—In brief, given the time constraints that we have, an integrated wood centre means less transport of wood product and also means a greater recovery per tonne of wood or cubic metre of wood that is harvested?

Dr Drielsma—Greater recovery in value terms, greater recovery in volume, and greater recovery in energy terms.

Senator ABETZ—Thank you.

Senator MILNE—I will indicate that my colleague Senator Brown and I will share the time. My questioning goes to, firstly, Forestry Tasmania's carbon footprint and, secondly, the financial return to Tasmania on wood production versus carbon sequestration. I would start by asking you to confirm the figures in the MBAC Consulting Group report that show for the commercial native forests that you manage that between now and 2030 there will be a reduction in the standing volume of carbon of 14 million tonnes, that is, you will be taking 14 million tonnes of standing carbon out by 2030.

Dr Drielsma—I do not have the report in front of me, but I am sure if you are quoting from the report the figures are correct.

Senator MILNE—We heard from scientists before lunch that by 2030 we need to have stopped taking carbon out of the carbon stores and not only protect at the stores but be adding to additional plantation/reafforestation to draw down more. So, there are two issues there. What does Forestry Tasmania get as an average royalty per tonne of timber harvested from a commercial native forest?

Dr Drielsma—I do not have that number in front of me. We have a range of different products with a range of different returns attached to them. As I said, they vary from anywhere between $20 and $80 a cubic metre or a tonne of stumpage, to which we would probably add another $7 in road tolls. That is the order of magnitude of the range of returns that we receive from our wood at the forest gate.

Senator MILNE—You are saying that the lowest royalty that the people of Tasmania get is $20 a tonne?

Dr Drielsma—In that order.

Senator MILNE—And the highest is around $80?

Dr Drielsma—In that order.

Senator MILNE—What is the percentage breakdown of that?

Dr Drielsma—I would be speculating. I would not like to do that.

Senator MILNE—Can you take that on notice? We would be keen to see that.

Dr Drielsma—Yes.

Senator MILNE—At a return of, let us say, between $20 a tonne for carbon sequestered up to, as Sir Nicholas Stern has said, more than $100 a tonne, would the people of Tasmania be better off to have their forests sequestering carbon as a permanent store in addition to taking up with additional plantings rather than having 14 million tonnes being removed from the carbon store in the critical period to 2030, when we have to reduce greenhouse gas emissions?

Dr Drielsma—In my view, no. In the first part of your question you are confusing the return to Forestry Tasmania, which I have indicated is between $20 and $80, with a once-only payment of $20 for carbon. The return we get is only our share of the return. The return to Tasmania, the value to Tasmania, is significantly greater. If I can put it in broad terms, we have a revenue of, say, $150 million per annum. The overall value of the production from state forest to Tasmania is closer to $700 million. That is the value in terms of jobs and wealth creation for Tasmanians. If we only got $20 once for storing that carbon there would be no ongoing value and there would be no jobs attached to it.

Senator MILNE—You equally get the expanded value to Tasmania in terms of jobs and other industries associated with having that carbon store biodiversity. Let us not go into those other factors, let us deal directly with financial returns to Tasmania in terms of the carbon stores.

Dr Drielsma—I would be interested to know what jobs are attached to that.

Senator MILNE—I will hand over to Senator Brown on the regeneration burn.

Senator BOB BROWN—There are some 30 regeneration burns in Tasmania today. What volume of greenhouse gases will be emitted from that program today?

Dr Drielsma—I am sorry, I did not hear the full question.

CHAIR—Senators, can we have some order?

Senator BOB BROWN—Thank you. There are some 30 regeneration or post-logging burns in Tasmania today. What volume of greenhouse gas will be emitted from those burns?

Dr Drielsma—I cannot answer that question. I do not have those sorts of numbers. The important thing, as our report shows, is that overall there is a balance in the growth of the forest against what is emitted from the harvest.

Senator BOB BROWN—It is important for this committee to deal with the facts. Why do you not have those numbers for the greenhouse gas emissions coming from the regeneration burns, when this has been a matter of contention for some decades?

Senator IAN MACDONALD—The regeneration burns were eight before lunch and now they are 30.

CHAIR—Can we dispense with the interjections.

Dr Drielsma—We have attempted to model the overall carbon situation of our forest. You are looking at one small element of it.

Senator MILNE—We do not know whether it is small.

Dr Drielsma—We are trying to bring in the totality of that, which is across the 1.5 million hectares that we manage, which includes in it the losses from harvesting but also the gains from growth, what we use in our fuels and administration and what goes into the wood product.

Senator BOB BROWN—How do you model that if you do not know what the emissions are from regeneration burns?

Dr Drielsma—The assumption in our modelling is that on harvest all the carbon on a particular area is lost. That is the assumption that has gone into that modelling. It is a very conservative assumption.

Senator BOB BROWN—Let me just stop you there. We know from science that half the carbon is on or below the ground and that a large amount of the carbon remains above ground in terms of the crowns, stumps and so on that have not been removed. Do you calculate the amount of carbon and other greenhouse gases that are there which is about to be burnt?

Dr Drielsma—I will just repeat that our modelling has been done on a very conservative—

Senator BOB BROWN—Can you just answer that question.

Dr Drielsma—I am trying to answer that question. Our modelling, which is done on a very conservative basis, assumes that all of the biomass associated with the forest when it is harvested, above ground and below ground, disappears from the model at harvest. We understand that is a very conservative assumption because, in fact, the below-ground biomass stays for many decades, as does a lot of the above-ground biomass. The modelling of that is quite complex and we have yet to establish the appropriate methodologies for doing that. It is one of the reasons why the sorts of losses that are being referred to, as demonstrated in our data—which as I have said, is very low precision—emerge, because we have not fully taking account of all the carbon that still remains in the forest after harvest. We have deliberately taken a conservative approach just to see what the totality of it is.

Senator BOB BROWN—This is not a study cheat. If there is nothing above ground that can be calculated, what are you burning?

Dr Drielsma—I do not understand the point of the question.

Senator BOB BROWN—You do understand the question, I submit. You are saying that from your conservative calculation, which I submit is an alternative word for 'manipulative' calculation—

Senator IAN MACDONALD—Come on, the TV cameras have gone, Bob.

Senator BOB BROWN—that you do not count any of the remainder of the forest left after you have removed woodchip logs and other material for commercial use as existing.

Dr Drielsma—I would like to be very clear. When I say 'conservative' I believe I use that in the way of conservative to the argument that Dr Brown is putting forward.

Senator ABETZ—That is right.

Dr Drielsma—We have assumed, in fact, that all of that carbon is either emitted through the burning or through the removal of product. We have not assumed that any of it stays in longer term storage.

Senator ABETZ—If you are cheating, you are cheating yourself.

Senator BOB BROWN—Now we have a—**CHAIR**—Senator Brown—

Senator BOB BROWN—If I may, this is an important question. You have now said to the committee—

Senator ABETZ—We all have important questions.

Senator BOB BROWN—He does not need your shepherding, Senator Abetz. The carbon in the burning process is calculated. I come back to the simple question, and this is a key question here: what is the amount of carbon emitted per annum from the forest regeneration burns in Tasmania and, indeed, what is the amount to be emitted by the 30 burns, including 24 regeneration burns today.

Senator IAN MACDONALD—Chair, we are wasting time. This has been asked and answered.

CHAIR—Dr Drielsma has answered that question.

Senator BOB BROWN—He has not answered the question. I am asking the question.

Senator IAN MACDONALD—He has not given the answer you want.

CHAIR—Senator Macdonald, you are not assisting. Senator Brown, Dr Drielsma has answered that question. What I think you are asking him to do is to count the same carbon twice.

Senator BOB BROWN—Fair's, fair. What was the answer to the question?

CHAIR—He has quite clearly said that all of the carbon in the forest is deemed to be removed, which includes the carbon that is burnt.

Senator BOB BROWN—I am asking for the amount, Chair. That is a valid question.

CHAIR—I am going to give the call to Senator Bilyk.

Senator BOB BROWN—I have some further questions that I can put on notice.

CHAIR—Yes, that is fine.

Senator BILYK—The CPRS provisions allow for the forest sector to generate permits for carbon sink forests—is that right?

Dr Drielsma—The CPRS proposes that certain forests ould opt into the process.

Senator BILYK—Have you seen those provisions or been able to review those provisions?

Dr Drielsma—Yes. We have been closely involved with that.

Senator BILYK—Have you done anything with your comments? Have you sent them to the committees or anyone like that?

Dr Drielsma—We have participated in various industry forums and have put those comments in. We are members of the Australian Plantation Products and Paper Industries Council and we have contributed to their position on the trading element. We are not uncomfortable with the proposals for trading. There are some concerns around the edges about the practicability of some of those provisions, as to whether or not forest growers can take advantage of those opt-in provisions. There are a lot of arcane elements around how much carbon could be recognised in the trading scheme and the period from which they can be recognised. I guess there was certainly a disappointment that it was not possible for all of the carbon that has been stored post 1990 or even post 2000 to be counted. In fact, under the rules it will only be post 2010 carbon that can be recognised in the scheme, and that has meant that a lot of investment in Kyoto compliant plantations will not be able to benefit from those provisions.

Senator BILYK—Have you been able to send your technical concerns to the Senate economics committee? I understand they are the ones that looked at the draft.

Dr Drielsma—We have not provided it to them, but they have been well articulated in the forest industry submissions that we have participated in, both through the ministerial council processes and through APPP processes.

Senator BILYK—What are the state and local government regulations on biodiversity and water use and interpretation do you operate under, and will these regulations, as you understand it, apply to the carbon sink forests?

Dr Drielsma—What local government rules?

Senator BILYK—Yes, state and local government regulations.

Dr Drielsma—We fully operate under all the state and national rules. The local government rules, such as they are, are not applicable to state forests in general. We operate under the Threatened Species Act and the Forest Practices Act within Tasmania just as any private grower; we have exactly the same levels of regulation. They are quite comprehensive in Tasmania. I do not know whether you appreciate the forest practices system that operates in Tasmania through the Forest Practices Authority, which means that any harvesting activity, any road building activity, any planting of any tree or any clearing of any native vegetation requires the approval of a forest practices plan by the Forest Practices Authority, which has extensive rules about maintenance of biodiversity and other natural and cultural heritage values.

Senator BILYK—Thank you.

CHAIR—Thank you. I understand there will be some questions on notice, so we would appreciate it if you could assist the committee with those. I thank you for your time here this afternoon.

[2.23 pm]

CAULEY, Mr Ivan Dudley, Global Manager, Business Improvement, Nyrstar

TERWINGHE, Dr Francis, General Manager, Hobart, Nyrstar

ZOOEFF, Mr Greg, Senior Business Analyst, Nyrstar

CHAIR—I thank you for taking the time to appear before us today. We apologise that things are so tight for time. Again, I ask my colleagues for their assistance with respect to maintaining our schedule. Can you please make a short opening statement?

Mr Cauley—In terms of background, I will assume that people have seen our submission to the committee and I will just highlight a few key issues. The first point I would make is that Nyrstar does support the need to take action on climate change. It is important to us, the nation and the world. Nyrstar is the world's largest zinc smelting company. In Australia we employ, directly and indirectly, over 3,000 people and contribute about $2 billion in export income.

In terms of our Australian operations, over 90 per cent of what we produce is sent to markets in Asia and we compete on cost competitiveness. That is the basis on which our profitability is based, with a very flat cost curve, which means that it is highly competitive.

The CPRS is being introduced during a worsening international financial crisis and a collapse in commodity markets. That has exposed companies like us to some serious challenges. As far as Nyrstar is concerned, we have been forced to reduce production in Europe and the US, with 50 per cent reduction in production in the US. We have completely closed a 260,000 tonne operation in Europe and we have also reduced production by about 30 per cent in another operation. At this point in time, that plant has been closed on a temporary basis on a six-month care and maintenance program, but we are under significant financial pressure.

In terms of the CPRS itself, you will see in the paper that I have used the $40 carbon price, but if we used a $25 carbon price the impact on us is about five per cent EBIT at Hobart, based on achieving a 90 per cent free permit position. For our Port Pirie smelter, because it is likely to be at the 60 per cent qualification basis, it is of the order of 19 to 20 per cent at a $25 carbon price which, in a very competitive business, is a significant impost on our operation.

I would like to move on to a couple of key points with respect to the white paper and the current scheme that I would like to highlight. The issue of market volatility and ability to pay is a key concern for businesses like ours where our returns are highly volatile and cyclical. Nowhere within the scheme is there any ability to take into account that ability to pay. In addition, the impact to the expanded MRET, in conjunction with the ETS, means that the impact on businesses like ours is significant.

Senator BOSWELL—What is significant? How much is that?

Mr Cauley—The impact of the MRET by 2020 on Hobart would be of the order of $8 million a year.

Senator BOSWELL—What is that in a tonne?

Mr Cauley—It is 260,000 tonnes.

CHAIR—We can do the calculation.

Mr Cauley—It is a significant impost. I have a few comments with respect to the scheme. We are pleased with the changes that have been made to the scheme between the green paper and the white paper with respect to some of the EITE considerations. In particular, we think that the lower threshold and the addition of the value-add metrics are significant steps forward in terms of the scheme design. There is still an issue with those organisations at 60 per cent, particularly in difficult times. We think that because of the issues with respect to the economy a more gradual adaptation to a carbon price is a much better option.

We think that the decay rate of 1.3 per cent is too aggressive and it needs to be linked to an international action on climate change. We firmly believe that the remainder of the world needs to be moving before there is a decay in the level of assistance. If equivalent climate policies are not introduced elsewhere we will see erosion in our cost competitiveness and that will then lead to carbon leakage.

I have already mentioned the ability to pay and, certainly in a cyclical business like ours, the ability to pay varies depending on what part of the cycle we are at. That is not accounted for in the current scheme design. We feel that it would be prudent right now, because of the economic crisis, to delay the start of the scheme until at least economic conditions and credit markets show signs of improvement. We think that there is a real reason why that should be the case.

A large proportion of EITEs, such as us, compete with firms in the developing world. As these countries are not considering the introduction of climate change policies, we see that there is a potential gradual loss in our competitiveness and investment as a result, so the design of those aspects of the scheme is very important.

I have already mentioned the MRET and the key issue there. The last point I would make is with respect to some of the overriding policy assumptions. We have concerns with respect to the modelling assuming that carbon capture and storage be commercialised by 2030 and also China introducing carbon cost mechanism by 2015 and India by 2020, with a global agreement by 2025. We think that is optimist and that there is real risk in Australia assuming that CCS is the answer to all the problems. We believe a portfolio of technologies and at least a consideration of a whole range of options is necessary, otherwise it is putting our eggs in one basket and there is a risk that long-term reduction targets will not be achieved.

That is a brief summary of the key points and I hope people have seen in the paper that there is a lot more of the detail that sits behind that.

CHAIR—Thank you.

Senator XENOPHON—I had the benefit of a briefing from Nyrstar in Port Pirie a few months ago. What is the difference in the energy intensity between the Tasmanian operations and the South Australian operations? Further to that, the argument of your Port Pirie colleagues is that if those plants are lost it would go offshore. On what basis do you justify that? Can you also tell us what your understanding is of the energy intensity of some of the overseas plants?

Mr Cauley—The two plants are actually very different. The operation here is a zinc electrolytic refining business. Whilst a portion of the Port Pirie site is a similar technology, a large component of the lead operation is different. It is a blast furnace based technology. It is different and almost impossible to compare.

We can say, in terms of the emissions intensity and energy efficiency, is that the Nyrstar plants are highly competitive in terms of energy efficiency across the world. I had a comment recently where someone suggested that Hobart is a very old plant and it is not efficient. That is actually not true. It is a professionally run plant and, in terms of energy efficiency, it is among the world's best in terms of the use of energy to convert to zinc.

If we have a look at the Port Pirie plant, again it is an old plant, but the core technology, its inner plant blast furnace and the use of it, is efficient. We have seen in the last 15 years that a significant amount of production of lead and zinc in the world has moved from the western world to China. In fact, the world's lead production over the last 20 years in China has gone from five per cent of the world production to 35 per cent. Similarly for zinc, over the last 15 years, I do not have the exact numbers at hand, but certainly China has of the order of a 15 per cent to 20 per cent increase in the proportion of the world. We do know that the technology being used in China is far less efficient than the technology here and there is a significant risk that, should these operations close here, they will be replaced with technology in Asia, and particularly China, that is nowhere near as efficient. That is the risk and that, for us, is the carbon leakage issue.

You might see in my paper that I have shown a comparison of the cost per tonne of production of zinc across the world. You will see that the production of zinc in China is the cheapest of anywhere in the world. That is because the labour costs are low, but their energy efficiency is actually poor. Hence, the risk because of the cost competitiveness and the competitiveness of this industry is that small changes and impacts on us—and what I am talking about here in terms of EBIT are more than small—have the potential to threaten businesses in this country, close them and then they spring up elsewhere.

Senator XENOPHON—Thank you.

Senator CAMERON—Do you have a plant in China at Yunnan?

Mr Cauley—We have a joint venture.

Senator CAMERON—Yes, it is 50 per cent. I had a look at your website and you have got a code of business conduct. Part of that is to prevent harm and to ensure that you look after the environment. I assume you do that in China as well.

Mr Cauley—Absolutely. In fact, those values are very serious to us. In terms of Nyrstar, that was part of the construction of the company. We recognise that some of the standards there are not what they should be, but we have been working hard to do something about it. As a matter of fact, we are actually exiting that.

Senator IAN MACDONALD—What are you exiting?

Mr Cauley—The Chinese joint venture at Yunnan. We are in the process of exiting that, and we have announced that.

Senator CAMERON—You have other operations in China.

Mr Cauley—We have two other joint ventures.

Senator CAMERON—You may have to take this on notice and go back to your parent company. Some of the impression that you have given is that if you operate in Australia you will be subject to all these restrictions. My advice is that there is a national climate change program in China that was adopted in June 2007. This program has a commitment to reduce national energy intensity by 20 per cent by 2010; the adoption of a national renewable energy standard of 15 per cent by 2020; a top 1,000 enterprises program, of which the largest 1,000 enterprises will agree on an energy efficiency improvement plan and have its energy consumption monitored; a program to eliminate inefficient power plants totalling eight per cent of domestic capacity by 2010; plans for the closure of inefficient industrial plants, including 100 million tonnes of pig iron capacity and 55 million tonnes of steel making capacity; and the imposition of export taxes on energy intensive industries which include a 10 per cent tax on primary steel products. Do you agree that all of these initiatives will put a cost on Chinese manufacturers?

Mr Cauley—Yes. I am not familiar with that, but I would agree.

Senator CAMERON—Around the world countries are taking steps to impose costs on business in an effort to reduce CO2. Is that not the case?

Mr Cauley—There is certainly a measure of that going on, absolutely. I do not think that is the argument. The argument is that for a scheme to be effective, it relies on that international action. The risk that we run is if we move too rapidly and too quickly before the international action then we threaten the viability of businesses here before that international action is taken.

Senator CAMERON—How does that fit with your business code of conduct that says that you will look after the environment when you are arguing here that it is about money and costs? Surely the business code of conduct that you have got says that you must look at the environment; you cannot just dismiss it.

Mr Cauley—If you have a look at Nyrstar and the way that we do business, you will find that the environment is an absolutely critical part of the way that we do business. I will give you two examples of that. The 10 by 10 program in Port Pirie, which is a major health and environmental program, which I initiated myself as general manager there, is a great example of a joint initiative looking to improve environmental performance, recognising our problems and doing something about them.

Senator CAMERON—That is good.

Mr Cauley—I agree with you that we also need to be taking action with respect to carbon and carbon emissions. I am very serious, as an organisation, that we will do that as well. We are part of EEO. We take our obligations seriously. We will continue to work to be as efficient as we can and improve our energy efficiency and emissions intensity.

CHAIR—Senator Milne.

Senator CAMERON—You need to keep that standard for everybody, Chair, because you have not been doing it today.

Senator ABETZ—He has been very good to all of us.

CHAIR—Senator Cameron.

Senator CAMERON—I have some questions on notice.

CHAIR—Thank you.

Senator MILNE—You have advocated a delay until 2012 for the scheme coming into effect. Have you done a cost of what the accelerated rate of reduction of emissions would need to be between now and 2020 with that two-year delay?

Mr Cauley—From our perspective?

Senator MILNE—Yes.

Mr Cauley—No.

Senator MILNE—The question of clarification that I would like for this committee is in relation to the CO2 intensity of electricity generation and this issue of factor 1. This is something that Tasmanians, in particular, are interested in. Tasmania has, for a long time, relied on hydroelectricity as opposed to coal fired generation, we lost that competitive advantage when Basslink went in and we imported coal-fired power to Tasmania. Nevertheless, I understand that your contract is predominantly hydro based. Is that correct?

Mr Cauley—That is true.

Senator MILNE—Can you explain to me if there is any recognition under the CPRS for regional advantage for hydro generation? For example, can Tasmania not benefit from renewable electricity in the context of a competitive advantage? I am just interested in how this factor 1 applies and how it is averaged or how it works.

Mr Cauley—The key issue with respect to energy is the national electricity market. Your comment about Basslink is absolutely right. If we look at the Treasury modelling, the proposed or projected increase in power costs in Tasmania is almost the same as the projected increase in power cost elsewhere in Australia, despite the fact that it is hydro generated. I would have been

surprised if, in fact, that was not the case. That has been fundamental to our argument all along in that there should be advantage in Tasmania because of the fact that there is hydro generation of a significant part of the power. The reality is that it is a national electricity market; we will pay the price that the national electricity market demands, and that means that the cost of carbon will actually come through to energy in Tasmania, despite the fact that there is a very small amount of carbon associated with most of that energy. I guess that is one of the features of the scheme and it is why we have been arguing about the need to compensate for indirect carbon impact, if you like, with respect to energy. It is a major issue. We have seen this in Europe. We have seen elsewhere where exactly the same thing happens. I am not sure if that answers your question.

Senator MILNE—That is all right. I just wanted to get on the record the explanation for Tasmanians, in particular, regarding how that works. I would like to go to a final question in relation to what the science demands and what the government's target is. The British government, overnight, has committed to a 34 per cent reduction in greenhouse gas emissions on 1990 levels by 2020. The Australian scheme is five to 15 per cent. You are saying that you want to delay for two years. Do you support a scheme of five to 15 per cent, or do you think it should be more ambitious?

Mr Cauley—You are probably asking me a question which our CEO should answer. He is not here. He is sitting in an office in London. I think that is a question that I am ill equipped to answer.

Senator MILNE—The company must have a view of whether you support the Australian scheme.

Mr Cauley—At the start of my remarks I made the comment that we support action on climate change, and we do.

Senator MILNE—Everybody supports action on climate change, but when you come down to the detail it is a question of how quickly, how deep the cuts and who should make the relative contribution. I was really asking for the company's view about the Australian government's five to 15 per cent target, and you are saying that you are not empowered to comment.

Mr Cauley—I am saying that, but what I would also say is that we are looking for international action. The reality of our industry is that unless there is international action our competitiveness is going to be rapidly eroded and it will be irrelevant, because that will threaten our industry.

I have one last point that I would like to make. One of the things that is forgotten a lot is that the zinc that we product actually extends the life of steel by 10 to 12 times. Galvanising is a fantastic part of reduction of CO2 emissions in the world. I know it is something we should have done more of, but we should be crying from the rooftops about how important zinc is to reducing carbon emissions.

Senator ABETZ—Undoubtedly because of time constraints, Senator Cameron did not go on to tell you that the way that China was going to deal with the issue of climate change and energy sources was to develop a lot more nuclear power. It is the same with Senator Milne.

Senator CAMERON—Have we got a nuclear plant over here?

Senator ABETZ—It is amazing that Senator Cameron is allowed to interject at will, but when somebody interjects on him he becomes high and mighty and it is a moral outrage.

CHAIR—We need to get on with the questioning.

Senator ABETZ—Are you aware that in the United Kingdom as well—and, I am sure only because of time constraints, Senator Milne was unable to tell us this—their tackling of climate change and reducing their carbon footprint will also be via nuclear energy? In relation to energy, how many years ago did the zinc works in Hobart come here courtesy of a specifically built hydro scheme?

Dr Terwinghe—Ninety years ago.

Senator ABETZ—In relation to your production, how much of it is exported?

Mr Cauley—Ninety per cent, or of that order.

Senator ABETZ—What percentage of the world market does Nyrstar represent in relation to zinc and the other products?

Mr Cauley—Nyrstar is 1.2 million tonne, so about 10 per cent.

Senator ABETZ—You are very much alive and subject to international competition and your product is very much trade exposed because you sell 90 per cent of it into the international market, and in the international market you are only a 10 per cent player. There is another 90 per cent represented by other companies who, if they could, would like to take advantage in relation to any price increases that you might have to incur. Is that right?

Mr Cauley—Absolutely.

Senator ABETZ—In relation to your production of metallurgic products, or zinc—that is how we refer to it here in Tasmania being the zinc works—is the energy efficiency relatively high by world standards?

Mr Cauley—Yes.

Senator ABETZ—If you were to suffer a price disadvantage, not only by the 90 per cent—and I assume you would be in that 90 per cent category? We are hopeful, anyway.

Mr Cauley—Yes.

Senator ABETZ—The renewable energy target as well, but then on top of that the 1.3 per cent decay per annum would put severe stress on your financial viability in Australia?

Mr Cauley—Over time that is true.

Senator ABETZ—Of course, we need zinc products for the reasons that you have outlined. If we did not make it in Australia, we would be getting it from overseas sources.

Mr Cauley—Absolutely.

Senator ABETZ—Are those overseas sources likely to have the same environmental constraints that exist in Australia today, let alone the constraints that might apply after the renewable energy target and the CPRS are implemented?

Mr Cauley—That was the question that we were talking about earlier. I can give some statistics with respect to this. The average today is 6.8 tonnes of CO2 per tonne of zinc in China. The average in Australia is 2.6 tonnes of CO2 per tonne of zinc. It is significantly because of the fact that it is hydro power as part of the energy source for producing zinc here. It is significant. The carbon leakage issue is a real issue. I take on board what Senator Cameron said, that there is action being taken today. I can tell you that the difference is massive.

CHAIR—I thank you for your appearance and evidence here today. It has certainly been valuable and we understand the importance of business to this city, in particular.

[2.50 pm]

STRIE, Mr Frank, Regional Consultant, Tasmania, BEST Energies Australia Pty Ltd; and Director, Schwabenforest Pty Ltd

CHAIR—I thank you for taking the time to talk to us this afternoon. Can you please make a short opening statement?

Mr Strie—Thank you very much for organising this hearing. I have come here, which is a 500 kilometre round trip, just to put that on notice. We all have come here because we want to ultimately do something positive regarding carbon sequestration in our own way. I think it is very important and I welcome that the Liberal and the Greens parties have jointly looked at extending the hearings to give more people and companies an opportunity to say something. I am not here to sell you anything. I would like to inform you and hopefully we can lift the debate from the party political fighting that I noticed. I was listening to all three senators this morning. Minister Wong was on as well. All of you have said how important it is to do something, which is really good.

There is something that I want to put to you: the terms carbon positive, carbon negative and carbon neutral. It is absolutely important. It is just like with old growth, regrowth, plantation, plantation forestry and so forth. In the same sense, there is a lot of confusion there. I am talking about carbon negative industry. The pyrolysis technology that BEST Energies has developed is about carbon negative, meaning that we can take more atmospheric carbon CO2 out of the atmosphere, as well as other greenhouse gases for that matter, and sequester them in the ground. It is not deep underneath in some sort of a rock formation, but in fact in the agricultural soil.

It was good to hear the Opposition Leader, Malcolm Turnbull, come out on the Australia Day weekend and said, 'The future is in agricultural carbon sequestration or biosequestration through biochar.' That is exactly what I am on about. However, as we have already heard, the sourcing is the key issue. As we heard from Forestry Tasmania, they have this idea that the wastage is there anyway, so we might as well do something useful with it. It is absolutely important.

The handout will provide you with some sort of overview. What we really need is a more complex, holistic approach to this whole topic. Instead of just saying, 'All biofuels are bad', in terms of competition to the agricultural industry, here we are talking about converting waste material from responsible operations to a positive, clean energy, electrical energy and thermal energy, reducing landfill and therefore methane gas emissions from landfill sites, and to give companies yet another opportunity to value add to whatever they bring into their farm gate and their factory gate. I am talking about food processes, for example, like abattoirs or others, and also sewerage sludge and so forth.

Sequestering carbon in the topsoil where it is useful can be done by turning it into a charcoal rather than composting organic material, by turning that into a stable carbon which lasts for hundreds, if not thousands, of years and has got an enormous surface area. When you consider that the porous nature of biochar has got between 400 and 800 square metres per gram of surface, that means that nutrients that the farmers apply through either liquid fertiliser, pelletised

fertiliser or even organic fertiliser, have to be held in the soil. We hear about eutrophication of our rivers and streams. This is one way of mitigating that and reducing the runoff from our land.

There is a diagram here that you all have and I am happy to give you that in electronic form as well. It explains the technology and how it works. BEST Energies has been awarded the United Nations Environmental Day Award in 2007. We also went to the Bali Climate Conference and we are looked at by all sorts of industries. On one of the pages here I have listed the different feed stocks that are useful and that have already been identified. I heard Minister Wong say that there is a lot of research needed. Also, agriculture minister Tony Burke suggested that this is early days and that we have not done the research yet. I am more than happy to respond to that if you have any questions about that.

There is feedlot manure—we have got one large feedlot up here in Tasmania, not that I am a fan of such intensive animal husbandry; I am more for organic open fields and green grass management—however, from companies and they emit a lot of methane gas. Also, like I said, they run off nutrients into the subsoil.

There is a problem with sewage sludge and controlled waste: for example, poultry litter from poultry farms, which we have here in Tasmania. We are talking tens of thousands of tonnes or cubic metres of chicken litter which can be turned into firstly electricity, secondly thermal energy and thirdly into biochar. I am not talking about burning our forest for yet another product, I am talking about a by-product of responsible management.

On the next sheet I have potential feed stocks in Tasmania and I start with garden and orchard green waste. For example, one of the largest orchards in the world is in the Coal River valley. They have expressed great interest being part of this concept from their annual prunings. We have lots of woody weeds like ghost, willow pine and wattle in different parts of Tasmania, which we need to address regarding the fire risk management and the weed spread along the rail corridor and roads. Just recently we had a major fire in the Midlands where farmers' fences were burnt down because there was not enough roadside vegetation management. With food processing waste, we do have large companies—abattoirs in the central north, food processors in the north west and on King Island. I am in contact with the King Islanders and hopefully, with an above party political approach on state and federal level, we are getting somewhere.

There is then the pyrethrum and poppy industry that are greatly interested. I may have mentioned that the largest meat processor in Australia, if not in the world, Swift, is also very keen to see this. They have supported this concept to the Garnaut inquiry.

I put last sawdust and fuel wood. That has to come from responsible forest management. There is no point ending up with more placards and more arguments about the continued forestry management, or mismanagement for that matter. Because of my background in forestry for over 30 years—I have an ecological forestry background—for me this is a whole-island approach. We should really manage our ecosystems from the seashore to the mountains and according to the expectation by society.

There are a few diagrams on technology. There is a pilot plant near Gosford, in Somersby in New South Wales, which is open to be visited. I understand the Opposition Leader has already

booked in and I hope that the other two parties can also make themselves available to learn at first hand about what are the known and unknown ways of technology now.

This is about decentralised conversion of organic waste, different to the proposals that are currently before us from Forestry Tasmania and Gunns, for example. I am talking about a number of decentralised plants dotted around the island in key locations, be that in Smithton, Ulverstone, Longford or also here in Sorell. My role is just Tasmania; that is why I want to concentrate on that, but it has got national significance. This is really of international significance when you look at it. There is a conference coming up in mid-May on the Gold Coast. We are expecting 250 delegates from Australia, New Zealand, Japan and elsewhere.

CHAIR—I am sorry to cut you off, but we are really tight for time. I would like the senators to have the opportunity to ask a few questions. Would you like to start, Senator Cameron?

Senator CAMERON—Yes, thank you. Is it true that there is still a knowledge gap in the production and application of biochar?

Mr Strie—In the application, yes, but in the production, no. The science is quite clear. Unfortunately, Dr Krull was actually taken out of context during those media interviews that ran hand in hand with somebody having the idea over a coffee latte. I suggest that there is a lot known and there are interviews available to anyone.

Senator CAMERON—Has there been an environmental risk assessment undertaken about the use of biochar?

Mr Strie—This is the absolute heart of it, to have a whole life cycle analysis. The international biochar initiative and the Australia-New Zealand biochar network are not a lobby group as has been spread around in some media, especially from the UK. It is made up of 99 per cent science people.

Senator CAMERON—I am asking if there has been an environmental risk assessment done?

Mr Strie—It is ongoing.

Senator CAMERON—It is not completed. We do not know the environmental implications?

Mr Strie—Surely there are understandings if you take certain chars. It is not just one char. It is different if you use sewage sludge or you use it from sawdust, for example, then there are certain implications. If you have heavy metal in one then you would certainly work on the precautionary principle. There is ongoing research in America and in Australia. Australia is a leader with the New South Wales Department of Primary Industries.

Senator CAMERON—On that point, CSIRO have said that there still needs to be a lot of work done to understand and predict the underlying processes, particularly the waste holding capacity and water retention issues. Do you agree that they still need to be done?

Mr Strie—That is Dr Evelyn Krull that you have just quoted. Absolutely, there is a 30-minute with her since the media reporting in mid-January. She has put her case very clearly and many

people have got the opportunity to get first-hand information. There are a lot of knowns and there are certainly unknowns. There is no hiding. It is definitely ready to go and anybody who wants to do the research needs to have a try in the first place.

Senator CAMERON—How can it be definitely ready to go if all this research has not been done?

Mr Strie—No. These things do not come with a magic wand. This takes time to roll out. Therefore, we do know that we have got methane problems. We have nitrous oxide problems. This is emitting from the soil. If you reduce fivefold the soil emissions from nitrous oxide, for example, then that is a huge plus. There are a lot of knowns and provided we can assess it by giving it proper respect and not dismiss it outright, then I think we can leapfrog very quickly.

Senator CAMERON—I am not trying to dismiss it, I am trying to understand the process. There is also investment uncertainty. There is no certainty in terms of investment, whether it can be done profitably, is there?

Mr Strie—One plant costs about $12 to $15 million. They can produce up to four megawatt of electricity; that requires 32,000 tonnes of dry matter per annum. We have got investors waiting to put their money where their thought is. It is not a question of going around to find a bank to finance this, we do have backing by the financial sector. It is not a problem, especially in the Tasmanian case. For our state, for our island, it would be a magnificent move because it goes hand in hand with branding and to be responsible with CO2 emissions.

Senator CAMERON—I have some questions that I will put on notice.

Senator MILNE—Thank you for coming today. I would like to talk about the Gosford plant for a start and the New South Wales Primary Industry Department's support for that. Where do they source the waste? Is it a regional waste management strategy to get the volume that is necessary from a range of sources? How does that work?

Mr Strie—The plant in Somersby near Gosford is a pilot plant only. That is at the premises of BEST Energies. That was put there to provide the technical research and they make available the char that has been used during the various trials in America, New Zealand and in Australia. It is not used full time. It is not optimised. It is there to demonstrate, test and do the research.

Senator MILNE—Do you know yet what will be economical viable? The reason that I ask is that in the absence of a comprehensive and integrated waste management strategy, you are not going to have the certainty of supply of volume, nor certainty of sustainable resource to be sure that we know what we are getting, nor are you going to be able to work out your transport economics and so on. It is a technology that could be used, but it relies on a regulatory framework that prevents landfill of green waste, essentially.

Mr Strie—That is why I am talking to councils like Launceston City Council and Hobart, and the waste transfer station on the other side of the river here in Mornington. There are issues with the waste strategy, you are absolutely right. That is developing parallel to all this aim to get this going.

I am in contact with, for example, the King Island case, which is not a straightforward exercise, considering that King Island is almost just grass. There is not much woody vegetation left through, one could say, over clearing. This is an attempt, over decades to come, to have a whole-island vision. This involves farmers and the local council to see how we can optimise the situation where we are now. We should have more shelter for starters, because it has got certain benefits. There are land care issues or caring for land issues. I have a complete list of what I have to fulfil virtually to get supply, for example, from the pyrethrum industry. I know many thousand tonnes they will make available. I do know that the poppy industry produces X amount. They are increasing by another third. The Launceston City Council produces 12,000 tonnes of green waste per year. That is without even going and collecting it. If we want to stop burning in back yards and if we have a pick-up service to our farmers and to our small acreage holders and so forth, and if we can engage them so they can see that they are doing the right thing, they can turn their woody vegetation and, in fact, grass for that matter into the largest solar panel that we do have, which is chlorophyll.

The whole argument about biomass is really complex, rather than just simply saying, 'Will we grow a crop of trees?' The biochar initiative is not about growing monoculture tree crops or grass crops or hemp. If there is a by-product, that is where we will look at what it will cost or what will we be paid by the local government for landfill fees, for example—gate fees.

CHAIR—You have mentioned the one plant in New South Wales. Are you aware of any other plants around the country that are doing similar types of work?

Mr Strie—There is a small facility which Mr Turnbull visited in Newcastle. I have not seen it, but I am told by BEST Energies that they are new starters. They are not as far advanced. The most advanced plant is the BEST Energies one.

CHAIR—You mentioned your discussions with councils. Obviously, if this is going to be taken up and there has been broad discussion about the opportunities that exist on a broader scale, are there any interactions with landfill owners that operate some of the larger sites where this could happen in conjunction with their work?

Mr Strie—That is right. I talked about the climate manager from the Local Government Association. There is a working group already established. I understand you had Mr Flittner here today. He was part of that workshop that we had in the Midlands recently. This is in progress. I am working on that now. It is really a matter for you of having a national view.

CHAIR—I will come to that now. What sort of price signal? We have had some discussion about the economics of it from Senator Cameron. The economics of this are obviously a key tipping point. I am interested in what information you have on the economics of this. It is something that other colleagues have asked us about.

Mr Strie—What about feed-in tariffs? It is a question of the feed-in tariffs that Aurora, for example, would accept or would provide here.

CHAIR—Can you give us a sense of what sort of price signal? How much?

Mr Strie—We would believe that we could produce it for around 20c a kilowatt, whereas on King Island it would probably cost, at the moment, about 37c plus transmission. We believe that we can live with approximately 20c.

CHAIR—We are probably at slightly cross purposes. I will leave that question with you on notice. I think Senator Cameron also has some questions on notice.

Mr Strie—Please do that. That would be good.

CHAIR—We would be very interested in getting some information on the economics and the price signals required for this because it is one of the things that we are looking at as part of our inquiry. If you could assist us with that then we would appreciate that and any other questions that are coming on notice.

Senator MILNE—Also the regulatory framework that would be needed in terms of waste management to drive the process?

Mr Strie—Yes.

CHAIR—Thank you very much. The issue that you are talking about is one that is of particular interest to the committee. We thank you for your time. We are sorry that it is so truncated, but you will appreciate we do have some time management issues with the overall inquiry. Thank you very much for your time.

[3.10 pm]

PULLINGER, Dr Phillip, Director, Environment Tasmania

WRIGHT, Miss Jessica, Climate Campaigner/Coordinator, Environment Tasmania

CHAIR—Can you make a brief opening statement so that we can then move to questions?

Dr Pullinger—Firstly, I would like to thank you for squeezing us in and accommodating us today. We really appreciate that. Environment Tasmania is Tasmania's peak environment body. We are an umbrella body that represents about 26 environment groups across the state, with collective representation of about 6,000 Tasmanians. Obviously, we work on a whole range of environment and conservation related issues, and climate change is one of the factors that cuts across all of the issues that we work on, from marine conservation to forest conservation, biodiversity protection and so on. It is obviously an issue of crucial concern to our member groups. I am going to ask Miss Wright briefly to touch on our broad-brush response to the ETS.

Miss Wright—I am going to have to cut out quite a bit of what I was going to say due to the time constraints.

CHAIR—If it is a written comment that you can table, you can make some comments based on it.

Miss Wright—Maybe not this one, but I could submit it later.

CHAIR—That would assist us.

Miss Wright—Environment Tasmania and the groups that we represent believe that with the right leadership and right vision Australia could be a global leader when it comes to reducing emissions and transitioning to a carbon free economy. Instead of viewing climate change as a problem, we believe that with visionary and bold leadership we could see climate change as a real opportunity to innovate all sectors of our community and our economy, and to create thousands of green-collar jobs and ensure a sustainable future for us and for our kids.

Being a community group that represents the community, we do know that there is increasing unease in the community about the direction of climate change policy in Australia. Australians are already some of the world's highest individual emitters of greenhouse gases, and our per capita emissions are among the highest in the world. We have a strong ethical responsibility to every other person, plant and animal species on the planet to act urgently to rein in our national and our personal emissions.

We believe there is no one-size-fits-all mechanism that can deliver all of Australia's emissions reduction requirements and that there is also an urgent need for policies outside of the proposed CPRS, particularly in the areas of renewable energy, energy efficiency, public transportation and the protection and restoration of our natural environment.

The groups we represent have so far been disappointed with the government's overall approach to designing Australia's emissions reduction framework. Officials from all aspects of society, including government, industry, business, NGOs, climate action groups and the media have all had to expend endless energy in a complex debate on the flaws and merits of emissions trading rather than having a rigorous and open debate on the climate goals and sector-by-sector policies needed to transition Australia to an emissions free economy and ensure that we do have a safe climate to hand on to our kids, and indeed for us. Because of the NRF focus we have not really had a clear vision for where we are going, and we see that as a huge problem.

In our view the current CPRS, as proposed by the Rudd government, is so fundamentally flawed that not only will it not adequately reduce our greenhouse emissions; it is actually going to hinder the capacity of both Australia and the rest of the world to reduce emissions enough to ensure a safe climate. We believe that the high level of distortions, exemptions and free permits in the scheme render it virtually incapable of delivering any reduction in Australia's actual emissions and, in our view, it completely fails to seize any emergent opportunities or to create an investment pathway for the development of an emissions free economy in Australia. Our recommendation to the Senate would be to oppose the CPRS in its current form, because it is not going to do what it is meant to do, which is to ensure a safe climate for Australians and for the rest of the world.

We have a joint submission that we can table that highlights 24 major recommendations, which we developed in conjunction with climate action groups right across the country to reform the scheme and address the fundamental flaws with it, as well as highlighting action plans and other recommendations in the areas of renewable energy, public transportation and energy efficiency that we think will be key and must be complementary to any other market mechanism or anything else that we choose to tackle our emissions with.

Dr Pullinger—At a simple level, we are not here to talk about an ETS for the sake of an ETS. We need to keep front and centre in our mind that the whole purpose of this is to cut carbon emissions, with the theory that an ETS is going to be the most economically efficient way of doing it. It is just a tool.

Senator XENOPHON—A means to an end.

Dr Pullinger—It is a means to an end. In a nutshell, the problem, as we see it, is that there have been so many exemptions, free permits and special rules that have been carved into the ETS structure that it actually does not provide that economically efficient mechanism. I could draw a parallel to the sorts of economic reforms that Australia went through in the 1980s where, in broad terms, it was seen that protectionism was a hindrance to economic efficiency, competitiveness and innovation in Australia's economy. The Hawke/Keating government pushed through wide-ranging reforms against intense pressure against a range of protected industries that, of course, were operating in the way that you would expect they should do. Every Australian business is going to operate in a way that tries to cut its own costs and protect its own economic interests. But the problem is that there has been an intense lobbying effort and there are all these exemptions that have been carved into the system, and so the system is now so indecipherable in terms of actually delivering the cuts that are needed that we are missing the point. There needs to be a very clear, simple, straightforward signal put into the Australian

market that, yes, we have to go down this pathway. We are going to go down this pathway. It is not going to be easy, but we are sending those clear signals.

The problem at the moment is that Australian business is getting the signal that they are better off spending their money on intensive lobbying efforts to carve out some exemptions, free permits and so on, rather than spending that money on innovating and developing the new technologies that are going to set up Australia's economy to be very well placed in 2020, 2050 and so forth. If you contrast that with the EU, they have set some really clear signals. Some scientists and environment groups may say that they are not high enough, but they are pretty clear signals that they have set for business in the EU. If we set a system that has all these exemptions built in that is confusing and indecipherable in what it means, it is not doing the best thing by Australian business and the Australian economy, and it is certainly not doing the best thing in terms of Australia living up to its global responsibilities.

I wanted to touch on the role of the ETS in terms of setting a clear signal for the economy and the international community as well. I guess because it is topical for Tasmania, it is important for me to talk about forests. You have obviously heard a lot about all the different aspects of climate policy. In Tasmania, forests are a key point. It is really well recognised globally. The UNFCCC and international scientists recognise that globally the protection of forests and the curbing of deforestation is a key policy measure to tackle climate change. It is true internationally, in Australia and certainly true in Tasmania. It is also true that one of the cheapest, quickest and most effective ways to immediately and dramatically cut our emissions is through protection of native forests and curbing of deforestation, because we can do that now. Some of the other mechanisms that we will have in place around innovation in industry and some of the most emissions intensive sectors of our economy are going to take more years to start to kick in. Obviously, Australia is doing some really good stuff in terms of land clearing in Queensland, which was one of the key reasons we were able to come close to meeting our Kyoto targets.

In terms of a policy response for Tasmania and nationally, the key challenges are to recognise properly in the carbon accounting the carbon stock that is contained in Australia's native forests and native vegetation. You need to build the right economic signals around recognising and respecting that standing carbon stock, and in terms of industry reform it is about properly utilising the existing plantation forests that we have in Australia to provide for your ongoing intensive woodchip and larger scale timber production.

CHAIR—We will have to cut you short, because we do not have much time left for questions. Senator Cameron has a couple of quick questions.

Senator CAMERON—The head of the ACF, Don Henry, told this committee, 'We call for the CPRS to be fixed and passed this year.' Do you share that view?

Dr Pullinger—It is a two-way outcome. There are a number of absolutely fundamental flaws in the CPRS that need to be dramatically overhauled or you need to scrap it and start from scratch. Certainly if it is anywhere near how it is structured in its current form it is not a responsible approach to pass that.

Miss Wright—First and foremost, a lot of people agree that the problem with the CPRS is that it has a woefully inadequate emissions reduction target. A lot of the other problems that

people identify and that will be identified in our submission can be remedied with a stronger emissions reduction target that is in line with actual climate science. At the moment the reductions target is five per cent to 15 per cent, which locks us into 550 to 650 parts per million of atmospheric carbon dioxide, which ensures a dangerous climate for our future. It is absolutely ridiculous that we are even considering a notion of an emissions trading scheme—

Senator CAMERON—We do not have much time. I did ask about Don Henry's comment. I have heard a lot of this. I understand and accept how committed you are to it.

Miss Wright—I am trying to say that we would be able to support a CPRS if the fundamental flaws that we have identified are fixed.

Senator CAMERON—How important is getting a robust global agreement that includes all developed and major developing countries, and what do you think are the prospects for an effective global agreement in Copenhagen?

Dr Pullinger—It is absolutely crucial that a strong global agreement is reached. We would like to see Australia being near the front of the pack. It is in our national interests to do that as well. We are one of the countries that has the most to lose from runaway climate change. We are a desert country, we are very prone to drought, we have a strong agricultural sector and most of our communities are placed on the coast. We have the most to lose from runaway climate change and the most to gain from a strong international agreement. We need to be out there in the front punching very hard for a strong agreement, because it is going to be very tough. If you look at the ways some of the other countries such as China and India are positioning themselves, if we are taking a half-arsed approach in Australia it is going to make a global agreement that much harder.

CHAIR—Senator Macdonald.

Senator IAN MACDONALD—You have said, and just confirmed, oppose it in its current form?

Miss Wright—Yes.

Senator IAN MACDONALD—If the targets were altered from the five per cent to 15 per cent, what do you think we would need to make it acceptable?

Miss Wright—The current climate science is calling for a target for developed countries of around 40 per cent. That would be our absolute optimum target.

Senator IAN MACDONALD—We need a minimum. We have to vote on this shortly. You say: oppose it now. If it goes to 25 per cent would you say: support it? Is it better than nothing?

Miss Wright—If it goes to 25 per cent our support would have to be contingent on other complementary measures within it that would ensure that a 25 per cent target will be strong enough. For us, that would have to be science based and dependent on what the outcome actually will be as an end game from that rather than just 25 per cent by itself.

Senator IAN MACDONALD—I do not think you will be able to answer this. I was going to ask you this question almost flippantly. Of your 24 recommendations, how many would need to be met 100 per cent for it to become acceptable? Would it be all 24, 12 or 6? Is that an unfair question? I suspect it is the latter.

Dr Pullinger—A lot of these are things that are not going to happen overnight. That is the point I was making about the economic signals. You need to set the signals and a lot of changes are going to flow on from there.

Miss Wright—Our recommendations are not just regarding the CPRS by itself. We are trying to put together a really positive plan.

Senator IAN MACDONALD—I am sorry to rush you, but a lot of these arguments we have heard before. Thank you very much for coming along.

CHAIR—Senator Boswell.

Senator BOSWELL—Dr Pullinger, what are you a doctor of?

Dr Pullinger—I am a medical doctor.

Senator BOSWELL—I want to put a hypothetical question to you. We have one million acres. In the million acres you have forestry, and people go in every three years and pull one tree out of an acre. The bees are in the there. The cattle are in there. You pull one tree out, cut the tree up and it then goes into windowsills or wooden boat, and the carbon is stored in the windowsill, a boat or a house. The crown is taken away, a new tree develops and that tree is a baby tree and it is eating up carbon faster than a tree that is over 50 years old. What is wrong with that?

Dr Pullinger—I can answer your question.

CHAIR—In 25 words or less.

Dr Pullinger—Using Tasmania as an example, there is space for broad protection for much of our native forests estate for the role of specialty timbers, furniture, crafts and so on.

Senator BOSWELL—I am talking just about timber.

Dr Pullinger—And for intensive use of our existing extensive plantation estate for woodchips and the larger scale timber products.

Senator BOSWELL—This is not a plantation. This is a forest.

Dr Pullinger—There is a space there, but what we are doing at the moment is clear felling, logging and burning huge areas.

Senator BOSWELL—I am not talking about clear felling. I am talking about going in and getting a tree. That tree is designated by the forester and he says, 'There are no birds in that tree. There are no nests.'

Senator MILNE—Watch it. They will be up that drainpipe.

Senator BOSWELL—I am going to take you there. I am going to blindfold you before you go in so you will not know where it is. Can someone tell me what is wrong with that?

Dr Pullinger—I do not have a problem with that hypothetical scenario.

Senator MILNE—That is fantasy land.

Senator BOSWELL—It is not fantasy land. It exists.

CHAIR—Dr Pullinger, you might have to go on a visit with Senator Milne to Senator Boswell's forest.

Senator BOSWELL—One of us will not come back.

CHAIR—I am going to give the call to Senator Milne.

Senator MILNE—Thank you for coming. There was question earlier with Forestry Tasmania, but you may not have been here. It was in relation to what Tasmania can do to contribute to the solution if you had a number of complementary measures and one of those was in the land use sector. Do you support the idea of taking plantation forestry out of the CPRS and instead coming up with a complementary measure that incentivises the protection of native vegetation stores, that is, forests and native vegetation, and going through the whole range of land use so there is financial payment for restoration forestry for managing for the long term? That is the first thing: do you agree with taking it out? Do you agree with the conclusions of Dr Mackey? You might want to just talk about those. Finally, if the government's target is five per cent, regardless of what the rest of the world does, and 15 per cent if there is a global agreement, what would Environment Tasmania expect Australia to do unilaterally and what should be the aim of the global agreement?

Dr Pullinger—Yes, we support taking the plantations out. The problem is that there is this perverse incentive that has been built into the system that drives the creation of plantations on cleared land with no real carbon benefits. A lot of that is to do with the accounting problem. As I touched on before, it is about needing to make sure that the rules are set properly so that it recognises and respects the standing carbon stock contained within Tasmania's native forests. There is certainly a great opportunity for Tasmania to gain a revenue stream through the protection of these areas and an opportunity to create new jobs in the protection and restoration of these areas as well.

I can touch on, just briefly, an example happening right now near St Helens. They are not getting carbon credits for this because it is not currently accounted, but it is an example of a large area of what was a pine plantation behind St Helens on the north-east of Tasmania that was logged by Rainier, the logging company. The local community were concerned about the visual impact and wanted to restore it back to native vegetation. They came up with a really practical agreement with Rainier working with conservation volunteers to restore that back to native forest. They are doing that at the moment.

That is a practical example and it is very labour intensive, as well, in terms of rural community. The dozen or so young people that are working on that are ex-Gunn's plantation workers, because it is a very similar skill set. There are great opportunities if we get the signals right to create a lot of new jobs in restoration, biodiversity protection and helping farmers on their land protect the bits and pieces of fragments of native bush that they have on their land. The problem at the moment is that the signal is that if you burn it and chuck it in a power station that will not count as a cost, but if you put a row of trees on that farm property for 15 years and then chop them down in another 15 years and turn them into woodchips you will somehow get carbon credits, even though there is not going to be a net carbon benefit. That is how the rules are currently structured.

In terms of what we would expect, there is a question around the standalone versus the optimum agreement, as Miss Wright alluded to. We need to be out there in front, because it is a case of the climate scientists saying that the minimum that developed countries should be pushing for is 40 per cent. We have to remember that we have to bring countries such as China and India to the table if it is going to work. They are not going to do that unless the developed world is out there leading the way.

Senator MILNE—Thank you.

CHAIR—We are going to have to wind it up there.

Miss Wright—Would I be able to table these documents? It is our joint submission that I have already submitted, a personal submission and then some information about green carbon and the science behind carbon storage in forests.

Just on a personal note, I wanted to remind everyone that we are not just talking about another piece of government policy. We are talking about the direction of our planet and the future that we are going to provide for our kids. With all due respect, it is really important when we are coming up with these policies that we are thinking about the fact that 'these are my kids who are going to be living on the planet we are creating in the next 10, 15 or 20 years', and to think about how old you guys are going to be in 2050. That is what I am thinking about—how old my kids are going to be.

Senator IAN MACDONALD—Don't be patronising of—

CHAIR—Thank you, Miss Wright; some of us have kids.

Miss Wright—I am sorry, I did say 'with all due respect'.

CHAIR—We all have kids. We all understand that. Thank you for your evidence this afternoon. We do have to wind the hearing up now.

Committee adjourned at 3.34 pm