

REPORT OF PROCEEDINGS BEFORE

**STANDING COMMITTEE ON NATURAL RESOURCE
MANAGEMENT (CLIMATE CHANGE)**

At Sydney on Friday, 11 April 2008

The Committee met at 9.30 a.m.

PRESENT

Mrs Karyn Paluzzano (Chair)

Mr Michael Daley
Mr Gerard Martin
Mr Robert Oakeshott

Transcript provided by CAT Reporting Services Pty Limited

TIMOTHY MICHAEL BESHARA, Science Manager, Greening Australia, and

DAVID RICHARD BUTCHER, President, Greening Australia, sworn and examined:

CHAIR: I am advised that you have been issued with a copy of the Committee's terms of reference and also a copy of the Legislative Assembly's Standing Orders 291, 292 and 293 that relate to the examination of witnesses. Is that correct?

Dr BUTCHER: Correct.

Mr BESHARA: Correct.

CHAIR: The Committee has received a submission from you and your organisation. Is it your desire that that submission form part of your formal evidence?

Dr BUTCHER: Yes.

CHAIR: If you should consider at any stage during your evidence that certain evidence or documents that you may wish to present should be heard or seen in private by the Committee, the Committee will consider your request. However, the Committee or the Legislative Assembly itself may subsequently publish the evidence if they decide to. Would you like to make an opening statement?

Dr BUTCHER: Yes, just to start off quickly, to introduce Greening Australia. Ours is quite a large organisation Australia-wide. We have 400 staff and an investment each year of about \$45 million. We are interested in three main things. One is biodiversity conservation; another is good natural resource management; and the third thing is that we are interested in involving the wider community in the works that we do.

Effectively, our program is about transforming our landscapes. We have three major projects Australia-wide, one of which is in New South Wales, and that is the Hawkesbury Nepean River Recovery program and hence our interest and the reason for our submissions here today. The program in the Hawkesbury Nepean is in its development stage. We spend about \$3.5 million a year on the program. It is currently focussed mainly on the South Creek catchment in Western Sydney, but also the Upper Nepean, and that part of the program will expand rapidly over a period of time.

This provides the basis for the submissions that we have made. Climate change we see as one of the major threats as far as the work that we do, and the area that we have put our submission in on is a little known but an extremely important part of that climate change process, and this is the urban heat island effect. So the urban heat island effect, climate change generally and good land management in the Sydney Basin is an important part of our submission, and indeed our work for the future.

I will ask Tim, who is our science manager, to just briefly take us through some of the salient points.

Mr BESHARA: Firstly on the urban heat island issue, we know that throughout the world temperatures in cities are hotter than their surroundings. This is known as the urban heat island effect where more asphalt, dark tile roofs, less trees and grass and human energy inputs result in high temperatures. Many international cities have responded to this issue by transforming their planning system, introducing new incentives, standards and regulations.

Over the last 40 years temperatures in Western Sydney have risen dramatically. A hot January day is now four degrees hotter than it was in the 1960s and the number of days over 35 degrees have increased by 250 per cent. Professor Andy Pitman, from the University of New South Wales and also the Intergovernmental Panel on Climate Change (IPCC), attributes up to 80 per cent of this warming to the urban heat island effect.

We know that Sydney is going to grow by an additional 1.2 million people by 2030 and the accompanying development will increase temperatures, but how we plan and deliver these new developments will determine the magnitude of the rise. If we proceed with policies that take the urban heat island effect into account, then the local rise in temperatures will be minimal. However, if we fail to take this into account, the potential results are devastating.

Secondly, I would like to touch on how carbon trading could drive the improved land management. Australia's current wealth and prosperity is built on the use of our land and natural resources over the last 220 years. However, this has come at an environmental cost. There has been loss of native species, salinity, soil erosion and degradation and unhealthy rivers. With climate change these impacts will be felt much more acutely and these systems, which are currently just hanging on, will collapse.

There are two necessary responses to global climate change. One response is to limit the magnitude of temperature rise. The other response is to help humanity and the natural systems cope with the inevitable upward shift in temperatures. We feel that by re-establishing native vegetation we can draw carbon dioxide from the atmosphere and make our landscapes more resilient to climate change. Re-establishing vegetation is a small and important part of climate change mitigation. It is the only proven way of getting carbon dioxide out of the atmosphere at the moment, but it is also a large part of climate change adaptation.

[Aerial photographs of landscapes A, B and C tabled]

The handout that you have has aerial photographs of three typical Australian landscapes. Landscape A has less than five per cent vegetation cover. We know that this landscape has a higher chance of salinity, soil erosion and poor river health and native species are either in extreme stress or more likely locally extinct. Landscape C has 30 per cent vegetation cover. In this landscape salinity is less likely and the soils and rivers will be healthier, a multitude of native species can persist, and importantly the science and economics from the CSIRO show that this landscape is equally as economically productive as landscape A. However, in terms of climate change, landscapes A and B will not cope with the expected shifts in climate, while landscape C has a chance.

The crucial question is: How do we transform our landscapes from five per cent vegetation cover to 30 per cent? Government investment at current levels is not driving this change. Our view is that with the right framework and support bio-sequestration as part of an emissions trading system could drive this transition.

Mr MARTIN: Just a question on the urban heat island issue. You are the first people to formally introduce me to it. Is it being picked up by, say, the government departments, like Planning and Environment and such? Is it being factored in?

Mr BESHARA: No. I would say currently it is a foreign concept to those departments in Australia. It is known in academia. It is taught in a lot of university degrees in general terms, but in terms of being picked up by government departments it is not their policy, whereas internationally it is core policy for a lot of climate change adaptation programs.

Mr MARTIN: And is that an Australia-wide situation?

Mr BESHARA: Brisbane has picked it up. Brisbane is one of the few that have picked it up. Melbourne is looked at picking it up. Brisbane has examined their urban heat island and have a policy of replanting trees throughout their suburbs. They have identified the areas they want to replant and they have got a process and a budget for doing so.

Mr MARTIN: Did you have any formal response from, say, New South Wales Planning or the Department of Environment as to why they--

Mr BESHARA: We have started having chats with New South Wales Department of

Planning but we have not made any formal request of why they are not doing anything or the like.

Dr BUTCHER: The main issue is to put this on the agenda. It is not as if it is new to Australia. A lot of work was done in the 1970s about this, but it seems to have dropped off the agenda and was not something that was taken into account, unlike many of the larger cities overseas. I suppose our function at the moment is to try to reintroduce it back onto the agenda as an important part of what should go forward for the future.

Mr MARTIN: Do you think perhaps the cost implications turn some people over? Are there heavy cost implications with it?

Dr BUTCHER: The cost implications really come if you try and retrofit the initiatives to modify urban heat island effect. It is difficult to retrofit but if it is included in the planning process it then becomes a very cheap option, and, indeed, you have got to offset it against what might be the scenario, as Tim said, in another 20 years time for Sydney, especially Western Sydney.

Mr BESHARA: And you must consider the efforts of the New South Wales Government and other governments around Australia. Climate change mitigation in terms of reducing emissions are enormous and there would be enormous cost. The total effect on Australian, and particularly Sydney, temperatures will be marginal, but to help New South Wales Government and local councils there is that other component of climate change that they do have the ability to shift. You have a two to six degree impact of global climate change and you have a one to three impact of urban heat island. The New South Wales Government cannot really influence the two to six. They can show leadership and they can demonstrate responsibility, but that one to three or more urban heat island is really the area of temperature change they can play with.

Dr BUTCHER: They have 100 per cent control over that part.

Mr OAKESHOTT: A local council in our area has just approved or is looking at a DA but for the first time is asking for the proponent to look at climate change as one of the issues in the DA application for a residential subdivision. That is the first time that has happened on the Mid North Coast of New South Wales. Are you seeing that happening in a lot of areas at a council level, at that really practical DA subdivision level or are we quite inventive up that way?

Dr BUTCHER: I suppose the first thing is that developers really in some cases have picked up that mantra to some degree. They are looking for positive environmental effects that might be associated with their developments. So we have had a number come to us and they are interested in offsetting, if you like, the carbon cost of the development in an offset elsewhere, but that is a voluntary thing.

Mr OAKESHOTT: That is coming straight from the council as part of the pre-lodgment discussions?

Dr BUTCHER: Yes, but this would be one of the first times that a council has actually required an explanation for how there would be offsets to the development.

Mr OAKESHOTT: And obviously something you would encourage?

Dr BUTCHER: As long as it is done in a reasonable way. Sometimes these things can have perverse effects, so you have to do it in a well considered and planned way.

Mr OAKESHOTT: Then your final sentence, Tim, about sequestration, you sort of left that hanging. That is some of the more interesting stuff from my point of view, some of the policy stuff around that. Can you give us your views?

Mr BESHARA: Okay. There needs to be a dramatic increase in the amount of vegetation cover across a lot of agriculture landscapes to hold them together. There is no way that a Natural Heritage Trust (NHT) type arrangement at current levels of investment is going to drive a shifting in

vegetation cover. You could not even measure the percentage increase. But with the right framework of an emissions trading system, that could fund trees in the ground, and what we are looking at doing is re-establishing native vegetation, so trees and shrubs that are native to the area, paid for under an emissions trading system so that you could restore biodiversity and landscape health.

Mr OAKESHOTT: On private and public land?

Mr BESHARA: Yes. In many cases we may be purchasing the land ourselves.

Dr BUTCHER: The critical or the break even point is about \$30 per tonne of carbon. \$30 and above revegetation starts to become a viable entity, and do not forget the custodianship, if you like, of that vegetation has to last for 100 years, so it is management for 100 years. So when you are talking about \$60 or \$70 a tonne for sequestration and so forth, then this becomes a very reasonable option. It is not a silver bullet. There is not enough land to suck out the carbon that we are using, but it is a very important part of the process, but it is part only.

Mr OAKESHOTT: I was of that thinking but I have had some fascinating discussions with the environmental movement up the coast and some are actually questioning that as a model.

Mr BESHARA: We are thinking about how you could have an environmental benefits index on all plantations. For example, we know that there are negative effects of rolling out say radiata pine forests across the landscape and we know that is cheaper than what we would be doing, because we might be planting 20 species and not just one species of pine.

Mr OAKESHOTT: Yes, because they just suck up water.

Mr BESHARA: Yes. There are a whole lot of negative impacts you need to be careful of and we will be looking to work with the scientists to work out where we should be planting the trees and what are the potential positive and negative impacts, but if you had an environmental benefit index that looked at biodiversity, water, soil health, all those sorts of things, on the tree part of emissions trading system, then you would make sure you had much better outcomes.

Mr OAKESHOTT: The index out there at the moment, is that the European stuff, that life cycle assessment?

Dr BUTCHER: No, it is more about eco system services. CSIRO have done a fair bit of work in this area but it is very difficult to quantify. It is a whole new area of understanding. What are the services that native vegetation provides? You can say glibly that it is about water quality, water quantity, about stopping soil erosion and so on and so forth, but actually quantifying that and putting it into a form that is understandable is not that easy. I think the issue here is that with pine plantations someone is going to cut them down in the future and there are all kinds of negative effects associated with that, but what we are looking at is those types of areas that most probably should never have been cleared in the first place. We are not saying that a landscape is devoid of productive purposes. It is how you have this framework or matrix or of land uses across a whole landscape and this is there in perpetuity, so it is about changing or having covenants on land title and so on and so forth, to make sure that it is there for the long-term.

Mr OAKESHOTT: Do you have any comment on the practices and policies of Forests NSW in inhibiting the development of the model you are talking about? I will give you my view. I think the wood supply agreements do lock out economic benefits for private plantations, for example. There are arguments about over-estimation of the amount of native hardwood and under-valuing the product that Forests NSW put in the market, and so as far as private plantation forestry, it really has not kicked off in the way I think we would all like it to. Have you got any comments about that?

Dr BUTCHER: Okay, how long have we got? There are a whole suite of different things I think that need to be part of the answer, so there is no glib or straightforward answer to the type of question you have raised.

Mr OAKESHOTT: I guess in a different and positive way, is there an economic and environmental benefit with what we are talking about in some changed practices by Forests NSW? Can they be a partner?

Dr BUTCHER: Absolutely, I do not think there is any doubt about it, and I think one of the other things is that what we have tended to do with our departments is put them in silos. Forestry NSW's interest is in forestry, Agriculture's interest is in agriculture and the Department of Environment's interests are in that other area. Instead of having a view across the landscape, they tend to look a little bit like landowners, who have got a boundary around their property and that is where they have got an interest, and how it interacts with the other departments, or indeed the other land users, outside of their area is of little importance to them. I think we need a different way of looking at our landscapes. If it is a healthy landscape it is going to have all kinds of different land uses within it, intensive agriculture right the way through to natural systems. That is the way we have to look at it and plan and I think government departments could do worse than to sit down together and think about it in those terms.

Mr MARTIN: In relation to the 30 per cent vegetation cover, what would you see the mechanism for doing that? Would it be say through our Catchment Management Authorities? Do you have a dialogue with them around New South Wales?

Dr BUTCHER: Yes, certainly. Obviously they are an important player in that process but there are more players than just the Catchment Management Authorities. If you like, they might be the conductor of the orchestra that brings the thinking together, but we do need a more comprehensive view. If you take the normal farm property, someone put a boundary around it at some stage in the past without thinking about the land systems that were in that particular property. So if you are a sheep farmer, you have a fence around it and use the whole thing for sheep production, or if you are growing grain you use it for grain production, but the people who manage that land know that there are parts of it that are far more productive than other parts. In fact, some parts of the property either should never have been cleared or just about cost you money to keep it going. So if you take the landscape where there might be dozen properties and look at what are the best land systems for this particular type of production, you start to have a more rational view of land usage and indeed productivity would most probably increase if it was done on that basis, but that is a lead that really has to come from the policy end of our process, so it is really a government type of consideration in the first place and getting their own parts, their own silos, knocked down and looking at what are the best land uses across the landscape.

Mr MARTIN: In New South Wales for some time now under that legislation we have had the property vegetation plans for instance. They have been difficult and controversial in getting some individual landowners to take them on. They see that as an impost. So it is very difficult to manage it at that micro level. Do you have any suggestions there?

Dr BUTCHER: Again, I think it is because it is done on a property by property basis rather than a landscape basis. The other part to it is I think the model of the CMAs has failed to some degree because they are the policemen as well as the friend if you like, so the regulator as well as someone who is there to help, and I think that creates impediments. The discussions I have had with landowners is that they are reluctant to have the policemen on their property if you like.

Mr MARTIN: There needs to be more carrot than stick.

Dr BUTCHER: I think so, and indeed the land care movement started off a different form of thinking and I do not think that that has been fully carried through. I think what people tend to do is to refocus back onto their property. I know it is a logical kind of unit for dealing with, but I think that we have got to flip that model on its head and just look across landscapes, and I think graziers or farmers generally would accept that point.

Mr MARTIN: While we are talking about graziers and such, you make comments in your submission about noxious weeds and the fact that on private property under our current legislation it is basically unenforceable. What leads you to that conclusion?

Mr BESHARA: We were looking in the context of Western Sydney where public land is poorly managed or not managed to the degree that the people look across their boundary to public land and say, "Why would I ever do anything when the council land or the State Government land or the Federal Government land is in a much worse state than mine is? In fact, they are probably the source of the problem, so why would I do anything on mine?" Councils are reluctant to enforce it because if they enforce it on private property, they will get comments from the community about "What are you doing on your property?"

CHAIR: We started with the heat island effect and your comments on using bio-sequestration, and following up from that last comment, you are doing the South Creek, but is there somewhere you would like to either have a trial or a show case for what you advocate in Western Sydney?

Dr BUTCHER: There are plenty of places. There is 8500 hectares owned by the Department of Planning alone in the South Creek catchment, potentially corridors along the major creek systems. There is 4500 hectares in the Western Sydney parklands. So there are more than enough areas to do the demonstration, if you like, but having the type of area that is required to have positive effects, then you have got to go say down to the southern tablelands to look at some of the broad scale areas there. You are talking about tens of thousands of hectares if you like, and the land is available there, but as a demonstration, certainly in the South Creek catchment, there are incredibly good places there where that could be done.

CHAIR: Is that the land upstream from Ropes Crossing?

Dr BUTCHER: Yes, that is right.

Mr BESHARA: I would also like to add that in the growth centres, north west and south west, quite a lot of that area is flood plain, it is undevelopable land, and there seems to be no real plan for what is to eventuate on that land.

Dr BUTCHER: Golf courses seem to be the default option unfortunately.

Mr BESHARA: There seems to be a limited plan about what will happen in those flood prone areas and also limited plan about who is going to take responsibility for management into the future, which is also hindering what is going to happen with those lands. Those areas would be prime areas to increase vegetation cover for the urban heat island effect, largely because it is a large area but also because it is near a creek line and that means there is more moisture to draw out of the ground to do that cooling with.

CHAIR: Is there a dialogue between you and the Growth Centres Commission at the moment?

Dr BUTCHER: We have endeavoured to have that dialogue but they seem to be focussed on issues other than the ones that interest us at the moment.

CHAIR: But in the future you would see it as beneficial?

Dr BUTCHER: Absolutely.

Mr OAKESHOTT: That could be part of the consultants' work. GHD is working with the Growth Centres Commission. Are you talking to them?

Dr BUTCHER: Actually GHD is one of our partners in the process we have under way. The issue is that they tend to be given a brief as to what they need to look at.

CHAIR: So obviously the dialogue would be invaluable and, as you noted, the heat island effect in Australia is in theory rather on the ground, except for the Brisbane model, so it would be

probably beneficial for a dialogue to occur, especially in Western Sydney or in the growth centres.

Dr BUTCHER: We would teach them incentives that could easily be put in place that would have dramatic effects upon urban heat island effect in centres both for property owners, if you like, for developers and the people that buy those properties, so the form of buildings and so on and so forth. It would be a very easy way to reduce the effects into the future.

Mr OAKESHOTT: Where have you got that here, because I did not see that in your submission?

Dr BUTCHER: It talked about tree cover, it talked about light coloured roofing and so forth. It is about reducing the albedo effect. So as you lighten up and have the system more reflective, heating is reduced dramatically.

Mr OAKESHOTT: Your second part of it?

Dr BUTCHER: Light coloured roofs. At the moment there seems to be a fashion for dark grey or dark tiles. I would put a disincentive, if you want to have it, that is fine--

Mr OAKESHOTT: I understand what you are saying as far as the benefits, but where is the policy incentive?

Mr BESHARA: In the United States, for example, there are incentives given by retail energy outlets to property owners to switch to a lighter coloured roof.

Mr OAKESHOTT: Financial incentives?

Mr BESHARA: Financial incentives. It is enough to switch their decision. It is not extra cash in the pocket but it is enough to switch their decision, and that is largely given because the retail energy outlets have trouble supplying energy during peak load periods and this is a really good way of reducing peak load, because when they have trouble supplying it they have to buy it from the wholesaler at increased rates, so they actually lose money when they are selling it during the peak loads.

Dr BUTCHER: And for the New South Wales Government this is absolutely vital because peak loading is now in the summer because of airconditioning. Reduce the use of airconditioning by having lower temperatures and you reduce the peak load.

Mr OAKESHOTT: Are the retailers sending big businesses home for the day in peak loads? I do not know whether it is true.

Dr BUTCHER: I remember once in the city of Sydney that the airconditioning went out one afternoon and people went home at that stage, but the thing about it is it is provision of infrastructure for big loads and that is a huge cost, because that is uneconomic.

The other part we put in our submission is that reducing the amount of human use energy, if you like, is going to have a positive effect as well. By human use energy, I mean electricity going in, gas going into the system and use of vehicles, petrol, all that type of thing. Reduce that combustion and you will reduce the effects as well.

CHAIR: Have you discussed with businesses those issues, the producers of the roof tiles and the producers of the metal roofing?

Dr BUTCHER: Yes, we have – interesting – we have some of the policy people that are extremely interested in that and the marketing people find it difficult to see the connection. So again, I think there needs to be some signals from Government as far as planning is concerned that would then give these people the incentives to promote the products that are going to be better.

If you take BlueScope Steel, for instance, we have had a talk to them. They are certainly interested from a policy point of view but the marketing is another thing.

CHAIR: Their choice of colours is dark.

Dr BUTCHER: They tend to follow the trend that is set by fashion, if you like, rather than what might be the practical in the future. We just need to put an incentive there, the other way.

CHAIR: You are saying the retrofit versus the incentive, is it the colour of a roof or is it the insulation within that roof?

Mr BESHARA: No, it is more about the pigmentation and how it reflects the energy. So you can actually have – in the US they are well developed on this – relatively dark colours but they are designed so they reflect the infra-red energy, the heat energy, so you do not get the glare, because sometimes people don't like the look of a light coloured roof, but you still get the energy being reflected into space.

Dr BUTCHER: BASIX already has provision for extra insulation and dark coloured roofs.

Mr OAKESHOTT: That is the policy instrument.

Dr BUTCHER: That is really to reduce the temperature inside the house, but it might reduce it there but it increases the temperature outside the house, if you like.

Mr OAKESHOTT: Everyone up my way builds their home, they want a waterview, they put in a big east facing window and realise the house gets hot, so they buy an air conditioner.

CHAIR: They could probably investigate e-glass.

Mr OAKESHOTT: Yes, or get the companies talking to each other and get some shades or something else.

This is a chance to say something globally controversial if you want. I cannot understand why at both Kyoto and Bali existing trees have no value, in the sense that it is this pre-1990 is the deadline for the value of this issue of land clearing and you get incentives given to you if you plant new trees post that date.

I do not understand why that is not an issue that is on the table and trying to be addressed. First of all, I would like your answer on that and then your answer on, would it be nice to think that New South Wales and Australia could lead a bit of a argument to see that addressed?

Dr BUTCHER: Again, a number of points in your question. The first one is, why 1990. The big issue is that existing vegetation, native vegetation, even grasslands would you believe, sequester a huge amount of carbon, most probably more carbon than you will sequester by replanting a new forest in say, the first forty years. You have a carbon debt by clearing the land, which you have then got to make up by your new vegetation.

Mr OAKESHOTT: Who chose 1990?

Dr BUTCHER: This came up at the Rio discussions, so it was really when climate change first came onto the agenda, and so they said, we'll just put a line in the sand here, if it was cleared before that time, we didn't know about it and so we can correct it, if it was cleared after this time, we know about it, and actually it is causing more problems by clearing it, more problems than you are going to replace by replanting it. That was the reason for that line in the sand.

The other thing is, in Kyoto itself, there is a provision that has been used in a number of cases – there is a bit of controversy about it, it has been done in Australia – whereby a company can claim carbon credits for land that has been, if you like, approved for clearing, because they buy the

clearing permits back, they can claim the carbon that is associated with it.

This has been happening in Queensland, if you remember the land clearing issues there three or four years ago, there was about 2 million hectares of land that was approved to be cleared when the Queensland government that no more could be cleared. Some people were left in a difficult spot, but some of that land has subsequently been bought back by companies for the clearing permits to actually offset carbon.

Mr OAKESHOTT: Can you provide examples of that in New South Wales?

Dr BUTCHER: Not in New South Wales because the regulations were somewhat different here. New South Wales moved a little bit earlier and there weren't clearing permits outstanding, but I know that Rio Tinto has bought a number of clearing permits in Queensland for that very reason.

As far as putting New South Wales ahead of the game, that would not be difficult. New South Wales already had with the New South Wales Greenhouse Gas Abatement Scheme a fairly good model and that was basically put in abeyance by the Australian Government, saying that we will have a system by 2010.

I think if it had been sorted out – if there had been maybe closer communication by the then Federal Government and the New South Wales Government, it could have been sorted out better, but it does have that scheme, it does have things in place.

We have got a huge amount of land, for a whole suite of reasons, would most probably be better back under vegetation than it currently is.

If we could in the interim period, if you like, re-launch the Greenhouse Gas Abatement Scheme, there are most probably ways it could be done.

Mr OAKESHOTT: Do you think it would be of value?

Dr BUTCHER: We are already doing that but it is on a voluntary basis. Our first property should be in place by the end of this calendar year in the Southern Tablelands to actually start that process on a large scale.'

Mr OAKESHOTT: That is a planting exercise, but what about defending the trees in the ground at the moment?

Dr BUTCHER: The Government has already defended them, although some people do not realise that at the moment.

Mr OAKESHOTT: Using the economics of carbon trading to actually place a value on a tree that is already in the ground, is there a way in on that?

Dr BUTCHER: Most probably not on a large enough scale for it to be important, because don't forget, once you decide this, it has got to be an area that is large enough to be economic to manage into the future. You cannot say: I've saved that tree and it's somewhere out there and no-one's ever going to cut it down. How do you know without actually having a process in place.

You need areas most probably in the order of 1000 hectares as a minimum, so you define it on a map, you can define what the quality of the vegetation is and you can put a covenant over it.

Mr OAKESHOTT: The reason I am pursuing it is because the stories are coming back from the ground that people are cutting down trees to plant trees to get the Greenhouse Gas Abatement.

Dr BUTCHER: That is the reason for that 1990 process in Kyoto. It is like Tasmania, they have been pushing fairly vigorously to have the 1990 component overturned, because they cleared a

lot of their native forest to plant tree plantations. It is far better to have them in a nice row when you go to cut them down than have them staggered all over the place.

They will not be able to claim carbon credits on those plantations because they were planted on land that was cleared post 1990.

Mr OAKESHOTT: The definition of cleared is?

Dr BUTCHER: It is a very, very strict definition. You have to prove that it was cleared. It is not about you proving that it was not.

Mr MARTIN: Has Greening Australia had any initial response to Professor Garnaut's work, particularly his interim report?

Dr BUTCHER: We put in a submission and there will be subsequent submissions going in. This is arguing really for the inclusion of vegetation in the carbon offset process.

Obviously you can see why we are interested – suddenly there is the funding scheme – as Tim said NHT never provided enough cash for this to be significant Australia-wide, but the types of figures that have been talked about as far as the value of carbon offsets are concerned, start to provide enormous amounts of funding for the future of Australia's landscapes.

We are not so much interested in the carbon we are sequestering – obviously we ultimately are as far as climate change mitigation is concerned – but we are more interested in the mitigation as far as biodiversity is concerned that that new vegetation will provide. This is a funding mechanism that is going to be important for the future.

CHAIR: Thank you, that was very interesting and informative.

Dr BUTCHER: I understand there is another one coming up in a month's time that we need to put submissions in for as well, so we will have a fairly well organised submission for that along the lines of the type of information that we are putting into the Garnaut report.

(The witnesses withdrew)

JAMES ARTHUR McDONALD, Chairman of Namoi Catchment Management Authority, 1120 Warrah Ridge Road, Quirindi, appearing as incumbent of the Catchment Management Authority Chair's Council, affirmed and examined:

KERRY ANNE RICHARDSON, Manager of Strategic Services, New South Wales Chair's Council, 5/16 LaPerouse Street, Fairlight, sworn and examined:

CHAIR: I am advised you have been issued with a copy of the Committee's terms of reference, and also a copy of the Legislative Assembly standing orders 291, 292 and 293 that relate to the examination of witnesses, is that correct?

Mr McDONALD: That is right.

Ms RICHARDSON: Yes.

CHAIR: The Committee has received a submission from your organisation and is it your desire that the submission forms part of your formal evidence?

Mr McDONALD: Yes Madam Chair.

CHAIR: If you should consider at any stage during your evidence that certain evidence or documents you may wish to present you be heard or seen in private by the Committee, the Committee will consider your request, however, the Committee itself may subsequently publish the evidence if they decide to do so.

Would you like to make an opening statement?

Mr McDONALD: You have received our letter. Essentially it is a plea from the Catchment Management Authority's (CMA) for a role, particularly in climate change and some of the aspects that we will be dealing with in the future.

I would like to just go back to the reasons why the CMAs were founded, so that we can more enunciate our future role, particularly on matters that you are looking at in your Parliamentary inquiry, which essentially are fundamental to the way we do business and the things that we are trying to do.

The CMAs were set up very early in the piece following the decade of Landcare and they obviously wanted to build on the success of that model. They needed a much more institutional regional focus than what the decade of Landcare provided.

So the regional model came in following the decade of Landcare into the NHT2 and the National Action Plan for Water Quality and Salinity Program. New South Wales took a while to negotiate the bi-lateral process with the Federal Government, but at the same time the native vegetation laws in New South Wales and across the country were being built and I think New South Wales, particularly Minister Knowles, saw the opportunity at the time to institutionalise the NAP process and the regional model and tie it to the native vegetation laws that New South Wales were introducing.

It also allowed at the time to separate the powers which, I suppose, had diminished the Government's role in some of these regional areas, the Government's position in some of these regional areas with a bit of mistrust, and certainly when you are trying to be the "Good Cop" and the "Bad Cop" at the same time, a lot of mistrust does build.

He took the opportunity to separate those powers and compliance, and incentive making through the CMA process. I would have to say – and obviously I have got a personal stake in this – but the CMAs have been highly successful in delivering their part of the role in that, which is essentially incentives and starting to gain the trust of those people out there who manage most of the

natural environmental assets of New South Wales still in private hands.

We have essentially spent something like \$400 million collectively across New South Wales in the last three years. We have done that to meet our targets which were enunciated over three years ago, they were written down and we said we would deliver this money against those targets.

I believe that most of the CMAs have now reached most of those targets in delivery, if not far exceeded them. I know in the Namoi CMA we have got some targets that are approaching 500 per cent of where we initially thought we would be at the start of it. We have been, I believe, extraordinarily successful in our job.

The next job, which is caring for the country round, is to start linking obviously major issues like climate change, carbon capture, where you place carbon within the landscape, against all of the other attributes that we are trying to do with natural resource management (NRM).

We take our role as the regional NRM manager seriously. We still struggle a little bit in the institutional – I wouldn't say confusion – but the disparity I suppose. There are so many players all trying to do the one thing and it is very hard to try and get everybody line up and essentially achieve one thing at a regional level, but that is our job.

We have quite publicly spoken that we consider ourselves the glue of those arrangements at a regional level. We certainly have not got a big enough ego to think that we are going to do it alone. We do it in conjunction with our local councils and hopefully we also do it with Landcare groups and a lot of the industry within our regions. We are gaining more and more support from every industry within our regions and also estate agencies as well that we deal directly with and we get a lot of support from them.

In that sense – I am certainly open to questions – but climate change to us, particularly the movement of carbon in the landscape, we in natural resource management deal in two cycles, carbon and water, except the carbon cycle has the greatest impact on the water cycle, so depending on where you put carbon in the landscape, you will dramatically change the way that water flows to that landscape.

We take a particular interest and we will take a particular interest in carbon offsets, for example. We have, we believe, the perverse potential to start de-watering some of our catchments and certainly in some of our major towns, through placement of carbon in appropriate places.

Obviously from that point of view in an overall catchment sense, we will take a strong interest in this, but we are also caught between a rock and a hard place, that if we are dealing with climate issues that are starting to withdraw our rainfall and make higher temperatures, and we are also de-watering our catchments, it is going to make our catchments, the new land catchments in particular, fairly unliveable areas.

We obviously don't want that to happen, so we take a keen interest in all of this and we take a very passionate interest in this sort of work that you are doing and the outcomes that you are trying to deliver in a policy sense.

Mr MARTIN: Can I start with a question on the actual catchment action plans that were developed at the start of the process. Are you finding that with the pretty rapid developments around climate change that they are still relevant or have you got a process for updating them, are they fluid?

Mr McDONALD: They are fluid. They are fluid in a sense that the CMAs continually update them. The lag in it is getting all the four Ministers that we report to, to agree to those changes. That is an administrative lag, but I do not think it is a lag that is causing any major problems.

Some CMAs have embedded their catchment management plans directly into the plan to adapt the cycle, the adaptive management cycle, which essentially demands a regular review of your management objectives and whether it is on an annual or bi-annual basis depends on your CMA, but

it means that as issues arise, for example, drought, which sometimes hits us quite quickly, you have got to be able to change some of your management, you have got to be able to change some of your direction as well with issues such as climate change, that really do creep up over the horizon.

Mr OAKESHOTT: I started going through some of the internet sites on carbon offsets and the one I ended up having a good look at was CO₂ Australia. There seemed to be a lot of activity going on in South Australia from what I could see on the internet search. Can you tell me whether I am completely wrong in my thinking that in New South Wales the opportunity is there to be more aggressive and provide more opportunities for the practical benefits through the offsets as we start to develop some of these new trading schemes?

Mr McDONALD: I think New South Wales can be, as you say, more aggressive. I think there has been a reluctance, and a very cautious reluctance, and a very worthy reluctance with the current voluntary schemes that are running around. Obviously everybody has been waiting to see whatever the Federal Government is going to implement, which seems to have quite a rigid framework. Now you will see those voluntary schemes fade into the background and I think some markets will obviously diminish potential value, but in saying you can be more aggressive in offsets, as soon as there is a regulatory framework in place, that is where the big action will happen.

I don't think it matters where we are in Australia, the demand for offsets in a vegetative sense or whatever sense, will be there.

Mr OAKESHOTT: That is right. So with the Committee looking at New South Wales, I agree that there will be a lot of market activity and under the current regime there seems to be more of the practical activity happening elsewhere, but how are we going to make sure we are not either left behind, or ideally, that we are ahead of the market, that we get lots of activity happening in New South Wales in an economic and environmental sense?

Mr McDONALD: I think one of the real values that New South Wales has in the regional model sense around Australia is the rigidity in the model that we have actually got, which meets strong compliance needs, it puts confidence in the system and whenever you go into regulatory framework like we are about to with carbon, it is a rigid market. It is as regulatory as the trading market on the stock exchange. You will need to know what you are buying is with confidence and therefore you will need to know that the institutions that supply the carbon and check the carbon, that are doing the auditing, are rigid as well.

If New South Wales chooses to use the CMAs, which we are hearing that they will use as that role at the catchment level, given that we are institutionally strong, we have got this history now of compliance to what we say we are going to do, we have got the NRC model, which essentially independently audits that process. I think New South Wales is as strong as any State, if not stronger, to enter into that regulatory system.

Mr MARTIN: We have just had Greening Australia in and obviously you are aware of where they are and what they are about. They have got this goal for 30 percent vegetation cover as being the way to tackle the landscape problems. There seems to be a problem with, as you would know, vegetation plans and all that sort of thing.

Mr McDONALD: Yes.

Mr MARTIN: Dealing with a multitude of owners across things. If it was to become the State or National policy to work towards the 30 per cent vegetation cover, from a New South Wales point of view, would you see the CMA as being the vehicle to put that into action and how difficult would it be given the fact they are all private landowners?

Mr McDONALD: Dollars talk, as you know, and I know, for example, that there are a lot of private companies out there now with a fair war chest to enter into the new carbon system. They will not particularly use the CMAs to go and do that, but whether Government channels their money through the CMAs – we would obviously hope so.

Our biggest issue is that we do have our trust in our private landholder. We can accumulate and aggregate small blocks into larger blocks to provide some sort of confidence that that is being checked and tracked over time.

We also would like to think that we know where in a landscape to put that carbon and those offsets, whereas the private sector is going to put it quite indiscriminately across the landscape, and that is when I talk about starting to de-water some of these catchments.

If I look at the northern part of New South Wales, 30 per cent of native vegetation cover is actually below where we are now, so if we are going to start putting any more offsets into those catchments, we will be starting to tree, and quite significantly over and above where they are, but that is not to say that in the southern parts of New South Wales they desperately need some of that.

Our particular focus will be in the future as to where you put that carbon, and I will give you an example of the Peel Valley in northern New South Wales. The Chaffey Dam got down to something like 13 per cent just recently. They were that close to having to shut industry as a result of the drought.

We are also getting substantial growth rates in some of the trial plots State Forestry put up there. It is what State Forestry always considered a low rainfall area, but the growth rates that we are actually getting on those trial plots are equivalent to areas that Rob gets up in the north coast, primarily because we have got strong, healthy soils and we also get rain at different parts of the year, so that when the trees want rain during the summer, we get it and they grow and so those growth rates are equivalent, and I just know that those war chests that are building will go into those on the western side of the great divide there, they will pick that area just before it falls onto the flood plain and they will buy that country up and they will just put trees over it, which then means the town is in a fair bit of strife because they will be losing all their catchment yield.

Mr OAKESHOTT: Just following on from Gerard's question, Greening Australia got onto the same topic and they concurred with what you are saying and when it got to the point of what are some of the answers, they seemed to tend towards development of an environmental index.

Mr McDONALD: You mean as to where in the landscape?

Mr OAKESHOTT: Where and how and what.

Mr McDONALD: On an individual property basis or an individual area.

CHAIR: An environmental benefits index.

Mr OAKESHOTT: Would you concur with that as well? I think everyone can see that problem emerging but what is the workable way out of it?

Mr McDONALD: We do not have much to do with land use planning as such, except we do try and inform the local environmental plans when they are being rejigged and that is happening at the moment, but we are certainly starting to think that in a land use planning sense some of the environmental benefits that the land provides, we need to rethink the land use planning process, so that if land at the moment is providing environmental services, rather than trying to protect the economics of the services that they might deliver in the future, you need to protect the environmental services. That means that in a catchment that is untreated at the moment, and we may need to keep that catchment untreated, land use should then start thinking about whether the environmental service's catchment yields and therefore the land use is protected for that rather than for any economic benefit.

It is a fundamental question that we are all going to face quite substantially, because the amount of carbon that we suspect we need to put back into these landscapes is dramatic and it is going to have the greatest impact on catchment yield that any land use is ever going to have.

Mr OAKESHOTT: Just following on from that, everyone talks about the silos in government. Can you talk about how CMAs are working with Agriculture, Forestry, Planning, councils, just what the relationship at the moment is like and whether you think that can be improved and where in the future CMAs should fit in that dynamic? Anecdotally in our area it looks strong with some departments, weak with others. Is that a fair view?

Mr McDONALD: I think it is like any relationship, there are always areas for improvement. Without sort of demeaning the value of the relationship with local councils, there is I suppose a tension as to the role of the council in land use planning and things like that as opposed to what we would consider should be land use planning, and that is starting to definitely appear now, but that relationship is still there. Obviously, we are going to get concerned if land use planning in particular does not broaden between local council boundaries and we will probably start to test our relationship with some of these local councils.

We get strong support from internal government agencies on things like that. With some agencies we compete. We probably do not mind competition. Competition drives innovation sometimes, but there are other times when it can also lead to duplication. We do strike that. In a government sense we are getting more and more influence and more and more credibility in what we put up as a possible alternative. We get more and more hearings on what our thinking is. We do not always win, but that's just life. But I think our relationship with most of the agencies is sound.

Mr OAKESHOTT: Perhaps what I was more trying to ask is do you feel you have the authority that you should have?

Mr McDONALD: I do not think we all have very big egos, most of us, and we always think we are the ones who should direct all those things. It comes down in the end to the fact that we still struggle to get regional context into a lot of this, and that is at a local council level, Department of Planning, across the agencies. We struggle with trying to get an environmental water focus, for example, at a catchment level. We deal in two cycles, the water cycle and the carbon cycle. We have our tug of wars I suppose with some agencies as to who controls certain aspects of those cycles. The new round and the new national water plan hopefully should start to resolve some of those things. In the end we do not care who does it as long as it is done. That is our major issue. The CMAs take such an interest in it and have such a passion. It is not so much us, it is just as long as it gets done in a good, effective planning sense.

Mr OAKESHOTT: What about structurally as far as your current distinct role, your regulator and your incentivator role, if you were you going to restructure in any form?

Mr McDONALD: Yes, we would stay as far away from compliance as we still are. The separation of powers has been fundamental to our success and we cannot keep reiterating that enough, that if you are going to encumber us, encumber us with regulatory provisions. We will not get out into those landscapes because they just will not trust us. It is fundamental to our success.

Mr MARTIN: You said in answer to Mr Oakeshott there that sometimes you had to compete with government agencies. Can you give us an example?

Mr McDONALD: Competition - trying to position ourselves, for example, in the climate change debate at the moment as to who delivers certain services out there into the catchment. We know the Department of Primary Industries (DPI) is starting to think about their role is in this. Maybe some of it is duplication. Some of it is in direct competition to what we would consider are our education and awareness roles and means. Most of that gets resolved as time goes on. We do have a relationship with particularly DPI that says you can do that, we will do this, and more often than not we run dual programs, but it is healthy competition. It is pretty irregular that we get totally inefficient competition.

CHAIR: Your submission discusses a three day farming with climate change workshop that was held in Southern New England Landcare?

Mr MCDONALD: SNELCC, yes, that is Southern New England.

CHAIR: Can you tell the Committee what was discussed and the success of the workshop?

Mr McDONALD: I cannot talk directly to the SNELCC one, but I can talk about the ones that I went to in the Namoi. They were very similar. They happened quite a while ago now and I suppose the public perception of what we are facing has dramatically changed. Those early workshops were essentially trying to sell the message that we had a problem and we got that sort of reaction back. I know at those early workshops we had a lot of scientific advice and direction given that you have got a problem out here, in inland New South Wales in particular, and I think the coastal ones probably had the same thing. A lot of those workshops were: believe it or not, but here it is and what do you think about it. The two workshops I went to, I came away at the end of them knowing that we had substantially moved to people that were in those workshops from some sort of - not quite denial, but just sitting there thinking is it real or not to fully appreciating that they have got a huge risk on their hands.

Those workshops were valuable for what they were. There is still a fair degree of scepticism out in the bush in our regional areas, but I think it is starting to lead now to what do we do next more than anything. They are genuinely starting to think we have got a huge risk, what are we doing about it. The CMAs now will have to start thinking quite seriously, particularly adaption, these are the things that we need to do in an adaption sense, and I know most of your submissions talk about the success of agriculture to meet the variable climate we have now, but some of the projections, it does not matter how good a farmer you are, you are not going to meet them. When you talk about 10 or 15 days at above 40 degrees in Walgett, or 45 degrees in Walgett I think it was, there is no agricultural system that I know of at the moment, other than maybe camels, that you can put out there in that sort of climate. So there is some serious adjustment stuff, there is some serious adaption that will have to go on and we think we can play a part in that.

CHAIR: Are there any projects that are going on in relation to climate change at the moment with the CMA?

Mr McDONALD: Kerryn might know better.

Ms RICHARDSON: There is currently a lot of work being done at the State level in terms of investigating market based instruments, including a carbon market, and given the legislative framework that we have in New South Wales and the structure of the CMAs, just how we will be placed in future, especially as government funding diminishes and the CMAs are encouraged to look to other sources for their own funding in supporting their communities but also addressing these natural resource management issues.

There is also a pilot in New South Wales at the moment on a number of CMAs, a consortium if you like, are looking at the carbon market and carbon pooling and how they might involve private land owners, given all of the different rules and regulations around plantings and maintaining the plantings and that kind of thing.

Mr OAKESHOTT: Is that pilot public?

Ms RICHARDSON: Yes, there are eight CMAs in inland New South Wales involved at the moment. I do not know that there is a lot of information in the public domain at the moment. They are just investigating what it would look like in the set-up and what is stopping that happening at the moment. There is obviously going to be a critical mass if you are going to enter into that kind of a system, so that there is enough vegetation there to play with, all the sorts of issues that Jim has been talking about in terms of perverse outcomes. It is also being done in conjunction with DPI, so just laying some good ground rules for the future.

Mr OAKESHOTT: Could you provide the Committee with more details of that?

Ms RICHARDSON: Yes.

Mr OAKESHOTT: Because I think that's the main game. That sounds like a model that I am happy with.

Mr McDONALD: In the Department of Environment and Climate Change's submission to the Committee I noticed it is mentioned there that it is one of the initiatives and it is a strong initiative.

Mr OAKESHOTT: The Department of Primary Industries and the Department of Environment and Climate Change are involved in it?

Mr McDONALD: DPI are the lead agency, through State Forests in particular, but it is a good thing.

CHAIR: Coming from a CMA that is the Nepean Hawkesbury catchment, which goes from Goulburn to Brooklyn - huge - but it also impacts the eastern side of that sandstone curtain, in your role as the chairs of the CMAs, how do you see those CMAs going on the eastern side of the sandstone curtain, not just the coastal ones, but say the Hawkesbury Nepean and the Sydney ones which are more urban based?

Mr McDONALD: To be fair to the coastal ones, in a policy sense they have done more work than we have inland. They have started to think more about what it might mean to the community. I think they have a bigger threat, particularly through sea level rises and those sorts of issues. I have read the submissions. For the Committee's benefit, we have a range of the climatic impacts the CSIRO are talking about on each of these catchments and they are quite detailed on the threats to each of the CMAs. The coastal ones, because you have got so many people affected by such an issue, they have been a little bit more proactive than what we have, and there is a lot of work being done in the last those coastal ones.

[Information brochures detailing local impact of climate change on each catchment in New South Wales tabled]

CHAIR: Valuable work has been happening, as you outlined, with the CMAs. New South Wales is diverse as far as natural resource management goes. The Hawkesbury Nepean CMA has such a diverse range. In between Goulburn and Brooklyn there are huge cities feeding into its catchment, and it is that relationship that would be looked at in the future. We have got the first aquatic landkeeper looking after a lagoon in Glenbrook. That is quite innovative. Years ago it was just Glenbrook Lagoon and now it has a group that is dedicated because they know the impacts of that lagoon downstream, rather than the catchment of water in the middle of suburban Blue Mountains.

Mr McDONALD: The outcomes that they will be looking for in the National Water Plan, and I know that is mainly inland but it also does relate to what you are talking about, we need some more accountability at the end of the catchment sort of level, because it is only then when you can take responsibility and accountability to deliver do you start dealing with those sorts of issues, because they are fundamental issues to all of us who live in the region. If Goulburn is going to deliver bad water further down the stream, it has got to be accountable for its actions. The CMA, I believe, takes that sort of role and can take that role. It is obviously a role for government generally, but when you are trying to deal with the local politics and some of the innovations and what we were talking about before, that potentially some of the perverse outcomes of moving this stuff around the landscape, the CMAs are in that position.

Mr OAKESHOTT: Isn't this the dilemma of this topic: How do you quantify the outcome?

Mr McDONALD: In an economic sense or in a mapping sense?

Mr OAKESHOTT: You were saying the CMAs have that role or should have that role but-

Mr McDONALD: I think in a mapping sense we can do it. We are starting to map now our high priority areas and the services that they provide. We have been through the exercise, and we continue to, that whenever we spend money we always run through an objective process of an environmental benefits index which tests the public dollars we spend against the private dollars we get back. That is just an inherent process that we do all the time. To do that we have had to quantify our environmental assets in the sense that they are the ones that we need to protect wholly and you move down the scale.

Mr OAKESHOTT: That index goes back to our previous question.

Mr McDONALD: Essentially most CMAs use an index now. As I said, our biggest problem when we first went into this was to be objective, to stand away and really from a governance point of view remove any of the taintedness that past programs had about where the money went, and the only way we could do that was be totally objective about the environmental benefits.

Mr OAKESHOTT: And does every CMA use the same index or are there variations?

Ms RICHARDSON: There are a lot of decision support tools floating around. Different agencies and different people are using different support tools. A lot of salinity decision support tools incorporate an environmental benefit index (EBI) for example. At the moment those agencies in New South Wales are looking at how to integrate those decision support tools so you have an EBI and you have got a spacial mapping facility, and putting it all together so that you have got a front end and all of that data talking to each other behind it and incorporating that into scenario modelling and that type of thing which for climate change is really important.

Mr OAKESHOTT: We have come full circle because I think that comes back to my point about the thinking that man owns nature, that we can put a biodiversity indicator on the whole thing, when who are we really kidding, but we need that to prove up that what we are doing is working.

Mr McDONALD: Yes, because essentially we are still trying to manage an environmental system and I think the quicker we all realise that we are about management, our interaction and our intervention is unfortunate to some people's minds, but that is what we are on about, and if you are going to manage it, you have got to have your priorities and you have got to have exactly the things that you are trying to protect in these landscapes identified.

Mr OAKESHOTT: As best you can.

Mr McDONALD: As best you can, that is right.

Ms RICHARDSON: And I think those tools help with accountability as well. CMAs have to provide a lot of reporting to different layers of government on what they have done, right down to individual project activities at the moment, and why have you made the decisions that you have made, why have you targetted the investment where you have targetted it and how do you prove to the tax payers that there was due diligence in the process that you have gone through. So that is where we are at at the moment in terms of managing the landscape.

(The witnesses withdrew)

(Morning tea adjournment)

SIMON ARTHUR SMITH, Deputy Director General of New South Wales Department of Environment & Climate Change, 59 Goulburn Street, Sydney, affirmed and examined:

CHAIR: I am advised that you have been issued with the Committee's terms of reference and also a copy of the Legislative Assembly standing orders 291, 292 and 293 that relate to the examination of witnesses. Is that correct?

Mr SMITH: Yes, that is correct.

CHAIR: The Committee has received a submission from your organisation. Is it your desire that the submission form part of the formal evidence?

Mr SMITH: Yes.

CHAIR: If you should consider at any stage during your evidence that certain evidence or documents you may wish to present should be heard or seen in private, the Committee will consider your request. However, the Committee itself may subsequently publish the evidence if they so desire.

Would you like to make an opening statement?

Mr SMITH: Yes I would. I thought it might be useful if I ran quickly through this material here. I am not sure what opportunity members have had to delve into the detail of the world of emissions trading. It is a very complicated world, so tell me if I am too superficial or go into too much detail.

The first page just shows the sources of emission from New South Wales. These figures are drawn from a national inventory that is prepared at regular intervals.

Mr DALEY: Stationary energy, you have got 47 per cent there. What is that, mainly the coal fired power stations, is it?

Mr SMITH: Yes. These charts are often presented because it shows how greenhouse gas emissions come from a number of different sources and most of the debates are about which of those sources would be included within a national Emissions Trading Scheme.

As you know, the Commonwealth Government is committed to a national Emissions Trading Scheme. They and States are working together at feverish pace to prepare all the rules about how that might come about, but New South Wales really did a lot of the homework on which the Australian Emissions Trading Scheme will be based, as a result of work done in the previous years developing a proposal called NETS – National Emissions Trading Scheme. So New South Wales, working with other States had undertaken quite a lot of detailed modelling about how that scheme should work, who should be in, who should be out or who could be in, who could not be in and a lot of that work has been transmitted to the Commonwealth Government for it to use in preparing proposals.

Agriculture, on this chart, you can see in the yellow colour, and there is another relevant sector called LULUCF, which is land use and land use change and forestry, so together those are the sectors I believe that you are interested in, given your terms of reference today.

I think it is important to keep in mind that agriculture and land use change are both sources of emission and they are also sinks. So, for example, livestock belching is a source of greenhouse gas emissions. Planting of trees can be a sink, withdrawing carbon dioxide from the atmosphere. Within this sector there are both emissions and sinks that are relevant to consider.

The agricultural sector is exposed significantly to climate change in a number of ways. One is that as the climate changes, that will have very direct impacts on the productivity of agriculture, particularly water availability, extreme temperatures, so on and so forth, which you doubtless have heard plenty of talk about all of those, so I will not repeat those.

But it also will be exposed to the policy settings that are imposed internationally or nationally that will affect the price of its inputs and also the cost of transport, as well as conditions in its markets for sale, and no-one can foresee all of those changes, but they are very significant.

The question then is, thinking about the impact of an Emissions Trading Scheme on agriculture, the big question is will it be in or not, for example?

Mr DALEY: You mean will it apply to the agriculture sector or not?

Mr SMITH: Correct, will it be included. As a general principle it is always preferable that any Emissions Trading Scheme should have as wide a coverage as possible. That is the starting point for all of the debate. Really, it is more a matter of is there a reason that you could not include all of the existing sources within the scheme.

The way that I see the possible outcomes for agriculture are as follows: the scheme could be included right from the start in one of two ways. I am up to the page called Possible Coverage Outcomes for Agriculture. It could be included as a liable party, just like the coal fired power plant, so that in other words, defined portions within agriculture become accountable for their emissions, they are having to pay effectively to be able to emit into the atmosphere, or it could be included, as in its function of delivering sinks, it could be included where activity is undertaken by agricultural enterprises could benefit directly by being rewarded for sequestering carbon, taking it out of the atmosphere and putting it into timber or into the soils.

That is one option. Either of those things or both of those things could happen right from the start or either or both of those things could happen further down the track in subsequent variations of the scheme or it could be that they are never included, always outside the scheme. There will be some sectors I think for which that is true and other policy measures would be used to address those emissions.

I think what is most likely is that some agricultural activities will be initially included within the scheme as an offset provider, so forestry is a prime example. That is very likely to be included in the scheme as an offset mechanism.

The way that works is that say an industrial emitter would have an obligation to obtain permits that allowed that emission to occur. If they don't have enough permits they may be able to buy a permit or a certificate generated by somebody who sequestered carbon on a farm or in a forest, and in that way meet their net goals.

I think it is probable some agricultural activities will come in later as liable parties, meaning that some agricultural activities will be put in the same market position as an industrial emitter, in a sense that they will require permits to be able to emit carbon into the atmosphere.

I could not say how much later that would be, but it would be a fair bit later, I think and some things will never come in.

My next page just goes into the reasons why you could not or would not put various agricultural activities into the scheme.

These fall under a number of headings, transaction and costs. So if you think about current considerations in relation to the transport sector, that means people who burn fuel in vehicles would have to be accountable for the carbon emissions from that activity.

It would be very impractical to require every motorist to be dealing in certificates every time they go for a drive down to the shops, so the proposal is that you would deal with that at an upstream point in the distribution chain of petroleum products, so that it would actually probably be the importer or refiner of fuel where the point of accountability of this scheme would lie and motorists would simply experience that in a change of price in the fuel when they buy it, because the refiner had

to take that into account.

Transaction costs mean that it is not practicable to deal with every single motorist, you would deal with it higher up in the supply chain.

Thinking about agriculture, transaction costs of engaging every single farmer in relation to what is happening on every single paddock and the relatively small amount of emission per paddock would mean you just would never go there. It would be far too expensive and impractical to include them.

Mr DALEY: So how would you?

Mr SMITH: I will come to that. What I am doing is making a general case about why you would not or would put things in.

Another key issue in going about including agriculture is the fact that the sector is trade exposed, so at the moment there are many debates going on about how in designing the Australian scheme those industrial sectors which compete against imports or which export to markets which do not have or will not have prices on carbon, how do you ensure that those activities can compete fairly against other producers from other nations.

There is a debate going on that just about everyone is subject to import competition or export to markets where there will not be carbon constraints. You cannot exempt everyone, or you cannot have a scheme.

So there is a debate about which people have energy costs or carbon costs of such a significant proportion of their business that concessions or protections would need to be provided.

This leads in the language to trade exposed but also energy intensive activities being shielded in the design of the scheme so that they are not unfairly disadvantaged relative to international competitors.

Agriculture is obviously a very large export industry. The debates in the future will be about is it sufficiently energy intensive to justify protective mechanisms to be included. The obvious case will be where agriculture uses fuel in its productive processes or transport, does that represent such a large proportion of its costs that some kind of protection should be provided for it. I think that is a debate for the future.

The other fundamental issue is about can you measure the emissions in a reliable way, because clearly if you cannot measure it, you cannot put it in an Emissions Trading Scheme.

There are different levels of sophistication of development and measurement technologies for different types of agriculture, so within forestry measurement methodologies are pretty well established, that part of it is not really a problem. We have been in our New South Wales Greenhouse Gas Abatement Scheme, we have had for many years now, clear rules about sequestering carbon in forests and that is all working fine, so that is not an impediment to forestry being included.

There is carbon in all soils and it can be at a higher or lower level, depending on the type of soil and it can change over time, depending on the way soil is managed by the landowner. However, the methodologies are not nearly so well developed but I believe you have or will be hearing from the Department of Primary Industry, who will be telling you about the very detailed work that is being done to develop that methodology.

There is a bit of a sticker in relation to soil carbon because it is not recognised under the Kyoto Protocol at this point. If it were to be recognised under the Australian Emissions Trading Scheme, that part of it would not be internationally compatible at this point.

Mr MARTIN: Why is that?

Mr SMITH: It was a feature of the way the Kyoto Protocol was negotiated. At the time no-one really knew enough about it to think that methodologies would be up to include it.

There is an issue of nitrous oxide from soils. Most nitrous oxide comes from the application of fertiliser, so clearly it would not be practical to have people measuring every bag of fertiliser that has been used across the landscape, but what is being looked at in New Zealand is making the upstream distributor of fertiliser accountable for the carbon emissions that would arise when its product is ultimately used. A bit like I mentioned with petroleum products.

Also livestock methodologies are reasonably well developed. It is fairly well understood exactly what types of emissions would arise from different animal types in different locations and diets, but of course, there is the question about how do you count how many animals someone has for a period of time to be able to work that out, so again, in New Zealand they are looking at perhaps assigning that responsibility downstream at the abattoir rather than at the farm gate. So that is a possibility for the future.

We consider these questions on how do you do the methodologies and so forth, it is still very early days, but I guess our thinking is you have to find places where if you do want to include a sector in the scheme, that you do not impose mountains of red tape with very little gain.

Maybe you can look at opportunities like where there are marketing co-operatives or boards for particular industry sectors. For example, you have got grain marketing boards or whatever, they obviously have an existing commercial relationship with grain growers. Maybe somewhere in that chain of relationship there could be a place where you might be able to manage this, or you might have supply firms who supply common inputs to people in the same sector or district. You might have an agricultural co-op or you might have a supplier of different agricultural goods, the fertiliser supplier or the dairy co-op that comes and collects the milk, these sorts of co-ops where farmers could be working together to participate in a scheme.

These things are being addressed first in New Zealand because they are actually proposing much sooner to include emissions from animals within their scheme.

Thinking about land managers and the forthcoming commencement of the Australian Emissions Trading Scheme, there are both opportunities and threats, positives and negatives. There will be increased demand from some sectors that are opportunities for agricultural sectors. There will be demand for wind, which may be located on rural landholder's land, as you would know. There is likely to be a demand for biomass as we move to new technologies for alternative fuels, there will be demand for other types of biomass products rather than conventional food crops, and these are the most promising areas for fuels. It is much better to use woody materials that do not compete with food to produce fuel, in my view.

Also there will be other demands for energy and for timber production, and opportunities as offset providers, as I have talked about before, planting of trees and forests and farms to sequester carbon from the atmosphere. There will be opportunities for some landholders.

There will, however, be increased costs, which are not unique to agriculture, they will be relevant across the community and the economy. So there will be higher prices probably for electricity and higher prices for fuel, and that will affect the agricultural sector, something to plan for.

ABARE, which is the Commonwealth Bureau of Agricultural and Resource Economics, has been active in this field for many years and has much deeper resources to investigate these things than State Governments do. There is a chart there we have reproduced from ABARE showing the impacts of a \$40 per tonne carbon price if livestock production and crops were to be included.

You can see that the carbon price, according to ABARE, would have a larger impact on the livestock production business than it would do for crops, and this is a function of the amount of carbon involved relative to the value of production.

I guess another thing for the Committee to keep in mind are the benefits of ensuring the greatest possible international consistency and linkages and as the scheme is put together, all emissions trading schemes are better the higher proportion of people who are in and the broader the coverage in geography the better they are because the way these things produce economic benefit is if abatement effort can take place where it is cheapest to do so.

Rather than everyone making an equal effort to reduce emissions, it is best if everyone makes an equal contribution but the actual work gets down where it is cheapest, because in that way the overall cost of doing the work is cheaper.

I guess to conclude the opening statement, there is a lot of research underway in New South Wales within the Department of Primary Industry looking at the opportunities and threats coming from climate change, both the real world climate change and also the issues effective with policy changes that will impact on agriculture.

Leaders in the sector are already considering their strategy in relation to inclusion in the national Emissions Trading Scheme or not. People in the sector will need to be thinking about whether it is better for them to argue to go in early, because perhaps in the early stages of the scheme it provides the opportunity to be there right from the start, so that as people learn, as the scheme progresses, they take advantage of probably what will be more liberal conditions in the early days.

You can imagine five or ten years down once the other big sectors of energy, transport fuels, big business in those areas are well entrenched paying real money for carbon permits, policy makers will not have the same scope for transitional mechanisms as they would in the early days when the permits are priced fairly low and everyone is learning how to operate within that scheme.

So there could well be an advantage in coming forward and getting in early compared to leaving it to later on when everything is solidified. I guess it is a bit like being there in the early days of agriculture development, land is cheap, the rules are not solidified, opportunities are large. Maybe it is better to get in early, or at least maybe it is worth thinking about what can be done to reserve a place for agriculture that will provide the equivalent of early days for it when its participation time comes, at least have marked out the place where agriculture would go, so that transition arrangements which are favourable and assist agriculture can be incorporated into the scheme design.

Mr MARTIN: Is it likely in that scenario the actual goal posts are going to change pretty rapidly as we go along, so it is going to make decisions difficult for industry people?

Mr SMITH: Well, yes, that is why I am recommending either get in early and be in the tent right from the start, or at least make sure that you have got your spot reserved in the tent, so when it is time for the agricultural sector to go on training wheels with the thing, that they are not trying to ride down the freeway, would be my recommendation.

Then more generally, no matter what the outcome of those processes, because they will be decided by the Commonwealth Government, not by the New South Wales Government, prepare for change, keep on with the work. The Premier has recently announced the formation of a new climate change action plan for New South Wales. Our intention is to help prepare that by getting out into the regions, presenting the best regionalised information we have been able to obtain on what changes are forecast for different regions of New South Wales, to enlist local leaders in convening conversations with their regional communities, looking to what are the opportunities, which are different in each sector, what are the threats, which are different in each region of New South Wales and helping to facilitate the whole community incorporate those risks and opportunity into what they are already doing, into their mainstream business.

That is something we are very much looking forward to and the agricultural sector, lots of smart people in there who are already thinking about these things, we will keep on working with Primary Industry to feed across as much information as we have available on the nature of the scheme and the opportunities that exist for agriculture.

Mr MARTIN: We have had some evidence, in terms of using forestry for carbon offsets, there is a list from the Catchment Management Authority people here. They saw as a bit of a trap down the track the actual water catchment areas and run off, which is a problem as we know.

Do you have any thoughts on that?

Mr SMITH: Yes I do. I mean, everyone agrees that you convert say land that has been previously cleared for grazing, if you plant trees that probably for at twenty years that will be a net user of water and at the moment that kind of water use is not regulated, not put in the same category as actually taking the water back out and using it for something else.

It will have the effect of reducing the amount of water that is available in stream for downstream use. I think the issue has been recognised in both the national water reform process and in the climate change world there just need to be further consideration as to what is going to happen. If all of a sudden there is a very strong demand for sequestration through forestry, because if that turns out to be the most cost effective option, then we need to look and say, what is the spatial consequence of that across New South Wales, whereabouts might that manifest and what would be the water impacts and also the socio-economic impacts of converting land from one land use to another.

CHAIR: We had an earlier submission from Greening Australia in relation to the western Sydney heat island effect. Have you got any comments on that in relation to your Department?

Mr SMITH: No, I am not familiar with what they would have put to you.

CHAIR: It has been noted internationally and in Australia I think Brisbane has been the only place to look at what type of building is in an urban context in relation to the roof. It is mainly in reflection, the heating up of the roof space, but also looking at it in the New South Wales context, at the moment it is only in research, in the academic sphere rather than the actual practicality sphere of out there in the growth centres looking at how houses are built, what colour roofs they have, what kind of streetscape there is to reduce that reflection.

Mr SMITH: I am aware of those issues. It may interest the Committee to know that in California, looking at their air quality programs, they actually have a program whereby conversion of roofs to light colours has actually been recognised as a way to reduce the formation of ozone, which is an air pollutant, smog it is more commonly known as, because it just simply reduces the amount of heat and heat is what cooks up the smog.

However, the broader issues about it in design are really being dealt with most by the Department of Planning and the Growth Centres Commission, which is managing the north west and south west growth areas.

CHAIR: The comment that they raised was BASIX is a good instrument, but that is looking at insulation in roofs, although that reduces the heat of the house rather than the reflection out.

Mr SMITH: I think it is a valid area where we can do more, but it probably would not be done by our department. Like building and urban plan and development standards are dealt with by the Department of Planning.

Mr MARTIN: I guess that raises the question that was raised before, there may be some problem with the fact that the Government agencies are working as silos rather than across the borders. Is there enough inter-connectiveness between you and your other brother and sister Government departments in relation to this?

Mr SMITH: Yes there is, it is very good. Probably you know that previously climate change was a small office called the Greenhouse Office, which was part of what is now the

Department of Premier and Cabinet, and when Minister Koperberg and now Minister Firth were appointed as ministers for climate change the staff who support that from central agencies came out there, so our Department now does have a co-ordinating role on this and it was only earlier this week that our Director General was meeting with Directors General of all the other departments who have got an interest in these issues in establishing co-ordination mechanisms and organised under different themes where we need to work together. So that is happening quite well.

Mr MARTIN: In terms of taking the community along with the whole issue of climate change, given that there are still some sceptics out there, particularly probably more associated with the regional and rural areas, have you got any thoughts on how we as a Government or agency can disseminate the information better, because it tends to come from academics and people get polarised very quickly.

Mr SMITH: I think this goes back to what I was talking about with the climate action plan that the Premier has commenced. What we are doing is, we are working with academics to take the best available climate change forecast information and break it down into smaller units corresponding to areas of the State plan and we are then intending to go out to local communities to present that information, to let them know what we do know, what we do not know and that the probability is of various things happening.

Our Minister is very much supportive of having both a meeting with community leaders to convey this information and also facilitating town hall type meetings where we can present this information very directly to the community, so we can all start factoring it into the things that we do. So that is very much on the forward agenda towards the end of this year.

CHAIR: A question about the climate change fund which Minister Firth announced the green business program. Do you know anything about the program?

Mr SMITH: Yes I do.

CHAIR: Can you tell us what was behind the projects that were allocated in the first round, why they were chosen and what impact that would have for natural resource managers?

Mr SMITH: The origin of this program, there used to be an energy saving fund and a water saving fund and the contributions to the fund come from the distributors of electricity, Sydney Water Corporation and Central Coast Water.

The purpose of the funds in previous times was to help do things that would help customers who were served by those organisations to be more efficient with water and to be more efficient with energy, save energy.

Within the funds was a wide range of activities that would reach out to householders, to small business, other business, Government agencies, local councils, so on and so forth.

Pre last election the Government made a commitment to convert it to a climate change fund, which enabled us to work flexibly across whatever was the best place to invest the funds and those various series of programs continue. That is the source of funds for rebates for householders to get water tanks, for example, or householders to obtain a solar hot water heater or insulation for their home.

There are also programs for public places, so for Parliament I think, money has come out of that fund to do energy efficiency work here or for Council libraries or other kinds of public facilities, money for schools to do that sort of work, and there is also a business program, which is the Green Business Program that you referred to.

Within that essentially we advertise and say we would like people to apply for a grant and there is an evaluation panel who reviews all the proposals and lines them up in two ways, there are two categories. One category is looking to reward measures that will commercialise new

technologies, so demonstrate them out there in the real world so that people can start to get used to these new opportunities that exist, and the other stream is where we select purely on, if we spend money out of this fund, how much energy or water will we save in the community.

They are essentially lined up in order of their cost effectiveness and we start at the top of the list for those where the least spent from the fund will deliver the largest possible energy or water saving amount.

The organisation that has requested the money, there is obviously a return for it in these things, because it has lower future bills and we in the fund do not want to pay for anything that people were going to do anyway.

When people lodge a bid, they say if I really want to win the bid, I'll be thinking I'll pay 95 per cent of the cost and I'll only be seeking the funding from the Government for the extra bit that I might not have otherwise done. They are the type that typically get funded, where the person seeking the grant is spending most of the money themselves, but they might not have gone the full extra yard to achieve the greatest possible energy or water saving.

All of those are selected from most cost effective for Government down to least and then we compare what people have asked for with the available funds and make a recommendation to the Minister to approve those grants.

Mr MARTIN: Without going into specifics of the grants announced by the Minister this week, there was one about which there was some criticism from one quarter that a large organisation, a retail type business has got a fair slice of money to do something with energy, lighting and so forth.

Mr SMITH: That is right, I think that was Bunnings.

Mr MARTIN: From the panel's point of view, it does not really matter about the size of the resources of the organisation, it is the benefits they are going to deliver.

Mr SMITH: Value for money, that is right. It just turns out that big organisations have lots of buildings and if they put one application in and they say we have got forty or fifty stores or we have got sixty factories, or whatever, often they turn out to be the most cost effective things that you can do. We are indifferent to who the person is, it is just a matter of how much energy saving would we get for the money that is there.

CHAIR: And it is a fund for customers of certain organisations and that could be a considerably large customer and the reduction in the energy.

Mr SMITH: Yes, and it is not really a selection criteria, but it is good when you have got very visible sort of normal things that people do and they can see when they go there that things have been done differently to save energy or water. That just changes the whole community's attitude to these things, it seems normal. It breaks down this thing about this is normal and that is a weirdo technology and you would like to see those things become accepted in the normal way.

CHAIR: Within the electorate of Penrith there are two of those retail outlets and there is huge visitation, so they are raising public awareness every Saturday morning, all those people going in.

Mr SMITH: But importantly, that one, to my knowledge, was simply selected because it was a good deal for the fund in terms of the energy saving to be achieved.

Mr MARTIN: In terms of spreading the message like that, would part of the deal be that they would have some sort of signage up saying this is what we have done here?

Mr SMITH: Absolutely, it is a requirement. No funding is provided unless the grantee agrees in writing that they will be part of communicating the benefits of what has been achieved.

CHAIR: They have big signs up.

Mr SMITH: Yes, that is right and we will feature that on our websites and use the case studies. If we did something for one dry cleaning shop or whatever, then part of the deal would be we want to spread that to the collective of dry cleaner shops.

Mr MARTIN: I notice there was a laundry in my electorate that claimed they got \$104,000. It has a regional focus in terms of it works around the St George area. How would a smaller organisation like that that is based in a town of 3000 people work?

Mr SMITH: We would work with them. We would probably use their place as a case study and then we would produce materials that would be circulated across the State.

CHAIR: The Committee notes that it has been involved in research for climate change and the impacts on water supply and demand in Sydney. Can you provide any information about the status of this project?

Mr SMITH: Yes, there are a number of projects of that type, they were funded out of the State's Greenhouse Innovation Fund and that is a \$24 million program over four years that is funded with a whole lot of science that has been done in various areas of research, so a lot of the Department of Primary Industries work that you have heard about is funded out of that area.

I think that particular work on Sydney's water supply is still in fairly early days. It is a very strong science effort to look to see to what extent the recent experiences we have had in Sydney with water availability and drought are just part of the long term pre-history, not reflecting any climate change yet or to what extent is it in fact first evidence of climate change and then looking to see to the future in detail to say, well what is the prognosis, what would the yield of the dams be in the future? What will higher temperatures mean for evaporation and water demand and so forth, but it is still at a fairly early stage of that work.

CHAIR: Looking at the emissions trading, what are your comments on likely transitional problems for the scheme? You outlined some. Are there others?

Mr SMITH: It all comes down to getting the design of the scheme right. In New South Wales we have had quite some experience with emissions trading. We started Australia's first proper emissions trading scheme, which is in the Hunter Valley, dealing with saline discharge from coal mines and power plants, and we will share the results of our learning through that with the Commonwealth Government so that they can see the benefits.

One example is there is a debate about the initial allocation of permits. We in the Hunter invented a transition system where we were able to do what is called grandfathering of credits to incumbent participants but moved over time to an auctioning system over a period. What we did was we initially grandfathered the permits in that scheme to the participants, so if somebody got five permits, they got one that lasted two years, one that lasted four, six, eight and ten years. So after the first two years of the scheme, one fifth of everyone's entitlements fell back to the scheme administrator and they were auctioned out and that meant that over the ten year period of establishment you slowly moved from a grandfathered world into a fully auctioned system, and that has worked incredibly well. It has fixed the problems we had with salinity in the Hunter Valley. Those problems, which were caused by industrial discharges, are just a zero issue now.

Mr MARTIN: In terms of permits in general, do you see that any participants should perhaps have an exemption, arguably around energy generators using coal for instance?

Mr SMITH: I think this is a question of really detailed scheme design. From an environmental perspective the initial allocation of permits is not a prime consideration. The prime consideration is the total of the cap, what are the total allowable emissions and over what timeframe is that achieved.

I think probably what we will find is that the Commonwealth Government will be lobbied by everyone who wants to receive a favourable allocation of permits and I expect that what they will do, (which is just what we would), is that they would be looking to see what is the way to get this scheme going to achieve the maximum environmental result with the least possible disruption to the economy, and they will have to sift through competing claims from everybody, because these permits are effectively cash because you are allowed to sell them once you have got them.

In the European scheme they over-allocated the permits in the early years and so people had more than they needed and they could sell them for cash, and thanks very much. So the Commonwealth will be alert to all of that, if they do not already know how that is done, and no doubt they will be working through what will be a contested and complicated process to try and do the least disruptive allocation process.

CHAIR: Getting back to what you were saying about that transitional arrangement, is that why Minister Macdonald launched the paper seeking comment?

Mr SMITH: He did, yes. What that is about is the arrangements that will apply to make a transition from our New South Wales greenhouse gas abatement scheme which incentivises people to do various greenhouse gas reduction work and those activities are of a type that will be caught up in the new Australian emissions trading scheme. So it is obviously a crucial matter to determine how you transition the rules from the existing scheme so that as far as possible people can slot neatly into the future national scheme, because clearly people have invested in the New South Wales scheme in good faith, they have achieved very valuable results and we want to minimise the disruption of conversion to the new scheme.

CHAIR: So what is the consultative process in that? Are you going out to those people who have been involved?

Mr SMITH: The Department of Water and Energy convened a group of people who are participants in the scheme from both supply and demand side, made sure that they were aware of all of the issues and the Ministry released a paper seeking public feedback on the issues in the proposals. That is currently underway.

(The witness withdrew)

JOCK LAURIE, President, NSW Farmers' Association, sworn and examined, and

DAVID EYRE, Senior Policy Manager, NSW Farmers' Association, affirmed and examined:

CHAIR: I am advised that you have been issued with the Committee's terms of reference and also a copy of the Legislative Assembly's Standing Orders 291, 292 and 293 that relate to the examination of witnesses. Is that correct?

Mr LAURIE: It is.

CHAIR: The Committee has received a submission from your organisation. Is it your desire that the submission should form part of your formal evidence?

Mr LAURIE: Most certainly.

CHAIR: If you should consider at any stage during your evidence that certain evidence or documents you may wish to present should be heard or seen in private by the Committee, the Committee will consider your request. However, the Committee itself may subsequently publish the evidence if we so decide. Would you like to make an opening statement?

Mr LAURIE: Yes, and thank you for the opportunity. I think the submission that we have put in is fairly straightforward and it highlights a lot of the concerns and worries that agriculture has to a certain extent in relation to a carbon trading scheme. The fact that at this stage there is no clear indication of which direction we are going to go, and I think there is quite a bit of evidence showing that there is a need for a lot more research to be done in many different areas. I think the concerns in relation to judging carbon in agriculture and basing it on emissions and not necessarily basing it on the full life cycle of the carbon is something that worries us greatly, and it is very important as far as agriculture goes that right from the word go everybody understands the concerns, the impact the scheme will have on agriculture and potentially what opportunities there are for agriculture to be involved in making sure they can sequester carbon in certain areas, not only in timber but also in grasses and soils and a lot of areas. It is a matter of getting people to understand the complexities, and I think everybody does understand the complexities. Agriculture is very keen to make sure that everybody understands those issues very clearly. I highlight the fact that we are more than keen to get in and try to work with everyone to make sure that we can work our way through it, but obviously there needs to be an increased level of research and development I suppose to go through and verify some of the facts and figures that are being thrown out there at the moment.

Mr EYRE: You have a number of issues in the terms of reference but I guess a threshold issue for us is the economic impact, both of climate change itself but in the first instance of the proposed national emissions trading scheme. As Garnaut has stated in his discussion papers, failure to ensure that agriculture is provided with transitional compensation or assistance on commencement of national emissions trading scheme will damage the competitiveness of Australian agriculture in its major international markets. I think that really needs to be understood by the New South Wales Government and it would be good if New South Wales represented that viewpoint to the Federal Government.

A carbon price, irrespective of whether agriculture is a covered sector, will also result in disproportionate costs of the national emissions trading scheme being incurred by the agricultural sector and regional communities due to the increased fuel and fertilizer costs. Carbon costs will flow through the whole economy but that impact will be disproportionately higher in regional communities due to the tyranny of distance, et cetera, and of course fertilizer is an integral part of production and we all know the price pressures that currently exist on fertilizer will only be exaggerated by a carbon price.

Ross Garnaut has articulated all of these issues but we are not getting any feedback as to how the Federal Government is proposing to factor that into the design of the national emissions trading scheme and there is a real concern in the farming sector that the scheme designers will defer

consideration of the rules for agriculture until they have sorted out the energy sector side of things and possibly until after the actual implementation of the scheme, and therefore they will develop a set of rules that will not work for agriculture. It will be one size fits all and agriculture will be shoe-horned into it and they won't budget for the necessary assistance and compensation that agriculture and regional communities will need.

We are talking about billions of dollars worth of impact and they have to be shared out across the affected sectors as Garnaut has articulated. We are not getting any feedback at all from the Federal Government via our national body that they are really seriously considering those issues. That is one priority issue.

I can go on. We have raised many many issues in our submission. Jock mentioned before carbon counting. We believe the science in the carbon counting area as it applies to agriculture is very weak. That is broadly acknowledged in the scientific community and I would encourage you to speak to Dr Michael Robinson, who is head of Land & Water Australia. Last year he co-ordinated a very thorough assessment of climate science applying to a counting in the land sector. Their conclusions were that the terrestrial carbon cycle is very poorly understood, the ability to measure and monitor carbon flux in the land sector is very under developed, and that we are not accounting for carbon from agriculture, the inputs and the outputs, in a systematic or adequate way.

We all know that carbon count is a construct. You need a construct from a policy point of view but we should not mistake that construct for reality, and the emissions that are reported from agriculture by the Department of Environment and Climate Change have very low credibility in the farming sector. Farmers do not believe that we are contributing 20 per cent of national emissions.

Mr LAURIE: On a net basis.

Mr EYRE: On a net basis. They have good reason not to believe that because the scientists are not currently capable of factoring in the very rapid carbon fluxes that occur between soil and the atmosphere, which can be on an hourly basis. They are not accounting for the carbon tied up in ground cover. They are not accounting for the vegetation that goes when for example it is eaten by a cow. It is not a balance sheet approach. We are arguing that it should be a net farm carbon account, so that farmers have some ability to balance their emissions against what they are actually sequestering as part of managing their land systems.

I do not know if I have made that plain or not but this is a very important issue for us.

Mr MARTIN: The previous witness before you from the department was Simon Smith, who you probably know. In terms of the difficulty of fitting the agriculture sector, he indicated to us that part of the problem was that perhaps some of the science, the information was not up to scratch at the moment to really determine decisions about agriculture. Given that is the case, you would prefer that they had the right science and the right information before they locked anything in I would imagine, but it seems to be a bit of a between a rock and a hard place for agriculture, if you do not get in early you might - do you recognise that that is the quandary there?

Mr LAURIE: That is a valid point. I think the concern, as has been expressed by David, and the fact that the science is not there, is a very difficult issue to try and handle and to try and gauge and to try and measure to be able to get an understanding of how carbon is sequestered, how the whole cycle goes, and that is one of the great difficulties of it. But we also know that if we are not engaged in the debate from the beginning, then potentially there could be decisions made which could be detrimental to agriculture down the track. So we are very keen to make sure that everybody understands the problems and concerns right from the word go, so that we do not end up in a situation four years down where there is a scheme in place that all of a sudden looks at all these overwhelming issues that are confronting agriculture and we are put in a very difficult situation. So we are between a rock and a hard place.

We understand that the emissions have been accounted and they are saying 16 to 17 per cent of emissions are coming out of agriculture, but when you go through and have a look at the science,

the in depth science is really not there. It does not take in the whole cycle. We know all the difficulties with weather conditions and how carbon stays in the soil and moves out of the soil. We understand all those issues, but as I say, if we are not careful and we just sit back and we go four years down the track and there is a carbon trading scheme put up, and they start moving industries like agriculture in, in a situation that is absolutely impossible and really damaging financially for the sector, then I think we would deserve to get the dusting up we would get. So we are here trying to promote it right from the word go.

Mr MARTIN: Do you feel you are getting enough input or listening to from say the Department of Primary Industries in New South Wales, who could be appreciably getting information through at the Federal level, or is there still a problem with the government departments not acting in concert in listening to what you are talking about?

Mr LAURIE: We have a situation where agriculture is a very specific industry. We would be one of the first people that should be involved in any discussions in relation to it, the industry itself. I would say that this whole debate has moved on very quickly and I think it is only just starting to get to the stage where they are talking about where it is going to be done, whether it will all be done at a Federal level. With State based issues, it looks like there might be a system right throughout Australia which obviously has to happen. Through that process there obviously needs to be a committee set up to make sure that they take in information from the agriculture sector, but the decision needs to be made as to where this is going to be done. If it is going to be done at a State level, obviously you need to have involvement from all the players, and that is critically important. If it is going to be done at a Federal level, you need to have involvement from all the players, but at the moment you have got the Feds doing one thing, and it is not really clear to us where the final decisions are going to be made. We need to be very clear about that and we do need to make sure that you have industry participants in there at all stages.

CHAIR: Minister Firth announced the New South Wales Climate Action Plan and a previous witness made mention to regional consultation. Obviously what rolls out with that action plan will have something to do with the emissions trading scheme. Obviously there are, as you mentioned, the changes federally. With the newness of what is happening through this New South Wales Climate Action Plan, there will be inputs from stakeholders. They are going out to the regions. So keep your eye on that. That was just an announcement very recently. I think it was last week.

Mr LAURIE: We will more than happily be involved in that.

Mr MARTIN: It is no secret, of course, that farming organisations have been pretty critical of the Kyoto Protocol and I think particularly in relation to the land clearing issue. That gets emotive and you cannot always rely on what you read in the media on it. What is the practical impact of that on farmers say in New South Wales because of the land clearing issues?

Mr LAURIE: The land clearing issues, as you well know, Gerard, certainly impact on the individual farmer. There were decisions made by both State and Federal Governments to make sure that they addressed the land clearing issue and put a stop to broad scale land clearing across Australia and that has happened now. The cost of that has been borne by individual farmers. One of the reasons that we are very much wanting to get engaged in the debate now is because in those circumstances decisions were made, individuals carried the costs and are still carrying the costs of delivering a community benefit, and we do not want to see the same thing happen when it comes to a carbon trading scheme. We think it is absolutely important that all the facts are understood right from the word go so there can be no confusion down the track. We must understand the facts, but the crucial thing we realise is that there is probably not a lot of facts there. A lot of the information that has been bandied around probably is not properly supported by good evidence behind it at the moment. So we need to do the research and development to make sure we have got the evidence. Once we have got that, if it is going to be delivered to the community, I think as Garnaut says it needs to be spread right across the community, then let's do it and we do not want to be in a situation where individual people are carrying the burden.

Mr EYRE: The situation with native vegetation under 3.7 of Kyoto, or the Australia clause,

that standing vegetation was not counted towards a future base line, et cetera, that was effectively the nationalisation of carbon credits that were the property of the farmers who had native vegetation on their land. There is an argument for that. That is how many farmers perceive it.

Under the previous Prime Minister's task group report on climate change, compensation was recommended to trade exposed, emission intensive industries. There was never any reference to compensation to agriculture for its past contribution and its present contribution to Australia meeting its emission targets. From the point of view of farmers this might amount to them being ripped off yet again, farmers being a relatively weak constituency. I think, as Garnaut has pointed out, it is essential that the compensation assistance mechanism under the newly proposed national emissions trading scheme actually does direct appropriate assistance to farmers and that you do not get a repeat of the native vegetation situation.

On the subject of standing vegetation and native vegetation, the New South Wales scheme has been based on sequestration within trees, standing vegetation. That neglects all the other opportunities for biological sequestration, in ground cover, soil, et cetera. It is very much skewed towards the forest industry, and that has been a major concern to our members, particularly with the tax breaks provided by the Howard Government for carbon plantations. It is one of many details that we need to keep an eye out for, but that could potentially distort the market for land, greatly increase the extent of plantations that possibly do not have a place in productive agriculture landscapes. It is very important from a farmer's point of view that there are sequestration opportunities which go hand in hand with primary production and can be integrated within the productive farming system, like a soil carbon layer or a ground cover layer.

On the subject of abatement incentives, our members have been very concerned that there will not be any opportunity to create credits by switching to renewable technologies. The point of obligation in relation to energy is at the top of the tree of the energy producer and PMC has made it plain to us that they will not be allowing any credits to flow to firms further down the energy tree. What that means for regional Australia is that those opportunities to create local scale renewable power, and go off the grid as it were, will not be supported by any positive incentives. The only incentive will be avoiding the higher cost of electricity. We think that is a weakness in the scheme design. We are not getting any hearing on that.

It would be possible to design a two tiered energy economy in Australia where urban centres were receiving their power from the major power stations and paying a higher price and that is their incentive, but in regional economies if communities or even farms go off the grid, they could achieve an abatement credit for doing so.

Mr MARTIN: It was referred to in other evidence before the Committee that one of the threats of the plantation issue, particularly to our water supplies, that could be the farm water supplies, if you treed a place heavily it is going to have a big impact, particularly in the initial decade or so, in run-off and water storages and so on. Do you concur with that?

Mr LAURIE: Yes, it is most definitely a problem. The MI scheme, as David has already pointed out, are certainly creating land price distortions at the moment, and one of the other problems that they are creating is a lot of trees that have been planted in the high rainfall country are having work done on the contour, which is stopping a lot of run-off. The simple fact is that they are putting a bank in six to eight inches high to plant the trees in and that is picking up a lot of water and stopping the run-off. Just this morning I had another phone call from some farmers down in the south of the State who are very worried about a new plantation that is going in down there and the work that is going to be done there will stop the flow in the creek.

Mr MARTIN: Is that soft or hardwood?

Mr LAURIE: That is soft wood but the principle is the same. The worry is that in some of the high rainfall areas the plantations are most definitely reducing the amount of water that is run.

Mr DALEY: Are you in a position to give us any greater detail on the possibilities for

sequestration in respect to farm land? I note what you are saying in relation to the allocation of land for forestry, that it is incompatible with agriculture to an extent, and looking at your submissions also, the rules of Marrakesh Accord are very popular with your group. What other ways are there, and I know you have touched on some of them briefly, but can you give us more specifics on what other opportunities there might be?

Mr LAURIE: As far as sequestration goes--

Mr DALEY: Or even offsetting.

Mr LAURIE: There is plenty of potential for offset. It all depends what you call offset I suppose. There is plenty of potential to increase carbon within soils and it does not mean it is going to be a great burden. You have got to be able to measure it and you have got to be able to show that you have the carbon in there and you are going to be able to hold it in there.

Mr DALEY: How do you increase the carbon?

Mr LAURIE: You can do that through minimum till, through zero till farming is one practice that is used, very much so. You can also do it in changing grazing management in the livestock industries and set stocking and going into some rotational grazing patterns. This is where we need to do far more research and development in order to really define what can be done. They do know in the farming industry that going from tradition ploughing up into a zero till plan, there is double retention. It most definitely builds up your carbon and they have shown that very clearly.

Mr DALEY: To a significant degree?

Mr LAURIE: Some of the measurements that have been done I think have been quite good but it all depends at what depth you measure it at. There are two or three levels that they are talking about measuring carbon. Some people I have been talking to say the base level is 30 centimetres and you have got to be able to increase the carbon to 30 centimetres, but some of the work that is being done with zero till might increase the carbon in the top 20 centimetres but not necessarily get down to the bottom 30, and if it does get down to the bottom 30 to be measured, how long does it take to get down there, how many years does it take to make the changes. This is where the research and development component is obviously very important, and the same thing with livestock.

Changing management with livestock can increase the soil carbon and that has been seen in some of the grazing programs that are being done. It is maintaining coverage on the ground and building the carbon back in through the ground while spelling it and just grazing it for short periods. So there are in those instances two things.

When you talk about doing the full cycle, we are talking about emissions in agriculture being a lot of the emissions coming out of the methane, for instance, fertilizer use, fuel use, all those sorts of things, but in actual fact we are also growing plenty of grass, storing plenty of carbon in the grass. So there is a cycle that is going around. A lot of it is being exported in beef or being exported in grain, and in some ways it is being sequestered until we eat the beef or eat the grain and whatever happens to it then who knows.

The point is that we need to make sure that whenever we are measuring agriculture it needs to be the full thing. We need to do the research and development. We know that there are areas, as I say in farming practice and grazing now that are changing the structure. We need to do more work to make sure that we can increase the carbon levels in the right place within the soil, at the measuring place, and understand how we can maintain those carbon levels within that soil.

Mr EYRE: It is a complicated area and I think we need some really strong international vision on this as well as national vision.

Mr DALEY: Is there much of that sort of talk?

Mr EYRE: It is gathering momentum. The fundamental protocols are under the Kyoto Protocol and the Marrakesh Accord and right now under 3.4 you can elect to include soils or not. If you include soils in your national accounts, then you are exposed to the risk of losing soil carbon due to drought and natural causes. So Australia elected not to include soil, and neither would an African nation if they decided to come under a cap for that reason.

Mr DALEY: Do you agree with that?

Mr EYRE: No, I do not agree with that. I believe in Kyoto 2 they need to change the rules so that you can differentiate between human soil carbon losses and natural soil carbon losses and thus create an economic incentive for, if you like, lead a revolution in world agriculture. This possibly applies to other countries more than to Australia, but in sub-Saharan Africa in particular there has been massive denudation of agricultural soils due to over-grazing, et cetera. A lot of that carbon could be put back and the local communities could receive carbon credits for doing so. But at the moment the framework does not allow that and so it is not happening.

Mr LAURIE: The other difficulty with that is that you are in a situation - I was just coming from Balranald this morning. There was a meeting out there yesterday and they were talking about the fact that in the western division for instance the soils are dryer and so therefore the soils will not hold carbon as well in the dry country as they do in high rainfall areas. This work is only just starting to come out where they are starting to get a good understanding of some of these things. If the initial ground was that they would not sign it because of the problems with soil carbon and the fact that we get a drought and being able to hold it is the problem, then we need to look at the things that David was talking about it, different ways to do it.

Mr EYRE: But it can be done, and there is international movement building on this, but it would be crazy for Australian agriculture to leap into that until those rules are sorted out, even though the economic, the social and the environmental benefits of increasing soil carbon are obvious. It is actually a no brainer to do it, but there has to be genuine economic incentive to do it and there has to be no economic risk. Hence our caution in relation to the issue.

Mr DALEY: Who is doing most of the research in Australia on this, particularly west of the divide?

Mr EYRE: CSIRO. Probably a good person to speak to would be Dr Geoff Baldock in CSIRO. He has a very good understanding of carbon fluxes in soil, the particle size and the profile, all those physical issues which determine how carbon will behave in different landscapes and different climatic conditions. It is very variable across Australia. Some of our native soils were around about six per cent. They are around about half a per cent now. They could be brought back to six per cent. Some of them were a bit richer than that. Geoff can provide you with all the detail, but, essentially, if you increase soil carbon you increase the natural water holding capacity of soil. So it is the chicken and egg thing in regard to water. If you increase its inherent fertility because you are increasing the surface area of the particles within the soil so there is more habitat for microbial activity and so on. There are many benefits from doing it.

There is Geoff Baldock in the CSIRO. Michael Robinson, Land & Water Australia, is also doing some useful work. DPI in New South Wales is also doing some useful work on that but within a bit of a bubble. We are not quite clear on how that is connecting to the federal effort. There is a massive amount of work being done in America. There is work being done in Africa. There is extensive literature globally going back 20 years on this issue. An important aspect of this is measurement in monitoring, if I could come back to that.

One of the hesitations in Canberra on this issue is that: Okay, we can increase soil carbon but how do we measure and monitor that long-term - first point; and, secondly, how do we guarantee its permanence under Kyoto. For an offset to be credited it has to be permanent and with standing vegetation that is 100 years. That is clearly not practical with the soil carbon cycle, which is why I mentioned the net farm carbon account before. You need a balance sheet approach, so if you lose some carbon you put some carbon back in, across the whole farming system but you have to have a

model that allows you to measure and monitor that in a robust way.

If you want to know more about that, talk to Dr Garry Richards in the Department of Climate Change. He is the fellow who is responsible for Australia's terrestrial carbon accounting system in the former AGO and he knows a great deal about it. He has not been instructed to implement this kind of a model for farm systems yet but in his view it could be done. It all comes down to the policy framework and the rules. We will not do it if we are exposed to risk. So you have to change that 3.4 rule to separate between human losses and climatic losses.

Mr OAKESHOTT: Am I right in saying that is a life cycle effect?

Mr EYRE: Exactly right.

Mr OAKESHOTT: It is pretty enlightening to hear NSW farmers talking life cycle. It is really good. How is the membership taking that position? It is unusual territory for you as a lobby to be going in that direction, is it not?

Mr LAURIE: Our membership is the same as the general community when it comes to this issue. There are varying views on it. What we do know is it does not matter what anybody thinks about climate change or whether you agree or disagree with it. We do know that it is an issue that is in the political system at the moment. We know the majority of voters out there probably believe in it. Therefore, there will be decisions made in relation to climate change issues, whether that be a carbon trading scheme or whatever it is. The fact is that you either disbelieve it and will not accept anything, or all the meetings I go to, I just explain it to them just as I have explained to you, it does not matter whether you believe it, the fact is it is a political issue and if it is a political issue decisions will be made and if we are not involved we will end up having something brought down on us. It is as simple as that. They have either got to accept that or stick their head in the sand and we are in all sorts of trouble.

The association I think is representing an industry that is well known as being a pretty conservative sort of an industry but we also understand, having seen some other decisions that have been made in relation to native vegetation issues, the impact it can have on the industry. So as far as I am concerned it is very important that we try and get on the front foot with this and not the back foot.

Mr OAKESHOTT: So there basically would be that wrestle going on internally if this is the direction. You are basically saying: Take control of what in the past have been externalities on farming practices. Am I right in saying that?

Mr LAURIE: What we are saying is that people need to understand and have the opportunity to do things, and understand that if there is a carbon trading market and there is a system that is going to be able to measure and make them put in a quarterly statement on what their net carbon sequestration or output is, then they need to be very well aware of what they can do to try and minimise that cost.

Mr OAKESHOTT: You touched on some of the international agreements as well, and you may have already mentioned this before I was here, but as far as some of those cut-offs staying on plantations, as far as the 1990s to date, where if it is cleared land after that you get incentives for reafforestation, have you got a view as far as whether that can be improved either at a State level, a national level, or an international level as far as trying to provide an economic benefit in farming practices in not only plantation farming but also having an economic benefit in protecting trees that are already on the farm, which is the missing link in all of this in my view?

Mr LAURIE: We definitely have a view on it. One of the problems with the timeframes we have got at the moment is that the early innovators of changing farming techniques for instance we get virtually no benefit out of measuring carbon at whatever the date will be because they have already increased the carbon anyway. It is the same as timber that is on the place at the moment and some of the country in the western division that has been caught up in the native vegetation regulations and cannot develop that country also cannot get any benefit out of it because it is pre the

date and they are not making any changes to increase the carbon from that date. So most definitely they need to go back historically and have a look and see the changes that have been made and see why those changes have been made to see whether there is potentially an opportunity. The blokes in the western region who have been tied up in the native veg regulations, for instance, if it was being measured and could be accounted for could quite easily go out there and have a carbon credit they could sell, where in actual fact at the moment with the timeframes they are talking about they have got nothing.

Mr OAKESHOTT: Which does not help anyone?

Mr LAURIE: No.

Mr EYRE: To make two more points, back to the life cycle assessment, Jock pointed out farmers are conservative but they are also very innovative and Australian agriculture has a real history of adopting new technologies. One example of that would be precision agriculture. A great many of Australia's farmers run their farms to detailed GPS maps. Their tractors are computer guided and using GPS systems. They apply their fertilizer and their other farm inputs in a very controlled way. It is an information intensive approach to farming. Farmers like that could adopt quite realistically a farm carbon accounting technology. So you have got the full spectrum of farmers. You have got people who are very switched on, willing to embrace new techniques providing there is an economic incentive and others who need a lot more support in being brought along. So life cycle assessment is more or less what farmers do anyway. It is just depends on what you call it.

Back to your point about the role of plantations and incentives for plantations in trees and landscapes in general, what is important from a farming point of view is it is a landscape approach, that the appropriate biology goes into the landscape. Some land is good for trees. Other land was naturally under grasses. Different bits of the landscape have different degrees of resilience. Some parts of the landscape clearly we need for agriculture production. It is robust land, it has good soil, good water and it needs agriculture. Other parts of the landscape we can certainly allocate to vegetation biodiversity conservation. We can have a biodiversity conservation across the whole of the farming landscapes, including the cropping areas, providing that you have a partnership approach with the actual landholders.

Climate change is one frame of reference for all of this but what we need is an integrated approach to natural resource and environmental management which allows you to build these quite complicated models of our landscape. When we really think about what our community wants, it is an output from this landscape. We need agriculture, we need biodiversity conservation, we need high quality water, we need carbon sequestration, et cetera, and in my view, and I believe the association's view, our current regulatory framework and policy framework is not delivering that. It is very top down and it is not connecting the dots between these issues.

Mr LAURIE: That is the problem we have in relation to the native vegetation regulations. One of the reasons we had to change the Walgett landscape plan was that those fellows could deliver the environmental outcome that was required through the regulations, but they could not deliver it under the strict regime of the regulations.

The changes were made to the landscape plan so they could go and have a look at ten or twelve properties altogether and say, this is what we have got to deliver and work together to be able to deliver that, but to allow the flexibility because of the country, the terrain, the soil types, all those different things, now what David is saying here is the same thing, that when we get into any of these sequestration things, planting trees in an inappropriate area has never been good at all. Planting trees in an appropriate area is going to be good, providing it does not take up all the run off of the water, we get a good flow of water back down to the creeks to be able to deliver that balanced environmental outcome.

Mr EYRE: Walgett is a great example. Those farmers want to put back the Mitchell grasses. This is denuded land where you have got an invasive amount of species which have basically stripped all the groundcover and you have just got these wooden shrubs, and that is the climate

change problem, because you are losing carbon from the soil every day of the week, no matter what the current climatic conditions are.

What they want to do is get rid of those invasive species and re-establish native grasses, Mitchell grass is the beautiful famous grass in most areas and crop other parts of it. Then you would have a balanced outcome which works for farmers and works for the environment and they could potentially gain a carbon credit for re-establishing those Mitchell grasses and various other soil carbon credits.

CHAIR: Is that a project that is happening or is it under discussion?

Mr LAURIE: A change in the legislation has just gone through only recently. That basically changed the native vegetation regulations that are not working out in that area, so they had to go to the landscape approach to still deliver the environmental outcome that is wanted but allow those landholders to put together something that was going to deliver it in a different way than what the legislation was saying.

Mr EYRE: Using trade offs and those things basically but at a landscape scale rather than just at the individual property scale. The bigger the quantum of land you are putting into that mix, the easier it is to optimise the outcomes in a balanced way. Our problem with native vegetation legislation is it is restricted to individual properties and it is not usually possible for a farmer to find a useful offset within the boundaries of their own properties.

Mr MARTIN: Greening Australia in their submission basically back up what you are saying.

Mr EYRE: A partnership model, that is what we need ultimately.

CHAIR: Your constituent base is linking into the CMAs?

Mr LAURIE: We do a fair bit of work with the CMAs. The CMAs have been delivering some pretty good projects but we also understand that from now on there will be more project specific money going back to the CMAs to deliver outcomes that will be required by the Federal Government. We just need to see how that funding model goes and what will be required there.

Definitely the links that we are having with the CMAs, we are doing a lot of work with the CMAs. The CMAs are trying to deliver on the legislation being put together by the Government. They understand a lot of the issues and concerns that we raise here and I know that the Namoi CMA are working very closely with Walgett at the moment to go out and try and deliver on the legislations there. The CMAs are doing some good work.

Mr OAKESHOTT: On the same theme, the Auditor-General had a look at Forestry New South Wales and has been critical of the economic returns coming from the agreements that they have reached, particularly the wood supply agreements, the long term ones, and the lack of hardwood plantations that is coming as a consequence of native hardwood basically being locked up because of these long term agreements.

Have you got any of your membership who are saying to you: We're not going to go near hardwood plantations because there's not a buck in it, and that would confirm what the Auditor-General is saying. You see, I guess, the inequities in the system, when we are trying to look at this global climate change issue, but in the end if the practical reality is policies in New South Wales are acting as inhibitors rather than putting an incentive on the farmers, then we have got a real problem.

Mr LAURIE: A lot of the timber work that is going on at the moment is going on with the big companies that are operating throughout the Federal system and taking advantage of some incentives that are there. There is not a lot of private forestry being done, a little bit being done here or there. There has been a lot of tree lines planted in many parts of the State but not necessarily for harvesting. In Victoria there is a bit of that that has been done, there is some Blue Gum, they do some

timber work down through there where they go through and harvest.

I think in New South Wales, without any doubt, there is not confidence in the timber industry, no. 1, that they can go in and then turn around in fifteen years and harvest it, because they are concerned about the change in regulations could stop that from happening, with all the talk that is going on, and therefore they may have locked up some company and planted it, could have a change in legislation which means that they cannot harvest any of their timbers. So that is definitely an issue.

The other issue is, of course, the industry needs to be able to generate an income out of these things and the reason we run livestock and put crops on different things is to generate an income. If timber gets to the stage where you can generate an income from it through some process, then obviously people in the industry would look at it, they are more than prepared.

Mr OAKESHOTT: Attached to that, is anyone saying to you that Government and through Forestry New South Wales is over-estimating supply available in its own forests and then under-valuing what it has actually got as a consequence, and so therefore if we were using a pure market driven exercise, there is just no point. How do you compete with something that has been under-valued in Government's eyes?

Mr LAURIE: I think it is a difficult issue. Our fellows do not have any confidence at the moment that they can go in and do it and know they are going to get value out of it at the end. First of all, that they are going to be able to harvest and they are going to be able to get value out of it at the end, as I say.

I think from some of the things I have heard, there is not sustainable timber development out there at the moment, and if that is the case, then there will need to be a change if we are going to go down that path, and if there is going to be a change then there needs to be, not incentives put in place, but it would be the same as anything else, if it is farming timber, it is the same as farming a crop, whatever it is, but at the moment people cannot go far in timber because they just cannot make a living out of it.

If the Government genuinely want to get an outcome out of the timber industry, then they need to make sure that people can actually make money out of it to get there, otherwise it is going to be very difficult to get it up and going.

Mr EYRE: There is an element in this which is private native forestry referred to. I think if you go back to the CRA process and your creation of new parks and the like, State Forests was really in a difficult position. They knew they would not have enough timber to meet their contracts, so they had to go looking for solutions and one of those solutions was the commitment to plantations. In my view that was never realistic, it was a matter of making the right noises.

In reality, State Forests has substituted a lot of its supply to private land. They have been taking timber to meet their quotas from farmers, farmers who still have native vegetation on their property.

So there is a substantial private native forestry industry in New South Wales which has been severely constrained last year with the passage of private native forestry aspects of the native vegetation legislation.

If you really want to see biological sustainable timber production in New South Wales, you need to look at it in an integrated way and you need to combine the Crown estate with the private estate. In order to deliver that you have to have legislation which actually allows farmers to productively use the timber on their land, harvest it selectively and in a way which does not have a negative climate change impact, which means taking out no more than will give you a net carbon balance or possibly even a positive carbon balance, which means including the soil underneath the trees.

So it is connecting the dots again. We have got to actually exercise some imagination and

also some energy in analysing all the different components to get the right outcome. There is going to be legislation developed, private native forestry in New South Wales, the Government has made a commitment to that and I think it is important that that legislation is not just captured by those who want to turn timber on private land into more national parks.

It has to be managed as a productive resource and that is what the legislation needs to do with it.

Mr MARTIN: Jock, you mentioned earlier on rotational grazing. I presume that is the same as cell grazing the current term. I imagine for a farmer to go down that track there is going to have to be a fairly significant investment in extra fencing and getting water to these compartments. Do you see that there needs to be incentives for graziers to go that way?

Mr LAURIE: In this whole debate we have got to work out what the outcome is. If the outcome is to just charge people for their emissions, then that is one thing. If the outcome is to reduce emissions in general, then we need to seriously sit down and have a look at the industries where there are issues and find ways to reduce it, whether that be in the coal industry or the energy industry or any of these industries.

One of the concerns that the industry has got at the moment is sitting down and we have got all this talk about climate change but we are not seeing any curtailing of some of the other big emitters, like the coal sector for instance, it is still developing and developing very clearly. So people are sort of questioning just how committed everybody is to this cause.

Now that being the case, when we are asking people to make changes, first of all if you can show that you can increase the carbon from A to B by changing grazing management or doing whatever, and then they sit down and they say, well what's the point, in the end it really doesn't make any difference, but if you are going to pay tax on it or you are going to get a reduction because you can increase the carbon, you are going to get a reduction in your net or your net figure may be different to what it was before, there could be a commercial value in doing it.

Does there need to be incentives, I think obviously the Government has got to look very seriously and be truly committed to reducing emissions right across this whole scheme and they need to have a look at the incentives into all of those industries that need to make changes, and there is going to be a lot of cost.

There has been a lot of money put into the energy industry, \$500 million into research and development in the energy industry I think it was. When you go back into research and development in the agriculture industry there is not a lot of money put in there, there has been a bit done here and there but there needs to be a true commitment and being clear about what changes you can make to practices in order to increase that carbon, not only in soils but in anything else.

The BCRC are doing work at the moment having a look at measuring methane emissions and looking at what different diets produce, whether it be pasture or grain, but the different grain mix, say dairy cattle are on less methane than the beef cattle on a feed ration for instance. They have been looking at vaccines, they have been doing a lot of work on conversion rates, because if you change your conversion rate from 8:1 to 6:1, all of sudden you need 20 per cent less energy to feed that animal.

So there is a lot of work going on to overcome some of those issues. In the end, that is all good feel good stuff and you get some changes, but we need to make sure that our industry benefits from those changes and can move forward.

(The witnesses withdrew)

(Luncheon adjournment)

AUSTIN WHITEHEAD, Director of Water and Resources Policy, New South Wales Department of Primary Industries, 201 Elizabeth Street, Sydney, sworn and examined:

RICK FOWLER, Policy Manager, New South Wales Department of Primary Industries, Sydney, 201 Elizabeth Street, Sydney, affirmed and examined:

CHAIR: I am advised that you have been issued with a copy of the Committee's terms of reference and also the Legislative Assembly standing orders 291, 292 and 293 that relate to the examination of witnesses. Is that correct?

Mr WHITEHEAD: That is correct.

CHAIR: The Committee has received your submission from your organisation and a letter from your Minister. Is it the desire that the submission is to form part of the formal evidence?

Mr WHITEHEAD: Yes, just a point of clarification there, the terms of the letter that was provided by the Minister was separate to the whole of Government submission which addressed the majority.

CHAIR: If you should consider at any stage during the evidence that certain evidence or documents you may wish to present should be heard or seen in private by the Committee, the Committee will consider your request. However, the Committee itself may subsequently publish that evidence if they decide to

Would you like to make an opening statement?

Mr WHITEHEAD: I would like to thank the Committee today for the invitation to represent the Department of Primary Industries in this forum and to make a couple of comments primarily relating to the fact that Primary Industries see themselves as part of a solution to the issue of climate change. While the industries that we represent are major contributors to greenhouse gas emissions, there is also great capacity within those sectors to address through mitigation the impact that Australia is having on rising CO₂ levels.

It is vitally important that consideration is given to understanding the impacts an emission trading system will have on primary industries and the community's dependence on them before finalising any national Emissions Trading Scheme.

New South Wales Department of Primary Industries is focussing through its research capacity and economics and science, experience and participation in Emissions Trading Schemes for the New South Wales Greenhouse Gas Abatement Scheme, through our extensive education and training and extension officers and through our policy component within the broader Department.

The Department of Primary represents some major emitters, as I indicated earlier and items in evidence. The first indicates a profile of the New South Wales emissions and the second slide actually relates to the percentage of sectors covered by the Department of Primary Industries.

Out of all of New South Wales emissions we represent 64% of the State's emissions, if you were to include carbon based, coal based emissions through energy productions.

At present we need to be aware that there are a large volume of questions that remain unanswered which will impact on how we anticipate in an Emissions Trading Scheme and what impacts that Emissions Trading Scheme will have on our sectors and particularly on our communities.

A lot of that is due to the difficulty in monitoring and reporting on emissions. The NSW Department of Primary Industries has undertaken significant research in addressing those monitoring and reporting requirements.

The Department of Primary Industries is really quite keen to be part of the solution in terms of addressing climate change and working with our stakeholders and are very interested in participating in all the forums and we are currently doing that.

CHAIR: Leading on from a previous witness from the Department of Environmental Climate Change, I note that in the information that was just tabled the livestock was 76 per cent, which was mainly methane within the agricultural sector and the agricultural sector is about 16 per cent of Department of Primary Industry service industry.

What is your current research or how are you looking at livestock in relation to emissions trading?

Mr WHITEHEAD: There is currently research being undertaken in ruminants and what biological impacts we can have through provision of additives to diet and that is primarily the major research in terms of livestock that is being undertaken.

CHAIR: Different types of grain, different types of feed.

Mr WHITEHEAD: Different types of grain, are there any additives that can address the level of bacterial interaction within the animals' guts.

Mr FOWLER: There is some preliminary work on the actual bug or bacteria, but that is at a very early stage.

CHAIR: This morning it was raised that New Zealand are not looking at the emissions trading itself, but looking at whether it is upstream or downstream. The person gave the example of the petroleum industry was upstream and livestock would be at the end stream, at the abattoir. What is New South Wales doing in regard to this component of agriculture?

Mr WHITEHEAD: It is a very difficult question. The point of obligation is one of the key issues that are currently being reviewed through economic analysis, as to what price signals are being sent through transference of the point of obligation to an abattoir or to a grain storage or a silo.

The concern is that if you transfer that cost to, say, an abattoir, there is no price mechanism or there is no incentive for the farmers to implement change on their property per se and the difficulty in making the farmer responsible for accounting for the emissions and sequestration is that we do not have a lot of base line data under which we have assessed the level of carbon that is being emitted through processes.

We are doing a lot of work in trying to understand soil systems, the impact different farming mechanisms are having on that emission profile and we are looking at using best management practices to determine base line approaches to storage of carbon.

The point of obligation one step removed from the farming sector will be easier for the farming community, would minimise transaction costs for the farmer, but that would not translate into changed management necessarily on the farm scale.

Mr FOWLER: Could I add that our current scientific expert in this field has currently been seconded for a short term to New Zealand. He is a world leader in the research for ruminants

CHAIR: What is his name?

Mr FOWLER: Roger Hegarty. He is renowned as a world expert in this, but we see it as a valuable secondment because New Zealand is a little bit of us and the information he will bring back will be invaluable for us, so it is actually a good mix.

It is important to understand that the economic analysis that has to go into this and the scientific underpinning of it. To just use a quick analogy, the difficulty of turning up to the abattoir

and saying, my cows don't emit as much as what you're saying they are. Where is the level of proof from both sides?

Modelling will have to be done and averaging, all that has to be settled.

CHAIR: It should be noted that within the deliberations of the New South Wales Farmers', they have concerns as well in relation to that, and rightly so. They were making out there needs to be more investigation within the actual economic accountability.

Mr MARTIN: In relation to research, have you got the resources in house or is it collaborative or do you go out to external people? Given that the clock is pretty well ticking on this and we are told by the Federal Government January/February 2009, is there a bit of a problem, given that there seems to be so much research or so many issues not addressed by information to date? How are you doing the research and what about the timeframes?

Mr FOWLER: Research is collaborative and has been going on for some significant time. Some of the results coming out of that collaborative work are a bi-product of what the original research was looking at, which was looking at feed for beef to produce a higher level of muscle content per kilo of input.

The collaborative work, I should answer that straight up, there are several projects between New South Wales, Victoria and New Zealand and there is some international collaborative work going on as well.

There is an enormous difference of the methane emissions from different varieties of cattle. If I could just digress for a second. One of the issues that faces Australia in its research is that northern hemisphere research and bringing that to here causes us some difficulties. Not only are the climatic conditions different but their forms of production are different, their breeds are different, so we have to take on board what we can from the northern hemisphere, but quite often go out and do it ourselves.

So there is a lot of international collaboration on this, because it is recognised that most countries in the world, cattles are high emitters and the current research is not showing that there is a silver bullet down the track that emission levels will drop down to near zero. There will be significant falls in methane emission levels over time but they are currently showing there will still be a high level of emission.

Mr WHITEHEAD: I might just add, on the Federal Government action that is currently taking place, I suppose everyone is aware and it is one of the reasons the Committee has been formed, that the policy debate is moving at a very rapid rate.

One of the concerns between such a rapidly evolving policy debate is the lag between policy and Government priority now and the research, and then making sure that research has the time to be able to be conducted and then reported on.

If we are looking at having any scientific credibility in a lot of the research that we are doing, then we need to have capacity to feed that research into an Emissions Trading Scheme.

I think that is what Professor Garnaut has been alluding to in terms of coverage of agriculture and forestry within an Emissions Trading Scheme, saying that there is a lot of work that still remains to be completed, mainly about transaction costs and monitoring and reporting, and how are we going to develop mechanisms to incorporate that into an ETS and they are then saying 2013 might be the appropriate time for agriculture to become part of that.

To answer the question, there is some capacity but it is how we deal with that interim period between having full coverage and non-coverage within an ETS.

Mr MARTIN: Could you just flesh out a little bit more what you mean by transaction costs

and some examples in the agricultural industry?

Mr WHITEHEAD: Within an Emissions Trading Scheme it forms a market. So in terms of a market place, you need to collect data, you need to measure data, so you need someone to develop the models, apply the models on a farm basis and then there are brokerage fees.

Mr FOWLER: Years of experience in forestry, there is now a simple model of putting a tape measure around a tree, feed that into a formula and you can come out with a reasonable estimate of the amount of sequestration that has occurred in that tree.

We need some type of simple model to occur, some simple measurement of soil sequestration, for example.

Mr WHITEHEAD: You can use best management principles. There is research being undertaken that under a certain management regime, how did that impact on different soils. So we are looking at having some indicators of soil carbon storage in terms of agriculture as well.

Mr OAKESHOTT: The Auditor-General in December had a good look at Forests NSW and made some interesting comments in his report along the lines of the difficulty with economically measuring biodiversity outcomes. Did you see the Auditor-General's report from December, the last one?

Mr WHITEHEAD: Not with any firm recollection unfortunately.

Mr OAKESHOTT: Auditor-General said the commercial outcomes are questionable in some of the current forestry practices and I gather - tell me if I am wrong - Forests NSW is having an internal review of--

Mr WHITEHEAD: I think there are two separate issues there. One is the Auditor-General reviewing practices that are occurring under the integrated forestry operations approvals and looking at the outcomes that are being delivered through that process versus how Forests NSW is dealing with carbon sequestration under the New South Wales greenhouse gas abatement scheme. In terms of using carbon as a surrogate for biodiversity I do not think that that is necessarily going to be achievable but I know that currently there is a review of the regional forest agreements and the integrated forestry operations approvals that is looking at addressing biodiversity, the key factors that are covered under native forest management.

Mr OAKESHOTT: And is the question of climate change in there as well, in the RFAs?

Mr WHITEHEAD: To my knowledge I do not think climate change was a significant issue that was addressed under the regional forests agreement process.

Mr OAKESHOTT: In the Auditor-General's last couple of reports, he seems to be indicating that in some of these long-term wood supply agreements there are questions about over-estimations and under valuing the product, particularly in regard to native hardwood timbers and the impacts that has on plantation hardwood forestry. He raised some of those questions. We had representatives of New South Wales Farmers' Association here before, who concurred that basically there is not a buck in it for them to do plantation forestry to the degree that I think we would all like them to be involved. I am just questioning if Forestry NSW is onto that. I gather they did make some money from some carbon activity last year or the year before without pushing too hard, and so I am just wanting to get your views and it is probably your comment about what you were saying about Garnaut, the difference between the theory, is it keeping pace with the practices of today and how hard is it to get Forestry NSW to recognise its role where it could be a lead agency in New South Wales potentially if it wanted to be, when traditionally it has been more about use of timber for other reasons in the past.

Mr WHITEHEAD: It is probably outside the scope of the capacity I have to answer today but I could comment in terms of Forests NSW would see themselves as a world leader in terms of

carbon sequestration through forestry, in terms of the first ever forest sequestration contributing towards a market for carbon. So they have got the runs on the board in terms of development of the rules and accounting systems that are involved in making a carbon trading market work, especially as it relates to forestry, and secondly, in terms of the issue with forest management in terms of long-term sustained yields is that they are working according to their long-term wood supply agreements that were negotiated at the time by the Government based on the models that they have put in place and that there will be a continual review process of those.

In terms of meeting the objectives of the integrated forestry operations approvals, the issue about biodiversity and biodiversity management and leadership is that there has not been a market place necessarily established that equates biodiversity management and carbon management or financial management from the products that are being outlaid, and in terms of long-term forecast for wood requirements, there is definitely a need to increase the area to meet Australia's domestic need for timber and there have been recent announcements about addressing illegal harvesting of timber overseas and the Rudd Government has committed to investing in Papua New Guinea for avoided deforestation and those types of issues, but there has not been a direct correlation, and that is something that is an evolving market.

Mr OAKESHOTT: I guess the question is in two parts. If you look at it as an economic exercise and if you look at it as an environmental exercise, the question for you is are we getting the best value in New South Wales (a) economically and then (b) environmentally for what is essentially the public asset of the public trees?

Mr WHITEHEAD: With the way that forestry has developed, you have got the planted forest group, which has been traditionally involved in the carbon market, and then under the rules for Kyoto, native forests have not been captured by the Kyoto protocol, it has been excluded. So there is no direct linkage between biodiversity and carbon. But to answer the other question, they recently had Australian forestry standard certifications, so the native forest management meets the Australian forestry standard, which means that it is certified internationally as a sustainably managed native forest. We can probably provide you with some additional information on that.

Mr OAKESHOTT: Yes. I was more asking your opinion whether you can give it or not, but do you think we are getting the best bang for our buck for our trees, economically and environmentally?

Mr WHITEHEAD: I do not I can give that opinion.

Mr MARTIN: Just as a follow on to that, probably what Mr Oakeshott might be getting to also is the way that the forestry are operating in the market, is it a disincentive to the private sector to get involved?

Mr WHITEHEAD: I would not say that the way that NSW Forestry is behaving is a disincentive specifically to private sector being involved in the market. In participation in the carbon market the issue is about having the accounting systems in place and the reporting and the expertise to be able to measure and monitor the level of carbon within a forest, and that currently is only valid because Forests have over 200,000 hectares of planted forests so they can average out the carbon over a larger area, whereas smaller operators have to act independently if they want to have certification, and under the existing rules in the NSW greenhouse gas abatement system they can only get credit for the amount of carbon that exists in their forests, the minimum amount of carbon stored at any one time over the life of the forest.

[Graphs tabled]

In terms of carbon, one of the things that would address private growers' capacity to work within a carbon market for Forests is to have a pool manager, a CMA or some other organisation, or Greening Australia, that can group in large - conglomerate other areas of trees and bring it under the one mechanism so they can average out the costs, because under a typical forestry harvesting arrangement you will see that the trees grow slowly to begin with, then rapid growth, they are then

thinned, they are then thinned again and then they are harvested and the carbon volume is then reduced. So under the current rules it is a 100 year period, and so the minimum amount of carbon stored over that 100 year period is zero, so that is what an individual carbon grower can actually account for. Whereas Forests NSW has a much greater area of forest under different age profiles and so the minimum amount of carbon that Forests has on their books at any one time is that level there, which is significantly higher throughout the harvesting profile.

In terms of just general participation in the market place for private growers, the economies of scale that exist from actually having Forests NSW present in any one market place has enabled the private growers to participate more effectively in some those of areas. They are actually able to make use of the road systems, the investment that has already been put in on processing facilities, but there is always going to be some questions about that level of interaction between a major grower and small isolated forest owners.

Mr OAKESHOTT: Are you able to give any comment as to whether there is an opinion within DPI, and particularly Forests NSW, on that global question of Kyoto and are we not addressing existing trees post 1990? I just find that whole exercise, where we had this 1990 cut-off date and anything planted after then is in the game, anything before that is out. For New South Wales the potential opportunity would be exactly what you are saying in the existing holdings of Forest NSW, but in the global scheme a lot of it is not recognised.

Mr WHITEHEAD: There is a lot of interaction between what Australia may do under an emissions trading scheme and then how it may link into other international trading schemes. Currently the European model does not allow for forests sequestration to be provided by forestry.

Mr OAKESHOTT: Why not?

Mr WHITEHEAD: It is more speculation, but there is such a great extent of forests across the European Union and it is about the rules and regulations and the management of those forests as well under any given time. They are quite remote and so the level of security provided to investment in carbon, there is not a strict regulatory program in place in all of those forests. I think it could be associated with a low level of trust as to how they may participate in the market place.

It is an issue that is under investigation and in terms of Australia's participation in an emissions trading scheme, it would be quite difficult for Australia to move in isolation of what the rest of the world is doing, because it then questions the validity of the offset that we allow within our market place against that which is provided in other markets.

Mr MARTIN: In terms of the sequestration of carbon, would it be true to say that soil realises the most potential just on a scale basis, given that the problem at the moment is that there are some question marks over measuring and monitoring that, but is there any collective wisdom on that down the track that soil might be a better way to go?

Mr FOWLER: We have several significant research projects going on at the moment about that, looking at soil and the level of how much the soil can sequester, how it holds onto that, what is a better cropping regime to use for sequestering it, what is the saturation point which - me being far from a scientist - is a lot less than 100 per cent saturation point.

There is some concern about measuring and monitoring, but keeping it there as well. As soon as you disturb it in the slightest way, carbon is released. We are examining what is happening with the Chicago carbon market in the United States and how their averaging system would work here. Again, one of the issues the scientists keep raising is the variation in sequestration rates from one side of the valley to the other, which again causes problems with developing some model. Some model has to be worked out. You cannot go around measuring every paddock because that is a transaction cost which is just unrealistic, but the results are far from being conclusive yet. A couple of programs I am basically summarising now are half way through a three year research program.

Mr WHITEHEAD: To summarise that, an awful lot of work is being undertaken on the

capacity of soil to store carbon. We have done some research on additives, biochar, et cetera, into increasing the capacity of soil to store carbon.

The other thing that relates to those transaction costs as well is understanding how on a small scale an individual operator can participate in that market. There are lots of issues and it is a matter of us also focussing some of our efforts at a national scale as well on how we can minimise those transaction costs through use of brokerage or CMAs or the Natural Resources Commission - Garnaut has put it in terms of the carbon bank - to facilitate some of those options, but significant work is being undertaken by CSIRO on carbon and we are trying to bring all the States together so we have got a key understanding of who is doing what and where, and just because someone is doing it in Victoria or Perth or somewhere does not mean that it is going to be directly translatable because of the soil structure.

Mr FOWLER: And we are doing a lot of collaborative work with tertiary institutions in this State on that issue of additives. Biochar is looking promising.

Mr MARTIN: What is biochar?

Mr WHITEHEAD: We can undertake to provide some more information to you on biochar.

CHAIR: We might have that as a separate submission from you. So is DPI assisting or is it a collaborative research with CSIRO on biochar?

Mr FOWLER: We are collaborating with University of New England. CSIRO, I am not quite sure of their biochar level of research. They are doing a lot of soil research and we have got our own team of soil researchers working on several emissions.

Mr OAKESHOTT: Are you putting your hand up at all to be the carbon bank? Is DPI interested in being that lead agency?

Mr WHITEHEAD: I do not think that there is really a role for DPI as researcher and administrator. We are also a significant landowner in terms of forests. We need some level of independence in terms of that carbon bank. CMAs come to mind as an obvious organisation or the Natural Resources Commission.

Mr FOWLER: We are actually doing significant work with CMAs on carbon management, carbon pooling for sequestration, trying to get small growers involved into the market.

Mr WHITEHEAD: We are taking a lead in terms of assisting and facilitating that.

CHAIR: Where are you up to in that?

Mr FOWLER: Most of this work came out of the grants from the New South Wales greenhouse plan and the climate action grants coming out shortly after that. The majority of our work is three year work and they are one and a half to two years through that three years.

CHAIR: Was that across every CMA?

Mr FOWLER: No. I understand two CMAs were being piloted.

CHAIR: It was mentioned by the CMA witnesses this morning how they could see themselves as a landscape or like a catchment, that instead of going through boundaries, it would be a good fit, but also looking at the research that you are doing with sequestration, can you give me any examples of where it is occurring and the effects of climate change on the sequestration activities?

Mr FOWLER: Geo-sequestration, the burying of carbon dioxide underground?

CHAIR: Yes. I know that the DPI is a participant in CO2CIC project. Can you elaborate on that?

Mr FOWLER: Our research at the moment into that process is the geological survey looking for suitable storage facilities. A report came out late last year which noted 16 sites of interest within the State. Those sites are now being further assessed for viability for storage capacity, and obviously long-term storage capacity. That is pretty much our role to date within that. We do not provide scientific research into the capture methods. CSIRO are the ones leading the research into capture, with a pilot facility at a Munmorah site on the north coast. That is to commence I understand mid this year, mid 2008. CSIRO are looking at that side of it. We have limited research capacity in that field other than our geological surveying.

Mr MARTIN: Representatives of the NSW Farmers' Association have raised a number of issues, and presumably they talk to you people from time to time. They are concerned about the permanency rules around requiring forest planting for carbon offsets to be retained for several decades, which they see as a conflict with farmers having flexible land use patterns. Do you have any comment on that and does your department have any issues relating to those sort of plantations and are they treated differently to other forests?

Mr FOWLER: The GGAS requirement is for permanence for 100 years. That carbon has to be sequestered and stored for 100 years. That matches the theory that carbon dioxide released into the atmosphere is there for 100 years before it dissipates. That is where that 100 years comes in. The greenhouse friendly system at the Commonwealth level has a permanency requirement of 70 years, which they consider to be two rotations. That is the reasoning for those years. It is what Austin showed before with those graphs and it is extremely difficult for an individual to have that permanency level.

Mr OAKESHOTT: That is a policy question. There should be a way we can--

Mr WHITEHEAD: It is about building certainty into the product as well.

Mr OAKESHOTT: Which is a policy question rather than a--

Mr WHITEHEAD: I understand what you are trying to address. Part of the issue in allowing forestry to sequester carbon relates to what certainty you have in terms of being able to say that at any given time that product will still have that carbon stored. So they have sought to say if we need to guarantee and we are going to one day participate in an international scheme, we need to be able to send a signal that the carbon is committed into that product.

We have raised issues about making those products more user friendly, and there are a couple of options that have been raised in terms of averaging the carbon. If you just say that you were going to store 10 tonnes of carbon for 100 years and you get a unit of ten stored, it is equivalent if you were to store 10 tonnes of carbon for five years and get five. Basically it is the process of sequestering carbon and keeping carbon out of the atmosphere that is the real issue and we are looking at means of making it more user friendly.

Mr OAKESHOTT: With timbers in frames and trusses, there is carbon still in there in a practical sense. Why is it attached to a tree in the ground?

Mr WHITEHEAD: The current rules as well indicate that as soon as the tree is chopped down--

Mr OAKESHOTT: The permanency is gone.

Mr WHITEHEAD: DPI has some of the world leaders in terms of research into carbon storage in wood products.

Mr OAKESHOTT: Is there ever an example where the carbon comes back out in a wood

product? Once it is in, it is in, isn't it?

Mr WHITEHEAD: Yes.

Mr FOWLER: We are doing some major research into landfills, for example. Timber that has been buried for up to 49 years is the current level we are looking at and it is significantly remaining in there, but, again, that research is still at an early stage.

Mr OAKESHOTT: Is not the policy question: Why should it not be encouraged based on this permanency question when it is in there anyway? There is no doubt about it, if there is no example where in wood products the carbon can come back out.

Mr FOWLER: I suppose it is due diligence. It is a research project which is, again, two thirds through the project before they can definitively release their findings and that goes to peer review, the scientific process.

Mr OAKESHOTT: It goes back to your point about--

Mr FOWLER: The lag between science and policy. We thought we were a little bit ahead of the game, 18 months, two years ago. Garnaut and Minister Wong have just taken it from under us.

Mr WHITEHEAD: Part of the issue is that you have to be certain that the timber product that you have developed is going to be in existence in 40 or 50 years time.

Mr OAKESHOTT: So it is the question: Is the carbon going to stay in the wood? Is there an example where carbon can come back out of wood once it is in?

Mr WHITEHEAD: It can be burnt, it can rot, it can give off methane.

CHAIR: It can be eaten by termites.

Mr WHITEHEAD: We are looking at a conversion factor for how much wood is stored "permanently". It is the amount of actual timber that goes into products into usage and then how long you can be certain that that is going to last in there.

Mr OAKESHOTT: And that is the policy question. If we could nail that, then going on as far as the farmers are concerned.

Mr FOWLER: We believe it would assist in investment levels, yes. We are not there yet.

Mr OAKESHOTT: But not far away.

Mr WHITEHEAD: It depends on which goal post.

Mr MARTIN: In relation to the Garnaut process, what is your input into that process? Is it a consultation process or a submission process or does it exist?

Mr WHITEHEAD: There are a couple of different levels. The Federal Government has indicated that while Garnaut will be a core plank to the development of a national emissions trading scheme, it will be considered just as one of those levels of consultation. The other consultation process that will occur is through Council of Australian Governments (COAG) and New South Wales is represented on the council and represented by Department of Environment and Climate Change and Department of Premier and Cabinet. So we do have input into the Garnaut submissions and through COAG. The third rung of the consultation Federal Government has indicated is that they will go to specific stakeholders and industry groups.

Mr FOWLER: And the Prime Minister's Ministerial Council has a significant role to play within this as well. Minister Macdonald represents this State on that council. There have also been

several meetings of New South Wales agencies and Garnaut, face-to-face meetings and meetings with the secretariat. I and the team I work with have put a significant amount of resources into these submissions going in, along with this inquiry itself, in the last six months which feeds into a whole of government process.

CHAIR: Just a question leading onto a Western Sydney flavour, because the Chair is the member for a Western Sydney seat. The submission from the Western Sydney Regional Organisation of Councils (WSROC) to this inquiry discussed the proposed State Government's rural lands review and they recommended that agricultural land in the Sydney basin be retained. This is the WSROC submission. Are you aware of any progress of this review, the rural lands review, and which department would be responsible for conducting this and when should the review occur?

Mr MARTIN: If they cannot answer that question, I can.

Mr WHITEHEAD: I would be quite happy for Mr Martin to answer the question.

Mr MARTIN: I have just had a briefing from the Department of Planning. The review was done through the central west based out on some stuff out of Bathurst Council. The Minister will be releasing details of that on 17 April and the questions will be answered then.

CHAIR: Was WSROC part of that review though?

Mr MARTIN: No. They have decided that the recommendations from that review will not be pertinent to WSROC or in fact the metropolitan area. They are going to have a separate review of that.

CHAIR: Thank you very much for your submissions and noting that we have another inquiry into emissions trading. Our terms of reference went out first and then we have narrowed it down to a second inquiry. No doubt we will be in further communication with your department.

Mr WHITEHEAD: I would just like to add that DPI with the Department of Environment and Climate Change will be making a formal presentation on the submission and there are a number of issues that will be of direct relevance that have not been addressed today but which will be of interest.

(The witnesses withdrew)

SUE-ERN TAN, Director Policy and Strategy, New South Wales Minerals Council, level 12, 52 Goulburn Street, Sydney, affirmed and examined:

CHAIR: I am advised that you have been issued with a copy of the Committee's terms of reference and also a copy of the Legislative Assembly standing orders 291, 292 and 293 that relate to the examination of witnesses. Is that correct?

Ms TAN: The Committee has received a submission from your organisation. Is it your desire that that submission form part of the formal evidence?

Ms TAN: Yes please.

CHAIR: If you consider at any stage during your evidence that certain evidence or documents you may wish to present should be heard or seen in private by the Committee, the Committee will consider your request. However, the Committee itself may subsequently publish the evidence if they so desire.

Would you like to make an opening statement?

Ms TAN: In addition to the submission that we have already made I note that we will also be making a submission on the separate enquiry into the Emissions Trading Scheme. What I want to give a short statement on now is what the mining industry is doing in response to climate change, particularly on emission coal technologies.

Climate change obviously presents a real challenge that must be addressed at the State, national and international level.

The New South Wales Minerals Council strongly believes that Australia's response to the challenge of climate change requires a suite of policy measures.

In addition to an efficiently designed cap and trade emissions trading scheme, which is currently being developed by the Federal Government, the New South Wales Minerals Council believes that a range of complementary policies are required to ensure a smooth transition to achieving significant reductions in greenhouse gas emissions.

In particular, there must be investments and incentives for accelerated development, demonstration and deployment of low emission technologies in Australia.

Low emission coal technologies are a fundamental weapon in the arsenal to combat climate change. Everyone from Al Gore to the international panel on climate change, Sir Nicholas Stern, Professor Garnaut, international agency, agree that these technologies will allow us to meet ballooning global demand for energy and at the same time achieve deep cuts in emissions.

The three main reasons why we need to invest in technologies to reduce carbon emissions from coal are firstly, renewables at this stage cannot provide large scale base load power.

Secondly, there are a huge variety of manmade contributions to global warming and 75 per cent of these do not come from coal.

Thirdly, demand for energy world wide is set to double over the next twenty years according to the International Energy Agency and over this time the proportion of new renewable energy sources will increase, and that is a good thing, but the International Energy Agency predicts that fossil fuels will still account for 82 per cent of energy supply.

Further investment in low emission coal technologies is particularly crucial for New South Wales, given that the coal mining industry here is an \$8.5 billion industry. It directly employs 13,000 people, with employment of more than 55,000 in businesses supporting the coal mining industry. I

stress this is just the coal mining industry, not the entire mining industry.

The coal industry also contributes \$6.7 billion to the State's export incomes and in 2005/06 alone contributed \$447.5 million in royalties from the State Government to spend on important things like hospitals, schools, infrastructure.

The coal mining industry is the backbone of many New South Wales regional communities, particularly the Hunter and Illawarra.

The Australian coal industry has normally accepted the reality of global warming. It has also committed to funding solutions. The Australian coal industry is the only industry in the world which has established a voluntary \$1 billion fund, the Coal 21 Fund, specifically devoted to demonstrating low emission technologies.

The most significant of the low emission coal technologies is carbon capture and storage or CCS.

CCS involves trapping carbon dioxide emissions from industrial processes, mainly power generation from fossil fuels, and piping them deep underground or offshore below the seabed.

There are currently 13 major carbon capture and storage projects in Australia. I have a handout which will provide some more detail for the Committee members.

Tabled handout on carbon capture and storage projects.

In New South Wales the main project is a \$150 million carbon capture and storage project, funding for which is equally divided between the State Government, the Federal Government and the coal industry, with each contributing \$50 million.

When complete, the project will potentially be Australia's first combined carbon capture and storage technology to be retrofitted to an existing power plant, which is a very, very big achievement indeed.

Last week the most advanced carbon storage demonstration project in Australia commenced in the Otway Basin in Victoria. The CO₂CRC project officially began the process of injecting 100,000 tonnes of carbon dioxide into the deep sub-surface of depleted gas well.

The purpose of that demonstration is to monitor and test the technology in Australian conditions. Although I stress that the technology itself is not that new, what is new is testing the technology in Australian conditions.

For example, since 1996 at Sleipner in Norway over a million tonnes of carbon dioxide a year has been captured and stored 1,000 metres beneath the sea bed in the Utsira aquifer.

This formation is large enough, the scientists think, to store all of Europe's 600 billion tonnes of carbon dioxide emissions for the next 600 years.

Since 2000 when monitoring started, there has been zero leakage and the Norwegians are confident that they will remain in situ indefinitely just as natural gases and oils can remain safely underground for millions of years.

Australia is not alone in backing CCS. Only last month the Dutch Government announced it was redirecting funding away from nuclear energy and towards carbon catchment storage as part of its strategy to cut carbon emissions.

In summary, there is clearly no silver bullet solution to climate change. That is why we need to invest in a wide array of technologies, including renewables such as solar, wind and geothermal. However, given that coal will supply one fifth of the world's energy needs and in abundant supply

particularly in New South Wales and in Australia, its cleaner use is also central to climate change mitigation.

The New South Wales mining industry is committed to being part of that solution of reducing greenhouse gas emissions. The mining industry strongly believes that part of that solution is urgent investment to accelerate the commercial deployment of clean coal technologies. This will ensure continued economic activity without associated climate risks.

The New South Wales mining industry welcomes the introduction today of legislation establishing the State Government's \$100 million clean coal fund and the Clean Coal Council. This in addition to the industry's Coal 21 Fund is an important step to reconciling energy security with climate change management.

Mr MARTIN: If we just talk about the water issue, would that be seen as the biggest threat to the coal mining industry in particular?

Ms TAN: Water is obviously, other than the resource itself, the second most important input into mining operations, so it is obviously of crucial importance to us.

I think one of the key things that the mining industry would like to see the State Government do is take some leadership on this issue, particularly in looking at alternative water sources and alternative uses of water in the State.

For example, the use of effluent water. The mining industry is very good at recycling water in its operation as it is, and for example, the Bathurst Council has a very good arrangement with the gold mine out there in terms of recycling water.

Water is obviously of crucial importance and will be part of the adaptation policy that we will have to take as a State as the climate change effects start to take place.

Mr MARTIN: Currently we have the basis of water sharing plans, does the mining industry feel that they are not equitable, there tends to be more emphasis on perhaps the high security water, like domestic water and such?

Ms TAN: I am going to apologise because I am really not a technical expert in water, so I do not want to mislead the Committee.

What I would say is that obviously the mining industry acknowledges the need for domestic water use and accepts that it has to have a share in the overall allocation of water, which is why it is always looking for alternative sources of water other than just the water that is from the domestic water supply.

CHAIR: Obviously there have been some innovative examples within your industry and local communities. You mentioned one in Bathurst and I am aware that there is one at Appin as well.

Mr MARTIN: Actually, just for the record, I think it is Orange and Blayney. Bathurst Council actually said no.

Ms TAN: That is right, I apologise.

CHAIR: Are there any other examples that you know of, a collaborative approach, not just the potable water but using recycled water?

Ms TAN: I am not specifically aware of them but I think that is actually one of the concerns of the industry, that what happens is a lot of these negotiations have to happen on a mine by mine specific basis. What would be a good thing would be the State Government to show some initiative in this area and actually look at setting up water trading markets so that it can be done on a broader State wide basis rather than it being negotiated in an individual area.

Mr MARTIN: Water trading similar to what we have got with irrigation licences?

Ms TAN: Yes, there is a work on a national level obviously on this, but it would be nice for the State to step in.

CHAIR: You are not the person within the New South Wales Minerals Council who knows all about this.

Ms TAN: No I am not and I do not want to mislead the Committee.

CHAIR: However, could New South Wales seek something like the Otway geo-sequestration and can you comment on any sites in New South Wales that could be suitable for a sequestration project?

Ms TAN: There is obviously work being done at the moment, which I think the previous people from the Department gave some evidence on, in terms of looking for suitable storage sites, and I know there are some in the Darling Basin and they are investigating some in the Sydney Basin as well.

The problem was that historically there was always this view that New South Wales did not have suitable storage sites and that really changed in the last few years and a lot of that was from Minister Macdonald in particular who was pushing it very strongly to look for potential sites and the great thing is now they have actually done some preliminary work, they are discovering the potential for it, so we are very hopeful for that to happen.

Having said that, there are also obviously other options. I know the Federal Government and industry are particularly keen as well at looking at a national pipeline infrastructure, so that you would have carbon hubs where all the carbon that is captured from the power generation areas, like the Hunter and the Central Coast and the western coal fields in New South Wales, get transported to a central hub, where they then get piped off and stored somewhere, once we discover this geological site.

Ideally you would want to find a site in New South Wales because that would cut costs down, because transporting is obviously expensive, so if you can cut the costs down it would be a good thing. That work is definitely being done in New South Wales and hopefully we will get some positive results.

Mr MARTIN: As the New South Wales Greenhouse Gas Reduction or Abatement Scheme gets absorbed into this national Emission Trading Scheme, are there any implications for the resource industry in that?

Ms TAN: Absolutely. This is one of the big things that we are looking at right now and I know that the Department of Water and Energy minister has called for submissions on the consultation process for this, but the key thing is the use of coal methane capture project, particularly in the Illawarra. They were just not quite sure what is going to happen to those projects. Obviously they are currently reliant on getting large user abatement certificates for those projects to be financially viable, so in that transition process the mining industry is very concerned that they are given some kind of certainty to ensure that those projects will continue on.

Particularly the southern coal mines are very gaseous, our underground coal mines, so it is important that we continue to try and capture those future emissions. That is definitely something the industry is very concerned about and is working with Government to try and find a way of transition.

Mr MARTIN: The permits system that is going to evolve out of the Federal scheme, there has been some suggestion from your industry and perhaps the energy industry or coal generation, that there should be free permits. Do you have a view on that?

Ms TAN: The mining industry is arguing very strongly for mining to be included or considered as a trade exposed emission intensive industry on the basis that clearly the mining industry is a price taker on international markets. For example, in the thermal coal market, the main competitors are Indonesia, Columbia, Russia, China and South Africa where they will not be looking at emissions trading schemes in the foreseeable future, so clearly if you want to continue a viable industry, they will be looking for an allocation of permits to assist them in the transition process.

The problem is we do not have a global emissions trading scheme. Australia has clearly decided to step ahead of the global world on this and be a leader, which is a fantastic thing, and the mining industry welcomes that action, but that means that if you are going to be the first actor, you must protect those industries that are competing with the global market, otherwise, any reductions that we get in Australia will simply be dissipated by an increase in emissions elsewhere in the world as those industries move offshore.

Mr MARTIN: We hear a lot about clean coal and there is some legislation in our House in the last 24, 48 hours in relation to that, and you hear a lot of sceptics out there, wishful thinking, never going to happen. What is the integrity or credibility of it from the Minerals Council? I know their members are putting up some serious money for clean coal projects but what is the future of that as you see it?

Ms TAN: I think it is definitely viable. There is a lot of activity that is happening, as I mentioned, in Australia alone, the 13 separate projects looking to demonstrate and test the technologies.

In terms of the storage site, for example, those technologies existed in the oil and gas industry, that is what they have used, enhanced oil recovery; that is effectively what it is. That technology has been very much tested. A lot of the capture technology has been tested as well.

It is really a case of putting those cases together to make sure there is an entirely integrated system, that you get it from the minute it comes out of the power station, it is captured, compressed, transported and stored.

We are very hopeful and we are definitely committed to putting our funds across to it. We believe that there is a real future, and more importantly, given that coal is fundamentally going to be part of the energy mix into the future, we need to find a solution and the coal industry is committed to looking for that solution, as is the Government.

Mr MARTIN: We regularly hear twenty year periods talked about before the technology will be available. It seems to be that is not really going to be all that helpful in the immediate term, if it is going to be twenty years to get to that stage.

Ms TAN: The industry is looking to accelerate that timeframe, because we acknowledge that that needs to happen quicker rather than later, which is why we are committing funds to it and asking for the Government obviously as well to commit funds to try and accelerate the development of that technology.

I am not a scientist and I have heard that twenty year figure, but I have also heard people say that it can be done by 2017, which is just under ten years away. So, for example, if you look at the New South Wales carbon capture and soil project, the pilot plant will be operational by mid 2008. Then anticipate demonstration projects, so a much larger scale, by 2013. We are sort of getting a bit closer, I think, to it.

CHAIR: Given what has been called the policy enlightenment and you used your submission, then we have called for another submission, but in the interim, the national emissions scheme has been discussed by Professor Garnaut. Have you formed any views on the Garnaut report?

Ms TAN: Well will be obviously putting in a submission to the Garnaut review, both in terms of the specific issues paper he has called for in research and development, as well as the

Emissions Trading Scheme paper.

We see a lot of positive signs in the Garnaut report, but we have some very clear issues, in particular his consideration of trade exposed emissions intensive industries, which we are very, very concerned about and the other thing is, I have already mentioned, is the transition from GGAS and ensuring there is no disparity there.

It is an important process and we are obviously contributing to the submissions and our national bodies are also in consultation, that is the Australian Coal Association and the Minerals Council of Australia, are obviously continuing to negotiate with the bureaucrats, the Federal departments on this issue.

CHAIR: I note with the documentation that you presented with the CCS activity in Australia, there is a lot of work in and around Queensland, Western Australia and Victoria, that is being co-ordinated at a national level or is it just by each individual States, the Minerals Council?

Ms TAN: Because under the former Federal Government the process that they had was the LETDF fund, which I think is Low Emissions Technology Development Fund, so individual projects were put up, a proposal to try and get funding approval and those projects would often get money from the Federal Government, the industry and usually then the State Government would step up with some money.

The first thing to note is obviously greenhouse gas emissions are not defined by State boundaries, so it is important that these projects get tested in Australia because we can obviously use the technologies once they have been demonstrated.

Obviously the Australian Coal Association and the Minerals Council of Australia are Federal bodies which look at these particular projects, but obviously a lot of these projects as well involve the big collaboration of teams, they have research bodies, usually the CSIRO, the CO2CRC, those individual company players in there, that is mining companies as well as generators.

CHAIR: And international?

Ms TAN: Very often international as well, because a couple of those projects come under the APP, the Asia Pacific Partnership projects as well. I think that that is an important thing actually, it is a solution that needs as much input and collaboration as possible.

CHAIR: It is also noted that storage is advanced or capture, looking at the document you provided. Obviously there is collaboration across the States as well in relation to what is happening.

Ms TAN: The findings will obviously get chaired as they move along, but there are three main capture technologies that we are looking at. One is oxyfueling, which is the project that is happening in Callide in Queensland. The other one is the integrated IGCC technology, which is also happening as part of ZeroGen in Queensland and the third main one is post combustion capture, which is the project that we are demonstrating in New South Wales.

Mr MARTIN: That is the Munmorah one, is it?

Ms TAN: That is the first part of it.

CHAIR: The first one was oxyfuel capturing.

Ms TAN: The second one is IGCC, which is the one that is happening in ZeroGen, also up in Queensland, and then the third one is post combustion capture, which is the project that will happen in New South Wales.

At the moment at Munmorah they are testing the particular type of capture technology which has not been tested before, it is ammonia based, so we hope to get some good results there. If we do it

that way – this is very technical, I don't know if you want to hear it or not – but if you have this particular technology, it basically means you get rid of the sulphur dioxide before it goes through to be captured. It just makes it a bit cheaper basically and that is what we would like to see eventually.

CHAIR: Which was the one that CSIRO developed in Newcastle and transported it?

Ms TAN: That is a little post combustion plant.

CHAIR: That was being shipped to somewhere.

Ms TAN: It is now in China actually. They had an MOU with one of the universities in China and actually it is just there at the moment and I think the Prime Minister is actually visiting that site as we are talking about it. It is a mobile post combustion capture plant, that goes around, but currently it is in China.

CHAIR: And that research will be fed back obviously?

Ms TAN: That is right. That is the other important thing as well about us trying to test these technologies, particularly the one that is being tested in New South Wales. China has one gigawatt power station every eleven days and they are building them, they need energy in China, so we need to find a solution that we can use for them to use over in China. That is an important thing that we are doing here.

CHAIR: Thank you for your submission today. As I said earlier, we are in the process of undertaking a second report, so therefore we will be communicating with the Council.

What is the Victorian equivalent called of the Minerals Council?

Ms TAN: I don't think they have got one, because don't forget that Queensland and New South Wales are black coal producers. In Victoria I think they just have a sub-group of the Minerals Council of Australia, a regional branch office in Victoria. It is brown coal in Victoria. Whereas, I think in Western Australia it is the Chamber of Mines or something.

CHAIR: What does Western Australia have?

Ms TAN: Black coal, but they mainly have gas really and oil.

CHAIR: Is that what Gorgon is?

Ms TAN: Yes, that is right. That is a project that will basically cut the LPG out and then bury again whatever emissions from the LPG plant that they use back underneath the sea, so that will be a fantastic project when that gets going.

CHAIR: Is that offshore?

Ms TAN: Offshore, but because they pump the oil out of there in the first place, there is clearly a cavity there which they can fill again, so in a way, it is almost easier for them because they have already tested the geology, whereas onshore we have got to start testing the geology from scratch to work out whether or not we have the right structures underground to be able to store it. In a way the oil and gas industry are a little bit luckier.

CHAIR: I note in your outline overseas have been doing this for years.

Ms TAN: Absolutely, Texas, Weyburn.

(The witness withdrew)

GEORGE CAMPBELL, 70 Karrabah Road, Auburn, Spokesperson on the Natural Environment and Resources, Western Sydney Regional Organisation of Councils (WSROC), 70 Karrabah Road, Auburn, and

COLIN BERRYMAN, Program Coordinator for the Natural Environment, Western Sydney Regional Organisation of Councils (WSROC), 66 Burns Road, Springwood, affirmed and examined:

CHAIR: I am advised that you have been issued with a copy of the Committee's terms of reference and also a copy of the Legislative Assembly's Standing Orders 291, 292 and 293 that relate to the examination of witnesses. Is that correct?

Mr CAMPBELL: Yes.

Mr BERRYMAN: Yes.

CHAIR: The Committee has received a submission from your organisation. Is it your desire that the submission form part of your formal evidence?

Mr CAMPBELL: Yes.

CHAIR: If you should consider at any stage during your evidence that certain evidence or documents that you may wish to present should be heard or seen in private by the Committee, the Committee will consider your request. However, the Committee itself may subsequently publish the evidence if they so desire. Would you like to make an opening statement?

Mr CAMPBELL: We will run through our written submission and just elaborate on the main points there. We will not go through it in detail of course.

WSROC is very concerned about the prospect of climate change. Climate change is an international phenomenon but the effects vary in various parts of the world, and indeed in the State of New South Wales the effects vary. One could look at the effects of climate change along coastal areas and I think some people have been looking very much at that and also in rural areas, but we want to focus on inland urban areas and specifically Western Sydney. You would have seen from our submission that Western Sydney contains 11 per cent of the population of Australia. It is a very significant area and even within Western Sydney, of course, there are subregional areas which would be affected differently.

If we just look at some of the major points raised in our submission, with regard to the development pressures on Western Sydney, under the Government's metro strategy it is planned to absorb a large increase in population in the metropolitan area and that will be concentrated in Western Sydney. The population pressures are completely under the hands of the State Government, as well as local government. The Commonwealth is in charge of immigration and immigration is at a historically high level at the moment, and all kinds of things flow from that. A very large proportion of the migrants to Australia do come to Sydney and most of those come to Western Sydney. We have the north west and the south west growth areas and we are not convinced that the full environmental effects of that type of growth has been thought through, and with the factors which are leading to climate change continuing there will be consequences for Western Sydney.

We feel that to the extent that the State Government has control over these factors or is able to influence the factors which give rise to climate change and other environmental effects, that there should be a goal in the legislation of all New South Wales government activity to look at the environmental consequences of whatever activity the State Government undertakes, whether that activity appears to directly affect the environment or not. Population distribution for example would be one and clean air and so on and water.

We have suggested that a way of doing this would be to enhance the proposed powers of the Sustainability Commissioner to assess and monitor environmental impacts, as far as we are concerned

in Western Sydney but obviously that would be part of a broader scale. We feel also that the New South Wales planning system should incorporate environmental goals to a greater extent than it does and when there are planning proposals put forward there should be an environmental climate change test applied so that the full consequences of the policies are addressed and taken into account.

Mr BERRYMAN: Particularly, our councils have concerns over the way the planning system is being formed at the moment and many of our councils are concerned that the sort of flexibility that they currently have, or have had in the past, because it has effectively gone now, to zone and manage land according to the environmental requirements in their particular area is undermined by the standardised template of the local environmental plans (LEPs). Basically, they have reduced the number of zonings and simplified a whole range of the requirements and regulations around development, and for some of our councils this has meant that work they have done in more complex and integrated LEPs for the environment is wasted and they cannot protect the environment to the extent they felt they could under the old arrangements.

Mr MARTIN: That is still in a state of flux though, is it not?

Mr BERRYMAN: The LEP template has been prepared and all councils have to prepare the LEPs according to that template. Some councils may try to integrate some of the knowledge they have about local conditions to that but it remains to be seen whether that is possible or not or whether they will be given that ability anyway.

CHAIR: What is WSROC's link with the two CMAs that cover your area, the Hawkesbury Nepean and Sydney?

Mr CAMPBELL: We straddle both of those.

CHAIR: Yes, I know.

Mr BERRYMAN: We have have liaisons and partnerships on different issues. The CMAs develop strategies and also funding programs for particular projects, which we support in liaison with them. We have not actually entered in any joint projects with them as WSROC. The councils have in the past. There are also specific CMA projects, particularly the water sensitive urban design project, in which we work closely with them in terms of developing capacity and understanding around that issue with our member councils, but there is no formal sort of partnership arrangements or contractual arrangements at the moment.

CHAIR: We had representatives from Greening Australia here this morning. Their submission raised the urban heat island effect, which you have as well in parts of your submission. Has there been a view formed by WSROC at all in relation to the urban heat island effect?

Mr BERRYMAN: Our submission is really a derivation of the advice received through their research. So you have probably had a more comprehensive presentation from them than in our presentation.

We have taken that information to our member councils and presented it at the board level, and that was late last year. Other issues have taken precedence in the beginning of this year but I am anticipating we will follow that up with our member councils. Certainly, there is an interest on some of our councils. On reflection this was Bankstown Council, not Fairfield. Fairfield, interestingly, contacted me recently wanting to develop more information, simply because of local observations about temperature effect variations within their own local government area that they put down to the nature of the urban form in that area; it is cleared and lots of paving and that sort of thing.

I think there is acknowledgement of the issue but it has not been taken yet to a regional advocacy or consistent position on the issue across the region but we are working through that process.

CHAIR: Greening Australia did mention that the planning that happens within growth

centres could be a good show case for the urban island heat effect in relation to what building materials are used, the planning of the actual buildings and so forth that are going to happen there. I am just looking at the WSROC councils. That would in particular be Liverpool and Blacktown, is that right, or south west, north west growth centres?

Mr BERRYMAN: That is right. Liverpool would also have that area and Camden as well, and in the north west a little bit in Baulkham Hills, a little bit in Hawkesbury, but it is mostly Blacktown.

Mr MARTIN: In relation to the comment you were making earlier about the changes to the planning templates for the LEPs, given that Greening Australia is saying that one of the solutions to the urban heat island effect is vegetation, is that where there would be conflict, where a local council would want to zone land in such a way that it would have to be maintained in its native form as a way of appeasing this heat island effect? Do you see it getting down to that level or should that be looked at on a more regional basis?

Mr BERRYMAN: Probably on a more regional basis. The issue around inflexibility over development in this context of this inquiry around natural resource management, we specifically highlighted in the next section biodiversity, because councils are particularly concerned that current identified areas of biodiversity value will degrade in their value as a result of climate change and other areas may relatively become more valuable, simply because there will be damage elsewhere, that there will not be the flexibility to bring them within our conservation status and the new changes essentially limit the tools in the local government arm to do that. So acquisition of lands under section 94 of the Planning Act will no longer be allowed. Rezoning will still be allowed but that has its own limitations as well. So councils are concerned that in that instance of biodiversity, the planning system should deliver greater not lesser flexibility for local government, because we are working towards a regime where there is uncertainty about what the climate outcomes will be and it is a good principle to have flexibility about what you wish to preserve in the future if you are not sure what will be available or valuable. Creating greater rigidity of the system will make that more much more difficult. So it is a general view.

In order to take advantage of that, the councils argue there needs to be significant new resources to monitor and review land conservation status. Councils are saying we are not even sure about the status of this land, that it is a lot of work to actually find out and it is a lot of work to model what the changes there may be and so resources to do that would be very important.

Those two points together I suppose, the planning system needs to allow flexibility to identify new lands for acquiring or whether it will be beneficial to preserve them and better research and more partnerships to secure the information to make those decisions.

CHAIR: Given the situation that exists now within WSROC, has there been any investigation by the councils of their land, its biodiversity? You make mention of the future, saying the changes will affect your LEPs, but have member councils actually gone out there and ascertained what is their land and what its status is?

Mr BERRYMAN: Yes, as a general rule they have. Some councils have done more than others, of course, according to their land area and their resources. In particular, the Blue Mountains has a very strong environment assessment element to its planning. Penrith would be another good example, and Fairfield and Parramatta. Less so in the smaller councils with fewer remnant natural areas of course and with fewer resources. So it is a big mix, but there is a general format for the assessment of biodiversity and other natural values that councils all do to some extent.

CHAIR: It was noted by a previous witness that some private land owners look across the fence and see the quality of the diversity across their fence in public lands and think they are being regulated to do X but whoever owns that public land is not doing as good a job as they are being asked to do. It was just a comment of a witness in regard to the WSROC areas. In your submission you made brief mention of the Greening Western Sydney program and the submission states that this program is limited. Can you tell us a little about the program and why it cannot assist the area in

combatting climate change for instance?

Mr BERRYMAN: Certainly it can assist. Again, my advice on this would be to repeat Greening Australia, which is heavily involved in the Greening Western Sydney program. I have not actually been involved in the working parties or the management of that program. I am actually recently in my position at WSROC and a lot of the material prepared for the submission is derived from advice from our member councils and our partners like Greening Australia. So while I do not resile from any of it, the background and the detailed information is coming from other agencies at this stage. But my understanding from Greening Australia is that the resources for the Greening Western Sydney program are not adequate for the task they have. I did a tour with them in the recent past around the Western Sydney regional park and it was very apparent how effective the work is that they are doing, but how limited in scale in terms of the whole regional impact.

The Greening Western Sydney Program is, I understand, heavily reliant upon identifying key areas and corridors for species movement and security and not all of those corridors have been able to be progressed at the same level. They have in some programs but in others they have not been. I understand that the Federal Government towards the beginning of this year I think identified an enhancement to that, particularly linking Commonwealth lands in Penrith to each other and to other areas. That is our way to the future but I have not seen details of how that will be implemented at this stage.

There is thinking out there and there is focus on this issue but it is not very well advanced and there do not seem to be the resources that really would be required to make a difference, particularly in terms of the climate change. In terms of biodiversity, that will be an easier goal to achieve than say a goal of reducing the heat island effect, affects by really very low scale plantings rather than strategic around water courses.

Mr MARTIN: You mentioned in your submission the sustainability commissioner. Where do you see that office sitting in that structure? Are we not making another layer of bureaucracy in that?

Mr BERRYMAN: That is an interesting question. The sustainability commissioner was briefly engaged by the Carr Government but that position was not pursued when the incumbent went elsewhere. We did not have any specific criticisms of the structure of that commissioner at the time. It was not very long lasting, so there was not really an opportunity to test that.

Mr MARTIN: Do you see it as giving some sort of independent voice?

Mr BERRYMAN: It certainly needs an independent voice and resources to both monitor the activities of government and non-government agencies and resources to identify new opportunities around developing sustainability practices and contribute to the sustainability debate. So a combination of review of what has gone wrong and a capacity building role, but an independent one.

Mr CAMPBELL: Exactly how it would work in practice, we are not really in a position to proscribe that, but the point is that we see it as necessary for there to be someone with greater responsibility to identify sustainability issues, the consequences of various government activities and to ensure that they are addressed and fully taken into account.

Mr MARTIN: I think we have covered the bit about the planning issues. When you are talking about road blocks or barriers there, it is just this new template has been developed which does not give that flexibility and the fact that you have lost the ability of the section 94 contributions to purchase high value conservation land.

Mr BERRYMAN: Those specific things are very important but I think in this submission and elsewhere in our submissions to government on the planning system WSROC has argued and our member councils have argued that the rigidity in the system, the simplification of the system seems to work more towards the ease of securing new development than it is about ensuring that public

benefits are preserved in that development.

Mr MARTIN: I am not sure that was the intention.

Mr BERRYMAN: No, it was not the intention but it is the general thrust of the submissions around the planning changes.

CHAIR: In your submission you raised the rural lands review, and we have got some good news for you in relation to WSROC. It is the intention of the Planning Minister to section off the rural lands to that sandstone curtain that we have and the western region rural lands will be investigated and reported on first and the urban rural lands, which is WSROC's rural lands, will be part of a further investigation. Hot off the press.

Mr MARTIN: I was involved in the other one because it emanated from my electorate of Bathurst. That has been completed now and the Minister will be releasing the details of that to those councils next Thursday. It was decided prior to the process that it was not appropriate to fit those guidelines to metropolitan areas, but I still think you will find that they are keen to preserve agriculture land within that area.

CHAIR: WSROC and MATROC.

Mr CAMPBELL: That is good news.

Mr BERRYMAN: I would like to add something to our submissions, because more information has come to light since that was prepared. I wanted to highlight the issue of flooding and water catchment yields.

WSROC in some of its work with its partner agencies is working with the Irrigation Futures Cooperative Research Centre (CRC). It is one of the Federally Government set up CRCs. This is very recent outcomes of research they have been conducting over a number of years. I do not have a hard copy because this is just a meeting outcome. Reports will be coming in the near future. They have identified that for the Western Sydney region they anticipate by 2025 the surface water and the potable water supplies that are available for Western Sydney will be required for domestic or internal use and anything for industrial use or external use or playing fields or environmental flows or agriculture must be found from somewhere else.

Looking at the quantity of water that will be available under climate change scenarios and the population increase, there is a major issue around finding alternative water supplies either through rainwater catchment, stormwater retention, through groundwater, through recycling, things like that, the strategies will require major investment to meet those other needs, and one of the principal needs of course will be environmental flows in our creeks and rivers, and the value of those for the environment and for recreational use and things like that.

I just thought that might be something the Committee could look into in terms of the research coming out of that CRC and what the implications might be for government investment in infrastructure support or increased water supply for the region.

CHAIR: Where is that CRC based?

Mr BERRYMAN: It is a collaboration between a number of universities, University of Western Sydney (UWS) being our principal partner there, but also University of New England. There is a base in UWS here in Sydney at Parramatta. I do not have the contacts with me but I can provide that to you if you like.

CHAIR: If you could provide that to the Committee that would be very useful because it is an important part. The water cycle and the carbon cycle was raised today but in particular in relation to climate change it was raised that the regional catchments versus the urban catchments have different requirements in relation to what they are requesting or even the projects that they undertake.

Mr BERRYMAN: And some of the ironies are where a coastal catchment may be concerned about storm damage and sea level rise, in the west we may be concerned about flooding, because even though there is less water it will come in bigger sheets at once, and also with the development of the land shedding more water and less water held by the system, more rushing through in a flood, which is what happens when you pave a lot of surfaces, then flooding becomes a greater issue as well. That was in our submission.

Mr CAMPBELL: Another aspect that we mentioned in our submission is our concern about sea level rises and again, as I mentioned earlier, this is one of these things which is often seen as affecting the coastal regions, but if sea levels rise, then river levels will rise too. Our rivers are tidal up to a certain extent, so salt water will move a bit further upstream than it is now, and if the river levels are higher, where does your rainwater go, where does the run-off go. It is going to take much longer to get out to sea, so you are going to have flooding backing up a bit further than it otherwise would. This is a bit of concern and councils will have to be looking at where can development be allowed now along river frontages and we are going to have to see councils looking at various scenarios. Some people think that sea levels will rise a metre by the end of the century and some people say six or seven metres and everywhere in between has been predicted.

I understand that the Department of Planning is looking at this to some extent but I think the focus is on the coast and we really do need councils to get some good information about what will be the effects in their areas, those councils which have rivers and lakes that are going to be affected. We do not want to approve developments on land which is going to be a metre underwater in a hundred years time for example.

Mr BERRYMAN: We mentioned to our member councils that we are coming here today and asked them to add anything to our submission and the principal additions were the need for greater engagement with the local government around answering some of the questions, particularly around flooding, but also around bio-banking and biodiversity preservation and things like that. They are of major concern. People see that they do not have the information or the tools to do good planning.

(The witness withdrew)

(The Committee adjourned at 3.50 p.m.)