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AND TRANSPORT

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**SENATE STANDING COMMITTEE ON
RURAL AND REGIONAL AFFAIRS AND TRANSPORT**

Thursday, 11 September 2008

Members: Senator Sterle (*Chair*), Senator Milne (*Deputy Chair*), Senators Heffernan, Hurley, Hutchins, McGauran, Nash and O'Brien

Participating members: Senators Abetz, Adams, Arbib, Barnett, Bernardi, Bilyk, Birmingham, Mark Bishop, Boswell, Boyce, Brandis, Bob Brown, Carol Brown, Bushby, Cameron, Cash, Colbeck, Jacinta Collins, Coonan, Cormann, Crossin, Eggleston, Ellison, Farrell, Feeney, Fielding, Fierravanti-Wells, Fifield, Fisher, Forshaw, Furner, Hanson-Young, Humphries, Johnston, Joyce, Kroger, Ludlam, Lundy, Ian Macdonald, McEwen, McLucas, Marshall, Mason, Minchin, Moore, Parry, Payne, Polley, Pratt, Ronaldson, Ryan, Scullion, Siewert, Stephens, Troeth, Trood, Williams, Wortley and Xenophon

Senators in attendance: Senators Boswell, Fisher, Heffernan, Joyce, McGauran, Milne, Nash, O'Brien and Sterle

Terms of reference for the inquiry:

To inquire into and report on:

The implementation, operation and administration of the legislation underpinning Carbon Sink Forests and any related matter

WITNESSES

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Committee met at 2.17 pm

CHAIR (Senator Sterle)—I declare open this public hearing of the Senate Standing Committee on Rural and Regional Affairs and Transport. The committee is hearing evidence on the committee's inquiry into the implementation, operation and administration of the legislation underpinning carbon sink forests. I welcome you all here today. This is a public hearing and a Hansard transcript of the proceedings is being made.

Before the committee starts taking evidence, I remind all witnesses that in giving evidence to the committee they are protected by parliamentary privilege. It is unlawful for anyone to threaten or disadvantage a witness on account of evidence given to a committee and such action may be treated by the Senate as a contempt. It is also a contempt to give false or misleading evidence to a committee.

The committee prefers all evidence to be given in public but, under the Senate's resolutions, witnesses have the right to request to be heard in private session. It is important that witnesses give the committee notice if they intend to ask to give evidence in camera. If a witness objects to answering a question, the witness should state the ground upon which the objection is taken and the committee will determine whether it will insist on an answer, having regard to the ground which is claimed. If the committee determines to insist on an answer, a witness may request that the answer be given in camera. Such a request may of course also be made at any other time.

Finally, on behalf of the committee, I would like to thank all those who have made submissions and sent representatives here today for their full cooperation in this inquiry.

[2.19 pm]

JONES, Dr Christine Ellen, Founder, Australian Soil Carbon Accreditation Scheme

CHAIR—Welcome, Dr Jones. Before we go to questions, do you wish to make a brief opening statement?

Dr Jones—I do. Carbon neutrality via soil carbon sequestration is an achievable target for Australia. Increasing soil carbon by half a per cent on two per cent of farmland will sequester more than our national emissions of carbon dioxide. The soil carbon solution will buy us time to make a permanent and relatively seamless transition to a low-carbon economy. Rather than imposing financial burdens on the economy, the soil carbon solution will provide a production boost to agriculture.

With the world's population sitting on six billion and moving exponentially to nine billion, we need to improve the productivity of the available landmass. The only way to do this is to regenerate the natural resource base, and restoring soil carbon can achieve that goal.

Past farming practices have severely depleted soil carbon levels in Australia, such that most farmed soils now contain less than half the carbon of their perennial pasture counterparts. The restoration of this depleted carbon via changed management practices would easily render Australia carbon neutral. Note that we will not be completely carbon neutral until we cover our coal exports as well. This is achievable.

There are no embedded energy costs involved in restoring soil carbon. The infrastructure and the knowledge is already there. The soil carbon solution is powered by solar energy. The initial target would be the grains industry, currently facing massive input costs with rising fuel and fertiliser prices. The soil carbon solution would improve the productivity and resilience of broadacre farming while also conferring carbon neutral status on the nation.

CHAIR—Thank you, Dr Jones. We will go to questions.

Senator MILNE—Thank you, Dr Jones. I notice that you have made several recommendations about amendments to the legislation. Could you outline to us how you think that might work, because there are two issues here. One is the legislation as it currently stands and how it might be amended. The other issue is the guidelines that cover that legislation, and that is a disallowable instrument and we are also considering our options for that. So could you take us through how you think the act, as it currently stands, might be amended.

Dr Jones—In my submission I made notes on the amendment of the conditions, and that would basically be to place grasslands on an equal footing with forestry.

Senator MILNE—Run us through how you think it would work. You would be arguing that forestry is a voluntary opt-in to the Carbon Pollution Reduction Scheme, so would you be suggesting that grasslands be treated in the same way? How do you think it might work?

Dr Jones—I would be looking at it being a project based soil carbon offset. Currently you could allocate a certain amount of land to be utilised for forestry as a carbon sink. We would say that you could allocate a certain amount of land to be under perennial pasture as a carbon sink. But that land under perennial pasture would be more productive than if it were not under perennial pasture—in other words, if you were comparing currently farmed land with land that was under perennial pasture, the land under perennial pasture would become more productive but it could also still be used to produce food. Having it as an allowable carbon sink or an allowable offset would improve the productivity of the soil and the health of the soil and improve the catchment management.

Everybody knows that healthy soils are going to be better, so this has natural resource management benefits as well as atmospheric benefits, because the only way you can improve soil is to increase its carbon content and that means you have to take that carbon out of the atmosphere. It is exactly the same as growing a tree. All that we are saying is that there would be defined areas. Under the Australian Soil Carbon Accreditation Scheme we call them defined sequestration areas. It might be, for example, an area of 20 hectares that you would say is going to be used as a carbon sink. We would hope that under the legislation that could be treated in the same way as an area designated for a plantation of trees. It would just say that that is designated to be perennial grasses.

Senator NASH—With respect to the direct drilling of crops into the perennial pasture—you were talking about this last time you were here—you were saying that the perennial pasture would be treated as a carbon sink and yet you could still direct drill a crop into it and get the crop off for food. That is what you were referring to before.

Dr Jones—Yes, that is exactly what I was referring to.

Senator NASH—Do you see any limitations? Could you have an entire farm sown down to perennial pasture that you then direct drill with crop, and the entire farm would then be a carbon sink to get the tax deduction?

Dr Jones—That would be the ultimate goal, because whenever the ground is not covered it is destructive because the soil erodes, you have weed problems and you have problems with water quality because you lose soil and it ends up in river systems. Every catchment management authority or NRM group in Australia would be looking at trying to improve ground cover.

Senator NASH—Can you supply for the committee—on notice is fine—a list of the perennial grasses you would see as being appropriate under that scenario?

Dr Jones—I can take that on notice but my answer would be that it has to be a grass that grows out of phase with the crop. Most of Australia's cropping is winter cropping. We have something like, I think, 21.8 million hectares under winter crop this year, which is more than the area we have under summer crop, and we would therefore need to grow warm season perennial grasses—in other words, grasses with what is called a C4 photosynthetic pathway. It would be whichever of those grasses grows best in a region. Fortunately, in terms of technology and knowledge, we have 30 years experience of no-till cropping. Obviously we need to direct drill into pasture. If we were going straight from the technology we had in the sixties and seventies in relation to cultivation it would be very difficult but now we have the machinery and the

equipment. We also have several decades of research into C4 perennial grasses. We just need to marry the two. All of the research into perennial grasses up to now has been for pasture ecosystems—for grazing—and all of the research into minimum-till technology has been for farming: for broadacre cropping. So we have the knowledge but it is in two camps. We just need to put those two things together—the knowledge we have of perennial pasture systems with the knowledge we have of minimum-till farming.

Senator HEFFERNAN—Is the pasture that you are talking about sown for feed or for carbon?

Dr Jones—We would be sowing it for carbon if it was for a carbon sink.

Senator HEFFERNAN—So you would not put stock on it?

Dr Jones—Not necessarily; for broadacre cropping we probably would not have fences—

Senator HEFFERNAN—Just name a couple of species for me.

Dr Jones—My species of choice would be Gatton panic. That would be my preferred species. It grows in most areas south of the Tropic of Capricorn, even in Victoria, even though it is a tropical grass.

Senator HEFFERNAN—So take, for instance, Cryon or somewhere where there is a black soil plain, no fences, no stock, no fertiliser. There is just dead-set farming there now and they are going to get a bum-buster of a season this year because they have just had 2½ inches. You would say that they should sow this under their crop.

Dr Jones—It could be sown under the crop.

Senator HEFFERNAN—There is no question that the black soil plains are deteriorating from annual cropping but because there is zero tillage they are holding together pretty well. But they do not have this carbon thing, so do you think that would affect the yield of the crop?

Dr Jones—Could I just make a comment on something you said. Zero till has stopped the deterioration of our farmlands but it has not, as a general rule, improved the quality of them.

Senator HEFFERNAN—Yes.

Dr Jones—So we have stopped carbon levels from falling but in most areas we have not been able to increase them significantly.

Senator HEFFERNAN—Chemical farming is locking things up a bit, as you know.

Dr Jones—Chemical farming is killing the microbes that we need to build the humus in the soil.

Senator MILNE—I would like to come back to this, Dr Jones. In terms of the work that you have done already—and I take your point about marrying those two research fields—have you

sold any carbon in the voluntary carbon market from the areas that you have designated and measured for their improvement in soil carbon?

Dr Jones—We are not in the voluntary carbon market. We have soil carbon incentive payments that we pay to farmers in the Australian Soil Carbon Accreditation Scheme. They have been provided by a philanthropist. Farmers in the scheme will be receiving those incentive payments here in the Great Hall of Parliament House on 20 May, next year. We have that venue booked and that function is happening. They will be rewarded publicly for the carbon that they have sequestered. But the Australian Soil Carbon Accreditation Scheme is not part of any voluntary carbon trading scheme.

Senator MILNE—Do you see that as a stepping stone to actually getting into something like the tax deduction here? It almost requires an area to be designated, measured, managed for soil carbon and then the volume of carbon sold into the voluntary market, because people are going to come back and say: ‘What about permanence? How do we know these perennial grasses are going to survive some of the extreme summers that we know are coming down the track? How are you going to maintain your carbon levels?’

Dr Jones—There were several things in that question. I will just go back to the beginning. Under the Australian Soil Carbon Accreditation Scheme, we have designated sequestration areas, which are GPS mapped. We have measured baseline carbon and we go back and remeasure carbon. Then, rather than that being traded on the voluntary market, the farmers participating in that scheme are currently receiving a soil carbon incentive payment of \$25 per tonne of carbon dioxide equivalent. So they are receiving a payment that is probably equal to or better than what they would receive in a voluntary market at the moment.

Senator MILNE—That is because a philanthropist has put up the money. Is that right?

Dr Jones—That is right, but the idea of the scheme was to show that they could build soil carbon, that we could measure it quite easily, and that they could be rewarded financially for doing that, as a stepping stone to moving into a carbon market in the future. It is a proof of concept. Can you just remind me what the last thing was that you asked about?

Senator MILNE—It is basically one of the issues to go to proof of concept, if you like. I totally accept what you are saying about the capacity to build soil carbon and that you can measure it, and it is great that you have got a philanthropist who is paying \$25 a tonne, but to go from that scale to the scale we are talking about you are going to have to prove permanence. What experience have you had with the perennial grasses if we go to more extreme summers and less rainfall in your test areas?

Dr Jones—If I could put that into a geological timescale reference, at the time Australia was settled it was mostly grassland and grassy woodland vegetation. Those grasses had survived for millions of years under extremes of temperature. We could base it on native grasses, if that were necessary, but of the grasses that we are talking about planting, some are active grasses so they actually photosynthesise more efficiently at higher temperatures. They require a high temperature in order to function and they are very resilient if managed correctly. You have to remember that a lot of the pastures that have been planted in Australia have then been subjected

to set stocking and just had stock graze them into the ground until there is not a leaf left. It is a little difficult to survive if you do not have any leaves.

If we were talking about a cropping system that would not necessarily have livestock, because grain is the thing that we really have to focus on to feed the world, then we have more than sufficient area under grain at the moment in Australia for that to be converted to perennial cover cropping to make Australia carbon neutral, which is basically what we are talking about.

I do not think there would be any doubt about the survivability of those grasses. In fact, there are massive areas of trees, as you would be aware, that have died—plantations that have died across Australia due to a lack of water. The grasses, because most of their carbon is stored below ground rather than above ground as in a tree, are far more resilient. That is assuming that you do not have an animal there eating the leaves off every time a green leaf pops up. But more than 90 per cent of the biomass in a grassland is actually underground, where you cannot see it, whereas in a forest 90 per cent of the biomass is above ground. If you have a fire come through, you will lose your stored carbon in a forest, and the probability of a forested area being burnt at least once in a hundred years is 100 per cent. If a grassland is burnt, you lose the leaves off the top, which is just like a whole mob of sheep coming through and eating them, basically. It will regenerate from the crowns and the underground storage, and most of your carbon is protected.

With perennial grasses we like to see whether the system is functioning properly—that the carbon is stored very deep in the soil—hence our reasons for measuring down to 110 centimetres. So we will see carbon at 30 centimetres, 60 centimetres and 90 centimetres down the soil profile. It is very resilient carbon. It is not the labile carbon that you see near the surface. It is not that crumbly stuff like compost—it does not look like that at all. It is like a crude oil, in fact. Humus is a gel-like substance. It is not what people often think humus is. It has a very high molecular weight. It is a strongly polymerised substance.

Senator HEFFERNAN—This would be a non-livestock operation.

Dr Jones—You could have livestock, but most broadacre cropping places in Australia now have moved away from livestock.

Senator HEFFERNAN—With great respect, you mean in the north. Most slopes properties run stock with their crop.

Senator NASH—Yes, they do.

Dr Jones—Yes, that would be true.

Senator HEFFERNAN—I declare an interest. I am one.

Dr Jones—Yes, if you were talking about mixed farming in New South Wales that would be true. I suppose I was thinking about the lower rainfall areas of Western Australia, for example—a committee recently visited there—and the low rainfall areas of Queensland and western New South Wales tend not to have stock.

Senator HEFFERNAN—Where there is an 18-inch to 22-inch rainfall you generally have a lucerne, phalaris and fescue based pasture sown in under a crop and then grazed for five or six years. Then it comes around again in another cycle, but that would not work under this plan.

Dr Jones—It actually works perfectly well with livestock. All I am saying is that you do not need to have livestock. It works with livestock or without livestock.

Senator HEFFERNAN—Righto.

Dr Jones—It is not necessary to have livestock.

Senator HEFFERNAN—So the typical slopes pastures like fescues—

Dr Jones—Phalaris, cocksfoot, rye grass.

Senator HEFFERNAN—Is that okay?

Dr Jones—No, because they are what we call C3 grasses. They grow in winter. They are low-temperature grasses rather than high-temperature grasses.

Senator HEFFERNAN—What about lucerne?

Dr Jones—That is not a grass.

Senator HEFFERNAN—So it does not put carbon in?

Dr Jones—It may, but I would like to focus on having a perennial groundcover of grasses, because of their persistence and because—

Senator HEFFERNAN—Okay, so that is a completely different operation.

Dr Jones—of the fact that we need to have mycorrhizal fungi in the soil to turn that carbon into humus to make sure that it stays in.

Senator HEFFERNAN—So generally this would lend itself to a single enterprise farmer that grows grain.

Dr Jones—Not necessarily.

Senator JOYCE—What about Flinders and Mitchell grasses? They are summer grasses.

CHAIR—Welcome, Senator Joyce. You just frightened the living daylights out of Dr Jones. I am sorry; we did not know you were on the line. Dr Jones, that was Senator Joyce from Queensland.

Dr Jones—Could you repeat the question please?

CHAIR—You should have seen the look on Dr Jones's face, Senator Joyce.

Senator JOYCE—When you talk about summer grasses, would the Mitchell and Flinders grasses—the natural perennials—be in the scope of things?

Dr Jones—They would be perfect. The only thing is that Flinders grass is an annual grass, but that would still work very well with perennial cover cropping.

Senator HEFFERNAN—What about buffel?

Dr Jones—Buffel grass works perfectly.

Senator HEFFERNAN—You'll be right, Barnaby!

Senator JOYCE—Yes, we are big on buffel.

Senator MILNE—It destroys the ecosystem, though.

Dr Jones—Well, put some wheat in it and make it diverse.

Senator JOYCE—Yes, you could do that.

Senator HEFFERNAN—Best of luck to the wheat crop!

Senator MILNE—Dr Jones, just to go back to this issue, if you plant out with perennial grasses you are going to get an improvement in the soil quality anyway, and your water retention is going to be better. If you choose to, you could designate some areas for soil carbon and other areas you could graze anyway, and just not have them as part of your soil carbon measurement, surely?

Dr Jones—In fact, if you do graze them the carbon increase would be greater. They would benefit from being grazed because grasses have co-evolved with grazing animals for 20 million years and they benefit from correct grazing management. If you have an area ungrazed compared to one correctly grazed, the one correctly grazed will actually sequester more carbon in the soil. So it would be of benefit if it were a mixed farm, but it is possible to have broadacre cropping without livestock. That is all I am saying.

Senator HEFFERNAN—So does this lend itself to summer rainfall?

Dr Jones—Not necessarily. It works very well in Victoria or in Mediterranean rainfall environments because they still receive something like 35 per cent of their annual rainfall in summer and that is sufficient to maintain the perennial grass. And the predictions are that summer rainfall is going to increase in the southern cropping zone, so there will be even more benefit from having a perennial groundcover there. The issue in the southern cropping zone at the moment is that there is generally no groundcover over summer, so with summer rainfall predicted to be more intensive we will have high-intensity rainfall events and if the soil is not covered we will lose more and more of our precious asset. Soil is Australia's most important

asset. If we do not have soil we can forget everything else. We will not have anything else without soil.

Senator HEFFERNAN—The most important after its children—they are Australia's most important asset.

Dr Jones—What will they eat if we cannot grow anything?

Senator MILNE—Your association obviously has its trial plots; you have been measuring them and you have your data and so on. Are you working with CSIRO, the Bureau of Rural Sciences, the climate change office, any of the Commonwealth research agencies, to corroborate the work that you have done, to peer review it and get it into the discussion of where we go next on a post-2012 treaty and so on?

Dr Jones—We are currently working with the departments of agriculture in terms of doing our fieldwork, liaising with the networks they have with farmers, working with the equipment they have. I personally do not own a soil-coring rig and a Landcruiser to mount it on, and all of that sort of thing, so we are liaising at that level. If you look at another level, some of the organisations you mentioned are still publishing information saying it is not possible to store carbon in soil. In fact, a recent one—I think it has just come out—by CSIRO Plant Industry says it would actually be to the detriment of Australia to store carbon in soil, which I find very interesting. So, no, we are not collaborating with organisations that do not believe—

Senator HEFFERNAN—Who said that?

Dr Jones—CSIRO Plant Industry, in their spring newsletter.

Senator HEFFERNAN—They have the opposite view to you?

Dr Jones—They have a completely opposite view to me.

Senator JOYCE—Does the soil absorb carbon if it just left fallow? Soil absorbs a form of nitrogen if you leave it fallow—though probably not as much as if you have a lucerne crop or some other legume in it. But can the soil absorb nitrogen just like the ocean can absorb carbon?

Dr Jones—The answer to that question is no. It needs to be fixed in the process of photosynthesis, which requires green leaves. That is why you need to have your Mitchell grass or your Flinders grass or your wheat crop. The crops themselves do absorb large amounts of carbon. The problem is that the way we farm at the moment we have a crop which absorbs carbon, pumps it out into the soil from its roots and basically gets the soil engine fired up, and then we have maybe a six-month period with nothing there and we lose microbial activity in the soil. So the key to turning the carbon into a form where it can be stored in the soil for hundreds of years is to have the microbes there that change it into this magic stuff called humus. So we need groundcover to do that. Mitchell grass is fine and buffel grass is fine. If you have the common practice in Queensland of a summer fallow with no groundcover, you go back to ground zero, so to speak.

Senator JOYCE—I do not want to use the words ‘politically correct’, but I am interested in getting an argument just based on science if what you want to do is collect carbon and you had a choice between one hectare of dry sclerophyll forest or one hectare of buffel grass. I am not talking about the environment and the effect on species and the diversity of flora and fauna, but if your only goal is to collect carbon then you possibly may be collecting more with an acre of buffel than you would with an acre of sclerophyll forest.

Dr Jones—The data that we have from Queensland that has been collected by the Department of Natural Resources and Water, or whatever they call themselves now—I am sorry, I am not quite sure what the current name is—shows that the carbon level is about double under buffel than under an area of dry sclerophyll forest. An example would be somewhere like the desert uplands around Aramac or somewhere there. I was looking at some data from there the other day and I saw that carbon levels are double under the grassland there.

The other thing is that one of the farms that is in the Australian Soil Carbon Accreditation Scheme north-east of Clermont has over 500 tonnes per hectare of carbon in the soil. That is broadacre cropping, compared to about 140 tonnes under the brigalow.

Senator JOYCE—Acacia harpophylla, if I remember correctly from my botany days.

Senator HEFFERNAN—You’re a show-off!

Dr Jones—I remember the first time I went to Queensland and I had to get someone to point out what a brigalow was. I felt so embarrassed because everyone talks about them all the time up there.

Senator JOYCE—They are right down to places like Baradine too, for the record.

Dr Jones—Yes, I realise that. I do know what they look like now; I have seen lots of them. It is possible to store more carbon in farmed soil while it is productively producing grain or whatever it may be producing for—

Senator JOYCE—What about sugar cane, Dr Jones?

Dr Jones—I am sorry; that is outside my area of expertise. I cannot tell you the answer to that. I am not sure whether it has even been measured, to tell you the truth. But it has got lots of green leaves, so I imagine that it would be storing heaps of carbon.

Senator BOSWELL—Photosynthesis would be going on.

Dr Jones—Yes, there would be lots of photosynthesising happening.

Senator BOSWELL—Yes. It is the biggest and best one.

Dr Jones—I guess the thing with sugar cane is that it is there for most of the time; there are not long periods of time with bare soil. I think the issue would probably be the chemicals that are used—in particular, large amounts of nitrogen. There is research underway in North Queensland at the moment on using microbial methods for fixing that nitrogen and not having to use the

massive inputs of nitrogen fertiliser, of which a large proportion ends up out on the Barrier Reef. So I think that the solution to the sugar cane is getting the microbial status of the soil right, and that could be very productive for carbon sequestration. That is an opinion.

Senator BOSWELL—You were saying that you would collect more tonnes of carbon per acre, and you mentioned a figure of 500 tonnes per acre.

Dr Jones—Hectare.

Senator BOSWELL—All right, hectare. And you are paying \$25 a tonne at the moment.

Dr Jones—That is what is there at the minute. We are not paying \$25 a tonne. That is his baseline level. That is what he has achieved by his method of farming in that environment.

Senator BOSWELL—It would a nice little earner. On top of that, you can grow a crop and graze.

Dr Jones—You could. In fact, the soil that has got 500 tonnes of carbon in it is going to be far more productive than the one that only has 100 tonnes of carbon. From neighbouring soils in the same environment, with the same rainfall and everything else the same but with one having 500 tonnes and one having 100 tonnes, you are going to get a lot more product from the one with 500.

Senator BOSWELL—So we can grow food, we can grow crops and we can collect carbon.

Dr Jones—Exactly.

Senator BOSWELL—That would then argue against growing trees that produce leaves which eat carbon but do not provide any food. If your paper is correct then it really says that this bill is obsolete; we should not have it.

Dr Jones—Not necessarily, because trees do have productive advantages in the environment. I would see maybe silvopastoral activities, where the trees were—

Senator BOSWELL—But if you can crop, graze and collect carbon then why would you turn hectares over to trees?

Senator NASH—Would it be a better use of that particular amount of land, in your view, than just trees?

Dr Jones—If you could grow more carbon on the same area under perennial pasture than you could under trees and if it was protected from burning, because it cannot be burnt and if it was stable for as long as you keep the grass—and most perennial grasses are actually longer-lived than trees. That may answer your question, Senator Milne. Our native grasses, such as Mitchell grass, which Senator Joyce mentioned earlier, can live for hundreds of years. They can live for longer than trees. So if it is more permanent, if it is less risky because it is not subject to burning, if it is more productive for the land, if it has advantages in terms of improving the water cycle and if there is less interception of water to rivers then I would put the question back to you,

Senator Boswell: would you rather have one hectare of perennial grassland sequestering carbon, growing food and improving the water cycle?

Senator BOSWELL—Absolutely. Then you get the added bonus that you can graze off it too.

Dr Jones—Absolutely.

Senator JOYCE—You still have an economy in the town too.

Senator MILNE—I guess that is the issue here—that people invest in trees because they have nothing to do with the land and they can live in the city and just make the investment, it is out there and the management is minimal. You are proposing something which would facilitate people actually working the land as opposed to just investing in it.

Senator HEFFERNAN—And if they did not get the tax deduction they would not invest anyway.

Senator NASH—Can I just ask a technical question. If you planted an acre of perennial grass and an acre of trees, would they be equal or would one put carbon back into the soil more quickly than the other?

Dr Jones—The answer is that grasses put carbon into the soil much more quickly than trees, but it would depend on the environment that you were in as to what the total amount of carbon ended up being. For example, if you just looked after the first five years, you would find that the grasses sequestered carbon at probably twice the rate of the trees. But if you then looked after something like 20 years the amount of carbon that you had stored in the trees and the amount of carbon that you had stored in the ground under the grasses would probably be more equivalent. The point is that the carbon stored in the ground is less risky or has less risk associated with its loss.

Senator HEFFERNAN—So in the meantime you could be cropping it and—

Dr Jones—Yes. When little trees start to grow they do not sequester very much carbon, and then they have an exponential increase. It is like a sigmoidal curve. They say that trees between nine and 15 years, generally, sequester carbon most rapidly. Once the tree matures, it actually stops sequestering any new carbon. Eventually it gets to the point where it is dropping limbs and things and not sequestering any more carbon, but you do have a carbon store in that tree, assuming it does not die or get burnt. Looking at a perennial grassland, if you were to start with, let's say, farmed soil that did not have any groundcover and you planted perennial grasses there, the sequestration rate under the perennial grasses would be very rapid. It would be much more rapid than it is with trees—you do not have that long lag time where you are waiting for, say, nine years for a tree to really get going. Grasses sequester most carbon in the early stages. It is a very rapid process. And you do not have issues with a grassland dying, because it is self-replacing. Grasslands have been around for millions of years and, if we did not come along and cultivate them or put stock on there and leave them there until they have eaten it completely into the ground through inappropriate grazing management, they would still be there. We have basically destroyed our grasslands and destroyed probably our largest carbon sink.

Senator MILNE—What was the CSIRO's plant science person's main argument contrary to what you are saying?

Dr Jones—I think it is in the CSIRO Plant Industry spring newsletter. I could provide that to the committee.

Senator MILNE—We can get it. I am just interested to know what they are saying.

Dr Jones—It said—relying on my memory—that storing carbon in the soil would be a negative for farming rather than a positive and that it should not be considered for carbon trading because humus contains high levels of nutrients—which it does. Humus is a very complicated molecule that is formed in the soil itself and it contains soil minerals as well as carbon and nitrogen. Their argument was that, because humus has a lot of minerals in it, farmers would have to replace that mineral by adding extra fertiliser to what they normally use, which is a strange argument. I think the figures are, just off the top of my head, that for every \$44 worth of carbon you would get based on \$20 a tonne CO₂ it would cost \$100 to add the nutrients that the soil would need.

I find it interesting that this is CSIRO Plant Industry. One would have thought that Plant Industry would have had some knowledge of what happens microbially in soil and that, by improving the microbial status of soil—which would happen under a perennial grassland—things like mycorrhizal fungi actually bring phosphorus to plants. You need that microbial bridge because nutrients in soil are not in an available form for plants and the only way that plants can access them is through microbial action. What you would be doing by having perennial ground cover is increasing microbial biological activity in the soil and improving nutrient cycles and making nutrients more available.

Senator HEFFERNAN—Are you aware of what is happening under a voluntary similar scheme in the United States?

Dr Jones—Under the Chicago Climate Exchange?

Senator HEFFERNAN—Yes.

Dr Jones—In which respect?

Senator HEFFERNAN—In soil—exactly what you are talking about. They have technology over there now whereby they can scan a paddock and tell you what is in the paddock.

Dr Jones—They do have mobile near infrared—

Senator HEFFERNAN—Yes. Once this committee gets familiar with the technology, it will paint a whole new picture, for not only this committee but the parliament.

Dr Jones—That is another thing, I guess. If we are looking at what infrastructure we need and what technology is out there, we already have our direct drilling technology, we already have our knowledge of pasture grasses and we now have development of technology for mobile scanning of paddocks to determine soil carbon.

Senator JOYCE—With what Senator Heffernan just mentioned and what you have just raised, is it possible—I know we have vegetation management maps and vegetation laws here in abundance—that someone would be able to do a simple mapping exercise and say, ‘By reason of this facility, the most apparent way to store carbon in this area if you want to get a deduction for it would be to go to the optimum use, which would be perennial summer grasses’? Could you look at it and say what would be the most optimum use in an area? I do not know, but the most optimum storage of carbon could be sugar cane. With other vegetation laws, we say, ‘This is remnant vegetation of a certain quality and you can’t touch it, and this stuff is ubiquitous, so you can have a crack at that.’ Could we use satellite imagery, or whatever information you have or you have knowledge of, to basically map Australia and tell people the most apparent way to store carbon, if that is their ultimate goal? Could we tell them exactly what we consider would be the optimum usage in any sort of area, taking into account the soil, the temperature, the rainfall and whatever other considerations are required? Is that a possibility?

Dr Jones—The solution that I was proposing would not involve interfering with current remnant areas. I was suggesting that, of the current grain-growing area—and we have 21.8 million hectares sown down to winter crops this year—we would only need to change land management on a proportion of that in order for Australia to achieve carbon neutrality. We could neutralise all of our emissions from industry on only a portion of that area currently sown to winter crops. So it does not require changes to land management on any other areas of Australia.

Senator JOYCE—And you could still have a form of grazing on that land, and, if people got the tax deduction and had grazing on the farm, they would have some sort of parity in their income stream.

Dr Jones—I think that would be very important in the grains industry, because the only thing that is supporting it at the moment is high grain prices. If for some reason they were to fall, I think we would find that industry would be in dire straits. If we could have carbon farming as their main income source and grain production as a secondary income source, it would instil a great deal of financial security in that sector.

Senator JOYCE—So, if there were regrowth coming into an area that was formerly perennial pasture, you could say, ‘If you really want to store carbon, you should leave it as perennial pasture and stop the regrowth.’

Dr Jones—You could say that, but I probably would not say that because I would not like to get into the argument currently raging in Queensland about trees. But if it was originally perennial pasture, which we know that most of those areas were, then that would be something you would have to take up with the Queensland government.

Senator HEFFERNAN—Cobar too.

Senator MILNE—The issue here though, Barnaby, is that we are not just talking about carbon; we are also talking about biodiversity, ecosystem resilience, native species and so on.

Senator JOYCE—Yes, I know. I am just making sure the science on the carbon is truthful. I understand completely, Senator Milne, that there are other arguments such as biodiversity, but I am asking, on the issue of carbon sequestration, that we get the facts and figures on the table.

Senator MILNE—I agree, and that is why I think the focus should be on areas that are currently used for grain growing across the country—we are talking about such a vast area for a start. All you are going to do is complicate matters and lose the argument if you start talking about native vegetation and the biodiversity and ecosystem integrity benefits versus a pure argument on carbon. The country is big enough to have both, and so I think Dr Jones is quite wise to focus on areas that are already under productive—or we would like them to be under more productive agriculture than they currently are.

Senator JOYCE—Most farmers are sane people who have a pretty good balance between the lot until the government comes in with some ridiculous scheme that says they should not be sane, which this is.

CHAIR—On that note, Senator Joyce, it is three o'clock. Senator Heffernan, the last question.

Senator HEFFERNAN—In terms of the crop yield under these things, if it is a tight spring finish to a winter crop with a summer based pasture which is loading up, wouldn't that impact on the yield dramatically?

Dr Jones—The interesting thing is that, on the data that we have, we have not yet seen what you call pinched grain, which often happens if there is a tight finish to the season. That has not occurred; even under extremely dry conditions we have not seen that.

Senator HEFFERNAN—The difficulty is if it is extremely dry, the plant figures that out. It is not like a tight finish to a good season will give you a pinched grain; a tight finish to a tight season, the plant sorts that out. I just wondered what would happen if a tight finish, if there was a massive—

Dr Jones—Do not forget that you have to vastly improve soil that has higher soil moisture holding capacity.

Senator HEFFERNAN—Yes, I am 100 per cent on board with that.

Dr Jones—And the water use efficiency is much higher when the soil has more carbon in it because there is a higher bioavailability of nutrients and trace elements that plants with—

Senator HEFFERNAN—Barnaby, I am just thinking how I am going to explain this to the O'Briens and Harrises and all those people up there.

Senator JOYCE—I am looking at a big storm out my window right now that should be heading down their way, so they will be happily engaged on their front verandas watching it.

Senator HEFFERNAN—They have already got enough. They are guaranteed a crop.

CHAIR—Okay, that is fantastic. I am absolutely rapt and I hope there is a good downpour up there for all Queensland growers. It is now past three o'clock, so Dr Jones, thank you very much for your submission.

Dr Jones—Thank you, Chair.

[3.03 pm]

SYKES, Mr Peter Sylvester, Private capacity

Evidence was taken via teleconference—

CHAIR—Good afternoon.

Senator HEFFERNAN—Did you hear most of that, Peter?

Mr Sykes—Just the last five minutes.

Senator HEFFERNAN—Righto.

CHAIR—Is there anything you would like to add on the capacity in which you appear.

Mr Sykes—I am appearing today as a farmer.

Senator JOYCE—Are you Peter Sylvester Sykes from down near Wagga?

Mr Sykes—Yes, next to Umbango, where you are very familiar—

CHAIR—Great, but Senator Joyce you might want to have that conversation when we have all hung up. We will move on. Mr Sykes, do you wish to make a—

Senator HEFFERNAN—He's a rel of yours, mate!

CHAIR—Senator Heffernan! I am halfway through asking Mr Sykes if he wishes to make a brief opening statement before we go to questions.

Mr Sykes—Yes, sure. I suppose the reason for my interest in appearing before you today—and thank you for the opportunity—is that I think agriculture has moved to a point where we have far more opportunities and there are far more intelligent ways of dealing with climate change rather than saying, 'Let's just go and stick some trees in a paddock and that'll fix everything.' There is an amount of disagreement about when a forest sink, after it is planted, is actually going to start absorbing carbon from the atmosphere. Documents I have seen range from between eight years and more than 50 years. If we were to look at redesigning our agricultural systems to take advantage of sequestration of carbon in the soil, we would be able to provide more food for the world as well as providing sustainable and hopefully extra profitable sources of income for rural and farming families. Rather than having farms sold up to be planted with pine trees or blue gums or something else and ultimately infested with native weeds, noxious weeds and feral animals, there are smarter things that we can do. The last thing we need is more families leaving the country and moving to the city.

CHAIR—Mr Sykes, I know you were not referring to Senator Heffernan when you were talking about feral animals—but, on that note, Senator Nash.

Senator NASH—That was a bit cheeky, Chair!

CHAIR—I was just getting in first!

Senator NASH—On what you were just saying, Mr Sykes—

Mr Sykes—Just for the record, Mr Sykes is my father; my name is Peter!

Senator NASH—Okay, Peter! Your opening comment was about how we can do better things to put carbon in than putting trees in the ground. Could you give us a bit more detail on what those alternatives are? There are certainly members of this committee who have concerns about putting carbon sinks in prime agricultural land and giving a tax break as a result. Could you expand on what your thoughts and views are other than putting in those trees, which seems to be a very simplistic solution that is being thought of at the moment. What are the alternatives?

Senator HEFFERNAN—Could you take in that US stuff, Peter?

Mr Sykes—I am not sure how many of you are familiar with the place called the Chicago Climate Exchange.

Senator NASH—We just had it mentioned briefly. If you would like to give us some background on that first, that would probably be quite useful.

Mr Sykes—The Chicago Climate Exchange is, I think, the third largest carbon market in the world. It is a voluntary market and it has been built up over the last five years. It specialises in agricultural reductions. It has a number of products that you can use for offsetting. The most commonly used so far is one where farmers aggregate into, if you can imagine it, a wholesale lot of acres that go from till to zero till. They have a system where they have typed the soil and its capacity for sequestration around the country. So they can say, 'Righto, if you are in Minnesota in this part, you will be able to sequester, say, 0.8 of a tonne of carbon per annum if you go from till to zero till,' whereas if you are in Nevada you might only be able to sequester 0.2 of a tonne.

They have done that survey and they have used calculations to have an insurance amount that is withheld at the end of the contract so that in case something happens—for example, you have a fire—the amount paid to the farmer can be adjusted. Those markets are well developed. Currently, if you do some searching around on the internet you will find there are stories every day in American newspapers about XYZ farmer who has just got a cheque for an extra \$72,000 because they have sequestered X amount of soil through their wheat cropping program.

The other one that they have is that, if you are a farmer and you go from unimproved pastures to improved perennial pastures, you are sequestering more carbon in the soil because, say, I am looking out my window here and I have got beautiful green rye grass paddocks and my next-door neighbour's is all brown. In my next-door neighbour's paddocks those plants have shut down, so they are not sequestering any carbon into the soil through the process of photosynthesis. If you go from an unimproved pasture to an improved pasture, they have a

similar program where you get X number of credits for going from unimproved to improved. The improved pastures are working nine, 10 and 11 months of the year, whereas the unimproved are only sequestering for about four or five.

They also have another one which is for if you go from a set stocking regime. If you have 100 cows and 10 paddocks, you can put 10 cows in each paddock and leave them there. But if you go from that system to a system of rotational grazing—so you still have your 10 paddocks and you still have your 100 cows, but you put 100 cows in one paddock and then you move them on after X number of days—combined with improved pastures, the animals are on a more even and better quality plane of nutrition for a longer period of time. That process by itself can reduce the amount of methane emitted—and methane is 23 times more potent a greenhouse gas than carbon—by up to 70 per cent.

Again, all these things are happening in the States. It is a voluntary market and people are being paid for it. I think there are tremendous opportunities in Australia for farmers to have additional income sources through doing immediate action on climate change that is additional to what they would normally be doing, and it is something that can have an impact straightaway rather than waiting eight or 12 or 50 years. There is already around the globe a monumental push towards food miles. You have a situation in the UK where the supermarket Tesco, the bigger version of our Woolworths, have a carbon rating on each of their 26,000 SKUs or stock keeping units. For their stores—and I have already had approaches and discussions with people in the beef supply chain in Australia about this—they are starting to consider having supply arrangements with farmers who are low-carbon producers of beef, which can be verified through a traceability program showing that they are going from unimproved to improved pastures, that they are going from the set stocking to rotational grazing. People want to buy that, because the emission reductions that are happening on-farm are negating the food miles in getting a product to an export market.

Senator NASH—How many farmers in the States are involved?

Mr Sykes—Thousands.

Senator NASH—When did you say it started in the States?

Mr Sykes—About four years ago.

Senator NASH—I am interested in the comparison: nothing seems to be happening in Australia and we just get told how it is so hard to measure agricultural emissions and it all seems to be in the too-hard basket. Is there any interest at all in Australia in doing this?

Mr Sykes—There is massive interest in it. As far as being told that it is too hard, necessity is the mother of invention. There is some very interesting technology which has been developed in Canada. I am not a scientist and I cannot remember the exact name—I can supply it to you afterwards—but it is a reflective laser technology that you put on the front or the back of a tractor. You can drive it around a paddock, at whatever distances you want for measurements, and it will give you what the soil carbon levels are now, as well as all the other soil nutrient levels. So not only do you have a baseline so you can verify what your starting position is for soil carbon but it also gives you all the information you need for precision application of

fertilisers. Then you can come back and say, 'Righto, I've gone from a till system to a zero till system, and this was my baseline,' and after that you can come back and say, 'This is what the new soil carbon levels are,' and you can be paid accordingly. The quality of payments that a farmer or any offsetter receives in any carbon market is directly related to the capacity to verify that reduction and the validation processes that go along with it. If you have a very accurate and highly validated soil carbon measurement system, instead of getting eight bucks a tonne you might be able to justify saying that the market moves up to 12 bucks or 16 bucks or 20 bucks a tonne.

Senator NASH—Did you say it is just attached on the front of the ute?

Mr Sykes—On the front of a tractor, and it has all the computers tied up to it. It has been developed in the last 18 months in Canada.

Senator NASH—What would be the cost of one of those units?

Mr Sykes—Because it is in the early stages it is still relatively expensive. I think the landed cost, I was last told, would be between \$70,000 and \$90,000 a unit. But obviously this is not the sort of thing that you would have sitting in the backyard of every farm. In the States they have a system where they have aggregators. They are the people who go around and pool the farmers together—so they would say, 'Righto, Senator Heffernan is going to put a thousand acres into zero till, Senator Joyce is going to put another thousand acres in and Senator Nash is going to put another thousand acres in.' Then they are all combined, so instead of getting retail discounts on what the purchase prices will be you are getting wholesale pricing. The aggregator gets a slice of that and then puts that contract over the five years into the Chicago Climate Exchange. Then they have verifiers, which is a new industry they have developed as a result, where people go around and actually audit to make sure that what people have said they were going to do has actually been done.

In Australia we have a few stock and station agency firms, agribusiness firms, who are ideally placed to be able to act as aggregators and verifiers because they have the stockies who are travelling out to people's farms on a regular basis. So, for example, they would know whether Senator Heffernan is actually fulfilling his obligations under his contract to the CCX to go from set stocking to rotational grazing, because he is out there and they can see the process that is going on. They would know that Senator Heffernan has purchased X amount of fencing material to go through the process of establishing smaller paddocks to have a rotational grazing system. They would know that a farmer has bought X amount of improved pasture seed. They would know how much seed has been purchased if a farmer is going from till to zero till. So they can have high quality assurance of the scheme. They also have huge teams of agronomists who could have regionalised or branch-located these carbon measurement systems and, as they go around on a regular basis doing soil tests and checking on pastures and crops, they could whiz them around and get an accurate measurement of the baseline and subsequent levels of carbon in the soil.

Senator NASH—How did you get involved in this?

Mr Sykes—Again, necessity is the mother of invention. Climate change has had a very big impact on our farm. We have had seven years of drought.

Senator NASH—Whereabouts are you?

Mr Sykes—In between Tarcutta and Tumbarumba, at a gorgeous little place called Humula. The drought also had a very big impact on another business of mine. I have been involved in the voluntary carbon markets, carbon offsetting and that sort of thing for the last couple of years.

Senator NASH—Well done.

Senator BOSWELL—Peter, does the CSIRO believe that your way of doing things is actually storing carbon in the land?

Mr Sykes—I do not know whether the CSIRO would be the appropriate department with the expertise to give an answer to that.

Senator BOSWELL—We heard from the previous witness, who was talking on similar lines to you, that the CSIRO were not in agreement with storing carbon in the soil.

Mr Sykes—Well, you have also got the head of the IPCC—that Indian vegetarian chap, whose name I cannot remember—

Senator MILNE—Dr Pachauri.

Mr Sykes—who in one of his more recent speeches said that the world has underestimated the capacity of sequestration of carbon in the soil. He has suggested that it is something that needs to be given a lot more attention and a lot more urgency. If you look at the people who are doing practical things, such as Dr Jones and different people all around the world, they are on the ground doing things that are having an impact on the amount of carbon that is in the soil.

Senator BOSWELL—Just to cut to the chase, what we are investigating here is the proposition of putting tax breaks in for growing trees. What you are saying is that there is a better way of doing it.

Mr Sykes—To give someone a tax advantage to do something today that will not have an impact on the environment for between 10 and 50 years seems to me like lunacy.

Senator MILNE—Peter, you said you have been in the voluntary carbon market for a while. Are you selling soil sequestered carbon? What are you actually selling?

Mr Sykes—My capacity in the carbon markets is with the company in Sydney called Climate Friendly. They specifically deal in green power, Gold Standard and VCS credits, verified through the United Nations and through WWF, and they are solely in wind farms. At the moment there is not the capacity for people to be able to buy or sell agricultural credits.

Senator MILNE—I thought when you were speaking you were implying that you have been doing it with soil carbon, so that is why I asked.

Mr Sykes—I have just been researching it.

Senator MILNE—I am very familiar with Climate Friendly. The issue for me here is the transitional arrangements. Clearly this legislation is designed to give a tax deduction for planting trees, so you can actually see that and sign, and there is a cost for planting your trees.

What sort of transitional arrangements do you think would be appropriate so that, if a farmer decided to go from till to no till or to move to rotational grazing et cetera, there are going to be establishment costs in the way of fencing and all the rest of it. Do you think it is appropriate to have a tax deduction for that? How do you think it would work?

Mr Sykes—At the moment you are not providing a farmer with any more tax deduction than he is currently eligible for. They are able to claim tax deductions for pasture improvements, subdivision fencing, fencing repairs and those sorts of things, so there is no additionality as far as benefits that need to be given to the farmers go. The greater thing you could do, whether through legislation or something else, is encourage the implementation of a voluntary carbon market, similar to the CCX, which can be applied in Australia so that people can have the additional income streams of being able to sell these credits and get the money. I can see a time when you will have banks and some of these agribusiness firms who will be able to say, 'Righto. Here are your input costs to go from till to zero till. We don't want the money back; we want the credits back because we have a carbon book and we think carbon's going to go from 20 bucks a tonne to 80 bucks a tonne. That's how we'll make our money.' The main thing is to be able to establish a market where these transactions can take place.

Senator MILNE—Yes, and we discussed that with Dr Jones earlier. Whether there was any engagement with a voluntary carbon market was my first question. Thank you.

Senator O'BRIEN—Dr Jones gave evidence just before you today and suggested that, with a system of perennial C4 grasses and potential overplanting of grains and the like, there was the potential to completely offset Australia's carbon emissions in the landmass currently used for grain production. What do you think the price of carbon would be if we achieved that?

Mr Sykes—The price of carbon would probably be largely unchanged because, if you look at the numbers, Australia globally is not a very large emitter. Even though it would be a fantastic outcome for us to be able to sequester our national emissions, I do not know whether there would be a large enough reduction in global emissions to have a huge impact on carbon pricing. It could be something that happened globally. From some of the numbers I have seen, if soil management systems and farming systems were changed to allow for more soil carbon sequestration, we could have a very big impact in a very short period of time in sequestering a lot more emissions than we currently are. I think if we do nothing or if we let this legislation go through and allow people to get tax deductions for planting trees that are not going to start significantly sequestering carbon for 50 years—that is the time frame when, as the Garnaut commission and other people have said, if we continue on a business as usual case, 85 per cent of the agriculture businesses in the Murray-Darling Basin will be gone—

Senator O'BRIEN—Where does your 50 year figure come from?

Mr Sykes—The Intergovernmental Panel on Climate Change has some data that says 50 years. There is some United Nations stuff that says the data is 50 years. I will try to find it while

I am talking to you. That is the thing with trees. There is so much disagreement about the capacity for them to start sequestering carbon in any meaningful amount.

Senator O'BRIEN—Depending on the species some produce reasonably quickly I would have thought. Dr Jones suggested that the growing curve in the nine to 15 year growth period was probably significant.

Mr Sykes—Nine to 15 years is a lot further out than tomorrow.

Senator O'BRIEN—Yes, but it is a lot less than 50.

Mr Sykes—You will have to take up the 50 year data with the United Nations.

Senator O'BRIEN—So you are basing your evidence on something which is in United Nations material?

Mr Sykes—And the IPCC. I cannot touch the piece of paper that has the exact information on it.

Senator O'BRIEN—In terms of the Chicago Climate Exchange work, do you have a fix on carbon price being achieved by farmers? Is that known information?

Mr Sykes—The pricing for the Chicago Climate Exchange is exactly like being on the Australian Stock Exchange.

Senator O'BRIEN—So it is variable.

Mr Sykes—You have infinite amount of price discovery. Every possible financial instrument that is traded for interest rates, foreign exchange or stocks can be traded in carbon markets around the world today. You have options, swaps, forward contracts, spot contracts. You have put options, call options—the whole gamut that is currently there.

Senator O'BRIEN—In terms of an indication of pure sale options, are there any price indications there?

Mr Sykes—As in the price per tonne of carbon?

Senator O'BRIEN—Yes.

Mr Sykes—It varies from product to product. I think they range from between about US\$6 to about US\$14 a tonne.

Senator O'BRIEN—Is that something we could reasonably expect in Australia or is that dependent upon the make-up of the Carbon Pollution Reduction Scheme when it is produced?

Mr Sykes—Do not forget agriculture is not going to be included in the Carbon Pollution Reduction Scheme.

Senator O'BRIEN—I know it is not initially. It has been deferred until 2015, hasn't it?

Mr Sykes—To be considered later. But what we are talking about is a voluntary market and the voluntary market is the one because the Carbon Pollution Reduction Scheme is only going to cover the 1,000 largest emitters whereas a voluntary market gives people the capacity to act immediately on climate change and to do something today. The secret to all of these things is again government supporting the establishment of a carbon market that is going to be fungible into, for example, the CCX.

Senator O'BRIEN—The forest industry can opt in or opt out. That is the plan as well, isn't it?

Mr Sykes—I am not a big supporter of the forestry industry, so I have not focused on what their interests are.

Senator O'BRIEN—Thank you.

CHAIR—Thank you for your time and good luck.

[3.53 pm]

JONES, Dr Christine Ellen, Founder, Australian Soil Carbon Accreditation Scheme

CHAIR—For the purposes of the Hansard record, Dr Jones just wishes to make a very quick statement that she did not get an opportunity to do in her allotted time earlier this afternoon.

Dr Jones—Thank you. Because of Australia's relatively small volume of emissions and large agricultural land area, we can very easily achieve carbon neutrality and be the first country in the world to do so. In addition, Australia's agricultural land area has the capacity to make a significant impact on global carbon dioxide levels. Finally, Australian coal exports account for 30 per cent of the world's traded coal. In Australian soils, we could offset the emissions for 30 per cent of the world's traded coal, irrespective of its destination. Thank you.

CHAIR—Thank you, Dr Jones.

[4.01 pm]

TRAILL, Dr Barry John, Australian Director, Pew Environment Group

Evidence was taken via teleconference—

CHAIR—Online we have Dr Traill, Senator Joyce and, I believe, Senator McGauran. Welcome everyone. Dr Traill, Do you wish to make a brief opening statement?

Dr Traill—Yes, I do. I am a wildlife ecologist by trade. I have worked on natural resource management and conservation issues with a range of government and non-government organisations and industry for the last 25 years. Particularly in the last 10 to 15 years, and relevant to this committee, I worked as a leader in a range of states to get in land-clearing controls, particularly in Queensland, New South Wales and the Northern Territory. I could go into a range of details, but probably the simple point which I was most exercised about in seeing the tax bill amendment is that, as it is currently configured, it potentially opens up a very risky, perverse outcome. I am happy to go into more details as you wish.

In brief, as it is currently configured from what I have seen in the amendments and the attached regulations, it would allow and permit clearing of a range of types of vegetation that have less than 20 per cent canopy cover and/or below a certain height and to get a tax break to put in plantations. I will give you a couple of examples of how that could play out. In Northern Australia, where I have particular expertise, there is around 100 million hectares of tropical savanna. That area is a huge carbon store as well as, of course, having all of the biodiversity and production benefits and grazing benefits that savanna provides. But most of that savanna has less than 20 per cent canopy cover. This is not an arcane figure. My reading of the amendment as it is currently configured is that that means someone could clear an area of savanna with a big loss of carbon into the atmosphere when the bulldozed vegetation is burnt or rots and then get a tax break to establish a carbon sink plantation or several carbon sink plantations. To give an example of how that could play out, on the Tiwi Islands there have been tens of thousands of hectares of tropical savanna cleared to establish a woodchip plantation. The latest information is they are struggling financially. This of course was done with tax breaks to establish timber plantations. That was a massive carbon loss we created with that because the savanna was cleared and the resulting plantation does not go anywhere near to replacing that over any period of time. That is the Tiwi Islands.

There is a huge carbon sink opportunity around 15 million hectares of regrowth vegetation in central and southern Queensland. This is country with a whole range of eucalypt and brigalow that has been cleared previously for a range of reasons, often because it was poorer country. It is growing back. As currently configured, under current Queensland land-clearing laws that can be recleared legally without a permit, most of it, so again someone could potentially clear that, remove its potential for regrowth to create a huge stable and long-term carbon sink with a lot of biodiversity benefits and replace it with a short-term plantation of very dubious carbon sink benefits and very limited efforts for biodiversity or other production. So I would really emphasise that opportunity there in that 15 million hectares—an area two-thirds the size of Victoria, which has been well measured and well mapped—in central Queensland and the huge

opportunity that provides for landholders to have that country, if there are carbon dollars available, return to native bushland—particularly if much of it is on less fertile country, which is why it is going back to regrowth and not being recleared, so it is not actually taking land out of production.

Looking at southern and south-central New South Wales, the New South Wales land-clearing laws are very poorly enforced in my experience. You could have a situation in southern New South Wales where you have productive grazing country in the Southern Highlands where there are scattered trees, native pastures. Under this amendment, as I understand it, a landowner could put in and get a tax break for a carbon sink and replace that native ecosystem, which is also very productive grazing country. I could go on with more details for any particular type of country you may wish to question me on, but there is enormous risk there. As currently configured, this will create a very perverse outcome where companies or individuals may see an opportunity to get into the carbon market, get a tax break to do that and in fact increase clearing and increase the amount of carbon emissions.

CHAIR—We do only have seven minutes of your valuable time, so I will go straight to questions.

Senator HEFFERNAN—Barry, have you gone from the Wilderness Society to what is called the Pew Environment Group?

Dr Traill—Yes, I have, Bill. It was about 18 months ago. I should have explained it at the start. Pew Environment Group is a global environment organisation which is well-known in North America and Europe, but only recently started here in Australia 18 month ago.

Senator HEFFERNAN—We have been told by the department—and they are about to appear—that the switch into prime agricultural land for a lot of this stuff will occur when carbon gets to \$80 a tonne. We are going to try and look for the modelling on that. I guess it would be fair to say that this is all dependent on the climate predictions for the changes in the weather in Queensland as to where this all might occur. Do you see this happening in what would be called food-producing country?

Dr Traill—Give us an example of what type of country you are talking about.

Senator HEFFERNAN—I suppose the more marginal wheat country in Queensland.

Dr Traill—I am not an expert on the economics of carbon versus wheat versus cattle in some of that Central Queensland country. It will vary a lot with the soils, of course.

Senator HEFFERNAN—When it comes down to it, farmers are not going to plant out prime land if they can get a bigger quid out of something else. We have heard there is a complete new face to all of this with perennial grasses and zero tillage as a model for carbon sink sequestration. There is some controversy over the planting of a tree as to how effective that is as a carbon sink activation. The average plantation sinks carbon from eight or nine years up to 15 or 18 years and after that it gradually deteriorates. We were told it could take up to 50 years to start to sink the carbon, depending on the species. Have you got any information you can give the committee on the sinking rate of the average species of tree?

Dr Traill—This is just figures in my head from when I worked on forestry back in the eighties and nineties, but on very fertile country with good rainfall you are looking at maybe a tonne sequestered per hectare per year. If you are talking \$80 a tonne, that starts to add up. Of course, that plateaus. It starts off slow when the trees are saplings, then it increases when they are a moderate size and it plateaus off when they get older. I actually think that is the wrong question to ask. The point here which I am focusing on is the land productivity and those potentially terrible trade-offs for communities on highly productive land. I think what I am most focused on here, and I want to make sure people understand, is the terrible perverse possibility that on some of the poorer country—a lot of which is currently grazing land but is under natural tree coverage—there will be an incentive to clear it, creating an enormous carbon pollution signal there which will not be measured.

Senator HEFFERNAN—With a negative outcome.

Dr Traill—With a negative outcome for which the landowner will not be liable, and then they will get a tax break to establish a plantation. It is very perverse. That is ignoring the situation for landowners who may have a mixed property in, say, central New South Wales, Central Queensland or maybe the Midlands of Tasmania, where they have got a mixture of productive lower country and maybe some hill country and a range of country in between, and some of the country has been knocked down previously and is regrowth but it is poor fertility and they have not recleared it, where they will not get any incentive to allow that regrowth to grow through. That regrowth, when it grows through, will provide stable long-term carbon. The problem with most plantations is that the trees grow and then they die. I cannot see anything in the amendment that deals with that simple basic fact, that plantations are not self-replicating. Natural bush, including from regrowth, is self-replicating. Even if it is burnt or knocked down by a cyclone, it will still move to recover and get a maximum carbon store in that land type.

Senator HEFFERNAN—We take your point.

Senator MILNE—Dr Traill, the issue for me is the adequacy of the guidelines covering this legislation, because they are so general you could drive a truck through them. They rely on state governments having decent land-clearing laws that are reinforced, they rely on catchment management plans being properly drawn up and enforced and they rely on water plans being enforced. Can you just give me a view of how consistent this sort of regulation is around the country and what the enforcement pattern is.

Dr Traill—It is very mixed. South Australia and Victoria both tend to be good. New South Wales has very poor enforcement and we know that a large amount of illegal clearing is happening, and enforcement of a whole range of basic NRM regulations should be in place. Queensland is somewhere in between. Northern Territory and Tasmania are very poor. So relying on those guidelines, very simply, will not work. Even if they were interpreted in best phase the other thing to understand is that, on the most basic level, a lot of the information is not there. The amendment itself sets a bar, which sounds good on paper potentially, that you cannot get the tax break if the land had bush on it in 1990 or that more than 20 per cent cannot be covered with bush. I do not know of any state except possibly South Australia where that data is actually available. It is data that does not exist. You are relying on an honour system from the landowner, who might of course have a financial reason not to be completely truthful about the area having been cleared in 1990. The data is simply not there.

Senator MILNE—With regard to catchment management plans and so on, it seems to me that there are not very many of them finished around the country, especially when they are looking at things like potential salinity mitigation benefits or at increases in instream salinity, which would require a plan to be finished and based on some kind of decent analysis. How many catchment plans around the country would stand up to any sort of scrutiny if you tried to apply these guidelines?

Dr Traill—I cannot give you a number. I have not done an analysis probably for 18 months or two years, and there would have been some more coming through then. But I can answer in the reverse. I know of many regions, tending more towards Northern Australia but also many areas to the south, where there are not detailed active catchment management plans in place. That is simply the reality. The NRM bodies are relatively new outside small areas of probably Victoria, South Australia and southern New South Wales.

Senator MILNE—Having looked at these guidelines, what do you think would be the strongest thing we need to recommend? Is it insisting that the plantings be biodiverse, that they be in the ground for 100 years or that you not get a tax deduction if there is not a registered catchment management plan or a water plan? How do you think we could improve them?

Dr Traill—I would be happy to put more detail on paper, but in brief, because I am conscious of time, the first and most important thing is that native vegetation of any type, with its carbon stores, is not removed and replaced with a plantation because that would be a perverse outcome and would provide for an incentive for a perverse outcome. There are ways that could be done. It would not be relying on NRM strategies. The first thing is to get rid of that major perverse outcome, and then I think a focus on existing NRM plans where they exist. Where they do not exist, frankly, I would have to think about it. I am not sure there are any easy options there.

CHAIR—Dr Traill, thank you very much for making yourself available.

Dr Traill—Thank you and I apologise for the noise problems.

[4.20 pm]

JAMES, Mr Russell, Assistant Secretary, Water Policy Branch, Department of the Environment, Water, Heritage and the Arts

ROBINSON, Ms Carey Ellen, Director, Conservation Policy Section, Department of the Environment, Water, Heritage and the Arts

ZAMMIT, Dr Charlie, Assistant Secretary, Department of the Environment, Water, Heritage and the Arts

CHAIR—Welcome. I remind senators that the Senate has resolved that an officer of a department of the Commonwealth or of a state shall not be asked to give opinions on matters of policy and shall be given reasonable opportunity to refer questions asked of the officer to superior officers or to a minister. This resolution prohibits only questions asking for opinions on matters of policy and does not preclude questions asking for explanations of policies or factual questions about when and how policies were adopted. Officers of the department are also reminded that any claim that it would be contrary to the public interest to answer a question must be made by a minister and should be accompanied by a statement setting out the basis for the claim. Before we go to questions, does anyone wish to make a brief opening statement?

Mr James—I am happy to make a short statement. As I understand it the committee has asked for clarification of how the guidelines interact with the National Water Initiative. Insofar as they relate to the possible impacts of carbon sequestration forests on water resources, the guidelines fully reflect the commitment contained in the National Water Initiative in relation to so-called interception activities. Consistent with paragraph 57 of the NWI, the guidelines require that water access entitlements be held for carbon sink forests that will have significant interception impacts and are located in catchments with high levels of water allocation. I would also just note that the Commonwealth, state and territory governments are all signatories to the NWI.

Senator BOSWELL—I would like to get a copy of those guidelines.

Senator NASH—There is some concern about the planting of the forests in prime agricultural land which will displace prime cropping type areas ranging across a multiple of varied crops. What work has the department done on the social impact effect of cropping out, if forestry was going to go in its place?

Dr Zammit—I do not think we have done anything specific around that. I do not know of any specific research on the social consequences of land use decisions taken by private landholders.

Senator NASH—So there has been none at all? When the government was working on this—

Dr Zammit—The example I am thinking of happened a long time ago when we were preparing work around regional forest agreements and there was conversation around the shift of tenure of forests from production forests into the conservation state. Social impact assessments

were undertaken in that context because there was a genuine policy concern about dislocation of employment, for example.

Senator NASH—There has not been a genuine policy concern about dislocation of employment with these tax measures for the carbon sink forests?

Dr Zammit—I cannot comment on that because I am not closely involved in the carbon forest work. That happens through the Department of Climate Change.

Senator NASH—Who would I ask that question of?

Dr Zammit—You would have to ask the Department of Climate Change, I think.

Senator NASH—The Department of Climate Change.

Senator BOSWELL—Are they appearing?

Senator NASH—Yes, they are, this afternoon. I think that is a very important question if these policy decisions have been made without any kind of social impact analysis that could be quite significant indeed.

ACTING CHAIR (Senator Milne)—Mr James, you just said that the guidelines are completely consistent with the National Water Initiative. The carbon sink forests legislation is law right now but in relation to the National Water Initiative, whilst the intent has been signed off, for how many areas around Australia have we now got a hydrological analysis? At this moment if I were to go and plant a carbon sink forest somewhere, where could I get accurate data about the hydrological analysis of the catchment, interception and so on and by what date would I expect to be able to get that?

Mr James—The NWI has a commitment that by the end of 2010 states and territories are supposed to have dealt with what is termed overallocation and overuse of the water resources within their jurisdiction. In most states, there are now 10-year or in some cases longer water resource plans that the states claim were designed to do that. For example, across the Murray-Darling Basin nearly all parts of the basin, as I understand it, are covered by at least surface water plans. With the process of looking at what the water resource is, how big it is and how it is likely to change over time and making an informed decision about how much water can be taken out of the system and how much ought to be left in the system for environmental outcomes, those decisions were made in a lot of instances four or five years ago. Those plans are now on a 10-year path. They will be reviewed at the end of that period.

I cannot give you precise data across Australia about which areas are covered by plans or which are not. What I can say is that in most areas where the resource is under pressure—so, where there is a significant amount of use—that planning has generally been done. I certainly would not claim that it has been done everywhere. While the fact is that in many areas the plans are in place, perhaps there is a subsequent question about whether those plans have gone far enough. On the work that CSIRO has done recently for the Murray-Darling Basin and indeed the rationale for the federal government's intervention in the basin, there is a view that those plans have probably not gone far enough.

Senator MILNE—It is the disjunct in the time here that I am talking about. This legislation is law now. You said that it will be 2010 before the states and territories have to comply. You said that for the Murray-Darling mapping has been done. What about Tasmania? How many catchments in Tasmania, if any, have had a hydrological analysis done?

Mr James—I am sorry, I cannot answer that question.

Senator MILNE—Okay. Why did you say a minute ago that this legislation was completely in compliance with the National Water Initiative when you do not know about a whole state, the state of Tasmania? I do know, and I can tell that for most catchments there has been no hydrological analysis done. They have just started that process. If I was a plantation company going to set up in Tasmania now, under these guidelines isn't it true that I would be deemed to have complied because of the fact that there is no data to comply with?

Mr James—I cannot comment on the amount of data that is or is not available in Tasmania. But, in terms of the issue of retrospectivity that you raised, my understanding is that, if in applying the guidelines a proponent wants to establish a plantation for carbon sequestration and there is no requirement in that particular catchment to hold a water access entitlement to cover that type of activity, then yes, they would be compliant, presumably.

Senator MILNE—Yes. So you can see where we are coming from here. We have tax deductibility for planting so-called carbon sink forests now in the absence of any consistent data around the country—data that is going to come out under the National Water Initiative. Who is going to enforce it?

Mr James—I do not think I could support the statement that there is no information. The comment that I made before the committee last time was that when states go about undertaking their planning process—which is a lengthy and expensive thing to do—they start with the areas where the resource is under the most pressure. Those tend to be the areas that have plans in place. I am not sure that it is right to say that there is no information or indeed that you can assume that just because there is no plan there the resource is somehow therefore at risk. In a lot of cases, those areas are deemed by the states to not be under the pressure that requires them to be a priority for planning. I am not defending the way that that is done. In a perfect world, all of these things would have been done a long time ago. But states have a program of working through these things and they start with the most at-risk catchments.

Senator MILNE—Do you think it would be an improvement to the guidelines if the tax deductions were only available in areas where a catchment management plan and a water management plan were in place? That gives some incentive for people to put them in place and it gives some certainty to us, and to anyone else, that the water issues have at least been addressed.

Mr James—I would have no problem with that. From our point of view we are very keen for water plans to be in place in all catchments. The only thing that I guess causes me to slightly hesitate in fully endorsing that would be that you are assuming that, if there is no plan in place, the resource will somehow be at risk. My point is that if there is no plan there it could well be that that resource has been assessed in a reasonably quick way and people think: 'Well, there is not a lot of activity going on there. It is not likely to be at risk and there are not a lot of people

queuing up to use the resource, so it is not a high priority.' All I am saying is that there are water resources where that is the situation.

Senator NASH—I have a question that follows up on that and it may sound very simplistic. We spent all day yesterday down in Adelaide dealing with Murray-Darling Basin issues and water issues. As the legislation and the guidelines currently stand, if you want to put in a carbon sink there is no requirement for determining beforehand what the impact on water in terms of interception or anything like that is going to be. Is that correct?

Mr James—The guidelines, I think—

Senator NASH—I know it is simplistic, but if I am Joe Bloggs and I want to put in a carbon sink—

Mr James—Are you talking about how this would operate?

Senator NASH—I am asking whether there is any requirement anywhere for me to show how my trees are going to affect the water environment, if you like—where it is in the basin, how much it is going to suck out, how much it is going to intercept and how much it is going to use. Is there any requirement for me to find that information out and give it to anybody?

Mr James—For clarification, are you talking about the situation in the absence of this bill, or just in a general sense?

Senator NASH—I am talking about the bill and the guidelines as they currently stand. Is there any requirement in there?

Mr James—No. The guidelines are about the arrangements that are in place within particular states.

Senator HEFFERNAN—The guidelines are just a motherhood statement; they are meaningless.

Senator NASH—I agree with you. So—

Mr James—To continue, in South Australia, for example, where they do have a requirement for plantation proposals to offset their water use by holding an entitlement—South Australia is, as I understand it, the only state that has that—then, yes, the guidelines would suggest that in those areas you would have to do that.

Senator HEFFERNAN—You put out an absolutely meaningless motherhood statement as the guidelines. It is just a motherhood statement. It is just one page in length and it could mean any damn thing.

Senator MILNE—It is not their department that put it out.

Senator HEFFERNAN—Those are the guidelines. The river management plan for all the rivers in New South Wales did not include any interception when it was set—against the

background of the 2020 Vision. It is a complete cock-up. This is further direction of that; there is absolutely nothing in it.

Senator NASH—As it currently stands with those guidelines and that legislation, if I have a piece of land out in western New South Wales in the Murray-Darling Basin and I want to plant trees—

Senator BOSWELL—Good luck!

Senator NASH—I will repeat this again so that we can be absolutely clear about it: do I have to determine what the impact on the basin will be, or how much water those trees are going to use on an annual basis or, indeed, what interception may occur? And, if I were to determine that, would I have to inform anybody what the impact will be of my planting those trees?

Mr James—No, not as I understand it. I might add that, under the NWI, there is an obligation on states to have in place by the end of 2011 arrangements of the type that are in place in South Australia at the moment.

Senator NASH—In 2011—and this legislation is in place now. What is the obligation? What happens to them if they do not?

Mr James—If they do not what?

Senator NASH—If they do not have the plans in place.

Mr James—If the states do not have those requirements or those processes in place to make the assessments you are talking about—

Senator NASH—What happens to them?

Mr James—I guess they would be acting inconsistently with an intergovernmental agreement.

Senator NASH—What is the penalty?

Mr James—As far as I know there is no—

Senator NASH—There is no penalty. So there is no penalty for something that is not going to happen for another three years even if they do not do it then.

ACTING CHAIR (Senator Milne)—That is right. Senator Fisher?

Senator FISHER—As Senator Nash outlined for you, we have been spending some time separate from this inquiry looking at the Lower Lakes and Coorong and the Murray-Darling Basin in general. I was interested to hear your comments a little earlier in response to questions from Senator Milne in which, if I understood you correctly, you indicated that you do not do assessment of land use decisions by private operators. Is that right? That is what I understood you to say.

Mr James—I said that in the context of any sort of social evaluation or social impact assessment we do not do a social impact assessment when a private landowner chooses to change their land use from one type of land use to another.

Senator FISHER—Why is that? Why do you not do that analysis? Is it not part of your—

Dr Zammit—It is not part of our remit, for one, and I am not quite sure what the Commonwealth's role would be there. Private landowners make all kinds of decisions about their land use daily, weekly and monthly, depending upon the enterprise.

Senator FISHER—Sure. Would you do assessments of public land use?

Dr Zammit—A government would. Depending on what the Commonwealth's responsibilities were for the particular intervention, we may have a view; we may not. It depends. Most of the land use planning happens through state legislation, as you know, so our points of entry are actually quite small.

Senator FISHER—Nonetheless, we are talking here about the National Water Initiative and we are talking to the Department of the Environment, Water, Heritage and the Arts. Has the department done an assessment of the land use implications of the decision just announced by the federal and New South Wales governments to purchase Toorale Station?

Mr James—Sorry, what sort of assessment are you asking about?

Senator FISHER—A land use assessment. You have indicated that you do not do that for private operators. However, we are talking about the National Water Initiative. You are the department for water and the environment, amongst other things. We are talking about a forecast land use change by a public operator in a conglomerate, we understand from the media, between the federal government and the New South Wales government. It is a change in land use from food production and irrigation, essentially, to an environmental purport site. Obviously, there will be land use implications and other implications: for food, employment and water and social and economic. Has the department provided that analysis to the federal government?

Mr James—As far as I am aware, we have not done a socioeconomic analysis of that particular purchase. I guess the more general point, though, is that the government has an intention to purchase quite a lot of water over the 10-year period of that program to redress the balance of water use within the basin, and we are certainly looking more generally at the issue of social and economic consequences of that activity. The Minister for Climate Change and Water recently commissioned an independent panel to provide her with some advice on some of those issues.

Senator JOYCE—So you have spent \$26 million to get 14 gigs a thousand kilometres away from South Australia—an average 20 gigs a year—and you have not done a socioeconomic study about what is going to happen to the town of Bourke?

ACTING CHAIR—Senator Joyce and Senator Fisher, this is our last hearing on carbon sink forests. Whilst I appreciate—

Senator JOYCE—I did not want to participate, but since it was brought up and it is contentious I thought—

ACTING CHAIR—It is just that we have five minutes and Senator Boswell has been following this carefully and we want to get back to some biodiversity questions.

Senator FISHER—Can I ask that my remaining question be put on notice then? Is that all right?

ACTING CHAIR—Yes.

Senator FISHER—Thank you. So you have not provided advice. Can you answer on notice whether you have been asked to provide that advice by the federal government? It is possible that you have been asked but have not yet provided it. Also, have you either provided to the federal government or been asked to provide to the federal government advice or modelling about the use to which the water realised from this sale will be put? I ask that question in the context of Minister Wong saying in the media today that it will be returned to the river, for environmental purposes, for the health of the river.

ACTING CHAIR—Thank you, Senator Fisher. I am happy for you to put it on notice but we need to move on. This is our last hearing.

Senator BOSWELL—I looked at these guidelines and they seem pretty innocuous but is there anything that would prevent a carbon sink forest being established on the most prime land available?

Mr James—I am not sure if I can answer that.

Dr Zammit—I cannot answer that. I do not know the guidelines. You will have to ask the Department of Climate Change, who wrote those guidelines.

Senator BOSWELL—Who wrote those guidelines?

Mr James—The Department of Climate Change. We had some input, in terms of the NWI issues, but I think the senator's question is a broader one.

Senator BOSWELL—No, the question is: who wrote the guidelines?

ACTING CHAIR—Did the Department of the Environment, Water, Heritage and the Arts have input?

Dr Zammit—Have we seen it? I do not think we have seen the guidelines at all.

Senator BOSWELL—Who wrote the guidelines?

Mr James—The Department of Climate Change. I am saying that we had some input in respect of the water parts of the guidelines.

ACTING CHAIR—So you cannot answer Senator Boswell's question?

Mr James—I will not be able to answer it, no.

Senator JOYCE—Can I ask a very simple question please?

ACTING CHAIR—Yes, Barnaby.

Senator JOYCE—Thank you. Where does more water run off? Does it run out of forests or does it run off grasslands or does it run off agricultural land?

Senator NASH—Good question.

Senator HEFFERNAN—Do you want me to give you the right answer if they cannot?

ACTING CHAIR—Thank you, Senator Heffernan.

Senator JOYCE—I know the right answer; I am just waiting for them to put in on the record.

ACTING CHAIR—Please let the witnesses answer.

Mr James—I think the answer to that is: it depends where you are.

Senator JOYCE—Let's just say I have 20 acres of country next to the Murray River and I want to know whether to put in a blue gum forest, leave it as natural pasture or cultivate it. Which way is the most water going to run off that country?

Senator HEFFERNAN—It depends on the rainfall, Barnaby.

ACTING CHAIR—Okay. Do you have anything further to add to that?

Senator JOYCE—I did not get an answer. Is there an answer to that question?

Senator HEFFERNAN—Yeah, from 38 inches you will get 2½ megalitres a hectare interception. From 22 inches to 18 inches, you will get bugger-all interception.

CHAIR—Senator Heffernan, Senator Milne has the call. We have only a few minutes left.

Senator MILNE—Yes, we have only a few minutes, so I would appreciate it if you could just be quite sharp with your answers. You have just established that the Department of the Environment, Water, Heritage and the Arts was not consulted about the guidelines.

Dr Zammit—No, I did not say that. I said my area of the department was not. You may need to check with other areas of the department. I did not see it. It is a large department.

Senator MILNE—So the biodiversity section did not get asked?

Dr Zammit—Yes.

Senator MILNE—Okay. I wanted to ask you precisely that. As the regulations currently stand, they do not require the plantings to be biodiverse. They do not require the plantings to be in more marginal areas. They do not require the plantings to be in the ground for 100 years or something that might represent a sequestered amount of carbon. Has any discussion at all been had between you and the Department of Climate Change about the notion of these plantings being biodiverse and setting any kind of rules to make sure they are biodiverse?

Dr Zammit—Not with me personally. I will ask Carey if she knows of any conversations around this. It is a reasonable question. No-one has approached me on it and I get a lot of traffic on forests.

Senator MILNE—So would it be desirable for carbon sink forests, if they are to be carbon sinks, to be biodiverse?

Dr Zammit—I think from first principles you would have to say yes. The argument would go from first principles that if you are going to grow trees for carbon the added benefit of biodiverse trees is a free benefit, so why wouldn't you do that?

Senator MILNE—Is it true to say that if you have a biodiverse planting it is likely to be more resilient in the longer term and self-replicating, as opposed to a monoculture?

Dr Zammit—It is hard to answer that. It would depend on the adjoining land uses and the context. But, again, from first ecological principles you would say yes. Resilience comes with complexity—

Senator MILNE—Exactly.

Dr Zammit—and diverse forests are more complex. Therefore, you would expect diverse forests to be more resilient.

Senator MILNE—I just need to clarify the guidelines issue, finally. You were not asked and have never been asked to provide feedback from your biodiversity unit on these guidelines?

Dr Zammit—No.

Senator HEFFERNAN—Do you think that an independent person looking at the guidelines would take the view that they are a sort of motherhood statement but meaningless? I am talking about a casual observer.

Dr Zammit—I think you could argue that they are generic.

Senator HEFFERNAN—They are very generic.

CHAIR—On that, I thank officers from the Department of the Environment, Water, Heritage and the Arts very much.

[4.46 pm]

MATTHEWS, Mr Ken, Chair, National Water Commission

RADCLIFFE, Mr Murray William, Manager, Water Planning and Management, National Water Commission

CHAIR—Welcome. I remind senators that the Senate has resolved that an officer of a department of the Commonwealth or of a state shall not be asked to give opinions on matters of policy and shall be given reasonable opportunity to refer questions asked of the officer to superior officers or to a minister. This resolution prohibits only questions asking for opinions on matters of policy and does not preclude questions asking for explanations of policies or factual questions about when and how policies were adopted. Officers of the department are also reminded that any claim that it would be contrary to the public interest to answer a question must be made by a minister and should be accompanied by a statement setting out the basis for the claim. Does anyone wish to make a brief opening statement?

Mr Matthews—I do. First of all, thanks for the opportunity. I will give a little bit of background about the National Water Commission, which is not always understood. We are an independent statutory body in the Environment, Water, Heritage and the Arts portfolio. We have a number of roles, but the important ones for today are as follows. We have a role of assisting governments throughout Australia—federal and state governments—with the implementation of the National Water Initiative. Sometimes the National Water Initiative itself is confused with the National Water Commission, but of course the National Water Initiative is an intergovernmental agreement. We have a role of advocating and, as they say, facilitating the outcomes of the National Water Initiative. I mention that because we will be making some comments shortly about how we think these aspects of the National Water Initiative are going. We advise both COAG and the Commonwealth minister about issues of national significance relating to water. Our interest in this inquiry is the carbon sink forests and their potential impacts on water availability for other users, because that is an important aspect of the National Water Initiative.

Under the National Water Initiative, it was recognised by governments—and all governments of Australia have now signed this intergovernmental agreement—that large-scale land use change such as the expansion of plantation forestry has that potential to intercept large volumes of water and that that needs to be dealt with. So the National Water Initiative came up with an agreement among governments about, at least, a high-level framework for managing the growth of interception activities across Australia, to be adopted on a priority basis by the year 2011. I will come back to that date, 2011, because I am told that you have been focusing on that in your previous hearings.

Under the National Water Initiative intergovernmental agreement, the arrangements that governments committed to are these: that, in water systems that are overallocated, fully allocated or approaching full allocation, significant interception activities should be recorded and any proposals for additional—that is, new and additional—interception activities would require a water access entitlement; and that, in water systems which are not yet fully allocated or approaching full allocation, estimates are made of the amount of water that is likely to be

intercepted and a threshold level of interception is calculated above which a water access entitlement would be required for, again, those additional significant interception activities. I know that is a bit of a mouthful, but that might be helpful for when you are preparing the report, because it is a critical thing for this inquiry.

Senator NASH—Do we get it in English as well?

Mr Matthews—I was trying to make it more English-y! The NWI requirements are reflected in the guidelines that you have been discussing in the last 15 minutes, and I will come back to that, but our basic position, from the commission's point of view, is that we are pleased that those guidelines reflect the need for water access entitlements to be obtained where the establishment of a carbon sink forest represents a significant interception activity.

All that is a bit of background, but I want to make a couple of points from our assessments about how water reform is going. We have found and reported publicly that the current responses by the states to their implementation of the NWI interception commitments are uneven. There is a need for significantly improved knowledge, policies and practices about interception. All states have started on water planning, but in some cases the rollout of completed plans has been slow. So, across Australia, the National Water Commission's blunt assessment is that there are deficiencies in models, tools, data and information to rigorously quantify the impact of the interception at the catchment level. In addition, we have said publicly that different jurisdictions continue to assess sustainable yield differently and that there are different approaches to the definition of what overallocation means, which is a pretty critical issue. We recognise that these findings, including the need for a shared national understanding of sustainable levels of extraction, improved water planning and improved tackling of interception, have been picked up in COAG's current water reform plan, and we look forward to receiving that. The commission itself is funding at least \$3.4 million worth of interception work to try to improve the scientific and program understanding of interception, and we can provide details of those projects and investments if you want.

So what is our attitude to the proposals that this committee is inquiring into? I think there are half a dozen points. The first one is that we do not expect that these provisions, on their own, will lead to large-scale land use changes. We are aware of the ABARE modelling where, in a sentence, they are saying that it is more likely—

Senator Joyce interjecting—

CHAIR—Sorry, Mr Matthews. Senator Joyce, you may want to walk out of the room with your mobile phone and have that conversation somewhere else, because we are hearing it.

Senator JOYCE—I wanted someone to hear what is going on here.

CHAIR—Carry on, Mr Matthews.

Mr Matthews—In a sense, they are saying this is likely to be an additional but not an alternative source of income. That is our first point. Second, the National Water Commission is pleased that those guidelines do require, in a general sense, the observance of natural resource management and water management policies and plans. We are pleased also that they basically

reflect the National Water Initiative language. Fourth, we have already urged more concerted action by the states and territories on interception. There is a lot that has to be done before the year 2011—and 2011 is a ‘not later than’ date; it is not a target date; it is a date by which these things are meant to be completed. So there is a lot that has to be done by the states and territories before then. Fifth, the commission has already expressed its concern about the slow rate of rollout of completed plans across Australia and we have already expressed our concern about the lack of a shared national definition of sustainable levels of extraction and an approach to that.

Finally, what do we think is needed? First, we think that there does need to be a significant improvement in the level of knowledge about interception. There are many examples, but I will just give the example of knowledge of where interception is or could be and the differential effects of interception in different landscapes. So significantly improved knowledge is required. Secondly, we need improved policies about interception in the states before 2011, including the need to settle, as the governments have committed to do, thresholds for the size of plantations and so on. I note, relevant to this inquiry, that these carbon sink forests we expect will be small. Thirdly, we need improved quality of NWI-consistent water planning. Our argument there is that there needs to be improved science and data and better participation processes, better participation planning models and better taking into account of climate change and other risks to the water supply. Fourth, we think there needs to be faster work on this national definition of sustainable levels of extraction and approaches to it. Finally, overall we are saying directly that we think Australia needs more concerted action on interception, although—coming right back to where I started—we do not expect that these particular provisions on their own will lead to large-scale land use change and large-scale interception of water.

CHAIR—Thank you. Mr Radcliffe, do you wish to add anything to that opening statement?

Mr Radcliffe—No.

CHAIR—Before I go to questions from senators, I remind senators that this is the carbon sink forests inquiry.

Senator BOSWELL—Ken, you gave us about 15 reasons why this legislation should not proceed. You just enunciated them all there: ‘We weren’t ready, we had to do more work et cetera.’ Would you prefer to see this legislation put back until all that work that you mentioned there was completed in 2011?

Mr Matthews—I was not giving reasons why this legislation should not proceed.

Senator BOSWELL—You were. You were giving exact reasons.

Mr Matthews—I was making some points about interception, but I was at pains to make the point a couple of times that our expectation is that these carbon sink forests will not have major impacts on interception.

Senator BOSWELL—With due respect, how would you know whether it is going to be 80,000 hectares or two hectares? What are you basing it on? No-one thought MISs were going to take off. Now they control about 30 per cent of Queensland cane land. Everyone had said, ‘No, they won’t do anything.’ Well, they have made a mess of it up there.

Mr Matthews—I see this as quite different from MISs. The ABARE assessment does put some numbers to it.

Senator BOSWELL—Eighty thousand hectares. That is a lot of land.

Senator JOYCE—I would always like to have an option on ABARE's forecasts because they are always out.

Senator HEFFERNAN—There was the \$46 a barrel for the oil.

Senator JOYCE—I would love to have the option of oil at that price.

CHAIR—Could we have some order please.

Senator BOSWELL—Mr Matthews, what are you basing it on? It is all very well to come here and say, 'I don't think it is going to have any impact,' but what you basing that on—just the seat of your pants? What are the reasons? Eighty thousand hectares is a lot of land if you put it in the wrong area.

Mr Matthews—Eighty-thousand hectares across Australia is not a large area of land, particularly when all the price incentives are for it being on marginal land.

Senator JOYCE—How can you say that?

Mr Matthews—For the reasons that are in the ABARE report. When a farmer is making a choice about how to use his or her prime arable land and the stack up alternatives, this will not be a good investment.

Senator BOSWELL—MISs were.

Senator HEFFERNAN—With great respect, the CO2 company has told us that they are going to plant out in wheat farms.

Mr Matthews—My understanding of what they were saying to you was that they were putting in strips across some territory out in—

Senator HEFFERNAN—To their credit, they were going to survey them and stick them on the—

Senator JOYCE—Prospectus.

Mr Matthews—They might be doing that for their own reasons. They might be doing it because it is good management practice.

Senator JOYCE—Can I pick up on one point that you brought up? You said that it is not like MISs. Why do you believe that to be the case structurally? I can see why this is better than MISs if I want to invest in it, because I get both a tax deduction and an income stream. Where do you

make the decision that it is not an MIS? The reason I pose that question is because MISs do use prime agricultural land.

Mr Matthews—I could not hear all of that question, I am afraid.

Senator JOYCE—I will quickly go through it. You made the statement that this is not like an MIS. I disagree. I think it is very much like an MIS, except that it is better than an MIS because you get an income stream—

CHAIR—What is your question, Senator Joyce?

Senator JOYCE—The question is: why do you believe that it is not an MIS? Do you believe that MISs use or do not use prime agricultural land?

Mr Matthews—I suppose I am avoiding the question, but I do not think that I am the right person to be giving you a tax assessment about the differential treatment of MISs versus these.

CHAIR—That is fair enough.

Senator JOYCE—You said to Senator Boswell that this is not like an MIS. I am putting to you that it is exactly like an MIS.

CHAIR—I would urge senators to wait for the call. When you are given the call, acknowledge that you have it. It is starting to get a bit out of hand. I was in conversation with another member of the committee and it sounded as though there was a circus going on in the background. Please stay relevant.

Senator BOSWELL—I have yielded to Senator Joyce.

CHAIR—You do that through the chair, Senator Boswell. You would know that better than anyone, being the father of the house, as you told me the other day—and I did not argue with you. Senator Boswell, do you have any more questions?

Senator BOSWELL—I just listened to Ken Matthews, and he gave us six or 10 reasons why we should not go ahead. That is game, set and match as far as I am concerned.

CHAIR—Do you have a question, Senator Boswell, because Senator Milne wants to ask a question.

Senator BOSWELL—Mr Matthews answered the questions. As I took it, we should not go ahead until all these things are done.

Mr Matthews—Can I comment on that?

CHAIR—Yes, Mr Matthews.

Mr Matthews—I do not want to leave that uncontested. I was not saying that this should not go ahead; quite the contrary, in fact. I was talking about interception and the concerns that the National Water Commission has previously expressed about interception. But I was at pains to say that we do not assess these proposals as being a serious interception challenge.

CHAIR—Thank you, Mr Matthews.

Senator MILNE—That is the point that I want to come to. I understood from what you were saying earlier, with the many reasons that you went through, that there is patchy implementation around the country and varying degrees of commitment and results at the state level regarding compliance with what was signed up to through COAG, through the National Water Initiative and so on. The point that we are making here is that the National Water Initiative has to be complied with by 2011. This legislation is in place now. Are you satisfied that the guidelines, as they currently stand, will prevent overallocation in catchments around Australia?

Mr Matthews—What has not come out in the evidence so far, as I understand it, is that there has been a prioritisation process about setting up these plans. The water plans across Australia have been sequenced by the state governments, which are responsible for this, according to where they think the greatest pressures are—where the water systems are most stressed. So, for a long time now the most stressed areas—water systems—have had intensive planning activity across them. That gives me some confidence that, if there are water systems that are approaching full allocation or are overallocated, they are under notice now. Where the systems are not approaching overallocation, and given what I have said about our expectation that this will not be an additional major demand on water, I am confident that the sequencing and the timing can be accommodated.

Senator MILNE—I want to take you back to that. You are saying that you are confident that with the sequencing it will be all right because you are confident that ABARE is right that it will not roll out. But the issue here is that it is not being done alone. I notice that you have qualified everything that you said by saying that, standing alone, this would not lead to the rollout.

We are coming into an emissions trading scheme in which you can opt in for carbon. We had a recent report from ANU saying that at \$14 a tonne the MISs will not cut down their trees but will keep them for carbon. At \$14 a tonne it starts to look like a very different scenario in terms of where you would plant out trees. The best land with the most water is going to grow trees faster and will have the biggest volume of carbon in the time frame. The question I am asking you is this: no matter whether thousands of hectares are set aside or two hectares are set aside, are you confident that this would be a sufficient guideline to establish where it could safely be assumed you could establish a carbon sink forest without destroying the catchments? This is motherhood. You tell me who is going to enforce it.

Mr Matthews—I do not know. We would not—

Senator MILNE—Will you ask?

Mr Matthews—We would not be involved in it.

Senator HEFFERNAN—Can someone out there in bureaucrat land tell us who the author of this rubbish is?

Senator MILNE—You were not asked, I assume?

Mr Matthews—No, and nor should we be. We are an independent adviser to governments about water things.

Senator MILNE—You would think you would be—but, go on.

Mr Matthews—Look, there are a lot of dimensions to your question. I think the best way to answer it is to say that the National Water Initiative has set up processes that give priority to the most overallocated systems. So those systems already have attention. This piece of guidance requires that water plans, just like any other NRM policies and plans, need to be observed—as they should, anyway, because it is basically following the law. So there is already in place a mechanism that should be able to handle the concerns that you have about water demand in overallocated or approaching overallocated systems.

Senator MILNE—So would you agree with a set of guidelines that said, specifically, that you can only get the tax deduction in catchments where there is a signed off water plan and catchment management plan?

Mr Matthews—This is asking my opinion about a policy thing. Perhaps I can answer it this way: I think that could run the risk of having a perverse outcome—that is, it might direct these forests to the most overallocated system because the most overallocated systems are where the planning has been. The least overallocated systems often have not yet finished their planning. I suggest to the committee that you have a think about making that condition, because it might have a perverse outcome.

Senator MILNE—But if they have got a proper catchment management plan they will have identified areas where there are salinity problems that could do with some tree planting, and they will have also identified that you cannot put more plantations in because of the interception and the overallocation, so at least you have got some data behind your decisions. The other point I would make is that you are saying that they have dealt with the ones that are most allocated now, but just because others have not been allocated does not mean that they will not be vulnerable if you plant out the entire catchment.

Mr Matthews—The way the National Water Initiative is expressed talks about overallocated systems—they deserve the most attention—fully allocated systems or approaching fully allocated systems. I think the third category picks up the question you have just asked.

Senator HEFFERNAN—My old mate up there in the sky would go nuts.

CHAIR—As long as he goes nuts when he is called.

Senator HEFFERNAN—The planning for some of our river systems has been desktop; it has not been ground in by environmental science. Regarding the Warrego River, that thing today in

the news about Toorale is a complete farce because there is water resource planning which is not based on environmental science. It is rubbish.

CHAIR—Senator Heffernan, I will pull you back. The—

Senator HEFFERNAN—But, look, we are talking about the credibility of water planning.

Senator MILNE—Exactly.

Senator HEFFERNAN—They are in some instances a joke. The Warrego plan is a joke because it is not grounded. We had Mr Spencer and the bureaucrats on this set-up the other day—and you can see all the waffle that went on—but at the end of the day they had an allegedly science based assessment, the same as the CSIRO's and Tom Hatton's snapshot of the Balonne now. It is not based on environmental science; it is based on a guess at the flow rate in the future. That is all it was based on. We want a full scientific investigation.

CHAIR—Your question, Senator?

Senator JOYCE—Chair, I do want a chance to speak when you—

CHAIR—Actually, Senator Milne has the call. We have five minutes left, Senator Milne.

Mr Matthews—Could I comment on what Senator Heffernan has said?

CHAIR—Senator Joyce, I will come to you.

Mr Matthews—I do not agree with the colourful language you have used, but the National Water Commission has also said that Australia needs to be better at its water planning, including the science.

Senator HEFFERNAN—No-one is going to disagree with that.

Mr Matthews—We do not back away from that. It does not make us very popular but it is something that has to be said. I have to say, I do not go as far as you went.

Senator JOYCE—Not many people do.

Senator HEFFERNAN—No, and you would not expect—

CHAIR—I apologise—it is 5.30 and we were going to finish at 5.15. Senator Heffernan, have you finished, because Senator Joyce is waiting?

Senator HEFFERNAN—Could I just raise one other point. I presume the climate change mob are up next—are they?

Senator MILNE—Yes.

Senator HEFFERNAN—We want to look at the modelling that is being used by the department to arrive at the proposition that only at about \$80 a tonne for carbon will this transfer itself into prime farming agricultural land. Obviously we have received a lot of new evidence today on perennial pastures and their carbon sink capacity, which has rewritten the rule book in a way. You do not—

Mr Matthews—I cannot add any value to that, but I am sure you helped the Department of Climate Change by telegraphing your first question.

Senator HEFFERNAN—I did. They came to my office the other day. I am just reminding them.

Senator JOYCE—I am just making sure I have the call. In referring to groups, who does the National Water Commission actually liaise with? Which other bodies do you liaise with in coming to your determinations?

Mr Matthews—The National Water Commission is an independent statutory body. When we are making our assessments about how the states are going in implementing what they promised to do in the intergovernmental agreement, called the National Water Initiative, we hear from them, we hear from experts, we take advice from the CSIRO and others—

Senator JOYCE—The Murray-Darling Basin Commission?

Mr Matthews—No—not so much the Murray-Darling Basin Commission. We try to spread our favours around a bit.

Senator JOYCE—So when you are liaising with these groups, what sorts of parameters do you use to decipher the run-off of a certain area, rainfall versus soil type versus contour of the land and how this affects vegetation types—and that is—

Mr Matthews—I am sorry to interrupt you but that is not the sort of work that we do. Our role is to look at how state governments have gone about what they have promised to do in the National Water Initiative. Their promises are a level or two up from where you are. They promise to introduce a method of handling interception. They promise to introduce a statutory regime for planning. They promise to introduce a framework for water trading, and so on. Those are the sorts of things that we check—

Senator JOYCE—Then I will take it down a level or two. With regard to someone putting in a government sponsored forest, which is what this will be, how are you interposed in that process? Do you really care whether it gives off less or more water? Is that really any part of your brief?

Mr Matthews—The answer is no. What we—

Senator JOYCE—So what do you want to talk to us today about?

CHAIR—Senator Joyce, you might not be able to hear Mr Matthews. He was just trying to answer you further there.

Mr Matthews—Thanks, Chair. I was trying to say that our role relevant to this is to make public assessments about how governments are delivering on what they promised in the National Water Initiative. What they have promised are processes and policies and legislation, and we check that they have delivered. We do not check on the nitty-gritty outcomes because otherwise you would have a state government regulating and then an independent Commonwealth body coming in and regulating as well, which is bad government.

Senator JOYCE—I will be direct then. Is there anything in the legislation underpinning carbon sink forests where you have a working relationship in the formulation of the policy as far as water goes?

Mr Matthews—We have no role in developing the guidelines that you are looking at and the piece of legislation that you are looking at. But—

Senator JOYCE—Do you have any role in reviewing or assessing or ascertaining whether or not the modelling is correct?

Mr Matthews—No. Our interest in this inquiry is: how is the National Water Initiative intergovernmental agreement relevant to this, and would this impact negatively or positively on the NWI?

Senator JOYCE—With the greatest respect, it appears that it is not relevant to anything that is in your role. If it is, where specifically is it relevant?

Senator HEFFERNAN—What he is really asking is: are we wasting your time and are you wasting our time?

CHAIR—Senator Joyce, Senator Milne has just asked if she can ask a question on this.

Senator JOYCE—I really am trying to flesh this out. I would not be as abrupt as Senator Heffernan but I am trying to work out what question I can possibly ask you that is of any relevance that you can answer.

Senator MILNE—Can I try one, Barnaby?

Senator JOYCE—Yes, fire away.

Senator MILNE—Mr Matthews, in your presentation you said there was a slow rate of rollout of completed plans, that it was patchy around the country. Could you give us a state-by-state analysis of where the states are in rolling out their water plans? As Senator Joyce has just said, these guidelines require those water plans to be in place to be meaningful. So could you tell us, state by state, where we are up to with the water plans?

Mr Matthews—I could leave with you a summary of how each state is approaching water planning which I think you would find a useful document. Your question goes to a bit more detail than that, which is: state by state how each water plan is going—

Senator HEFFERNAN—We are asking you who is the best and who is the worst.

Mr Matthews—We have some material on that but I have not got a clearance back that it is accurate for one state. So I am reluctant to table that because it may—

Senator JOYCE—I will just ask one question before you go which is relevant exactly to this. Is there any licensing arrangement in New South Wales or otherwise with regard to overland flow?

Mr Matthews—I would prefer to take that on notice.

Senator JOYCE—While you are taking that on notice, could you also take on notice whether there are any licensing arrangements as part of the ROP overland flow in Queensland, on overland flow in New South Wales, on overland flow in Victoria and on overland flow in South Australia.

Senator HEFFERNAN—I am pleased you got that one in, mate, and it is all a disgrace.

Senator MILNE—I would appreciate it if you could table that progress on the water management plans in each state because it goes to the heart of where this could be relevant or not. In the guidelines it says:

Carbon sink forest establishment should be based on regionally applicable best practice approaches for achieving multiple land and water environmental benefits.

Compliance with this guideline may be achieved by ...

... ..

- establishing carbon sink forests in ways to avoid any significant negative impacts on water availability;

How would a company be able to assess whether it was establishing a carbon sink forest in a way which avoided any significant negative impacts on water availability if there were no hydrological data or no water plan for the catchment in which they wish to plant?

Mr Matthews—By and large if there is no extant plan then that catchment is well below fully allocated, so the risks are low, particularly for a small interception that carbon sinks would cause. In cases where there is a plan in existence, it is more likely to be at fully allocated or approaching it and in that case they would simply need to observe the plan in the same way that any other user of water would need to observe the water-sharing plan.

Senator MILNE—That is the point though. You just keep coming back to saying that you do not expect it to make a difference because it is going to be such a small area. That is contested. We absolutely contest that that will be the case because this is being done in conjunction with a range of other things. What you are actually saying is that compliance with this guideline will occur in the absence of any data on the hydrological system or whatever just simply on the basis that, if there is not a plan, we can assume that it is not overallocated therefore it will be all right.

Mr Matthews—You say that is what I am saying.

Senator MILNE—What did I just say that is not what you just said to me?

Mr Matthews—I have said a part of that. I have said that it is important to get more data including hydrological data, that we are not happy with the quality of data all across Australia, but that does not apply uniformly. I have also said earlier that there will be many areas where because it is on marginal land, no hilltops and so on, that it will be a win-win situation.

Senator MILNE—But with a carbon price that is lucrative where in these guidelines does it require that the land needs to be marginal?

Mr Matthews—It does not require that.

Senator MILNE—Thank you.

Mr Matthews—But my expectation of the pattern of incentives that will be set up is that people will still find it more productive to use their best land for higher yielding more economic purposes.

Senator MILNE—But doesn't that entirely depend on the carbon price.

Mr Matthews—It does.

Senator MILNE—So the debate here is that essentially the price of the carbon should be separate from this because we should be putting in place guidelines that protect our catchments regardless of the price of carbon because the higher it goes the greater the threat to the catchments. If you are wrong, and ABARE is wrong, and the carbon price is more than \$14 then there is nothing here to prevent the best land and any catchment without a plan being planted out.

Mr Matthews—You said the higher the price goes the greater the threat to the catchment. My argument has been the higher the price goes the more important it will be that there is good planning because the quality of that plan is the way that we will manage that.

Senator MILNE—That is the point I am trying to make to you about trying to rewrite these guidelines to make sure that you cannot get the benefits without the plans being in place. I agree with you, the data is critical. But we do not have the data in a large part of Australia.

Mr Matthews—And I can only say again that there is a risk, I think, if you attach that condition to it that you will have the perverse outcome of having these forests in the worst places, not the best.

Senator HEFFERNAN—Let us just take up Bombala or Craigee. Do you know where Craigee is?

Mr Matthews—Yes.

Senator HEFFERNAN—In respect of those plantations that are going in now, there has been no consideration given to interception. They are absolved from an environmental plan, and you are saying that your job is to make sure that they get all that right for interception. They are not required to do anything about interception. They have absolutely bugged the landscape up

there. Streams that, 15 or 20 years ago, you used to be able to catch a trout from no longer run, and there is no environmental plan. The only trick is to buy the farm without the neighbours finding out, and the first the neighbours know about it is when the bulldozers arrive to start ripping it up.

Mr Matthews—The arrangements in the NWI have different timings. It has been put to the committee before that states have to bring their interception arrangements into place not later than 2011—

Senator HEFFERNAN—So you are repeating—

Mr Matthews—Let me continue, please.

Senator HEFFERNAN—It is just bureaucratic twaddle.

CHAIR—Mr Matthews is answering your question, Senator Heffernan. Mr Matthews.

Mr Matthews—That is in 2011. The plans for overallocated or near overallocated systems were to be completed by the end of 2007 and plans for systems not yet approaching fully allocated are to be completed by the end of 2009. So there will be—

Senator HEFFERNAN—So you do not think the Murrumbidgee system is overallocated?

Mr Matthews—I have a view on that, but I do not think I should be offering it.

Senator HEFFERNAN—That must mean that you do not think it is overallocated.

Senator JOYCE—It is relevant information you will give.

Senator HEFFERNAN—That could only mean that you do not think it is overallocated.

Mr Matthews—You are saying that, Senator Heffernan.

CHAIR—You do not have to, Mr Matthews.

Senator HEFFERNAN—My point is that this is happening—

Mr Matthews—That is not what I am here for.

Senator HEFFERNAN—But it is pertinent to this. You are supposed to be the guardian at the gate of all of this stuff and you are not guarding the gate because plantation forestry is going in today in New South Wales in high rainfall areas without an environmental plan and without any consideration of the interception effect. Unlike in South Australia—and it does not come into effect for years in South Australia, anyhow—it is without any need to square off or have contra—

CHAIR—Do you have a question, Senator Heffernan?

Senator HEFFERNAN—I am making the point that you cannot just rely on this bureaucratic system.

CHAIR—I do not think Mr Matthews and Mr Radcliffe and the rest of the committee need preaching to. If you have questions, I urge you to ask them.

Senator HEFFERNAN—Yes, well, this is how we all learn.

Mr Matthews—But those areas—

Senator HEFFERNAN—With great respect, Ken, this document is very nice, but it is a meaningless motherhood statement—

CHAIR—Senator Heffernan, I ask you: do you have any questions? I take it that you do not.

Senator HEFFERNAN—By your predecessors it was called a very generous generic document. It does not compel anyone to do any damn thing.

CHAIR—On that, are there any further questions of Mr Matthews or Mr Radcliffe?

Senator HEFFERNAN—What I want to share is that these are the guidelines under which we are going to implement this legislation.

CHAIR—That is why I am urging you, Senator Heffernan, to ask the questions.

Senator HEFFERNAN—Would you agree that it is generic?

Mr Matthews—I would agree that it is generic. But the point that I have been making about that is that we are pleased, from the commission's point of view, that it does pick up the same commitments that are in the National Water Initiative.

Senator HEFFERNAN—But your commitments under the National Water Initiative are not preventing anything. I mean, if you go to upper Gobarralong, you will find they have just planted out a swamp, much to the dismay of everyone. You know where Gobarralong is. You blokes did nothing to prevent that. I know what the answer is, but no-one seems to care. There does not seem to be a plan.

CHAIR—If you would ask a question we could all find out what the answer is, Senator Heffernan, so I would appreciate that.

Senator HEFFERNAN—Why would you not have intercepted or made some commentary on that? That is deadset interception of run-off.

Mr Matthews—That is the same situation I was talking to Senator Joyce about. We are careful not to set ourselves up to second-guess every regulatory decision that is made by every state government. That would be a bad governance outcome.

Senator HEFFERNAN—I understand—

Mr Matthews—What we do—if I could just finish—is check that each state government has delivered on what it has promised in the NWI. We do not check what is happening at ‘Bringyagrogalong’.

Senator HEFFERNAN—The trouble with that is that you end up with a generic outcome which is meaningless. What is happening now against the background of climate change—losing a thousand gigs from the forests—

CHAIR—You have one minute, Senator Heffernan.

Senator HEFFERNAN—and 800 gigs net from plantation and 3,500 gigs from climate change—is that the Murray-Darling Basin is walking towards a doomsday scenario in the future. And we are still here, playing around, letting them put plantation forestry at the top of the thing. I know it has got nothing to do with this and I very much understand that this is not about MISs. This is a completely different proposition. If it went where everyone thinks it should go, it would not be a problem. But there are no guidelines to make it go there.

CHAIR—We are out of time. Do you have any further comments, Mr Matthews?

Mr Matthews—No, I do not have anything else to add.

CHAIR—Thank you for your evidence.

[5.30 pm]

MUMMERY, Ms Josephine, Acting First Assistant Secretary, Adaptation and Land Management Division, Department of Climate Change

RYAN, Mr Paul David, Director, Land Sector Policy, Department of Climate Change

CHAIR—I welcome representatives from the Department of Climate Change. I remind senators that the Senate has resolved that an officer of a department of the Commonwealth or of a state shall not be asked to give opinions on matters of policy and should be given reasonable opportunity to refer questions asked of the officer to superior officers or to a minister. This resolution prohibits only questions asking for opinions on matters of policy and does not preclude questions asking for explanations of policies or factual questions about when and how policies were adopted. Officers of the department are also reminded that any claim that it would be contrary to the public interest to answer a question must be made by a minister and should be accompanied by a statement setting out the basis for the claim. As you do not wish to make opening statements, we will go straight to questions.

Senator JOYCE—The object of this exercise is to reduce the amount of carbon in the atmosphere. Is that right?

Mr Ryan—Yes.

Senator JOYCE—We had evidence today about carbon sequestration via the growth of perennials. Perennial summer grasses such as buffel grass and Mitchell grass especially, Flinders grass to an extent, and even wheat, have, on a per acre basis, a better capacity to sequester carbon than dry sclerophyll forests. What do you have to say about that statement?

Mr Ryan—I think there are two issues. The first one is that this measure is directly targeted at activities that contribute to Australia's Kyoto protocol target, which includes the establishment of new forests since 1990. Grassland activities do not contribute to the target and so the incentive is to get that national benefit. The second issue is that, in terms of the relative benefits, the benefits of forests and the ability to account for their growth and carbon sequestration are well established. Grasslands and grassland systems are an emerging area of knowledge. There has been some work done and it is ongoing. The government has an interest in this area and is supporting work in this area. But the relative advantages of carbon storage in those two types of systems are not clear cut.

Senator JOYCE—So we are going down this path because it is part of the premise of the Kyoto protocol targets, which do not go to grasslands. Does that mean that we are heading towards an outcome because it is one that is determined by what seems apparent now to be a dated document—that is, the Kyoto protocol target—and that that document has primacy over the objective of what scientifically has the best capacity for storing carbon in the ground?

Mr Ryan—It is the particular focus, yes, to contribute to our national Kyoto targets, notwithstanding the potential for changes in arrangements and recognition of new knowledge in the future.

Senator JOYCE—It seems ridiculous that we do not just put aside the Kyoto premise if it has become evident that there is a greater capacity to store carbon by another means. Why are we tied to the premise of the Kyoto protocol targets if there is newer science emerging that there is a better way to do it? It might be unsavoury but we have had capable witnesses today saying that perennial grasslands will have a greater capacity to store carbon. If the new science conclusively proves it, does that mean we will therefore be asking people who have put in the forests to take them down and plant grasslands instead?

Mr Ryan—I think that is a difficult question to answer. As I have said, in one respect it may depend on the outcomes of future international negotiations. In Australia looking at its own interests, as other countries would, it would also be looking at the potential benefits as well as disadvantages. The government has done some work to inform some of the decisions already taken in accordance with the Kyoto protocol rules about the potential benefits in grassland systems but also the potential risks in terms of losses. With our variable climate, as well as particular aspects of the accounting rules, there are risk issues in terms of loss as well as gains that need to be taken into account.

Senator JOYCE—Have you formulated or modelled the process of getting an upfront tax deduction and then an income stream from the increase in carbon from an investment in grasslands? Has that been part of your modelling or was it purely, wholly and solely, only dealing with trees?

Ms Mummery—Perhaps I could just emphasise, as Mr Ryan noted, that the government's priority is to enhance its ability to contribute towards measures which will directly make a difference with regard to our current national account and our current accounting rules.

Senator JOYCE—But they only take trees into account, not grasses.

Ms Mummery—And certainly that is obviously a point of emphasis and priority for the government. There are, nevertheless, other measures. The government certainly has invested in a new measure called Australia's Farming Future, which is starting to look at other ways in which the agriculture and land sectors can contribute to our overall greenhouse objectives. So I think it is very important to note that this particular tax measure is focused very much on our carbon account—

Senator JOYCE—In summary, that is surrounding trees, not grasses. In fact, it does not acknowledge the benefits of the new science that is taking into account the capacity of the perennial grasslands to sequester more carbon than a similar area of forests.

Ms Mummery—But I think, as I noted, there are other potential avenues for the government to look at other measures.

Senator JOYCE—Can you tell me where the tax deduction comes for the sequestration of carbon via grasslands? Where does it provide that I can get a tax deduction for doing that?

Ms Mummery—I think, as Mr Ryan noted, this measure is focused on forest sinks as our Kyoto account highlight.

Senator JOYCE—So there is no place I can get a tax deduction for the sequestration of carbon via grasslands, is there?

Ms Mummery—Not that I am aware of; but tax deductions are something the Treasury will need to advise on.

Senator JOYCE—And that is ignoring the facts and the science that is becoming apparent to us of late, isn't it?

Ms Mummery—No; as I mentioned, the government is looking at broader ways that the land sectors can contribute to our greenhouse objectives, and Australia's Farming Future—

Senator JOYCE—They are looking at it; they have not created it.

Ms Mummery—It is certainly an early agenda, but there is likely to be further work looking at that question.

Senator JOYCE—Do you acknowledge that this scheme is an MIS in its premise and how it operates?

Mr Ryan—This tax measure specifically excludes MIS arrangements.

Senator JOYCE—If I might be so bold as to suggest this, can you tell me what is the difference between how this measure works and how an MIS works?

Mr Ryan—While Treasury would need to answer the detail as far as tax structures are concerned, in simple terms it requires that direct investment, as is identified in the legislation.

Senator JOYCE—Do you get an upfront tax deduction for capital investment under this process?

Mr Ryan—Yes, an upfront deduction for investment in establishing forests for—

Senator JOYCE—In an MIS do you get an upfront tax deduction for the capital investment?

Mr Ryan—Yes, but it is available for the managed investment scheme structures, which—

Senator JOYCE—Under both processes, is that not the encouragement to get people to invest in them?

Mr Ryan—That is correct—they both encourage investment and provide an upfront deduction.

Senator JOYCE—Under this one, is it not the case that the person also gets the benefit of an income stream from the increase in weight that is noted as being carbon sequestered in the timber on the place?

Mr Ryan—The incentive for investment here is to get an income stream from the carbon sequestered in the forest.

Senator JOYCE—In that case, it is better than an MIS because I get two things. I get the upfront tax deduction and then I get an income stream from a passive investment, which sits there increasing in weight. That has to be the case; otherwise, people are not going to invest in it. But that is how it is going to work, isn't it?

Mr Ryan—There would be the expectation of that return.

Senator JOYCE—What is there to stop people going to prime agricultural land and saying, 'This place is going to get the greatest return on weight'? Obviously, it relates to water, rainfall, soil depth, soil type and the capacity for a tree to grow as quickly as possible. Is there anything in this act that says, 'Prime agricultural will be excluded from being covered under this act'?

Mr Ryan—No.

Senator JOYCE—Why not?

Mr Ryan—The amendments to the legislation are simply a tax measure to encourage the establishment of carbon sink forests.

Senator JOYCE—Do you think that it is peculiar that some people suggest that prime agricultural land will not be used when it is not precluded in the act and therefore could be used and that if a prudent investor saw that that land would provide the greatest increase in the weight of carbon that is exactly what they would use?

Mr Ryan—It is true that it is likely that you would achieve good growth rates on productive land. In terms of the decisions, it is an investment decision involving weighing up the alternative land uses.

Senator JOYCE—Do you acknowledge that through the departments of land in various states there is ample capacity for the differentiation of land types by rainfall, soil type and contour that would enable certain land types to be described as non-prime agricultural land, which would reduce the threat of this being an investment process on prime agricultural land?

Mr Ryan—I am not able to comment on the specifics of the state governments' arrangements.

Senator JOYCE—Are you aware of state governments that have certain tree-clearing guidelines in place at the moment?

Mr Ryan—Yes, I am aware of tree-clearing guidelines.

Senator JOYCE—Do you acknowledge that they use satellite equipment and a whole range of other mechanisms, along with modelling, that can tell you even to the square metre what land type a particular area is? Do you acknowledge that on some types of land certain activities are allowed and certain activities are precluded?

Mr Ryan—Again, it is difficult to comment on the details of state arrangements. We are aware that different state governments have capabilities developed to varying levels in regard to monitoring land cover and land cover change and, presumably, the other characteristics of the land.

Senator JOYCE—Do you intend to approach the state governments to see whether the processes that they use can be overlaid on the processes that you use so as to be part of a solution in precluding prime agricultural land?

Mr Ryan—No.

Senator JOYCE—Has anybody approached you about entering into those discussions?

Mr Ryan—No.

Ms Mummery—The critical point from the department's perspective is that we have had some analysis from ABARE. They advised us that it is unlikely that this measure will drive the substitution of prime agricultural activity by forest sinks.

Senator BOSWELL—Did you question how they made that assessment?

Senator JOYCE—Unfortunately, there is a lot of conjecture about the relevance of ABARE. Unfortunately, ABARE has had a pretty bad track record in that it gets things wrong, starting with oil prices and moving on to just about every other soft commodity. Have you decided not to preclude prime agricultural land based on the evidence given by ABARE?

Mr Ryan—No. The ABARE report was commissioned by the department after the recent debate to help inform our consideration and hopefully the committee's consideration. The legislation was implemented earlier.

Senator JOYCE—On the ramifications for the Murray-Darling Basin, and especially on the run-off of water, have you done any modelling on water run-off if this is used excessively?

Mr Ryan—No, the Department of Climate Change has not considered that for this measure.

Senator JOYCE—Have you done any modelling or socioeconomic studies as to what ramifications this will have in the sugar-growing areas, especially as the production of mills goes below critical capacity and they shut down?

Mr Ryan—The ABARE report that we commissioned identified a range of different regions, covering different rainfall zones and production systems, including those particular regions, because it was clear that was one of the areas of interest.

Senator JOYCE—My final question—and you might take this on notice—is: would you be prepared to table all your socioeconomic statements about the effects of this policy on certain regions? And do you have any socioeconomic studies on the economic consequences of this policy for certain regions?

Mr Ryan—We commissioned this new piece of analysis by ABARE specifically for this purpose. The Department of Climate Change did not conduct other analysis.

Senator JOYCE—You do not have any socioeconomic studies on the economic ramifications of this policy, do you?

Mr Ryan—Other than the ABARE study, we have not commissioned other work.

Senator MILNE—My question follows on from Senator Joyce's. Did you do any analysis of the impact on biodiversity? If so, who did you consult?

Mr Ryan—There was no specific analysis of the impacts of the measure on biodiversity. The range of environmental outcomes were taken into account in developing the environmental and natural resource management guidelines that have been established through the legislative instrument.

Senator MILNE—So who did you consult in developing those guidelines as to the impact they might have in terms of either undermining or improving biodiversity?

Mr Ryan—In terms of biodiversity considerations specifically, the guidelines were developed within the Australian government and in consultation with our colleagues in Environment. There was also consultation conducted consistent with all tax measures with interested parties, including organisations like Greening Australia, which obviously have a close interest in biodiversity.

Senator MILNE—That is interesting, because we just heard from your colleagues from the Department of the Environment, Water, Heritage and the Arts in here, and the head of biodiversity said he was not consulted, was not asked. I would be interested to know who was asked about biodiversity. What is there in this legislation that prevents the clearance of the northern savannas across Australia for conversion to plantations or prevents the conversion of brigalow to plantations?

Mr Ryan—The first point goes back to an issue we discussed at a previous hearing—that clearly a fundamental eligibility requirement is that forests will not be eligible if they are established on land that has been cleared of forest since 1990.

Senator MILNE—What is the definition of a forest?

Mr Ryan—The definition of a forest described in this legislation follows the definition that we use for Australia's national Kyoto protocol reporting for afforestation, reforestation and deforestation.

Senator MILNE—Is savanna a forest?

Mr Ryan—Savanna systems include grassland and woodland systems. There is a potential for some woodland systems in savanna to meet the criteria for a forest. The criteria include a height of two metres and a crown cover of 20 per cent. Neither of those are very high criteria, so some woodland systems found in savannas could fall into those categories.

Senator MILNE—But a lot will not.

Mr Ryan—That is correct.

Senator MILNE—And that is my point—that with this legislation you will deem that a whole lot of native vegetation can be cleared and converted to plantations, to monocultures, because it will not fit the definition of a forest—the two-metre height and the 1990 date. So you will end up clearing huge swathes of native vegetation under this. You might put to me now, ‘But it is covered in the guidelines,’ because it says in the guidelines:

... avoiding clearing land of remnant native vegetation as determined by the relevant state or territory legislation ...

How good is the Northern Territory legislation on land clearance?

Mr Ryan—I am not in a position to comment on the Northern Territory or other jurisdictions’ legislation specifically. It is not within our ability to comment on that specifically.

Senator MILNE—But you should be able to comment on it because you are putting in place guidelines that are likely to have a perverse outcome in Tasmania and the Northern Territory, where there is no such thing as land clearance legislation, let alone enforcement and compliance. You are actually going to provide for massive land clearance of native vegetation and loss of carbon, to put in monoculture plantations. Is that your intent?

Mr Ryan—No, it is not the intent.

Senator MILNE—Then how is it to be stopped?

Mr Ryan—As you indicated, that is why there is that provision in the guidelines.

Senator MILNE—You say ‘compliant with state legislation’. There is none.

Mr Ryan—As I said, I do not think we are able to comment specifically on state legislation. Our understanding is that there is clearing legislation in place in all jurisdictions.

Senator MILNE—Then I would like to know what your understanding is of the Northern Territory’s and Tasmania’s land clearance legislation and their levels of compliance and enforcement. Now I will get to the water provisions, because again there is the same stuff here in the guidelines, ‘providing it is compliant with the state legislation’. Are you confident that the majority of catchments in Australia have hydrological data such that a decision like that could be made?

Mr Ryan—I think that, as some of the earlier witnesses have said, it is an area of substantial work that is developing and will continue to develop over the next few years. Clearly in some cases there is not substantial data available yet.

Senator MILNE—Okay. Thank you. There is not substantial data yet. This is law now. If I were a company I could go and do what I liked now and plant monocultures all over the place, because by 2011 somebody will have signed off a plan but my trees will already be in the ground, won't they?

Mr Ryan—Yes. I think that, as we discussed previously, this set of guidelines is clearly aimed at linking directly to existing measures that are in place—regulatory and non-regulatory measures, including planning.

Senator BOSWELL—Who wrote the guidelines? Did your department do that?

Mr Ryan—Yes.

Senator MILNE—But you are assuming that those regulations are in place. Our experience tells us that there is a real mixed bag around the country in terms of what state and territory governments have legislation for and what their levels of compliance and enforcement are. So, deliberately or otherwise, we are going to see these perverse outcomes, just as we have with the managed investment schemes. Do you concede that that is possible?

Mr Ryan—I think that in all cases, firstly, obviously the regulation is up to the states unless it comes into Commonwealth jurisdiction. These guidelines provide that extra—

Senator BOSWELL—But this is Commonwealth government legislation. We are not discussing the state legislation; this is Commonwealth government legislation.

CHAIR—Senator Boswell, Senator Milne has the call.

Senator MILNE—Thank you. Go on, Mr Ryan.

Mr Ryan—I suppose I was stating that the legislation that we are referring to is in most cases implemented by the state governments—these controls.

Senator MILNE—Yes, but essentially you are devolving the compliance and enforcement to state governments when we know before we start that the state and territory government legislation is at best patchy and hardly ever enforced or complied with—in some cases badly, in some cases well.

Mr Ryan—The guidelines link directly to those existing provisions and how they are implemented.

Senator MILNE—Yes, and that is the point we are making. If I can go on from there, it says here:

The Climate Change Secretary must give the Commissioner a notice in writing under this subsection if the Climate Change Secretary is satisfied that one or more of the conditions ... have not been satisfied for the trees.

So how is the Secretary of the Commonwealth Department of Climate Change going to make a judgement about a monoculture plantation planted in the Prosser River catchment in Tasmania?

Mr Ryan—The taxpayer, in submitting a claim, is required under those provisions of the legislation to provide the evidence demonstrating that they have been met.

Senator MILNE—So they say, ‘I’m putting in a plantation in the Prosser River catchment, for which there are no hydrological data and no land clearance laws of any kind, so therefore I comply.’ Is that compliance?

Mr Ryan—The department will be assessing the claims against available information.

Senator MILNE—That is the available legislation. That is what I am telling you.

Senator HEFFERNAN—We ought to just own up that there are some serious flaws in what we are proposing. We are not stupid.

CHAIR—Sorry, Senator Heffernan; I will give you the call, but Senator Milne does have the call. I will come to you next.

Senator HEFFERNAN—Yes.

Senator MILNE—Mr Ryan, you said at the beginning—and I think this is very important—that people are expecting a return on these carbon sink forests and, as Senator Joyce said, the best land with the most water is going to produce the greatest volume of carbon fastest in a carbon market. Therefore you are going to get these plantations and they are going to be monocultures because they are easier to manage and look after than a biodiverse planting. So where is the incentive in this legislation to plant in poorer areas with less rainfall or to put in a biodiverse planting? Where is the incentive?

Mr Ryan—The legislation simply provides that incentive for establishment with the guidelines as an additional surety for other environmental benefits in addition to carbon sequestration.

Senator MILNE—No, the legislation provides an incentive to go and plant a carbon sink forest, which includes the definition of a plantation. Where in the guidelines is the incentive to plant in marginal areas with poorer rainfall or to plant in a biodiverse way? Where is the incentive?

Mr Ryan—The guidelines do not specifically require that. In terms of the incentives to plant in poorer areas, as our ABARE report discusses, there are financial issues that the potential for large-scale establishment in prime agricultural areas appears low, based on competing land uses.

Senator MILNE—It is purely on the carbon price. So you are not putting anything in place to encourage resilience in ecosystems, biodiverse plantings, 100 years—even on the title; it is purely on the carbon price.

Mr Ryan—In terms of those environmental outcomes, the guidelines as a whole cover those issues and specifically refer to consistency with regional natural resource management plans which, of course, have targets particularly focused on biodiversity benefits.

Senator MILNE—And how many of those do we have around the country signed off?

Mr Ryan—To my knowledge, they exist in all of the natural resource management regions.

Senator BOSWELL—How many people—

CHAIR—Sorry, Senator Boswell, but everybody wants to ask questions and I am just keeping an eye on the time. We do have only 20 minutes left.

Senator HEFFERNAN—I just want to ask—

CHAIR—Senator Milne has the call—

Senator HEFFERNAN—All right.

CHAIR—and Senator O'Brien has been waiting too, so I am going to go to Senator O'Brien first.

Senator MILNE—This will be my last question. You say that the regional plans exist. Do you believe they are adequate to protect catchments and to protect ecosystems, given what I have just said about the definition of a forest and the potential for conversion of native vegetation?

Mr Ryan—The guidelines cover the combination of those regional plans, which may have voluntary aspects as well as the regulatory elements in terms of land-clearing provisions.

Senator MILNE—So will you take responsibility when hundreds of thousands of hectares are planted across the country in monoculture plantations and we lose the northern savannah?

Mr Ryan—I do not think I am able to answer that question.

CHAIR—On that, Senator Milne—

Senator MILNE—Think about it.

CHAIR—can I go to Senator O'Brien.

Senator O'BRIEN—I will try not to load the questions like that.

Senator MILNE—Someone has to take responsibility for this.

Senator O'BRIEN—But the officer at the table is answering about the legislation. It is an unfair question.

Senator HEFFERNAN—I want to ask—

CHAIR—Senator O'Brien has the call.

Senator O'BRIEN—I take you to the ABARE material that you have been referring us to, which has been circulated to the senators with the material from your department.

Senator HEFFERNAN—Is that—

Senator O'BRIEN—Can I ask the questions without your rude interruption, senator?

Senator HEFFERNAN—Righto.

Senator O'BRIEN—Really, I am getting a bit sick of it.

Senator JOYCE—Chair, I have to go. Do you mind?

CHAIR—Thanks, Senator Joyce.

Senator JOYCE—Thanks very much for that.

Senator O'BRIEN—I am just looking at page 11 of the document. As I understand it, that document is telling us that there are three scenarios: low scenario, reference case and high scenario. Can you give us any more information about how we should understand those three concepts? I am sure it is in the document but I just thought there might be an abbreviated explanation.

Mr Ryan—They are derived from a selection of the ABARE agricultural returns, recognising that, in the agricultural surveys for any particular region, there are a wide range of land values. They cover certain percentiles within the range. ABARE selected a number of different scenarios to indicate a range by—

Senator O'BRIEN—So are they land value bases?

Mr Ryan—Yes.

Senator O'BRIEN—So the low land value scenario—that is the low value of the land?

Mr Ryan—Yes—as a proxy for returns from the land.

Senator O'BRIEN—And it is suggested, as I understand it, that in a high-rainfall area in the low land value area, grazing land would need a carbon price of \$133 to justify converting to a carbon sink forest.

Mr Ryan—Yes. Under these specific scenarios.

Senator O'BRIEN—And is that in relation to the cost of planting the forest or is it in relation to the value of the land as well?

Mr Ryan—Yes. The costs are factored into the assessment so it is basically a comparison of those costs against the land values.

Senator Heffernan interjecting—

CHAIR—Senator Heffernan, with all due respect, you never get shut down. I think we give you a very good opportunity to ask your questions, but Senator O'Brien has waited patiently all day and Senator O'Brien has the call.

Senator O'BRIEN—As I understand the proposal, the tax offset does not apply to the value of the land; it applies only to the cost of creating the carbon sink planting.

Mr Ryan—Yes. For certain costs.

Senator O'BRIEN—So when we try to understand these figures, they have built in the value of the land. So the economic decision that has to be made in the context of the carbon price takes in the value of the land. The proposition from ABARE is that a prudent investor would not convert that land to a plantation until that figure was reached.

Mr Ryan—That is right. So it is taking into account the land value compared to the costs and returns from carbon returns for replacement of the alternative land uses.

Senator O'BRIEN—I thought that you were also saying that this was not able to be compared with a managed investment scheme because the investor would be the actual planter; they would not be able to effectively sell the rights in smaller lots to others. Is that what you were saying?

Mr Ryan—The deduction is available for the party that makes the direct investment. So my comparison to managed investments schemes is that they establish a different investment structure. I am not qualified to comment on that. That is what the legislation specifically excludes. So this is limited to that direct investment.

Senator O'BRIEN—I am trying to understand what you have been telling us. A company that wanted to sell shares in such a planting in effect would not be able to sell them on the basis of an upfront tax deduction, would they? I just wanted to ask that because it was not clear from what you were saying earlier on.

Mr Ryan—That is my general understanding.

Senator O'BRIEN—Do you want to clarify that for us, because there has been a lot of toing and froing about whether this is comparable with managed investments. I am not certain myself. I thought that you were saying something different. The committee would be assisted if you could make clear to us what the relationship of this scheme is to managed investments in terms

of the way investors could become involved and make use of the upfront deduction at least for the first three years.

Mr Ryan—Yes, we can. I think it is a question that we would need to clarify with our Treasury colleagues.

Senator O'BRIEN—I am happy with however it is clarified and for it to be clarified in that way.

Senator HEFFERNAN—Can I raise a point of order, Chair?

CHAIR—What is your point of order?

Senator HEFFERNAN—We actually need Treasury looking at this stuff because I have been briefed by these people—and it was a very good briefing, I might say. The issues that you raise, Kerry, are pertinent but they are Treasury issues. I actually know the answers to those questions but only because I have got them out of Treasury.

Senator O'BRIEN—Rather than convening another hearing, if we can refer my questions to Treasury and ask them to answer them then that may be a solution. On the basis of these figures, I see elsewhere that there is a decrease in the threshold carbon price of between 4.1 per cent and 16.1 per cent, depending on the assumed value attached to the agricultural land. Does that mean that the more valuable the land the higher the deduction, or is there no such relationship.

Mr Ryan—I am not sure which part you are referring to.

Senator O'BRIEN—I am referring to page 8. It talks about fencing but it also talks about decreasing the threshold carbon price.

Mr Ryan—No. It is specifically referring to the differential effect of excluding the fencing costs. It is just talking about the percentage difference that is reflected in the right-hand column in table 5. It is just the range of differences there. We specifically asked ABARE to look at the difference between the effects with fencing and without fencing, recognising that there are a range of activities, some of which require fencing and some of which do not, and it is a significant cost.

Senator O'BRIEN—Did you supply ABARE with the information on costs or was that material they supplied for themselves?

Mr Ryan—We provided ABARE with costs.

Senator O'BRIEN—Their calculations are made based upon the parameters partially supplied by the department and partially based on the existing reference material that ABARE have upon which they base their farm survey.

Mr Ryan—Yes, that is right. As with a number of aspects of this industry, being a reasonably new activity, the costs vary with the type of activity. We used the available information, which is reasonably limited. In a number of ways the costs are comparable with other types of tree-

planting activities and there are some differences. We have represented a range for that reason, recognising that it varies in different—

Senator O'BRIEN—These are planting seedling types of operations, are they, rather than seed spreading and hoping types of operations?

Mr Ryan—We would expect that the range of costs cover those different types of activities.

Senator O'BRIEN—So from a seed broadcast effort—

Mr Ryan—That would likely be lower cost. If it was direct seeding, there is still a cost.

Senator O'BRIEN—It ranges from direct seeding to planting seedlings?

Mr Ryan—Direct seeding costs would be right at the lower end of the estimated costs.

Senator O'BRIEN—Any of the assumptions in the work are included in the paper that we have—is that right?

Mr Ryan—Yes.

Senator O'BRIEN—The calculations are able to be tested by anyone who wishes to question them, by the assumptions contained in the document, with the exception of ABARE's farm survey material?

Mr Ryan—That is right

Senator O'BRIEN—It would be available elsewhere.

Mr Ryan—The specific data is not reported in here, that is right.

Senator O'BRIEN—Thanks for that. And just to be absolutely clear: when seeking a tax deduction, it is not open for the investor to claim the value of the land as a tax deduction under this provision?

Mr Ryan—That is correct.

CHAIR—Now, Senator Heffernan and then Senator Boswell.

Senator HEFFERNAN—Could I just answer a couple of those questions. An emitter can get the tax deductions.

CHAIR—Are you asking or answering questions?

Senator HEFFERNAN—I am about to ask a question. But I am giving the answer on that: an emitter can get a tax deduction, a landholder can get a tax deduction and a leaseholder can get a tax deduction. Thank you very much for the briefing and I appreciate this paper, which I will

give to the committee. I had an excellent briefing the other day. On the modelling that you arrived at, the \$80 that Senator O'Brien was referring to—under the modelling it happened to be \$80 a tonne before decent land—can I just point out the weakness in that. You are attaching the calculations to land value as a fair bit of the thing?

Mr Ryan—That is right.

Senator HEFFERNAN—You realise land value has nothing to do with land use?

Mr Ryan—It was the method selected.

Senator HEFFERNAN—I know, but it is flawed. I am about to tell you, the government and this committee that it is flawed. I am talking about broadacre land. If you drive from here to Sydney and go down the hill from McDonald's, on your right there is a property of 1,200 acres. It is worth about \$4,000 an acre, not for its use but for where it is. That could be planted out under this. It is a valuable run-off area into Black Dog Creek. The difficulty with the calculations—and I have not actually seen the modelling as this does not give the modelling—is that, if you rely on land values rather than return on land values, it is a nonsense. That land would give you no return on investment. It would not matter to the person who owned that land whether they ran billygoats or planted a carbon sink forest. It would not matter because they do not buy it for the return. They buy it for where it is and all the rest of it. Do you appreciate that?

Mr Ryan—I would comment that the method was developed by ABARE in consultation with our department. They provide the economic advice.

Senator HEFFERNAN—I understand all that. That is why we need Treasury input. But do not forget that, for this committee, ABARE does not have a lot of credibility because they are the mob that said oil was going to be \$46 a barrel now. It is just a gibberish sort of program. This is completely flawed, if that is what the model is built on. It should not be on land value—I am sorry. But I am very grateful for the briefing. If we could see the way the model was actually built—to arrive at \$80 a tonne, this is going to happen; at \$20, this will happen; and at \$120, that will happen. I would love to see the actual model. I do not see where, in all of this legislation—with all the worry and thoroughness of the committee and the departments—there is an incentive, if it is revenue neutral to the emitter, to have less emissions.

Senator O'BRIEN—The land values are on page 4.

Senator HEFFERNAN—But that is not the model of how they built them. You need the model.

Senator O'BRIEN—It is the model.

Senator HEFFERNAN—Anyhow, where is the incentive if it is revenue neutral to have less? Part of the debate has got to be about how we get these people to have less emissions. It is like the power supply: you could get people to turn off half the lights in this room—we do not need them all. It is the same thing with emitters.

Mr Ryan—The objective of the legislation, as we discussed at the start, is to help to reduce national greenhouse gas emissions, and we know that there is an interest in investing in forests as one of the options.

Senator HEFFERNAN—Which is to be applauded. It is a great thing for this committee. We have looked at the other viable alternative to this, which is on its way in under the American voluntary model. Are you acquainted with that—perennial pasture?

Mr Ryan—Yes, I am aware of that.

Senator HEFFERNAN—All right.

CHAIR—Senator Boswell, we have about three minutes left.

Senator BOSWELL—When you do your assessments on these carbon sinks, do you take into consideration how much land will be lost to food production and food security?

Mr Ryan—To answer that I would refer again to this: we specifically commissioned this new analysis in response to some of the concerns that were expressed in June. The implementation of the legislation aims at encouraging carbon sink forest establishment, and we know that common practice, as has been discussed, is for smaller scale plantings in the areas that are less productive.

Senator BOSWELL—That is not what is happening to MISs. They are on the very, very best land—the very best land. I think there are something like 20,000 hectares in the sugar-growing areas of Queensland, which is having a pretty significant effect. But you seem to have a lot of faith in people just putting it on the worst land. This is not happening under MISs. Senator Joyce, who was an accountant, believes this will be a supercharged MIS because you will be getting an income stream and a tax deduction.

Mr Ryan—We would expect that investors would be doing it on the basis of getting an income stream. That is the purpose of having a tax deduction.

Senator BOSWELL—We believe that, if it follows the process of MISs, it will go on the best land, it will intercept water—

Senator MILNE—It will be a monoculture.

Senator BOSWELL—and it will be a monoculture. As I interpret it, Mr Matthews gave eight or nine reasons why this legislation should not go through, because a number of state operations have not been put in place. That is all I have, Mr Chairman.

Senator HEFFERNAN—Do you agree that the guidelines which are set around this are generic?

Mr Ryan—That would be one way to describe them. The intent was that the guidelines were not to impose any new specific requirements beyond existing ones.

Senator HEFFERNAN—The difficulty with them being generic is that right now, as we sit here tonight, there are acquisitions for forestry which have nothing to do with this inquiry but a lot to do with the landscape which are under the present guidelines in New South Wales which bear no connection to an environmental outcome or a water interception impact under the guidelines and which that document ticks off.

Senator MILNE—There is some confusion as to whether forestry operations can get a tax deduction to establish monoculture carbon sink forests and harvest those forests in rotation. So, for example, currently under the Greenhouse Office rules, you could put in a thousand hectares of monoculture and say you will always have net 600 hectares equivalent of carbon but progressively on a rotation do the whole lot. Is that going to be allowed under these guidelines?

Mr Ryan—No. I think you are referring to the greenhouse-friendly guidelines which are not specific to forest type except that they must be Kyoto compliant. As you have correctly said, those guidelines require that you are only able to sell the amount of sequestered carbon that can be maintained. So if that amount is in harvested forest systems, they are not excluded, but you need to be able to maintain that level. That is one particular approach applied for that scheme with its own rules. For this tax measure, planting a forest must be for the purpose of carbon sequestration and not for harvest, which is explicitly excluded in the legislation. They are different.

Senator MILNE—So the net carbon stuff does not apply in this bill?

Mr Ryan—No.

Senator BOSWELL—Have you had a few inquiries about this?

Mr Ryan—We have received a number of inquiries since the legislation was passed.

Senator BOSWELL—How many inquiries?

Mr Ryan—I do not have the exact number. It is not a large number.

CHAIR—You might want to take that on notice.

Senator BOSWELL—This is an old question. Senator Heffernan has asked it a number of times. Senator Heffernan has a farm and sets up a carbon sink. He claims his tax deductions but sells the farm to Senator Milne, who is not very environmentally friendly, and she knocks it down. How do you claim the tax deduction back from Senator Heffernan?

Mr Ryan—The provisions of the legislation specifically relate to establishment. Any subsequent action would relate to the Australian Taxation Office's monitoring regime.

Senator HEFFERNAN—As you know, Mr Ryan, we went through this. The answer is there is vagary with the states. The argument in court which would follow would be between the original emitter who contracted to the—

CHAIR—I am sorry, Senator Heffernan, we have gone way over.

Senator HEFFERNAN—This is an important point because this has to be a recommendation from this committee. The whole thing swings on this. Unless these things are registered on the title and surveyed into the title, it is a complete and utter farce.

Mr Ryan—The question is particularly relevant, as you have said, to market arrangements. As I have said, it is not dealt with through this legislation, because it relates to establishment. We provided for the committee's information a copy of a discussion paper that the Department of Climate Change has publicly issued, which deals with a range of issues specifically relating to forests establishment and the design of the Carbon Pollution Reduction Scheme, and this issue is being considered there.

Senator HEFFERNAN—But you would agree with the general proposition, though, surely.

Mr Ryan—I do not agree that it is directly relevant to this legislation, because the incentive is for establishment of forests. It does not implement—

Senator HEFFERNAN—Please do not disconnect the real world from the legislation. The real world says—

CHAIR—On that, Senator Heffernan, I would ask you to wrap it up. It has gone well over. We have had three days on this committee; you have had plenty of time to ask that.

Senator HEFFERNAN—Mr Chair, I will go for another 10 hours to make sure we get it right.

CHAIR—No, no other questions. Senator Heffernan, you may want to have a private briefing and have your 10 hours. I have repeatedly asked you to wrap it up.

Senator HEFFERNAN—Righto. But surely, if it is not registered on the title, the proposition that Senator Boswell put can actually happen.

Mr Ryan—It is a possible outcome.

Senator HEFFERNAN—Thank you.

CHAIR—Mr Ryan and Ms Mummery, thank you very much. I thank senators and all the witnesses. I would also like to thank the Broadcasting and Hansard staff and, of course, the secretariat.

Committee adjourned at 6.20 pm