

Speech Topic:	Garnaut Climate Review Update 2011	Location:	Taree Wingham Race Club, Taree
Compere:	Peter Lyne, Manning Valley Business Chamber	Speakers:	Ross Garnaut Rob Oakeshott
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Transcript:

COMPERE: Thank you, have a bit of quiet. On behalf of the Board of Directors of the Manning Valley Business Chamber, welcome to this special monthly breakfast. We have a monthly breakfast every month, but this one is in particular very, very special. I'd like to acknowledge our Federal Member for Lyne, Mr Rob Oakeshott, thank you, Rob, and without his great assistance we wouldn't have Professor Garnaut here. Okay, is everyone right? Good.

Professor Ross Garnaut AO is a Vice-Chancellor Fellow and a Professional Fellow in Economics at the University of Melbourne and also a Professor of the Australian National University. He is the chairman of a number of international companies, the author of numerous books and articles and journals on international economics, public finance and economic development, particularly in relation to East Asia and the South Pacific.

Professor Garnaut has had a lengthy and numerous successful roles as a policy adviser, diplomat and businessman. He was a senior economic adviser to the Australian Government under Prime Minister Bob Hawke and was the Australian Ambassador to China from 1985 to 1988.

In September 2008 Professor Garnaut presented the Garnaut Climate Change Review to the Australian Prime Minister. This review, commissioned by the Australian Government, examines the impact of climate change on the Australian economy. In November 2010 Professor Ross Garnaut was commissioned by the Australian Government to provide an independent update to his 2008 Climate Change Review.

He's also an independent expert adviser to the Multi-Party Climate Change Committee. The Garnaut Climate Change Review, updated 2011, released a series of papers in February and March this year, addressing developments across a range of areas including climate change science and impacts, international mitigation progress, carbon pricing, land innovation and the electricity sector. Professor Garnaut finalised his report and delivered it to the Prime Minister on 30 May 2011. This is a very important and emotional issue.

Professor Garnaut will address you all now and after that you'll have the opportunity to ask Professor Garnaut and Rob Oakeshott some questions. Ladies and gentlemen, put your hands together for our special guest today, Professor Ross Garnaut. We haven't got a stand, sorry.

ROSS GARNAUT: Well, thanks to the Manning Valley Business Chamber and to Rob Oakeshott for this chance to be with you today. Rob's been telling the Multi-Party Committee about this being paradise and this morning that looks just about right. And a very pretty racecourse is shown off by the lovely weather, so great to be with you all in this lovely setting.

I've been told by our host that it would be best not to take too much of the time on an initial presentation, to allow lots of time for questions and discussion, so that's how we'll play it. I'll just go briefly through some of the issues and then we can open it up to the issues that are on your mind.

We're in the midst of a very important discussion in Australia, which I hope will determine our approach to how we participate, how we do our fair share in a global effort to reduce the impact of dangerous climate change on us all. It's a debate that we've had in other forms a number of times over recent years and haven't got an outcome.

If we don't get a good outcome now, if we don't get a set of policies that can carry us through to our doing our fair share in the global effort, the issue won't go away, it will come back and we'll find that we'll continue to debate it. We certainly won't be taking the issue off the agenda if we don't get a result on carbon pricing now.

We might remove the chance of us doing our fair share in the global effort on climate change in a cheap way and only have left rather expensive and regulatory ways of doing things and so I attach great importance to the debate we're having right now.

It's closely linked to bigger economic policy issues to general economic policy issues. My view is that it's only through dealing with this question in a market-based way through carbon pricing, that we'll keep the economy on a strong course, where growth in living standards is possible. If we lose this chance and revert into regulatory approaches then we'll find we're making a pretty big mess of economic policy and productivity as well.

No time ever seems exactly the right time for structural change in the economy, in doing things now that require some adjustment for - to give us benefits in the future. But actually if you need to make structural change economically, times like the present are the best of times. Australian average incomes are higher, absolutely and relative to other countries than they've been for a hundred years. The resources boom has increased average incomes, so for the first time since the early years of our Federation, our average incomes are higher than America. This should be the best of times for structural change, for doing things that are a bit inconvenient now for the health of the economy in future.

But the same things that have given us prosperity for the moment, the resources boom, are also putting a lot of pressure on other industries and so politically it becomes a pretty hard time for structural change. The resources boom has lifted the exchange rate and especially the real exchange rate, taking into account relative costs - inflation levels as well as the nominal exchange rate to the highest levels they've ever been.

And that's putting a lot of pressure on all of our other export industries and import competing industries and it's pretty easy for those who are opposing action to throw up a smoke screen and to effectively blame the prospect of carbon pricing for the effects of the high exchange rate and the resources boom. That would be a very big mistake and one that I've tried to help Australia to avoid.

But there's one other short term and medium term issue that's getting in the way of clear thinking on carbon pricing and that is the question of electricity prices. They've been rising enormously for the last five years, since 2006 and - even if we weren't talking about carbon pricing, they'd be rising a lot unless we change some of our basic approaches to electricity pricing - will be rising a lot in the next few years.

The main reason for the increase in electricity prices has been and will be the way we regulate network infrastructure, the provision of poles and wires. The excessive rate of return we allow companies in that business, which encourages over-investment and distortion of investment, that's giving us rises in electricity prices that are a far way ahead of increases of other prices, far ahead of electricity price increases in other countries.

Again, we need to analyse what's actually going on and be careful not to blame carbon pricing for unnecessary increases coming for other reasons. And this problem of electricity prices is especially a New South Wales problem, where the increases are far higher than the rest of the country. In my final report on climate change I talk about this at some length and you can get more detail on that on my web site, where I've got a background paper on electricity pricing.

The proposals that I've made for carbon pricing will have some effect on the cost of living, it will have some effect on carbon pricing, but we - on electricity pricing, but we need to keep all this in perspective. My recommendations would lead to an average increase in general prices of less than one per cent, far smaller than the increase that was associated with the introduction of the GST.

As with the GST, it will generate a lot of revenue for government and I've recommended that over half of that revenue be given back to households as tax cuts and adjustments to family payments and other benefits. So that for all Australians on low and average incomes the price increases would be fully compensated by reductions in tax and adjustments to other benefits.

You can do that without taking away the incentive for economising on the use of the goods that have got lots of emissions in them, because the relative price of electricity and things that contain a lot of emissions will rise and even if households are fully compensated for the increase of costs, they'll still have an incentive to use less of the products that contain a lot of emissions.

It's very unfortunate, I think, that in Australia this issue has become an issue between the major political parties. This need not be an issue between conservative parties and social democrat parties; it isn't anywhere else in the world. In Britain, in Germany, in France, in Korea, it's been conservative parties that have led the way on dealing with the climate issue. As Margaret Thatcher, the Conservative Prime Minister of Britain, who led Europe and to some extent the world, into taking this issue seriously and doing something serious about it.

Some people have said that because my analysis, my carefully worked out analysis, supports the idea of carbon pricing, rather than the Opposition's views of regulation and direct action, that I've somehow been partisan. My response to that is that I'm saying exactly the same things, the analysis is leading to the same conclusion as when the work was strongly supported by the Liberal Party three and four years ago.

I'd been asked to do an independent review. I followed honestly the conclusions of the analysis, which leads toward carbon pricing being the efficient way to deal with this problem and I can't change my mind just because a political party changes its mind. That's not being independent, that's not being honest and I would be more partisan if I changed my mind in response to changes in a political party's views than if I maintained a consistency of analysis.

Nowhere in the world, except Australia and to a lesser extent the United States, is this issue seen as a conservative versus a social democrat issue. And even in the United States it's a Republican

Governor of California, Schwarzenegger, and a Republican Mayor of New York, Bloomberg, who have been the most effective leaders of doing something about climate change.

So we really stand out as the country in the world in which the conservative parties have opposed effective action on climate change. And the reason why conservative parties elsewhere in the world have been strong supporters of action on climate change is because avoiding dangerous climate change fits naturally within the conservative tradition.

It maybe rational for a radical to risk the institutions of human civilisation in a throw of the climate change dice, just as it was rational for Lenin to see merit in inflation in the capitalist economies. The radical may hope that the outcome will unravel the existing social and political institutions, but a conservative won't embrace such risk.

The reason for taking the issue seriously is that the real science says that the world is warming, that warming is substantially to a considerable extent the result of human activities and if we don't do something early and effective about it then we're going to have such substantial climate change that it will seriously affect our way of life, seriously damage the basis of human civilisation.

And my analysis in the first report given to all the state premiers and to the Prime Minister in 2008 showed that of all of the developed countries, Australia is the most vulnerable to climate change. We'll be damaged more than other developed countries, because we start as a country - a hot country at the margins of climate of which lots of human activities, including a lot of agriculture is possible. Play around with that and we're more likely to be tipped over the edge than other countries.

We're the developed country that's most affected by conditions in developing countries and developing countries will find it hardest to deal with the effects of climate change and we more than any other developed country will be hurt by instability and problems in major developing countries. Their problems will become ours because of our geographic location.

We've got a bigger interest in successful global effort to deal with the problem than any other developed country, but we've also got better natural resources and human resources to make the transition to low emissions - to a low emissions economy, a low carbon economy, than any other developed country.

We've got exceptional resources for low-emissions energy. Our gas - natural gas and coal seam gas - are much lower emissions sources of energy than coal, about forty per cent of the emissions of some of the coal that is used for power generation in Australia. And we've got the richest gas resources per person of any country in the world.

We're got the richest solar, sunlight resources per person of any developed country. Mainly along the south coast and then the - of the continent, plus the west coast of Tasmania, we've got as good a wind resources as any in the world. We've got the world's best geothermal resources, we've got excellent wave and tidal resources and we're by far the richest country in the world in uranium resources per person, the uranium resources that are the basis of low emissions, nuclear energy. So we've got lots of opportunities in energy for making the transition.

We've also got exceptional opportunities for using our land resources for capturing carbon. Per person we've got by far the richest resources for using land to capture carbon in soils, in pastures, in

woodlands. And my recommendations are very much focused on providing incentives for Australia's rural communities to take advantage of that very rich opportunity to capture carbon through different styles of management of land, of soils, of pasture and woodlands.

We've also got the skills and the professional services that are crucial to a successful adjustment to a low carbon economy. Some of these skills are the same skills that are necessary for success in the mining and resources industries; the engineering skills, the skills and the geophysical sciences. We're top of the world in those things.

A lot of those skills are very important for the transition in the energy sector to low emissions. And our skills in the biological sciences and in applying them in farming are very suitable to making good use of our opportunities for biosequestration, for capturing carbon in our soils and woodlands. So those human resources put us in a strong position.

This is a problem that can't be solved by one country, it will only be solved by all substantial countries doing their fair share and my objective in the recommendations is to get Australia into a position not to lead the world, that's simply not practical; we're so far behind that we couldn't aspire to that. My objective is to have Australia place itself in the middle of the developed countries, to do an average sort of effort, to do our fair share and we've got to lift our socks a long way to get ourselves in a position of doing the average of the developed countries.

Following the Copenhagen and Cancun meetings of the United Nations, the Cancun meeting in December last year, there is an international agreement. It's not the style of agreement that Australia was hoping for but it is, I think, a basis for effective global action. Within that agreement all major countries have made pledges on what they will do with their emissions.

Our pledge happens to be the most modest of the developed countries but at least it would be making a start. Reducing emissions by five per cent on 2000 levels by 2020. That compares with the American minus seventeen per cent on 2005 levels. The Europeans, the Japanese go much further. The big developing countries have committed themselves to large reductions in the amount of emissions per unit of economic output and China is leading the way on that.

Both Opposition and Government have committed themselves to the minus five per cent unconditional commitment. That's there now as an international obligation; not a legally binding one but a serious political undertaking in the international community. The bad news is that we're not within a bull's roar of moving towards that. The Department of Climate Change did some work late last year that shows that on the trajectory we're headed on, with the renewable energy target in place, with the solar incentives in place, emissions will be increasing by twenty-four per cent, not falling by five per cent.

Now it's going to be a big effort for us to get from plus twenty-four to minus five. The Opposition and the Government are both committed to that and the question is what's the cheapest way of doing that? If we're committed to that objective, it's very important that we do it in the cheapest way possible.

And the big choice is between carbon pricing, an economy wide market based approach that provides an incentive for all households and businesses to find the cheapest ways of reducing their emissions. Or regulatory action, or 'direct action', where government decides, well, we've got to do less of that, we've got to do this in a different way, we're going to buy out that power station to reduce emissions there.

The problem with regulation or direct action is that what gets done is what the minister and his advisors think of. And they might be much brighter than the rest of us, but we know from lots of experience that ministers that are taking those regulatory decisions won't think of all the things that millions of Australians responding to market incentives will think of. So there's lots of experience of a market based outcome in response to price signals giving us a better economic result than regulatory action.

I need not go into all of the history of that, but we know from our own experience that when we got away from the old protection and the old government intervention in the eighties, we shifted from being the worst performer in the developed world in productivity growth to the best performer in the nineties. We've slipped back a bit since then but we showed that market based approaches in response to price signals are the way to get up productivity and there's lots of international experience on the same thing.

Now some people say, yes, that may be the case but some other countries, including the world's two biggest emitters of greenhouse gases, America and China, are not introducing carbon pricing. Well, that's true. China is experimenting with it, but both America and China are mainly reducing emissions below what they otherwise would have been through regulatory methods.

Both in China and the United States leading officials have told me that they accept that what they're doing is the expensive way of doing it, but they're blocked by various political reasons for doing things through carbon pricing. I've spoken directly to the leading advisers to President Obama on this question, people who work directly to him.

They say what we wanted and what the President wanted was carbon pricing through an emissions trading scheme, we were blocked in the House of Representatives, our Bill got through the Senate but not the House of Representatives. Having been blocked, we're still going to meet our targets but we've been stopped from doing it in the cheap way through carbon pricing. We're going to do it in an expensive way. That will put a bigger burden on households in America, on business in America. That's unfortunate but our political path to a cheap way has been blocked, so we're going to do it but we'll do it in an expensive way.

For those who say, we should do it in an expensive way because China and the United States are doing it in an expensive way, to me doesn't make sense. It's like saying we promise that we'll keep shooting ourselves in the foot for as long as you keep shooting yourself in your foot. That doesn't make sense.

The main elements of my proposals are fairly well known, but if you've got questions about them I'll answer them afterwards. But I've proposed an emissions trading scheme that will have a fixed price for the first three years and then a market based price after that.

Some people in the recent debate have called the first three years a carbon tax. I would not have thought of calling it that myself, but names are not crucial. What it is, is an emissions trading scheme, initially with a fixed price.

Carbon pricing is cheaper than regulatory ways of reaching an emissions reduction objective. But not only is it cheaper but it collects a lot of money for the Government which it then can use for tax cuts or household payments to compensate for the price increase or it can use some to support innovation in new technologies. It can use some to support incentives for the farm sector to capture carbon. It can use some for assistance to trade exposed industries. The costs will still be

there with regulation, although some of them will be hidden and not obvious to people immediately, but there won't be government revenue to compensate for those effects.

Once we've got a carbon price and accompanying support for innovation in the new technologies, I hope we'll have this in law and actually working by the middle of next year. Once we've got that in place, Australia embarks on a process of innovation, of transformation towards the low carbon economy of the future, and that will become part of the world effort that's already going on to make the transition to the low carbon economy.

Consumers will use less energy and other goods and services that embody high levels of emissions. Natural gas exporters will try harder to find opportunities for capturing emissions and the waste from liquefaction. Land owners will think hard about the parts of their properties that would have more value as carbon sinks and they do carrying sheep and will work harder to use methods of cultivation that capture carbon as well as raise productivity.

Lots of people with clever ideas of doing things in ways that reduce emissions will find investors and lenders more willing to fund their projects. Every producer will think about whether it's more profitable to spend a bit to reduce emissions than to buy more permits. And millions of Australians will set to work finding cheaper ways of meeting their requirements and servicing markets by economising on emissions.

We don't know in advance what all the successful ideas will be in this transition to a low carbon economy but I'm pretty sure that there will be extraordinary developments in technology and that the change will happen faster than we expect.

If we reject this chance to go to carbon pricing, that won't end the debate on climate change policy, but it may end our chance of doing things cheaply. It may block the cheap ways of doing things and leave us only with the expensive ways that are much more damaging to the economy. And this would bequeath to future generations of Australians, not only a climate that will be far more difficult to live in than the one into which we were born, but also an economy that was underperforming because of the pervasive role of regulation. Thanks.

[Applause]

COMPERE:

Thank you very much. Rob, you can do some work now. We'll just give Professor Garnaut a couple of minutes just to get his voice back. Rob, have you got a couple of words to say? We don't want a twenty seven minute speech, okay, so just a - I have one question for you. A few people who couldn't make it here today wanted me to ask you, in particular, one question.

If a carbon tax is implemented, can all of that money go towards research and implementing - no, this is a fair question - methods, like solar power, wind power, et cetera, without it going into the Federal Government coffers?

ROB OAKESHOTT:

Thanks for that Peter. And before answering that just to say thanks to Peter, thanks to the Manning Valley Business Association for putting on the breakfast and thank you everyone for coming out on a Monday morning. Really thrilled to see so many people hopefully wanting information on what is one of the conversations of our time.

I'll also take the opportunity to thank Ross for making his time to come and talk with all of us. He is on a pretty busy schedule at the moment. He's been given a pretty difficult job over the last five years to come

up with an economic response to a pretty difficult science question and personally I think he's had a pretty good crack at it. And as part of the process of the Parliament now, I am certainly one who's loud and clear in wanting the forty-third Parliament to try and do and hopefully achieve what the forty-second Parliament couldn't. So thank you, Ross.

In regards to Peter's question, as a member of the Multi-Party Climate Change Committee, we are down to the pointy end in trying to work out a package. Certainly Ross' work has been a big contributor to that and in regards to the breakup of compensation directly related to price, there will be a range of areas that have to be considered.

Certainly R&D and innovation is one of them. Renewables generally is another, but you would have seen from public statements a large percentage, over fifty per cent of any revenue raised, will be going into household assistance and a large proportion of that, I am hopeful and certainly advocating for, will go into tax reform.

The Manning Valley has produced some great people, one of them was Ken Henry and is Ken Henry, the former Treasurer - Treasury Secretary, sorry, probably should have been Treasurer. He, last year delivered a really important tax reform document for Australia to simplify the tax system and make it fairer.

What we have before us now is a really unique opportunity to turn Ross Garnaut into Ken Henry. And if we can achieve that through this process, we are achieving some broader benefits for the Australian economy.

In regards to the comment about carbon tax, I would hope plenty of people in the room heard Ross' comments, this is not a tax. This is a market mechanism where essentially money raised will go back into redistribution in various forms through household assistance, innovation and R&D, investment in the land sector.

There is a big push this time around to hopefully make the heartbeat of this package investment in land outcomes, both on farm and some biodiversity outcomes. And so really as far as any argument that this is a revenue raiser for government going into the consolidated revenue for things that - you know, to balance the books, that is not what is going on here.

Basically it is a market mechanism, money in, money out, as far as a separate package altogether. Why are we doing it then? Because of the really complex science question that's being put to all economies around the world. And the choices are we do nothing and leave it to future generations, we do nothing and hope for the best or we have a crack and do something and try and make it as strategic and efficient as possible. That's why I'm involved.

[Applause]

COMPERE: Okay, Rob, thank you. Are you right, Ross? Okay, Ross and Rob will be up here on the podium. Simon and Tony, they have another microphone down there. If you would like to ask a question, just put your hand up. Tony's got the microphone at the moment. This is a civil forum, we'd like to keep it that particular way. Okay, Tony.

QUESTION: Thank you, Professor Garnaut, for your talk. Just a couple of quick things. You mentioned on renewable energies, two of the ones you mentioned were uranium and natural gas. However taking in what's happened in the world today with uranium and also which is a big issue in this area here is the removal of natural gas from the land with a process called fracking. We don't seem to have a lot of information

as to how they do this and what chemicals are used and there's all the worry at the moment of pollution to our subterranean water flows.

However you did mention that we'd have solar, wind and wave which I feel are our natural resources which have, from what I can understand, no effects that will create any problems for us. So my question is to you, are you promoting solar, wind and wave as opposed to let's say the natural gas by means of fracking and also uranium use?

I don't know whether we - we don't seem to have a use for uranium in this country other than we ship it overseas to everyone else so they can build power plants.

ROSS GARNAUT:

I'm not promoting any particular form of low emissions energy. And once we put a price on carbon then we will make the high emissions forms of energy like first of all the very dirty brown coal that's used in Victoria, and second, other coal, more expensive and that gives a competitive advantage to all other forms of energy.

That's how you promote the low emissions forms of energy. Now the issues you raised with uranium are obviously real issues. The Fukushima tragedy in Japan has got everyone thinking about that. I said in my report that I didn't think that nuclear energy made sense for - economic sense for Australia as far into the future as we can see. Mainly because we've got so much natural gas.

And the countries of Northeast Asia that's Japan, Korea, China, the Chinese regions of Taiwan and Hong Kong are all huge energy users and they import our gas and they import our uranium - or Hong Kong doesn't import uranium, the others do. And if we're exporting both gas and uranium it makes sense for us to use the gas here and to export the uranium because you lose so much of the energy [in liquefaction]. It costs so much to transport gas that it will always be much cheaper here than there. Whereas uranium will be as expensive there and here.

So the pure economics drives you away from using uranium here. But we can make a good contribution to the world reduction in emissions by exporting uranium. And China is certainly making a big feature of nuclear power as a way of reducing its burning of coal and reducing its emissions.

Now there are safety issues. They have been highlighted by the Japanese catastrophe and the Chinese are studying those carefully. I've been in touch with the agency and the Minister with main responsibility for this in Japan - in China I had some discussions in January then again in March before and after the Fukushima incident. They're taking the safety issues very seriously following Japan.

They think that the solution will be upgrading safety standards, making sure they're using modern, less risky nuclear reactors. Those questions will be made by them. Our role in the nuclear fuel cycle will be for the foreseeable future, one of supplying uranium. They will make the safety decisions. We will have an input into making sure our uranium is not used for weapons proliferation; that's a separate question. But economically I don't see a role for the foreseeable future for nuclear energy in Australia. That's not a political judgement.

On the gas, even without the recent development of coal seam gas we're a gas rich country. And we're a huge exporter of natural gas from Western Australia and increasingly from the Northern Territory. We've got very large natural gas resources in Victoria and some of those extending into South Australia and into the west of Queensland. We've probably got others.

Recently we've had the focus on coal seam gas. I'm aware of the issues that have been raised about fracking. I've been told that the issues are not exactly the same here as in the United States where they've been a big issue. I don't pretend to be an expert on those issues. I'm not promoting or arguing against that. I'm saying that gas in general wherever it comes from is a much friendlier fuel for the environment than coal. Once we put a price on emissions, gas will be in a better competitive position than coal.

I think the safety issues and the environmental issues to do with fracking and coal seam gas have to be sorted out on their merits and that's a separate question from whether or not it's good for climate change.

QUESTION: Ken Billings. I'd just like to say as an opener, I was told in 1969 that this was going to happen - yes '69 that this was going to happen by a CSIRO scientist. My question to you, Ross, is has any modelling been done on the likely economic difference, twenty years hence between your recommended price on carbon and doing nothing as recommended by the doubters?

ROSS GARNAUT: Well the really big effects of doing something and again, it should be us as part of a global effort, us doing our fair share. And it's the combined effects of everyone doing their fair share that gives us a result. The big effects - the big benefits don't come in the next twenty years. The big effects come from avoiding very serious problems further out.

If we only - if a bloke my age only cares about what happens to people during his lifetime you wouldn't do anything about this. Between now and the time I'm dead, it won't make that much difference. It will make a very big difference to the life that our grandchildren lead and that's why we're doing this.

If you don't care about the welfare of your grandchildren and Australians who come after that, then don't do anything about this. It's not a problem for the next ten or twenty years. Well it is a problem for the next ten, twenty years, but we can't do much about that.

There's already been nearly a degree of warming, getting up towards a degree, and the carbon dioxide we've already put in the atmosphere is going to lead to further warming over the next thirty years. So that's just - the science tells us that. Taking action now will stop it getting worse beyond that. It will put a ceiling on the damage.

But if we don't do anything it will get worse, it will get worse, it will get worse. It will be worse in 2050 than in 2030. If we did nothing at all the mainstream science supported by all the academies of science in the civilised world, says that we would be running a risk of temperature increases of six degrees Celsius by the end of the century and continuing to get worse after that.

At that level there's no chance at all of avoiding the melting of the ice caps in Greenland and the West Antarctic. So you get very big increases in sea levels, you get huge increases in the intensity of cyclonic events. Not such a big problem here, but in other parts of Australia you'll get a huge intensification of the conditions for bush fires through heatwaves.

It would make a very difficult climate for our grandchildren to live in. And why we're doing something here is to stop those catastrophic outcomes later in the century, rather than doing anything in the rest of my lifetime.

QUESTION: I can assure you that the droughts are getting worse because I've been farming it.

QUESTION: Mr Garnaut, thanks for your presence here today. Just recently in all the news around the world the science doesn't seem to be settled. There's more scientists coming on board now with opposing this manmade anthropogenic system that we've got here.

If you look through the history of the world and the earth, carbon dioxide in the atmosphere as compared with the temperature doesn't correspond with what your review says in your latest report. Why is that? You know, like all through the decades man has never interfered with this comparison between temperature and CO₂, but now we're saying man is. Why is that, seeing, you know, we have some experts in climate change?

ROSS GARNAUT: Well, the reason why man's having an effect now - and let's not let women off the hook - are having an effect now, and not before, is it's only since the Industrial Revolution that we've been chopping down huge areas of forest and burning huge amounts of coal and oil. That started to become very big about fifty years ago and is increasing every decade now.

So it stands to reason that what humans did have very little effect on climate up till about fifty years ago and have more and more effect as we burn more fossil fuels and chop down more forests. So the fact that human influence is big now and will be bigger in future and that human influence wasn't important earlier in history is entirely consistent with my report and with the science.

And I think what you're referring to - another thing you're referring to is that the climate has always varied whether or not humans are around. Well there have been times on earth where there has been a lot more carbon dioxide than now and where temperatures have been a lot more - a lot hotter than they are now.

In those times we didn't have human civilisation. Human civilisation emerged about ten thousand years ago in the river valleys of the Middle East, spreading to the river valleys of North India and China. In that period we've had relatively equable climate. Humans developed modern civilisation on a lot of the river deltas in very fertile parts of the earth. And they couldn't have done that if it hadn't been for this equable climate we've had for the last ten thousand years.

A continuation of what we're doing now will take temperature and climate way outside anything that's been known in the period of human civilisation. That's what I talk about playing with the climate change dice. So we're gambling in going into areas the world has never been in since we've had human civilisation.

Now you can say that some - that hundreds of millions of years ago there were periods when there was a lot more carbon dioxide and the earth was a lot hotter. That's true and humans as we know our species, humans and human civilisation only developed after algae and plants took all that carbon dioxide out of the earth and created the climate - out of the atmosphere and created the climate that we've got today.

And what we would be doing if we took no action to control our carbon emissions would be returning a lot of the carbon dioxide to the air that was captured a long time ago and one of the effects of that would be that we would destabilise the climate upon which our civilisation is built.

On the point that more and more scientists have doubts about climate change, that is simply not true. Look at every country that takes

science seriously has an equivalent of our Academy of Science; the top scientists. The academies of science in all of the countries that take science seriously are strongly supportive of the messages that I've said are the messages from the mainstream science.

You can include in that the Academy of Science of Australia, of the United States, of Canada, of Japan, of Korea, of China, of India, of Russia, of the United Kingdom, of Germany, of Italy, of France. There is no exception amongst the countries that where you have a developed scientific community.

If you look at the scientists who've made their life's work studying these questions of climate and seeking to understand them, overwhelmingly - and I've looked at this carefully and I've sought to understand the issues of the very small number of true climate scientists who hold a different view - overwhelmingly the climate scientists who've spent their lives working on this question support the propositions that I put forward in my report and here today.

Anyone who thinks that there's a credible and respectable group of the science, part of the science, that holds a different view is clutching at a straw. You're a drowning person, drowning in these very difficult conditions who clutches a straw in hope that a tiny minority of scientists is right rather than the great body of opinion in our academies of science and our universities and our science institutes.

[Applause]

ROB OAKESHOTT: Can I just before the next question, and I hope everyone's comfortable doing this, just have a bit of a - just for the exercise of the science and the economy meeting together on this - just interested if anyone in the room - and I suspect there are a few - is not across the line on the science? Because it's really difficult to have an economic discussion about the options in response to the science if we are still talking fundamentally, you know, the question that Bob raises about the science itself. So is anyone still unconvinced on the science? Are there a few in the room?

And thanks for having the courage to put your hands up. Because my response to you for consideration is if you can't get across the line on the science, the rest of the conversation becomes difficult. But I do raise the point about building a better way to live even if you're not across the line on the science.

And Bob - hang on, you guys are the fishing - hang on, hang on, hang on - you guys are the fishing boys. You know, the fishers party from Harrington. We have put a price on waste going into the water so that we can catch more fish and have more fish.

What about consideration of putting a price on pollution so communities can continue to live the quality of life we want to live? It's an analogy that because the question came from the fishers party that you might want to consider if you can't get across the line on the science.

COMPERE: Just got a question over here from the next generation.

QUESTION: Thank you. Mr Oakeshott, I'd like to ask you what specific effect do you see the carbon tax having in the Manning Valley?

ROB OAKESHOTT: Well firstly thanks for the question, but it's not a tax. I think we've got to really start to - I think the Prime Minister did make a mistake in saying it is a tax, it's not. This is the period we're going to potentially go into is a three year fixed price permit period of a trading scheme. So it would be essentially like regulating the price of your milk at the

local store for three years before going to a market price. That is not technically a tax. This is a trading scheme and a market-based scheme.

As far as impacts in the Manning Valley, well we are trying to - certainly there will be some price impacts which Ross has referred to in regards to price of consumables. The CPI rise on current discussions is likely to be less than one per cent. That is substantially less than the changes we had through the Goods and Services Tax, but there will be some consumables where prices change.

In the processing sector there will be a cost in the way we do business and that is something that businesses in the area will have to consider. Things such as the price of electricity will be a real impact and we've got to do what we can to manage that. On the assistance and investment side, there is also a significant benefit to hopefully, in my view, more than outweigh that cost.

In the land sector that I talked about before, we are really trying to make the heartbeat of this package a significant benefit in regards to both on-farm outcomes and biodiversity outcomes, both are challenged in the Manning Valley.

Tax reform is hopefully going to be a substantial part of this and so tax cuts for everyone in the Manning Valley, I would have thought, is a significant benefit worthy of consideration. All the various government social security benefit schemes such as pensions will see assistance to recognise the real rise in electricity prices of around three dollars a week. And so there will be direct benefits in what is a very large social security demographic on the mid north coast and needs to be recognised.

And then we are hopefully going to see a significant renewables package, which again in the long term will see areas such as the prices of electricity started to be addressed in the long term and provide for that transition to a low carbon economy.

There are potentially job opportunities in that area, but again that is really up to the market to decide and hopefully the Manning Valley has the innovation and the entrepreneurship to be a part of that transition and that opportunity presents itself.

[Applause]

QUESTION: Professor Garnaut, you mentioned that the additional costs borne by the lower and middle income households potentially would be rebated to them in full and yet they would still be provided with the incentives to make choices to do with low emissions and low costs.

ROSS GARNAUT: Yes.

QUESTION: It doesn't seem to make sense on the surface. Could you expand on that for me please?

ROSS GARNAUT: Yes, it's a bit counterintuitive, but let's say that there's a tax cut, that for one family gives them as much income back as is necessary to pay for the increase in prices, less than one per cent increase in prices.

Now of that one per cent increase in prices it won't be point seven per cent on everything, it'll be more on things that have got a lot of emissions in them. Now eastern Australian electricity comes mainly from coal, so the price of that will go up more. The price of things that don't have many emissions in them like a haircut won't go up much.

Now even though you'll be getting a tax cut that compensates for the average increase in prices, the goods and services that contain a lot of emissions, first of all electricity, will go up more than other things. And so any household that's able to adjust its expenditure patterns to spend a bit less on the things that have gone up a lot in price and more on other things will actually be a winner. So there'll be an incentive to reduce the consumption of the things that have gone up more in price. And lots of experience shows that that's what people do.

Studies around the world have shown that what economists call the price elasticity of demand, how much you reduce demand when the price of something goes up, is about point three in the very short term for electricity and about point seven for the long term. That means if the price of electricity goes up ten per cent, you'll reduce your consumption on average about three per cent very quickly and about seven per cent after you've adjusted to the increases.

So the increase in the prices of some things relative to others will mean you'll use on average less of the things that have become more expensive, even if your income has been compensated for the effect.

And then on the supply side, an electricity producer like AGL or Origin or TRUenergy will find - and each of those has energy from a number of sources; they've got some renewables, typically they've got some gas, some coal. They'll find that the energy that comes - the electricity that comes from coal will become more expensive than the others.

And so they'll think of any ways they can get a bit more production out of their gas plant and a bit less out of their coal plant. And when it comes to putting in a new plant they'll make sure it's gas or renewables rather than coal. So both on the demand side and the supply side you'll get adjustments made to the price. And the fact that households are being compensated won't take away that price incentive to change behaviour.

ROB OAKESHOTT: Just a couple more questions.

QUESTION: David Farrell. The issue that wasn't addressed was the whole question of population growth and what effect this is going to have not only nationally but also globally. In other words, when we hear about maybe two billion more people on this planet, how are we going to control carbon emissions if the population keeps growing?

And even our politicians here would like to see our population grow by fifty per cent. So if we reduce carbon emissions by ten to twenty per cent but we increase the population by fifty per cent are we really achieving anything and is it really feasible to think in terms of putting a cap on population?

ROSS GARNAUT: Population - globally population is a very important consideration. We can think of the total amount of emissions from using energy as being caused by the number of people times the amount of energy they use per person times the amount of coal and high emissions in that energy, so there're three things and population is one of them.

It's global population that matters. If ten-thousand people come from Britain to Australia, then that doesn't affect the equation because it's global population that matters. But you're quite right, the world's currently got about six point seven billion, expected to be nine billion by sometime in the 2050s and that increases the challenge, makes it more difficult to meet our greenhouse targets.

Your question was can we put a cap on population? Well the answer is yes but with difficulty and it's not politically acceptable in most

countries. China did; China had its one child policy. There are three-hundred-million less people in China and therefore three-hundred-million people less in the world than there would have been without the one child policy in China. China now has a fertility rate that's much less than the number of children per woman of childbearing age, much less than the replacement level.

Now because of their improved health people are living longer, so that hasn't been reflected immediately in a fall in population. But in a few years' time, not very long in the future - I think it's by somewhere around 2020 - the Chinese population will start to fall and then fall quite rapidly. And that's an extreme version of what has happened in all of the countries which are now developed.

Rising living standards, successful economic development, the improved access to information, the better education of women, the greater self-confidence of women that comes with economic development, with rising living standards, better education, everywhere this is associated with the fall in fertility.

There're only a few countries, and most of these are in East Asia - China, Singapore, Vietnam - there's only a few countries and these have been authoritarian countries where policy has led the change. In the rest of the developed world it's been the choices of families once they've become more economically secure and better educated that's led to a decline in fertility.

Indira Gandhi in India tried to introduce much tougher policies to put a cap on Indian population, but that led to a huge reaction against her government. To try to control that reaction she introduced - she suspended democracy and introduced martial law, but even that was not successful. So the idea of government putting a cap on the number of children a woman could have didn't work in India.

Nevertheless, the spread of information on population control, the spread of access to contraception has had an effect. But above all rising incomes, improved education - all the things that go along with economic development - has had an effect everywhere.

In India when I first started working on the Indian economy in about 1970, from memory the average number of children per woman was a bit over six. It's fallen every decade as Indian incomes and education have improved and now it's just a bit over two. The latest figures I saw were two point three. You've got to get it below two point one for population to turn and India's on that trajectory.

The countries where fertility, number of children per woman, is not falling rapidly tend to be the countries where economic development hasn't been successful; some countries in Africa, some countries in the Middle East, you mentioned Pakistan, some countries in Latin America.

Can we put a cap on population? Well, it's only been proven to be possible in a couple of countries and China seems to be a bit unusual in being able to enforce that sort of policy, very tough and nasty policies that we wouldn't like, but the Chinese people had to accept it and it's been effective. But for the rest of the world, we've got to rely on successful economic development.

Now, relying on successful economic development isn't giving up - together with spread of information on fertility control - that's not giving up and the United Nations' demographic projections say that on the trajectory of economic growth that we're on, then there are prospects of the world population reaching a peak in around 2060 and then starting to fall.

Now in a way that's a good news story, but the bad news is that, as you say, there'll be more than two billion more people by then and that does make the job harder.

QUESTION: Thank you for an excellent talk. I can understand compensation for trade exposed industries, if our trading partners are doing less than we are. What I don't understand is compensation for coal fired power generators. Could you please talk to that? Thank you.

ROSS GARNAUT: Nor do I, and I recommended there shouldn't be any. The Minister for Resources and Energy has analysed things in a different way and has come to a different conclusion, so you better ask him why he wants to compensate coal fired generators.

QUESTION: My question follows along David's, but the situation is the bottom line is clean air, safe water and the food production. That's the bottom line for all civilisation, absolutely. This valley is a paradise with quality food production, biodynamic, organic, people trying to produce quality food. We're very aware that the narrow border around Australia with a combination of quality agricultural land and water supply is very limited.

Could there be government recognition in this equation that we're making, I'm quite comfortable about, you know, sort of thinking about carbon and how it's going to affect us, but could there be government recognition that there must be some areas where mining, residential buildings and carbon sinks must never, ever be put? You know, this is really important.

[Applause]

ROSS GARNAUT: I get myself into enough trouble by talking about climate change and they are very important issues that you raise and I understand exactly what you're saying, but they're not the climate change issue; they are - they're very important, very important additional or separate issues. I myself think that Australia should give more priority to making sure we preserve biodiversity, some natural bushlands.

Now that will actually help the carbon story as well and there will be - well, if my recommendations are accepted, and Rob tells me that this part of it's being treated seriously, then there will be provision for support for that so that people can - are recognised in carbon credits if they're contributing to conservation of natural woodlands.

On the questions of high quality food and healthy food and water, they're very important issues in themselves, but separate from climate change. On preserving some areas for mining, that's a question, a very important environmental question that needs to be addressed on its own merits.

So, I encourage the ideas and the sentiment, but the - and some of those things have a connection with climate change, particularly storing biodiversity and preserving woodlands - the other things are important in themselves and a bit separate.

QUESTION: Professor Garnaut, I'd like to ask a question. My question is first a statement. The small company that we're involved in is heavily into soil carbonisation by fertility and microbial technology and we have managed to speed up this process by one or two orders of magnitude. Farmers could have a very good income stream from carbonising their soil. Could you tell us whether they will be rewarded at the same rate per ton as carbon emitters will be penalised?

And, secondly, the first geological record attests to eight or nine glacial, interglacial cycles in the last million years. We haven't been hearing

anything about a return to glacial periods following this period of warming. Could you comment on that?

ROSS GARNAUT:

Yes, on the first question, I have recommended that farmers who store carbon in soil should be rewarded with a price; the same price as polluters are penalised. And my recommendations are the first time this has been suggested in Australia and I hope that Rob and his colleagues take that seriously.

What's more, well, I've suggested that even though at this moment the soil carbon credits are not recognised in the international accounting, we should, from the start of the scheme, give a hundred per cent credit. If the carbon price is twenty-five dollars a ton, give twenty-five dollars a ton to the farmer that's increasing carbon in the soils and should get that from the regulator of the scheme. So the regulator of the carbon pricing scheme will collect the money by selling the permits to the big polluters and will buy credits from the farmer storing carbon in the soil.

This, potentially - well the whole area of biosequestration, capturing carbon in the soil, in the pastures, in the woodlands is potentially a very big industry for rural Australia, very important. There was once a suggestion that you shouldn't reward a farmer who's increasing carbon in the soil for what she is doing anyway. I use the feminine for the farmer because on our farm my wife takes all the strategic decisions.

There's some argument that you shouldn't reward a farmer for just doing what she's doing because that improves the productivity of the land anyway. Well I say it doesn't matter what the motive is, you should be rewarded if you're increasing the carbon in the soils.

I know that in many soils in Australia you can increase productivity and you can give some insulation against drought by having more carbon in the soils. So that will give some reward to farmers and then I'm suggesting an additional reward from the carbon pricing.

And I've focused so much on that I've forgotten the second part of the question.

QUESTION:

Glacial and interglacial.

ROSS GARNAUT:

The glacial and interglacial, yes. Well, the true climate science, the people who spent their lives working on this, recognise that there's a lot of causes of climate change. There's the changes in the intensity of solar activity. This tends to be relatively short term; it fluctuates; some decades are warmer than others.

There's large changes associated with changes of the pattern of the orbit of the earth around the sun and others associated with small changes in the axis of the earth.

All of these things contribute to long term climate change and humans putting carbon into the atmosphere contributes to change. The other effects tend either to be fluctuating things, and fluctuating over a relatively short time like the solar activity, or very long term things like the changes driving the ice ages which seemed from the climate science to be mainly to do with changes in orbit or the angle of revolution of the earth.

What we're doing to the atmosphere is causing change on a much sharper timeframe, much quicker change than before. Now, the other changes would lead to very big long term changes over the long history of the earth over tens of thousands of years and longer periods.

What we're doing to the atmosphere is leading to very big changes in a short period of time and what I'm suggesting is that we should do something about the things that we can do something about and seek to understand some of the longer term things that we can't do much about.

ROB OAKESHOTT: We've only got time for two more questions.

QUESTION: Thank you very much for your talk. We've known, or anyone who's wanted to know for the last thirty to forty years that climate change was a threat, it's been an urgency for ten years, you've been involved in this issue for at least five years. I would like to know how you keep your temper, how you keep your cool, and how surprised are you at the lack of bipartisan support in Australian politics at this stage?

ROSS GARNAUT: Well, I am a bit surprised at the lack of bipartisan support, but I know from very encouraging communications from quite a few senior liberals that you can't blame the whole Liberal Party. I get a lot of encouragement and not only from the usual suspects.

I'll tell you what I hope. I hope this will - the Opposition's obviously won some short term points from opposing this. Well, good luck to them, but once this is operating you won't be able to run a scare campaign because people will actually see what's happened to prices, they will see the world hasn't fallen in, see it's actually a rather small change compared with the GST, so then we can have a much more realistic discussion. And then I think the short term political incentive will disappear.

So, what I hope is that the Liberal Party will then say okay, well we tried but we didn't succeed, it's in Australia's national interest just to bed this down and to get more - and at least for it not to be highly contentious like it is at the moment.

Yes, it is disappointing that it's been such a divisive and contentious issue in Australia. It's much more contentious and divisive here than in other places. I've had visits from senior European political figures, including people close to the Prime Minister of Britain, the Conservative leader, David Cameron, and they've expressed amazement at the debate in Australia. In Europe they're just getting on with the job and just amazed that we have the debate, especially such a...

QUESTION: They're also going bankrupt in Europe [inaudible].

ROSS GARNAUT: Well they're going bankrupt for other reasons.

QUESTION: It's Alan Tickle. Quick question to Rob, probably only need a quick answer. Look, there's been statements that you've made and successive governments I believe have made a mistake of trying to address cash by way of taxation or Centrelink. Now clearly, not all Australians pay tax and clearly not all Australians that don't pay tax get Centrelink. It doesn't address retirees between sixty and sixty-five, nor does it address the rural community who may be asset strong, but not earning enough income to pay tax.

Has there been any consideration by doing a cash rebate simply through Medicare that will address all households very simply?

ROB OAKESHOTT: Look, the reason this is taking so long is pretty well every person in Australia's being analysed and trying to work out how they're affected and what's the best way to deal with it.

As far as the direct use of Medicare, it hasn't, you know, ended up in any final rounds of conversations, but certainly we're very aware that

there're more people in a community than just people receiving welfare in all its forms from government or those that, you know, might receive a personal income tax receipt.

And so when and if we do get agreement on a final package, I think, you know, the figure that the Prime Minister used on the weekend was nine out of ten Australians will receive assistance in some form. I'd like to see how she came to that figure, but, you know, certainly I can assure you that this is a conversation that is taking so long because there is a very real recognition that there are a lot of different circumstances, a lot of different communities as well.

You know, the point about the mining industry booming at everyone else's expense I think is a very real one at the moment, and that broader economic question has direct impacts on anyone in retail, small business, or tourism or accommodation in the Manning Valley. And they're considerations that have to be in the mix as well, as this isn't just one Australian economy we're talking about; it's chugging along at different rates in different areas.

So, right down to the individual I would hope you will see some recognition of need for assistance through a transition period that softens any of the challenges in regards to pricing for the right reasons.

- ENDS -

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