

Speakers: John Thwaites, Chairman of Climate Works Australia;
Professor Ross Garnaut, head of the Garnaut Climate Change Review;
Craig Pearson, Director of the Melbourne Sustainable Society Institute

Event: Lecture of the Garnaut Climate Change Review- Update 2011 at the BMW Edge, Federation Square, Melbourne.

Date: 03.02.2011

Duration: 1:06:52

Transcript:

JOHN THWAITES: Good evening. If I could ask you to please sit down so we can get started.
Chairman of Climate Works Australia Good evening. I am John Thwaites. I am the Chairman of the Monash Sustainability Institute and Climate Works Australia. Welcome to this address by Professor Ross Garnaut in which he will reflect on the climate change discussion in the two years since the Garnaut Review was released. Ah, tonight the lecture is being jointly hosted by the Monash Sustainability Institute and the Melbourne Sustainable Society at the Melbourne University and its director, Professor Craig Pearson, will be directing the question and answer session and Deputy Director of the Melbourne Sustainability Institute [inaudible] will be with us also. Now, both institutions, our core role is to provide a collaborative search on sustainability issues and in that way help Australians towards a more sustainable and lower carbon society and we think hosting an event like tonight is a way we can help to disseminate knowledge and contribute to a more rapid transition to a low carbon society. Tonight's address certainly comes at a critical time. After what can only be described as a massive disappointment of climate policy in Australia over the last two years, in many way now at the make or break point, and it does feel for a lot of us here a bit like Groundhog Day, but the Australian Government and the Multi-Party Climate Change Committee are this year considering the options for a carbon price in Australia which I think all of us I hope would lead as quickly as possible legislation should be passed through the Australian Parliament. Professor Garnaut is the one of the four independent experts who is advising the Multi-Party Committee and he has also been engaged by the Australian Government to update the Garnaut Review. Tonight's lecture coincides with the release of the first upgrade paper, which many of you will have, that will be available from tonight. I have to say that there has been an extraordinary response to this lecture, which sold out almost immediately just before Christmas ... and umm we had to put people on the waiting list and I think that is the two reasons. First because there are so many people who now are desperate for the Australian Government to take substantial action we need on climate

change, and to do so in a way so that we do not fall further behind other countries that would ... that will make the transition even harder in the future ... ah tonight's lecture also comes at a point in time where many Australians are suffering as a result of extreme weather events and it does seem incredible that after the hottest decade we have ever had, after the equal hottest year that we have ever had, at a time when the science becomes even stronger, where the forces of opposition to action continue to be so successful. I think their tactics now may be shifting in part to urgent deferral, or to watering down of action, but as the Garnaut review shows, substantial action is possible and as it also shows, it is in Australia's interest to act promptly and that certainly fits with the low carbon growth plan which we at Climate Voice Australia developed last year, and published which demonstrated that Australia could reduce its carbon emissions by twenty five percent by 2020 at an affordable cost. The report demonstrated that what we need is a whole portfolio of actions and not just a silver bullet ... you needed a portfolio of actions and they needed to be prompt ... and it also demonstrated that while the carbon price was absolutely fundamental we also need some targeted actions that are complimentary to that and it is unfortunate that we are seeing some calls now to cut clean energy programs before we even have a carbon price. The second reason I think this event has been so popular is the respect and esteem that people have for Professor Garnaut and the central role that he is playing in the climate change debate in Australia. Professor Garnaut has a very long history of public service, in economics, in relations with Asia and more recently in climate change. He has shown in his climate change reviews and speeches and papers and subsequently a very clear cited and rigorous analysis of both the problem, but also, very importantly, the solution. And I can only hope that he will successfully influence, ah, all those members of the Australian Parliament who over the next twelve months will be called upon to take substantial action on climate change. Well now we have the opportunity to hear from Professor Garnaut on his latest reflections on the climate change debate in Australia. Professor Garnaut.

[Applause]

PROFESSOR ROSS
GARNAUT:
Head of the Garnaut
Climate Change
Review

Thanks, John and it is very good to be here for the launch really of the communication with communities on the update of the Garnaut Climate Change Review. Thanks John for the introduction. John was the Deputy Premier of Victoria Government when the State first commissioned my review and the first secretariat was in the Victorian Premier's Department before it became a Federal, Commonwealth State, ah, exercise with the elections in 2007, well, John has been following the issues closely since then. I am grateful to the Sustainability Institute at Monash and Melbourne for coming together for the occasion. The first of the update papers have been distributed or will be available to you and I am going to touch upon a

lot of the issues that are taken up there but I won't be reading it or speaking directly to it, so that can be your homework for tonight and I think I will bring things together so that can all be for afterwards. I just want to get to what John described in this meeting [inaudible] is part of an important phenomenon ah that surrounds the Australian climate change discussion and that surrounds the international climate change discussion. In Australia, and in many countries, the communities have been very interested in action and haven't let Government give it up. The reason why we are getting a second change at climate change policy is that the Australian community didn't want the political communities just to drop the issue ah- There was huge public interest in my original review and it's clear there has been similar interest since then. I am glad that there are people here tonight that worked with me on the original review as well as people working with me on the update. Some of them are the same people. Many of you will have heard me describe climate change as a diabolical policy problem ah, in the final report the review I said "climate change is harder than any other issue and more important than have come before our polity in our memory. Climate change presents a new type of challenge. It is uncertain in its form and extent rather than drawn in clear lines. It is insidious rather than, as yet, directly confrontational. It is long term rather than immediate in both its impact and its remedy. Any effective remedies lie well beyond any act of national will, requiring international cooperation of unprecedented dimension and complexity. While the effective response to the challenge may play out over many decades it must be put in place and take shape in the coming years. Given that the scale of the challenge it poses no surprise that we have had to have a second run at it." In that segment that I've quoted, I said that climate change is not yet directly confrontational. I don't think that I could say the same thing today ah and John alluded to this [inaudible] someone outside the climate science, like me, cannot read the climate science without taking on board as a clear statement that we can expect the warming of the atmosphere ah and of the oceans, and the intensification of extreme weather events ... and while Australia has always been a place of variable climate a place of drought and flooding rains, the greater energy in the atmosphere and in the seas can intensify extreme events with this, I am afraid we're feeling some of that today. We're feeling that at a time when global warming is in its early stages, when ... ah ... when the average increase in temperature over recent years is less than a one degree increase ... and as we know from another documentation, in the absence of mitigation there is a long way to run. Um... The reason why climate change is back on the agenda in Australia is that there is great community interest in this issue than in any of the other public policy issues on which I have worked on during a long career in public policy ... certainly much more interest and public support in action than in the trade liberalisation of the 1980s and early 1990s ah and some of the harder structural reforms of the eighties and nineties ah and that mean that there is a base for action for a

government that's wanting to take a major step forward. But let's not underestimate the complexity of an effective response to climate change. The degree of difficulty exceeds that of reform in most other areas of public policy and we know that ever since the advice of Niccolo Machiavelli to the Medici Princes ... that changes in the established order is always a dangerous undertaking for princes. The complexity of this one highlights the difficulties and the risks. I will make reference to the establishment of the Multi-Party Committee on Climate Change. I should mention that my role in that is separate from my updating of the review and that actually my participation in that committee will be informed by the work that I do on the updating of the review. I am on that committee as an independent expert and that is a confidential process that I hope will be very productive through this year. This is the year when there is a chance of getting a result. On the other hand the update of the review, like the original review and the public process, the independent process and my terms of reference require me to exercise my independent judgement. Ah ... I was commissioned to do the update of the review towards the end of the third quarter last year, it got underway in November ... I got very good secretarial support from the Department of Climate Change in Canberra and ... ah ... and a complimentary secretarial peer in Melbourne and early in the work in November we identified eight areas in which there seem to have been substantial developments since the completion of the earlier work where we should have a close look what has changed and its implications for policy ... and each of these eight areas will be the subject of special papers that will be released this month and next month. One of these papers is the review of the methodology that I used in the original report. That is a substantial part of the document that you have got before you. We will also be updating the reviews discussion of the international context of climate change mitigation and I will be releasing a paper on that at the Lowy Institute in Sydney on Monday ... they have been very important and they are of course right at the heart of solving this issue ... because of course no one can solve this problem on their own, even the big countries like the United States or China can't solve the climate change problem alone ah, the international effort will determine the effectiveness of what each of us does ... we won't get an effective global effort without all of the major countries making a substantial effort. A lot of the initial review – three chapters – is focused on refining what would be the contribution from Australia in various circumstances. The international paper will review all of that and it is an area where things have changed a lot in the last few years. We certainly don't have nor are moving on any early timetable to reach a certain agreement that we were once looking for in the review I was pointing towards a comprehensive binding agreement on entitlements for emissions amongst countries so that we could provide a basis for an international trade in entitlements. But, through a rather messy process we certainly have an agreement ... and the base of that was made in Copenhagen and then

taken a lot further in Cancun. The Copenhagen meeting was described, has been accurately described, by some as a fiasco, but something was salvaged from it ... and what was salvaged became the basis, ah, for a lot of work over the past year and for meetings that were successful diplomatically and substantively in Mexico in December. So the international paper will come out on Monday and we will review that and will describe the opportunities that exist under this new agreement. It is not that we do not have an agreement it is just that we do not have the agreement that we were once working towards ... What we have is something that is much more suitable to the constitutions and the political cultures of some of the major players including the United States and including the biggest of the developing countries. One of the update papers will update the climate science, umm, and the work the science upon which my review was based was some years old by the time my final review was published. There was a lot of reliance in the IPCC documentation that the report of 2007 because that is all based on peer reviewed science a lot of the published science has its substantive histories a couple of years before that so the update of the science will review the updates in the climate change science. We do not have a new IPCC report since then but there has been a lot of very important published science since then, ah, and while I have no pretence to expertise in climate science, I've attached a long report and so I am trying to understand some of the developments and I am afraid that some of the important developments in the science are very reassuring ... the immediate nature of all of the impacts of climate change ... We are tracking at the bad end of the range of possibilities defined by the IPCC report ... That's true whether you are looking at temperature increases or secondary trends sea level rises ... there are a wide range of other indicators ... and I would include in that list that we are tracking, at the bad end of the impacts of extreme climatic events ... There is an important paper in Nature that addresses specifically the impact of cyclonic events, the intensity of such events, and with the global picture we can get more information than from Australia alone and, there is unfortunate confirmation of the story that the basic physics and the basic climate science tells us to expect.

A fourth update paper will focus on the global emissions trends. One of the contributions of the 2008 review was that we look from the foundations up at the emission scenarios developed by the IPCC- the expectation that the amount of gas emissions in the atmosphere will grow in the absence of mitigation and the work that we did then led to an unfortunate lifting of expectations about businesses use of emissions growth. That was largely based on a close look at prospects for economic growth, the energy intensity of that growth and the emissions intensity of energy use in the three big developing countries - in China, India and Indonesia - and the work that we published at that time lead to a substantial revision in an unfortunate direction of expectations of our business-as-usual emissions growth. Well

we're getting some of that work again and there have been important developments over these last few years. We've had the global financial crisis. The global financial crisis is important strategically in shifting the balance of strategic and political weight amongst nations, the big...the established, developed countries have lost protective weight and developing countries gained it, and that's very relevant to the discussion of the international mitigation effort. It's also very relevant to the discussion of business as usual emissions. There has been a slowing of emissions growth in the developed countries, but there's no sign of an easing of economic growth in the developing world as a whole. Now someone like me whose career has been mostly about development in poor countries, who has seen one of the great objectives of humanity, the removal from poverty of those huge numbers of people living in difficult conditions, who were there in China, in India, in Java when I began my career as an economist, then this era of accelerated growth in the developing world is a wonderful thing. Well, the good news is that the global financial crisis, while it damaged severely and probably for a long time economic growth in the established, developed countries, hasn't brought what I call the development age to an end. There is still very strong growth momentum, in fact no sign of any reduction of growth momentum in...not only in big developing countries but also in many poorer developing countries, including in Africa. Now, that's a wonderful thing from the point of view of human welfare, but the other side of the coin is that it raised business-as-usual emissions and increases the challenge of dealing with...with climate change, and we're going to go back over that ground and look at all the things that have changed since the review in 2008 in the paper on global emissions trends. A lot of people will see that part of the update has been a paper on proposals for reducing emissions, including carbon pricing, and certainly that will be a major focus of our work. There will be a wider context of that just as there was a wider context for our proposals of the emissions trading scheme in the original review, and ah, we're looking at the question, recognising that ah, the Australian policy discussion has a history, [inaudible] very important that we get a strong result this time around, and we're developing that paper with those challenges in mind. That paper will need to look at the relationship between carbon pricing and support for innovation, ah, and [inaudible] technologies. It will need to look at the relationship between carbon pricing and income distribution and the various measures that can be taken to offset regressive affects.

There'll be one update paper on opportunity for abatement in the land sector and bio-sequestration, one of the more speculative chapters of the 2008 review was Chapter 22 on [stutters] transforming agriculture and land use in Australia. There's been quite a lot of work since then, some of it, ah, encouraged by the review, encouraged by that chapter of the review. Important work and, ah, and we're going to bring that together in

reassessment of the opportunity in the land sector in Australia. Potentially very large, this is an area where Australian skills, Australian research, are very relevant to possible outcomes and the general importance of research [inaudible] commercialisation of new technologies is going to be important in addressing the climate change challenge across the board, is going to be particularly important in this area. We will have one paper on technological change in the local emissions industries and technologies. The review undertook the most detailed and long-dated modelling of the Australian economy that's ever been undertaken. It was, ah, a little bit preposterous to think that we could in detail model the evolution of the Australian economy out from the end of the 21st Century. We did that, that required assumptions about rates of technological change in a very large number of industries, including the low emissions technologies, and, uh, one thing that we will do in the paper on technological development and innovation policy is review what's actually happened to rates of change in costs of various technologies against what we assumed in the modelling. And the story is a pretty good one, I've mentioned a number of areas where the challenge has got bigger over the last few years, but I just spent time in Beijing and then Washington focussing on...more on this issue than on other issues, technological developments and, uh, here there's some good news, uh, in general the rate of reduction of costs in low emissions technologies seems to be substantially more rapid than we assumed in the modelling. Now this is just a few years, but take China, as they've poured larger and larger resources into the whole range of energy and transport technologies the costs have been coming down much faster than they expected and this is giving them great confidence that they can go further, that they can [inaudible]. Ah, many of those reductions in costs are coming simply through manufacturing capital goods [inaudible] inputs into components into nuclear plants where the manufacturing is on a much bigger scale across the country now. In the United States there also seems to be quite a lot of momentum towards reduction of costs in low emissions technology. Here the gains seem to be coming not so much from different ways of manufacturing, improvements of manufacturing approaches, but from the fruits of new research and development of the technologies, and this has been a major focus of the Obama Government's programs, a major focus of the stimulus packages, and the State of the Union address the week before last week or last week, that made it clear that this would be a major feature of the, ah, Obama presidency through the remainder of this term.

And finally there will be one update paper specifically on the transformation of the electricity sector. This, this has emerged for the time being at the pointy end of the politics of climate change, largely because [inaudible] has nothing to do with how pricing, the electricity prices have been rising a lot. Well in the review we had a chapter on transformation at the end of the chapter and we pointed out there that there were going to be very large and

very [inaudible] electricity prices for reasons that had nothing to do with carbon pricing, ah, in this case foretold was not forearmed because people seem to have been surprised by the rate of increase in electricity prices since then but it is a challenge, and one response to the challenge is to try to clarify the sources of increases in electricity costs, and then also the ways in which, uh, inefficiencies in our regulatory processes are producing increases in costs that are unnecessary, and we'll be analysing that alongside the analysing the process of technological innovation that can be important with that formation of the electricity sector.

One of the important areas where technological change is proceeding more rapidly than we assumed in the review is in the electrification of transport, where a number of the major industrial countries of the Northern Hemisphere things are moving faster than we had assumed, but of course electrification of transport, including of passenger vehicles, is helpful to production and emissions if in the mean time you have de-carbonised your electricity sector. So we're looking at those issues together and it may be that the successful de-carbonisation of the electricity sector, the electrification of transport will make a major contribution to reduction of emissions.

During the work that we did before I was often asked by the younger, very strongly committed members of our team what the test of our success would be. What the test of our success, whether all of our recommendations were taken up by the government. I used to say that, no, no the test is that the Australian community and the government that makes the decisions understand the implications of those decisions. Well I think I set the bar a bit high for myself this time, ah, getting back into the saddle on that, I would like a result this time.

[Laughter and applause]

Well in the paper that you've got before you, ah, I lay out the decision making framework that we used in the original review, it's a transparent and I think logical framework. It sets out very clearly the premises that we used, the logic that we used and the information sources that we used and I had hoped that we could have a community discussion about whether my premises were wrong, or my logic was wrong, or the information was wrong. I said in the review that it's not helpful for people who oppose recommendations because they don't like them. It's important that we engage on the logic, on the premises, on the information that lead to a conclusion, but it wasn't altogether successful last time round- there was an awful lot of butting of heads between people who for didn't like for one reason or another the recommendations. I, the setting up again of that decision making framework I think, well I hope will help people to go back to

some of the questions of logic that lead to the conclusions.

I went here go through that decision making framework. It turned out that developing a methodology for addressing the big question of whether litigation was in Australia's interest and if so how much mitigation was in Australia's interest, and were they bigger questions than the questions that had earlier been asked by, and answered by, Klein and Morthouse and Stern, uh, they were looking at this question from the point of view of the world as a whole and I was asking these questions about one country. Turns out it's a harder question about one country because you still have to answer all the questions about the world as a whole, that you have to analyse the relationship between Australian decisions and what happens internationally. Uh, the framework is laid out in the paper before you but in that paper I take up five issues that have been raised by people who were not happy about some or other conclusions and I'll just deal briefly with how I address those issues in this paper. There was some concern that, expressed by some critics that the review had used too low a discount rate in valuing future benefits of mitigation and comparing those with current costs. This seems a fairly archaic issue but it has highly practical consequences. In one of the meetings with the Multi-Party Climate Change Committee, and it's a secret protest but I don't think my colleagues on the committee would mind me revealing this little bit I, I had been going through the issues of the choice discount rates that I was going through for this paper, and I pointed out that if you discount the future at the sort of rate that equity markets discount the future - equity markets contain a big high discount for risk - then anything that happens 50 years in the future doesn't matter, so I pointed out that if you are using a discount rate that's typically used in equity markets, that even if the absence of litigation that to the extension of our species in half a century or three quarters of a century's time, you still wouldn't worry about that, you still would not spend any money on mitigation, whereupon the Prime Minister said, "You've got us there Ross. We're against the extension of the species."

[Laughter]

Ah, the review took a robust approach to discounting, and the really interesting thing is that, ah, looking at different ways, different appropriate ways that you can discount [stammers] the future in making decisions to spend money now- I think this, ah, generation is well faired [?] to make things better for future generations- ah, the various approaches, ah, all lead to similar outcomes in the case of Australia. I don't assert that you could use the same methodology and the same discount rates in every country in coming to that conclusion. But of the intellectually valid approaches to discounting the future within that range, the discount rate, ah, the choice of

discount rate turned out not be a crucial issue in assessing Australia's interest in strong mitigation. I hope that, ah, the people who are uncomfortable about the discount rate used in the earlier, review, will read the material in today's update and, and it see that the logic is sound.

Um, I also take up something of [stammers], of a review that, if, along the lines that, no, because the science is uncertain, then we, we should delay our catalogue [?] or shouldn't do as much. Well, in this paper that you've got before you, I look analytically at that question and, actually, the presence of uncertainty increase the urgency of action. If you, if there are two possible worlds that you're facing, one where in the absence of mitigation you'll be damaged a certain amount- let's call that amount 'x'- and we know that with certainty, then there's a certain amount of effort that's warranted to avoid that cost in future, that cost of 'x'. If the outcome is uncertain and the average the expected value of the future outcomes is 'x' but there's a possibility that things will be much better or much worse, if the outcome is 'uncertain', then the way in which humans normally take decisions on these things, we are prepared to pay extra in the way of insurance, ah, to avoid the very bad outcomes. The presence of uncertainty increases the, both the case of mitigation and the urgency of mitigation.

Ah, I take up, in this paper, [stammers] the question is sometimes raised, sometimes raised by [inaudible- 43:08] have a history of concern for developing countries, but the point is sometimes raised that if developing countries get involved mitigation this will limit their development opportunities and I point out that our overall framework provide that mechanism for transport and resources and a differentiated approach to emissions constraints that would make continued growth in low income countries consistent with mitigation.

Ah, the fourth issue I take up is a question of what is 'proportionate' part. In Australia, it's been common for people to say we only represent a small proportion of world emissions, 0.4 percent- might be slightly higher this year- so if we do nothing then that it won't affect outcomes. Well, that is, a couple of points about that. That's not how we usually look at our participation, Australia's participation, in the international matters in which we think we have an interest. You don't hear people say "We've got an interest in the success of the United Nation's mission in Afghanistan but, because it won't be noticed much, if we're not there we won't be there." That's not how we look at international relations issues. We think of doing out proportionate part in a collective effort that is associated with goals that our community is comfortable with. But, more important, I think it's a highly practical question, that if the country in the developed world with the highest per capita emissions- that's us- is not doing its proportionate part, then it's much less likely that countries with much lower emissions, but countries which need to

be part of a global effort, will make that effort. We've got a sort of 'veto' power over an international effort and that's the practical reason it's important to play our proportionate part.

And the fifth issue that's arisen in discussion of the framework of the review that I take up in the paper before you is whether, because the world hasn't got [inaudible] because there's already been a lot of damage done by climate change and a lot more in the pipeline, it's really too late and we should put our efforts into adaptation. And I make the point that the one degree of warming that's, a bit less than one degree warming since pre-industrial times that's already happened, it's very different from the two degrees warming that's probably already in the system and very different from the three degrees of warming that will be [stutters] the product of heavy delays in strong mitigation. Let alone four degrees of warming- that will be the subject of a major conference at the University of Melbourne in the middle of this year. There's not point at which you can say that so much damage has been done that the increment of damage is not worth a considerable effort.

So, you'll get a taste of the, the issues that we're, that we're taking up in the, in the updated, in the paper before you. All of these eight papers will come out this month and next month and then over the subsequent two months it's all brought together in the final updated review which I promised to give the Prime Minister on the 31st of May. The significance of that date is that it's a month before the composition of the Senate changes and [stammers] the government and all the political members of the multi-party committee are very much focussed on participating, direct to that registration in the second half of that year.

So, it's clear that since we did the work a few years ago, I really think this could have changed, but I think the essence of the problem has not changed so much. We've taught ourselves that we're capable of making quite a big mess of dealing with this diabolical policy problem. I hope that we've learned something along the way and that one another thing that we've learned is that we need a strong, independent centre of our polity if we're going to get strong results in the national interest on a complicated policy question like this. It will be the interest of people who are concerned with the Australian public interest, the Australian national interest, that will be critical to giving us a chance of a good result this year. We can be sure that there will be many private interests seeking to deflect [stammers] the attempt to strengthen policy on climate change, or introduce strong policy on climate change. We can take that as given, that reality is part of the reality of our democratic polity. What we have to make sure is that we have a well informed and an active, that independent centre of our polity that can give government reasons for confidence that they need not bow to the pressure

of the special interests; that they can afford to give primary attention to the national interest.

Thank you.

[Applause]

CRAIG PEARSON: Thank you very much Ross.
Director of the
Melbourne Sustainable Society
Institute
My name is Craig Pearson; I'm director of the Melbourne Sustainable Society Institute. We are coming close to seven o'clock, so what I would like to propose is that I move a vote of thanks on your behalf to Ross, but then we do allow [inaudible] of time, as it were, for you to ask some questions. You agree with that Ross? We will have to, by the look of the audience, truncate that as well. But, um, just in case there might be four or five you in both positions wishing to ask questions, we have a microphone up the back and a microphone down in the centre.

While you're considering that, I would like to formally and with very sincere thought, thank Ross for his contribution. As I move to do that, could I please acknowledge the people who contributed funding and logistics for this evening? I'd like to acknowledge Professor Dave Griggs from the Monash Sustainability Institute, thank you Dave. And from Monash, a number of players of course, many of them invisible, or up the front. But Tahl Kestin and Simon Rowntree in particular. From M.S.S.I, the Melbourne Sustainable Society Institute, Emma Joughin and her colleagues. From the Garnaut Review Team, obviously a very busy group of folk, Helen Wilson, the project director, and Anne Freeman, deserve special thanks. And also I'd like to acknowledge the Department of Climate Change and Energy Efficiency.

Having done many of those thanks, let me now turn to Ross. And it's Ross that brought you here today. He is clearly one of those Australians who's made a distinguished, indeed an outstanding, public contribution and the contribution is obviously ongoing. I don't know how he fits it all in, but I guess if you're tackling a diabolical problem you just keep on making diabolical times and sit in aircraft.

I'd like to thank him for his contribution to Australia and, particularly of course on your behalf, for his contribution tonight. Um, Ross, I wish you well on the second time around, so to speak. But, to the audience, I'd like to remind you that, ultimately, this diabolical problem, what is going to be done in Australia, is not a problem ultimately for 'them', for a group of faceless politicians in Canberra or elsewhere. It's a problem that ultimately depends on us. So, with that thought, I'd like to formally thank you very much for

coming and ask you to join with me in thanking Ross.

[Applause]

CRAIG PEARSON: Now to invite Ross back to the microphone and if there are some questions, please there are two microphones- one at the back and could somebody point out the second one just near the stairwell there.

So if you would please move the microphone to ask the questions. Meanwhile now we have somebody. Please.

MATTHEW WRIGHT: Hello it's Matthew Wright here. Ross, I was just wondering, with the latest climate science and what's been said out of N.A.S.A and out of the Potsdam Institute in Germany in regards to the dangers of hitting two degrees- what are your thoughts? Are there- the latest work of the Potsdam Institute, Professor Hans Joachim Schellnhuber suggests if countries like the United States and Australia need to cut their emissions and actually head towards zero and de-carbonised, in the order of within ten years, if we're able to avoid dangerous levels of climate change.

ROSS GARNAUT: I think we have to recognise that two degrees is a risky place. And it's probably especially a risky place for Australia or especially amongst the developed countries because for the reasons that were set out in the review, Australia faces a larger risk of damage from climate change than other developed countries. But on the complex climate problem we have to take some care with not making investing in the enemy of the good. It will be extremely hard for the world to, I imagine, hold emissions to 450 parts per million. I think the question in there is the review- how will we get to 350 or something or other 450, to give us a chance of holding likely temperature increases to below two degrees. I put the view there that the path to anything better than 450 parts per million- we'll have to go through 450 because we will soon be above that anyway- 450 parts per million of carbon dioxide equivalent... And if we were aiming to go lower than 450 parts per million we would have to set ourselves on a course of halting emissions very tight to get to 450 and then relying on the development of mechanisms for actually for reducing emissions below zero. And that's not impossible- it's happened on this Earth before- a long time before there were humans. This was once a carbonic atmosphere which was completely unsuitable for human life- there were organisms that got to work over a longer period of time to transform the atmosphere into something that our sort of species could exist in. Some of those organisms are still around so there's a chance of atrophic mechanisms that introduce negative net emissions but it's good to think about these things, to work on these things, but we will be making

unexpectedly good progress if we set ourselves fervently on the path to two degrees.

JOURNALIST: Ross, I understand the next question will be slightly outside of your terms of reference, but still I'll ask it. Looking at the procedure for the logical and scientific process to effect the political decision process, and then looking at, for example to other place the EU, where there is a body that's not funded by the political process, issuing directives rather than things like long-term aspirational goals, or in China where there is no democratic process- do you have an opinion about Australia or other countries, a solution for this process that leads us to taking this path of illogical or non-scientific conclusion reading.

ROSS GARNAUT: I'm not sure I heard every word of that and I hope I understood the question, but then there's a, ah, what, what's wrong with our political decision making process where it can't come up with decisions that are logical in light of the challenges that we face. While it is true that an authoritarian political system can take some decisions more crisply than us, like what's happening in China- they've decided to do things and things started happening. They're closing down dirty inefficient coal-based power stations at the rate of close to one every week or two, whereas our political system you find that difficult to do. I myself prefer our political system. I don't think, I don't think it's impossible for our political system to get things right. It's hard. It requires high qualities of leadership. It requires attention from the educated, informed, active, independent centre of our polity. But it's not impossible and, I hope- I'm tempted to say I expect- that our political system will prove that it's up to the task in the second half of this year.

JENNIFER TRUTR:
CEC Representative Hello, I'm Jennifer Trute from the Citizen's Electoral Council and I live in Queensland. And I know you're talking globally and with your intention globally to require this low emission trading and the intention is to de-industrialise and not allow nuclear power then I think this will bring on a dark age. I'm wondering if you're concerned about this given that Queensland's just experienced, as everybody knows, just catastrophic floods including the stuff before the floods- how do you expect to rebuild using the solar panels and windmills or don't you think it should be done at all? It sounds like a greenie's wet dream.

ROSS GARNAUT: Well I wish it were. I wish, I wish the problem of climate change was just a fantasy- a wet dream. But I'm afraid that the science- the systematic, intellectual work of people who've spent their lifetimes studying these things- shows that a warmer climate does lead to intensification of these sorts of extreme climatic events that we've seen in Queensland, and I think that people are wishing to avoid those awful challenge in Queensland will be amongst the people supporting effective action on climate change.

JENNIFER TRUTE: <Interrupts> How will you rebuild with windmills and solar panels?

ROSS GARNAT: No there's... I invite you to look at the 2008 review. It does discuss wind power and solar power and it also discusses a lot of other sources of energy as well. There is a path towards a low carbon economy in Australia that is consistent with continued growth in living standards and that's the path that was set out in the 2008 review and about which we will discuss at greater length in this update.

There's a question up the back...

BARRY LANGBROEKE: Yes, good evening. My name's Barry Langbroeke and I have a question about, relating to the economics of mitigation. If you're having a carbon price that's similar to a tax, in the EU, the idea is if you're taxing a bad, you use that revenue to encourage goods like big carbon returns on capital, and it's because of the economics of it and to maximise the substitution factor, never mind the income factor. The sort of pluses and minuses I can see on the idea of the concept and I was just wondering on your thoughts on that.

ROSS GARNAUT: Ah- well it's very important point to make that if you impose a carbon tax or if you have an emissions trading scheme and sell of the permits at their true value then the carbon price value of the permit doesn't disappear and that can be the basis of reduction in other taxes. That's one of the possible uses of the revenue. Lord Howarth in his original work in the United States analyses this issue at length and drew the conclusion that even if you have no interest in climate change you can raise money through it to have a carbon tax and reduced income and other taxes would lead to improved efficiency in the United States economy, so I guess that the use of some of the revenue to change the tax mix is certainly one of the things that's worth considering.

SIMON SPRATT: Hello, my name's Simon Spratt. When you launched your review two years ago, you said there was some vague possibility to the science you think, that you now acknowledge is obviously coming true, for example Jane Hanson's [inaudible] massive [inaudible] has said that at present levels temperatures there's not much of a [inaudible] left between us and danger. I wonder if the necessity for great speed and whether you need to talk about the kind of economic mobilisations you see at times of war, rather than [actually] a much more [inaudible] approach to actually putting the solutions that now seem to be available in place, for the time seems very short.

ROSS GARNAUT: Well we would, we could talk about that but talking about it does not achieve it. Jane Hanson's had some influence on American policy, but not very much. Um, my focus will be on things that are practical with a, in the current political framework. But to I got your point that there is a greater urgency in the situation has been the focus on is a very important point.

CRAIG PEARSON: Ladies and gentlemen, um, we are over time. Thank you very much for coming, but particularly- thank you Ross.

[Applause]

- ENDS -

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