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Compere: Professor Mike Young
Speaker: Ross Garnaut, Climate Change Review Update 2011
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ROSS GARNAUT:

Thanks, Minister, Mike Young, citizens of Adelaide. Very good to be here and I attach a lot of importance to the things that South Australia is doing to take every opportunity to produce low emissions energy to put itself on a path of low emissions development. Lots of potential here, and a successful transition of Australia to a low carbon economy will be a very positive thing for South Australia.

This is the first of the public forums that I'll be having to talk about my new report, the update of my report. I gave the report to the Prime Minister yesterday morning and then addressed the National Press Club. The full report's on the website of the Garnaut Review already. Cambridge University Press is publishing it and it will be out in hard copy in a few days, but it is there on the web already. I am pleased to be starting the round of public forums in South Australia.

When I discussed my draft report from the 2008 review I remember a very well attended forum in the same gathering place. Later on I talked at the Town Hall. And it was meetings like that around Australia that convinced me that there was a chance of Australia getting things right on climate change policy. If you just read the media, listen to the well-honed statements of people with interests in stopping things or slowing them down, then you can get pretty depressed about it.

But I discovered, last time round, talking to lots of people all over Australia that this was a subject in which there was deep community interest and a commitment about doing something about the problem. And I called that community interest the saving grace in this diabolical policy problem.

The community interest created a chance for what I call the independent centre of the Australian political community to assert itself, to make sure it's heard, to provide a base for governments that want to do something to carry on and implement good policy against all of the resistance from vested interests, which is inevitable on a subject like this, that does affect a lot of interests. And I think the saving grace is still there. And the feedback I've already had over the last 24 hours underlines that.

It's that community interest which is the reason why climate change policy is back on the agenda. The political leadership of Australia decided a year or so ago that it would be put off the agenda for a while. But the community insisted that we put it back. That's why we're talking about it today. And as a result we're really lining up for the fourth effort to implement a serious economy-wide approach to climate change. And I'm fairly optimistic about a good outcome this time. It's hard. It's not all over. It's a rather complex Parliament in Canberra, but I think my money would be on getting through that to a good outcome.

If we didn't it would come back on the agenda because this is an issue that the Australian people want to settle in a satisfactory way. So let's hope that we can settle it this time on good terms.

There's no hiding the fact that we are in the midst of a big struggle about whether Australia should encourage and do its fair share in an effective global effort to reduce the dangers of climate change. It's not only a struggle about climate change policy. At

one level it's a struggle between special interests and the national interest. This conflict is not new. Indeed, it's always with us, and always will be with us.

But there have been periods in our history when the special interests have had the strongest hand on policy, and others in which policy making has been strongly grounded in the national interest. And it's the community interest in this subject that gives the national interest a chance on this issue at this time.

The current Government has taken on the most difficult and long-dated policy reform that has ever been attempted. And as the Government tries to grapple with that - as I noted at the National Press Club yesterday - parts of big business have taken on the role of spoiler.

The debate is being conducted at a time when Australians are enjoying the highest material standards of living in our history. I've got a graph in chapter 7 of the report which shows average incomes in Australia compared with average incomes in the United States. So we were mostly around seventy-five, eighty, eighty-five per cent of the United States, where we're now - we passed the United States early in 2008 and we've just soared since then as the US economy has struck problems. And we've been fuelled - our economy's been fuelled by the resources boom.

And these types of times - times of exceptional incomes and prosperity - are a good time for structural reform. Glenn Stevens, the Governor of the Reserve Bank, made that point in an important speech early this year. But the source of that extraordinary prosperity is also the source of a lot of pressure on all parts of the economy other than resources.

The resources boom is the reason why our exchange rate is the highest that it's been since the float of the dollar in 1983. And the real exchange rate - what economists call the real exchange rate, which takes account not only of the nominal exchange rate you see on the TV news every night, but the inflation in different countries - the real exchange rate which measures the costs of operating in the economy is probably the highest that it's ever been in Australia - the highest since Federation.

And as a result we're going through the biggest reallocation of resources across the economy that's been known in Australia outside the two world wars. The Governor of the Reserve Bank, in the speech I've just mentioned, noted that the resource boom means that interest rates and the exchange rate have to go up. The role of a tightening of monetary policy, increase in exchange rates, is to shed jobs and shed investment in other industries to make room for the resources boom without inflation.

And this pressure on all our other tradable goods industries - our farm industries, our manufacturing, our tourism, even our universities, because a lot of the universities in Australia get a quarter of their income these days from exports; and that's very seriously affected by the high real exchange rate.

Well, the high real exchange rate and the pressure on other industries is the other side of the prosperity of the resources boom. And that pressure on other industries is a real issue. It's a genuine problem for a lot of economies, a lot of industries. It's why, at a time of quite exceptional - exceptionally high average incomes - lots of Australians and lots of people in lots of Australian industries feel that this is a hard time.

I think it's very important at this time not to let a genuine issue of pressure on all of the non-resource export and import competing industries to get mixed up with false concern over carbon pricing. Carbon pricing, with the assistance for trade exposed industries that I'm proposing, the economic analysis shows won't lose jobs in manufacturing at all. In fact, might be a small gain in jobs compared with if we didn't have carbon pricing.

But underlying all of that you've got the very high real exchange rate which will be shedding jobs. It's meant to shed jobs. The Reserve Bank's monetary policy is there to shed jobs in other industries. So it will be a time of declining jobs in manufacturing, but that's a result of the resources boom. Let's not blame carbon pricing for something that it doesn't cause.

I know that in this state there's a lot of concern about steel making at Whyalla, base metal smelting at Port Pirie. The arrangements that I'd suggested for trade exposed industries are important in making sure that carbon pricing isn't a source of downward pressure on them. But that doesn't mean to say that industries in those places aren't under pressure.

The update of the climate change review on which I've been working the last seven months was given the job of assessing what's happened since my report in 2008 and giving advice to the Government and the Multi-Party Committee on Climate Change and whether anything that's happened in these last few years weakens or strengthens or changes the case for economy-wide carbon pricing on the set of policy recommendations that I made a few years ago.

A couple of things have changed. Regrettably, the serious scientific work on climate change in the last few years has broadly confirmed what were then - what was then a grim outlook as a result of climate change, if we don't very substantially reduce emissions. And on many observable matters, and in some areas that the science pointed to outcomes that were out there, the worst end of the range of possibilities that had been identified before my previous report.

So you'd have to say that developments in the science over the last few years are a bit on the grim side of where they were. And that, of course, strengthens a bit the importance of taking strongly consistent action - strengthens a bit the case for Australia doing its fair share in the global effort on climate change.

Another area of development since 2008, there is some evidence that technological change in the low emissions technologies has advanced a bit more rapidly than was assumed in the modelling that I did of the economic costs of mitigation and the costs of reducing greenhouse gases by large amounts. It's not a long time since we did that work in 2007 and the first half of 2008 but already it is clear that in quite a few areas the costs of the new technologies internationally are coming down faster than we assumed then. Not so much in Australia where the costs are affected by the resources boom but in China and United States, Europe, Japan. For example my modelling for the last review began as modelling within my team and became joint modelling with the Australia Treasury at the end of 2007. That assumed - well that embodied a series of technological assumptions about transport that had about fifteen per cent of us going in electric cars by 2050. Well the way the technological change is proceeding in other countries, not yet in Australia, we're going to be at that point much sooner than that. In China several private manufacturers of motor vehicles have made huge investments in electric vehicles, working on the presumption that with a completely new technology, they won't be behind the established motor car producers. That they'll be playing on an equal field and so they got straight into the new technology and they're doing very well. Warren Buffett, the legendary American investor put a lot of money into it. Volkswagen just committed to putting an electric car plant in Shanghai. In the United States in Barack Obama's State of the Union address he committed America to having a million electric cars on the road by 2015. Major developments in Europe and Japan as well. So that is one of several areas in which technological improvement, reduction of the costs of low emissions technologies is proceeding more rapidly than I had presumed in the modelling for the review.

And one result of the very detailed work I did on the costs and benefits of climate change mitigation in Australia, back in 2008, was that Australia would be affected more, would be damaged more by unmitigated climate change than other developed countries. The causes for that were set out in my report, and one is that agriculture is still very important in our economy and we are conducting our agriculture in a country of climatic extremes. We're already at the margins in many areas of the sorts of temperature and rainfall at which agriculture is practical, and if you move a little bit outside that you move into very difficult territory. That's especially a challenge for southern Australia. The reason is that Australia is the developed country that is most exposed to economic interaction with the developing countries. And developing countries, for a range of reasons, are very vulnerable to climate change and serious disruption of their economic development will feed back into our prosperity through the terms of trade through trade opportunities.

Other reasons as well, added up to a clear conclusion that of all the developed countries Australia was the most vulnerable to unmitigated climate change. So it's certainly not very clever for us to be a real laggard amongst developed countries in the efforts to do something about it. If strong mitigation is in our interest then it's certainly important that we at least do our fair share to improve the chances of effective global mitigation and we're not doing that at the moment, and I discussed that at length in a couple of chapters of the final report. I won't go into all the details now but I will mention a few things that have happened in other countries.

We've committed, Australia, to a five per cent reduction in emissions over 2000 levels by 2020. We made that commitment in the United Nations Framework Convention on Climate Change at Cancun in Mexico. The Cancun agreement is not a legally binding, legally enforceable agreement, but it's a serious political agreement in which other countries have taken their commitment seriously. While we've made that commitment, the latest estimates of emissions in Australia, under current policies, not under business as usual but under current policies with the renewable energy target or what's being done on the solar roof tops and so on, are that our emissions will grow by twenty four per cent by 2020. There's no other country in which the gap between the pledge and where we look to be heading under current policy is so wide, but there is no other developed country where the commitment, the initial commitment is as modest as our minus five per cent. So there are some things to be analysed and assessed in that set of information.

Just a few words on what other countries are doing. There's a lot of Australians who worry that we might be getting ahead of the world if we introduce into the economy ways of pricing carbon. Well I can assure those people that if they're afraid of that they have nothing to fear, that we're a long way behind a lot of other countries. A long way behind the average of other countries. For a long time Europe has been the forefront of action on climate change. The Scandinavian countries introduced carbon pricing back in 1991. That's one of the reasons why Norway, which is the only other developed country that has comparable levels of fossil fuel reserves, per person, to those which we have, it is one of the reasons why Norway, the other very fossil fuel rich economy in the developed world has emissions of just over 10 tonnes per person per year while we've got emissions of 27 tonnes per person per year. Amongst all the developed countries Australia is the world champion in per capita emissions. The main reason for that, the one reason for that is our exceptional resource endowment in coal, which has affected the structure of our economy and our consumption patterns. But Norway is an example of another fossil fuel rich economy that's gone down a very different path and carbon pricing since 1991 is part of that story. Most people are much more aware of the European Union example, where half a billion people in the developed world, half of all of the people in the developed world, have been working under carbon pricing arrangements now since 2005, improving and tightening it as things have gone on. And the major countries of Europe have gone way beyond the European Union commitments, Germany, France, and United Kingdom, for example. The United Kingdom, under the conservative-led coalition government, just last week committed itself to legislating to reduce its emissions by half from 1990 levels by 2025, notwithstanding its slow economic recovery from the great crash. Well that's by half from a per capital level that's not much more than a third of Australia's levels now. British emissions, in total, are about one point seven per cent of world emissions. Ours is about one point five per cent of world emissions, although the United Kingdom has roughly three times the number of people that we've got.

In the Australian debate a lot of attention is drawn to the continued growth in emissions in China associated with its very strong economic growth. I discussed that at length in the report. China has taken some major steps in the last few years to put reduction in use of energy and reduction in greenhouse gas emissions at the centre of its economic policy. It's a major feature, reduction of emissions, of its 12th five year plan that was announced just a couple of months ago. It's committed itself there to reduce the emissions intensity of economic output by forty to forty five per cent by 2020 and it's committed itself to a twenty per cent reduction in this five year plan period. I've got a chart in my report showing the difference that makes. The gap between business as usual in China, if they hadn't taken strong policy action that will happen under this policy, and it's actually the largest contribution to reduction of emissions that would have occurred under business as usual amongst all of the global contributions to reductions in

emissions. China is adopting it characteristically for that economy where central planning still has a significant role; while the market also has a big role there China is embarking on its very large reductions in emissions through regulatory processes, primarily through regulatory processes. Also lots of support for new low emissions technologies. As a result it is closing dirty small, environmentally dirty, and as it happens, economically inefficient, coal fired generators rapidly, one every 10 days on average over the past year. It's not closing down coal fired generation in general, its replacing the inefficient small generators with large environmentally and economically much more efficient plants. It has also got the world's biggest nuclear program by far, by far the world's biggest solar program, the world's biggest wind energy program, the world's biggest hydro program, the world's biggest biomass program and that's all part of the story of a commitment to reduce an emissions intensity output of forty to forty five per cent over the period to 2020 from 2005.

It is common also in the Australian debate to draw attention to the United States and say, "America is not doing anything." Well that's not true. I've had quite a lot of contact with the US government and the Obama administration during the work on the update, including with the energy secretary, Steven Chu, who happens to be a Nobel Laureate in physics, so he knows a lot about climate change physics and energy physics, and the US is deeply committed to contributing to the global effort. The current US administration doesn't control the House of Representatives, and so it was unable to legislate economy wide pricing as Obama and his cabinet would have liked to do, but they didn't let things stop there and through regulatory and other processes, they're setting about reaching their commitment to reduce emissions by seventeen per cent on 2005 levels by 2020. There's huge support for innovation in clean energy and those actions have made it virtually impossible for new coal fired power generation to get going in the United States. Barack Obama, in the State of the Union Address, in January this year, a lot of you would have seen it or read it, made the transition of the United States to clean energy the centrepiece of his government's program. He commented that this was America's Sputnik moment or at least this was this generation of Americans' Sputnik moment and that there was going to be a great global transition in energy use in the period ahead. The winners of that will have a lot of leverage in global economic development in general. He pointed out that in some ways China had taken a march on the United States and he committed his government to support the Apollo projects of our time should the best brains in America come up with projects in the clean energy sphere that could really make a difference in technological innovation. And he mentioned that – well he brought all of that together with the statement that transition to clean energy, to having eighty per cent of American energy coming from what he called clean sources by 2035, would be very important for the security of America, for the preservation of our planet, and for American jobs. So those who take comfort from America not doing much are taking comfort in a shadow. It's true there is lots of opposition to what the Obama administration is doing and it is not impossible that in a great political context there, they could suffer some setbacks. Just at the moment they're moving forward on those commitments in that program.

America and China certainly aren't, at the moment, introducing carbon pricing, although in both countries there are experiments with emissions trading schemes in California. The State of California, which if it was a separate country would be the 10th biggest country on earth, has legislated to introduce an emissions trading scheme from the beginning of next year and some of the north eastern states already have one, although a not very ambitious one. In China several of the major cities in five provinces are experimenting with emissions trading schemes. But at the moment it's true that they're not introducing carbon pricing, and those who are resisting doing anything in Australia draw attention to that fact. They say, "Well why should we introduce carbon pricing if America doesn't?" Well the United States government would like to introduce carbon pricing for the simple reason that it's much cheaper than regulatory approaches. What they're saying is "Although we're blocked from introducing a cheap method that would do least damage to American competitiveness, and do least damage to the American people's standard of living, we would like to do through carbon pricing but we're not going to let ourselves be blocked on action on climate change because we are blocked from doing the cheaper things. We'll reduce emissions in expensive ways, through regulation, if we can't do it through cheaper ways through carbon pricing." In China there is not such ready commitment to market processes for policy of this kind but even there, there is recognition in the main policy agencies with whom I'm in quite close touch,

of an unnecessary costing of the things they would do and that's why they are experimenting with carbon pricing.

There are some people who say that even if the rest of the world is doing a lot more than us, what do we matter? We are an inconsequential country so let's free ride on what the rest of the world does. And maybe the rest of the world is doing something; well we'll get the benefit of that even if we don't do anything. That's quite a common argument in Australia and if the rest of the world isn't doing anything then why should we do anything anyway? Well there's something in the second point. Tony Windsor, the Multi-Party Committee of Climate Change has said, and I repeated this at the Press Club yesterday, said that if the rest of the world really were doing nothing then we might as well join the lemmings in a happy last run over the cliff. But fortunately, and Tony knows this very clearly, fortunately the rest of the world is not acting like lemmings and the action has been taken, although it is nowhere near enough yet, but it has bent the trajectory of emissions growth down from what could have been a truly awful business as usual and gives us a base for bending it further. So I don't think we are an inconsequential country. There are many areas of international relations, I mentioned some in the book, where we have influenced outcomes, especially on issues on which we share an interest with other parts of the international community, and we show that we are committed ourselves to acting consistently with that international interest, and climate change could be such an issue. It's not that we will determine global outcomes but others will notice what we do. There is a debate going on in every country just like there is in Australia with people looking over their shoulders and saying, "Well Australia is not doing much so why should we do as much?" I think that we will help the global effort if we lift our game from being laggard to doing our fair share in the global effort.

I think there are lots of Australians, even if it were true that we were an unimportant country, a trivial country, not like Norway and Britain which have both been influential, although their emissions in Britain are much bigger than ours and Norway has got a case much smaller than ours. Even if it were true that we were less important than other countries, that no one noticed us, I don't think many Australians would be comfortable about not doing our share in a major international effort of which the whole of humanity is a beneficiary, but of which in Australia is, amongst developed countries, the largest beneficiary.

I said it is not possible for Australia to be a leader in reducing greenhouse gas emissions, so there is no need for us even to have a debate about whether it is a good thing for us to be a leader. And so, in the report, I have recommended that we do our fair share. And I've suggested that how we calculate the fair share is that so long as the major developing countries are doing their fair share in a way that I have discussed at length in Chapter three of the report, based on emissions intensity of production, so long as that is happening we should aim to be about in the middle of developed countries as suggested and we should target our emissions about a weighted average of the developed countries. That's a much bigger effort than we're currently contemplating, but I think moving us from being a clear laggard to being a country that just does its average share, and a fair share would be a big improvement in our contribution to the global effort. Well the very first thing we have to do in moving ourselves up towards doing our fair share is to reach that five per cent target. And with not business as usual emissions but current policies taking into account all our current mitigation policies, we're heading for twenty four per cent, so five per cent is quite an effort. But that's not our fair share. We'll have to go further than that, but that's a reasonable first step. We want to bite things off in manageable steps and then go further. And I've discussed in the report the process whereby we raise that ambition over time.

Well once we've decided that we're going to do our fair share, and that's a lot more than present, the big question is, how do we go about it? And a lot of discussion in the report is about how economy-wide carbon pricing is the low cost way of doing it. Regulatory action, direct action is just an expensive way of doing it and I don't think it's a good idea for us to put unnecessary burdens on the Australian people in the competitiveness of the Australian economy by going about reducing the emissions in a high cost way when there are low cost ways of doing it. Just an example of the costs of direct action is there is some suggestion we could go and buy out, through a lot of budget money, emissions intensive power stations. Well, that would reduce emissions but the cost, first of all a budget cost of buying out the station, possibly a considerable cost, but in addition,

taking some high emission power out of the system would raise electricity prices and that would be a big burden on the community through electricity prices. It's different from the increase in electricity prices that comes from carbon pricing because if you've got emissions trading scheme or a carbon tax, economy wide carbon pricing, the government is sharing permits and collecting revenue and so can compensate low income Australians and middle income Australians for those price affects through the electricity market. But if you're doing it through direct action, regulatory action, the consumers still pay a lot more whereas there is no revenue to compensate them. Not only that, taking some power out of the system will raise electricity prices, it will increase the costs of all of our business, but there's no funding for trade exposed industries. If the government wants to assist the trade exposed industries, like steel making of OneSteel in Whyalla or lead smelting at Port Pirie then it has to raise taxes on the rest of the community to pay that money over. It doesn't generate any money for support for innovation or low emissions technologies. You've got to raise taxes to do that. So you're going to end up increasing the costs by even more than under carbon pricing, but there's no revenue to balance that increasing cost.

So I've suggested that we do again seek to introduce an emissions trading scheme with a fixed price in the early years. A fixed price some people can describe as a carbon tax. Because it's a fixed price I've recommended a price in the range of \$20 to \$30 and suggested that around the midpoint of that range would be an appropriate landing place. That sale of permits within a system will generate a lot of revenue, around about \$11.5 billion dollars in the first year and that would rise over the first decade. I suggested a bit over half of that go to low and middle income households in tax cuts, and for those who can't be reached through tax cuts an adjustment in social security arrangements. I've suggested a disciplined approach to support for trade exposed emissions intensive industries. I have proposed that substantial funds be made to support innovation in new technologies embodying low emissions and the reason why that's supplied in addition to the carbon price is that the pioneer of a new technology takes risks in generating knowledge and that knowledge becomes the economic property of the wider community. The pioneer has a lot of extra costs of learning, that the pioneer teaches the rest of the community about the ways to apply a new technology, and you don't get enough innovation without some public subsidy. And I also propose substantial funds for introducing incentives for biosequestration, sequestration in the land sector.

I put a lot of emphasis in the report on good governance of the arrangement and I've seen big roles for an independent carbon bank to regulate the scheme. An independent climate committee modelled on the United Kingdom Climate Committee to advise on targets and transition to a floating price regime. And an independent agency would advise on assistance to trade exposed industries.

If we do see legislation of carbon pricing this year, in Australia, coming into effect in the middle of next year, Australia will be on the path to transition to a low emissions economy, and we'll all be surprised by where the emissions reductions come from. Once we do things through market based incentives you'll find millions of Australians, hundreds and thousands of Australian firms, millions of Australian individuals thinking about how they can best reduce emissions. You'll find consumers using less energy, goods and services that embody high levels of emissions. You'll see natural gas exporters trying hard to find opportunities for sequestration and fugitive emissions and the waste of liquefaction of gas. Land owners will think hard about the parts of their property, the hills and the creek banks that are more productive as carbon sinks than they are for carrying sheep. Lots of people with clever ideas for new instruments of reducing emissions will find it easier to get financing for them. Every producer will be thinking about whether it is more profitable simply to pay for permits for emissions or to change the way they do things, and we'll find that there are millions of Australian minds thinking about how to reduce emissions as the incentives there will produce lots of change including some surprising ones.

Well this is the fourth time that Australia has moved towards economy-wide carbon pricing. Each time the retreat of economy-wide action did not mean the end of climate change mitigation policies. An array of regulatory interventions took their place with little effect on emissions but large effects on the Australian standard of living. And the same would happen again if we don't succeed this year. If we didn't succeed this year the

climate change policy debate would still be here tomorrow but our dreams of dealing with it in a way that preserves Australian prosperity may not. Thank you.

CHAIRMAN: Ross I think you might have convinced everybody that there is a very very simple solution for this:

ROSS GARNAUT: Not quite.

CHAIRMAN: Joe Flynn?

JOE FLYNN: Congratulations Mr Garnaut, you've done a great thing for Australia.

Joe Flynn from the Water Industry Alliance. Is it fair to conclude that whilst you propose a great framework, we actually won't have the price pressure to change behaviour and drive efficiency until the price actually gets ahead of compensation and that for some time, we're actually just setting up a framework and at some stage in the future, you'll start to see the changed behaviour as the price gets ahead?

ROSS GARNAUT: Ah no that's not true, it's better than that. Let's presume that the parliament lands where I recommend it, around about \$25 and there is assistance for trade exposed industries along the lines that I've suggested and tax cuts and adjustments in social security that take away the costs for low and middle income Australians.

Lets look at what happens to incentives in those cases, so let's take the consumers first and they will be paying more for their emissions intensive goods. Electricity is probably the most emissions intensive but there are others, electricity and gas. They will receive a cash payment but the price of electricity will have gone up relative to other things and so that will influence the choices they make about how they spend their income.

We know from lots of observation that if the price goes up ten per cent then very soon after it goes up, the consumption falls by about three per cent and if you allow a period to elapse so that people can adjust their behaviour, it goes down by about seven per cent from a ten per cent increase and so there will still be an incentive to reduce consumption of emissions intensive things, intensive goods and services.

Then on the point of view of the suppliers of goods and services. If you've got, say a producer of electricity that's able to produce from coal or from natural gas or from wind, the costs of producing from coal will go up a lot, from natural gas will go up somewhat and from wind, won't go up at all. So in seeking to supply in the market, the supplier of electricity will be seeking to make, to reduce the amount of coal, to some extent the amount of gas, or might increase the amount of gas to replace the coal and above all it will be seeking to increase the proportion of renewables and \$25/tonne would start that process. I would suggest that in the first three years the real price will be increased by four per cent, that's four per cent plus inflation each year and then after three years we go to a floating price where our price would be determined on international markets.

Now take the trade exposed industries. Under the suggested arrangements, the trade exposed industries, each firm would receive an allocation based on a percentage of its emissions in the base year. That percentage would actually not be its own emissions but a percentage based on average emissions in the industry. If it has done things to reduce emissions in the past, it will do very well because the number of permits that it gets for free will be based on the average emissions intensity of the industry and those that haven't done much will be under very great pressure to do a lot more. But the number of permits that each firm gets will not be reduced if they reduce emissions, so there will be a quite powerful incentive to reduce emissions. Now after three years I've suggested a transition to a much more disciplined arrangement where you've got an independent agency, like the Productivity Commission, carefully assessing what other countries are doing and making a judgment about the effect - if other countries are doing more than Australia. Then it would make a judgement about how much the price for

those products would be higher if other countries had the same carbon price as us and our industries in those circumstances would get that assistance. The gap would be provided as assistance whatever their own levels of emissions, so there will be very powerful incentives again to reduce emissions. So right from the start you'll have important incentives and they will grow over time as the carbon price rises.

JOHN ROWLES: John Rowles, Australian Solar Energy Society.

I fully support the concept of a carbon price as an essential part of the strategy however, in your discussion you referred somewhat deprecatingly about regulation on account of its lower cost effectiveness. I would suggest that regulation in some areas is in fact quite essential and that there are a number of structural reasons why that arises.

One example, which was discussed recently at the Barbara Hardy Institute at the University of South Australia, was in relation to residential insulation for containing heat and keeping heat and cold movement in residences. It is really quite critical, not only that houses have good insulation, but that it be installed well. However, Australia's standards for installation of insulation are extremely lax and indeed, they are far below those of Iran and Turkey, countries that we don't normally compare ourselves with in this context. I understand, I believe that a large part of the problem lies in regulatory capture in Australia. Could you talk to the issue of regulatory capture because it seems to me it is a really important issue in the Australian [inaudible]?

ROSS GARNAUT: Well first in the address I was meant to be half an hour and I've already extended a few minutes.

I didn't have a chance for lots of qualifications and nuances and I was really contrasting an approach that is mainly a pricing approach, and an approach that is mainly a regulatory approach and in my report, in great detail in the original report and more briefly in the update, I've discussed the circumstance in which regulation is required to supplement the carbon pricing so I'm not saying there's no case whatsoever. And one very important case is where there's a high cost of information for individual firms or consumers, it makes it really not worth the while of any individual household or small business to do all the research that's necessary to work out on exactly the right housing specifications or insulation and whether it would be best. In those circumstances, either public provision of information or regulation can give you a better result so those qualifications are there in the report.

But where the question ended on regulatory capture, yeah that's a very big problem and it's especially a problem in Australia I think. We've got a long history of vested interests capturing policy processes and that's one of the big worries I have about an approach that relies mainly on regulation and is why I put such emphasis on independent bodies to regulate the scheme once it's under way, because we've got such an awful history of capture by vested interests of regulatory processes so that after a period you almost forget what the policy was introduced for and it just becomes an instrument of the businesses that are being regulated.

CHAIRMAN: I ask you to keep it short if you can please. And even the answers short too if we can Ross.

MATTHEW CURNOW: Hopefully. Matthew Curnow from Pangolin Associates.

Thanks for coming along Ross and I'm also a supporter of pricing carbon. I have been getting a bit of information lately though around things like peak oil, peak gas, peak coal, those sorts of things and we saw the Lloyds of London 360 Risk Analysis last year saying that demand will outstrip supply at about 2015 for Asia Pacific for oil. Have those sorts of aspects been taken into account with your modelling for the projections of business as usual for Australia?

ROSS GARNAUT: Yes, in great detail, especially the effect of higher oil prices because of what you describe as peak oil. Unfortunately, peak coal in particular won't come soon enough to stop us having a catastrophic climate problem.

I mentioned in the introduction to one of the chapters a fellow who came to Australia in the gold rushes and worked in the Sydney Mint and in his spare time invented modern

meteorology and modern economics, William Stanley Jevons. And having done those things, when he went back to England he wrote a book called 'The Coal Question' which talked about the problems I've written on when the coal runs out.

Unfortunately, the coal we already know we've got can't be burned without safe sequestration, capture and sequestration of the carbon dioxide waste without very large risks of dangerous climate change. Peak coal comes too late to save us. Peak oil will help. We are going to be living with very high oil prices because there aren't a lot of opportunities to expand global production, and for natural gas there is probably more scope for expanding supplies and natural gas can be quite an important transitional fuel; lower emissions than coal but probably once we've become better at discovering the natural gas that's available, we will decide that we can't afford to wait for peak gas either.

CHAIRMAN: Thank you. Question over here.

FEMALE QUESTION: ... fairly common citizen [laughter]. I've got a sort of double barrelled question and that is, everything that you've said makes absolute sense. Why is it that the government is seeming to be so inept in explaining some of this in a way that counters Tony Abbott's mindless babbling and also what can we, or you as a person of some influence, do to help them out there and help them explain this in a way that actually gets through to the public and counters that negativity that is being, seeming to be so effective in the community?

CHAIRMAN: I might even answer that. You can write a really good report and come to meetings like this all over Australia and help explain the issue but I'm sure you want to expand on that Ross?

ROSS GARNAUT: Well that's what I'm doing and sorry it's not good enough [laughter]. What the community can do - the outcome of this debate won't end with legislation of a good carbon pricing arrangement but the debate will continue and will only retain a good arrangement if Australian public opinion is saying very clearly after the scheme is in place, get rid of this and you'll do yourself political damage and that's the message that the Opposition will have to get if this scheme is to remain. The chance of all of that happening depends on a pretty clear message coming from what I call the independent centre of the Australian community. People who don't have political affiliations, don't have vested interests to protect, who are interested in the future of Australia, of the Australian community, the welfare of their grandchildren and future generations of Australians. It's ordinary Australians taking an interest in the question and making their view known that they're going to protect carbon pricing so you've drawn attention to what is really the central issue in all of this and I hope that in the period ahead we will get clear expressions of views and interests from the centre of the Australian community.

CHAIRMAN: Thank you, question over here.

BEN BAXTER: Ben Baxter from the Globalist Magazine. As you've said, the coal industry is huge in Australia and I'm just wondering what you think the ideal long, medium to long term future for that industry is [clapping].

ROSS GARNAUT: It depends on carbon capture and storage technology development. Unless there is a relatively low cost way of doing that then the coal industry will not be a big industry, or should not be a big industry in a generation's time. The world's in trouble if the coal industry is a big industry in a generation's time. So a country that's got a very big coal resource, a lot of communities very dependent on employment in coal like Australia, has a very big interest in testing those technologies. In the way of any new technology you don't know how it's going to turn out until you've done a lot of work on it. There are several types of technology that are being examined widely as geological capture. In some places, they will work capturing the carbon dioxide and putting it safely into stable geological structures. We are already doing a bit of that. Gorgon on the North West Shelf will capture the carbon dioxide that comes up as a natural gas, separate it and put it back down under safe structures and there will be three or four million tonnes [inaudible] of carbon dioxide that the old well-established Western Australian gas export project, North West Shelf, just sends that up into the atmosphere - well we've got a new project that's capturing and putting it underground. There will be some areas where there are structures that allow that to be done in coal. The technology needs to be better and a lot of work needs to be done on that to capture it. There's a lot of

interesting work going on in biosequestration where you've got carbon dioxide and the most promising I think is where you put the carbon dioxide in the water and that creates a carbon rich water carbonic acid which is a very good environment for rapid growth of algae which can be a base for biofuels. A lot of research is going on into that including some in South Australia and there is some research going on turning it into sulphate carbonates which can be used for building materials. All of these things at the moment are quite expensive. If any of these become low cost, especially those where you've got a valuable product as a result, like use of algae, then coal could very well have a future but if these things turn out to be hopeless then the coal will go the way of the horse and cart.

CHAIRMAN: Question over here. I think we've got time for one more after that and then we will have to wrap this up.

DINA: Dina from, I'm a student from the University of South Australia and I'm doing my PhD in this topic actually and I have two questions. The first one is in relation to what you mentioned before about the electricity is that coal is the most intensive fuel that we have here. So considering that we already have mandatory renewable energy targets, is the introduction of trading, do you think that the electricity and gas are going to be double charged by [inaudible]? The second question is what are the benefits for the government and industry by putting a fixed carbon price over the flexible carbon price, by the price set by the market?

ROSS GARNAUT: I think it would be better to have one carbon price if it is high enough and as the carbon price rises, I think that the need for the renewable energy target will gradually weaken and what I've suggested is just keep the renewable energy target a price which you pay if you don't meet the target, constant so as the carbon price rises, there will come a time when the carbon price is what matters. What was the second one?

DINA: The second one, what are the benefits for both governments and ...

ROSS GARNAUT: Fixed versus flexible. Well with a fixed price like I've suggested we have for the first three years, you don't know exactly how many emissions you'll end up with. You know the price but how much that reduces emissions depends on the decisions that many firms take and many might just decide to pay for the emissions and pass on the effects. So you can be more precise about meeting a target if you fix the target, give out permits up to that target and it's against the law to have carbon emissions that don't have a permit, then you know you'll reach the target [inaudible] the price. The price will depend on what the cost turns out to be for reducing emissions. I've suggested starting with a fixed price for a couple of reasons. One is, it just provides a bit of stability about price while things are getting under way which will be a time of uncertainty, of anxiety; it just reduces that a bit. The other reason is there are some differences in opinion about how tough our target should be so that gives a bit more time to work that out.

CHAIRMAN: Very very short question in 15 seconds, 20 seconds.

JEFF WARREN: Jeff Warren from Design Ecology. I appreciate the price issues of having a fixed price on carbon and then going to a trading scheme after three years and having an independent arbiter to perhaps, between countries, make a level economic playing field. Do you think that in the next three years there might be a case for having a carbon based import duty on imported products to our country?

ROSS GARNAUT: Well if it were true that Australia had a very high carbon constraint and the rest of the world didn't, then that might be an issue but when we're doing much less than the rest of the world, the main issue is whether others will put carbon taxes against us [laughter] and the Europeans are thinking about it. In fact, they've just said they will do it against Qantas because they don't have a carbon price back home. So it's not much of an issue for us, not an issue at all for us until we catch up, until we get ahead of the rest of the world, that's a fair way in the future but if the Europeans and Americans are considering whether they will do that against us.

JEFF WARREN: Wouldn't that sort of procedure make a global playing field come about much quicker, if everyone does it?

ROSS GARNAUT: Except the matter that was discussed earlier, regulatory capture. If America is putting an import tax on imports from countries that it thinks are not doing enough, I'm quite sure that the American steel industry will persuade the American Government that no one is doing enough so there should just be a great big tax on everything [laughter].

CHAIRMAN: Thank you very much Ross. What can I say [applause]. I was going to say thoughtful, considered and thank you on behalf of our children and their children and thank you from all of Australia [applause].

- ENDS -

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