

**Speech Topic:** La Trobe Valley Low Carbon  
Community Conversation.

**Location:** Monash University, Gippsland.

**Compere:** Gerard Callinan, Manager, ABC  
Gippsland; Darrell White,  
Mayor, Latrobe City Council.

**Interviewees:** Professor Ross Garnaut,  
Climate Change Review  
Update 2011; Professor Mark  
Sandeman, Monash University;  
Mr John Parker, Gippsland  
Trades and Labour Council; Mr  
Charlie Speirs, Clean Coal  
Victoria and Mr Richard  
Elkington, Regional  
Development Australia.

**Date:** Wednesday 15 June 2011,  
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### Transcript:

**GERARD CALLINAN:** My name's Gerard Callinan and I'm the manager of ABC Gippsland and I'll be your master of ceremonies for this evening. What I'm going to do immediately is to hand over to Latrobe City Council mayor, Councillor Darrell White, just to do a quick welcome and then I'll come back with some housekeeping and of course introduce you to our panel here this evening.

So folks are still coming in, they'll find some chairs and then we'll get on this evening's - what I'm sure will be a very interesting conversation around what the future may hold for this particular part of Gippsland. Councillor Darrell White, there you are.

[Applause]

**DARRELL WHITE:** Well thank you very much Gerard. First of all I'd like to acknowledge that we are meeting here this evening on the traditional land of the Bunurong people of the Gunai/Kurnai clan and we pay our respect to their past and present elders.

Good evening everyone. As mayor of Latrobe City Council it's my pleasure on behalf of Council to officially welcome everyone here this evening. Especially to Professor Ross Garnaut; to our deputy mayor, Councillor Sharon Gibson; to Councillor Lisa Price; Councillor Ed Vermeulen; Councillor Kellie O'Callaghan; Professor Helen Bartlett, the Pro Vice-Chancellor of Monash University, Gippsland campus and the panel members; and most importantly to you, the members of our community who are here tonight to participate in this very important event.

What are we calling it: The Low Carbon Future Community Conversation. So this evening's conversation provides a great opportunity for us to discuss how our region can be positioned to transition towards a low carbon emissions future. And we'll hear firsthand what is happening at a national and international level.

Importantly tonight presents the opportunity for our broader community to understand the challenges and opportunities facing our community as we face the prospect of a move to a low carbon future.

Can I say that our council is very pleased to have Professor Garnaut here again in our midst, following his first visit to Latrobe city in April earlier this year.

We are especially grateful that Professor Garnaut accepted the council's invitation to attend our inaugural low carbon economy transition committee meeting in April, which was very well received by the committee members.

It was during that visit Council invited Professor Garnaut to return to our region to engage with our broader community. And we are delighted that Professor Garnaut has agreed to this and is here tonight with us.

Our invitation to Professor Garnaut coincided with direct and indirect invitations from a range of community members. This truly demonstrated the level of community interest in the low carbon transition future.

Latrobe City Council has long recognised that international and Australian policies are being developed to reduce greenhouse gas emissions in response to growing concern about climate change. These policies and the future constraints on emissions potentially have significant implications for the ongoing sustainability, vitality and wellbeing of our community here in Latrobe city.

However, it's important to remember that transitioning and change does not have to result in a negative experience. Council and our community recognise that with challenges come - with them are many opportunities. For example, there are a range of firms investigating alternative uses for our vast brown coal resource.

And it's become clear that our region has great potential in becoming an international centre of excellence for sustainable technologies. And in order to assist our community through the likelihood of transition Latrobe City Council developed our policy called Positioning Latrobe City for a Low Carbon Emissions Future, a first of its kind in Australia.

Our policy contains thirty actions. Some are for immediate implementation while others will be implemented over the medium and longer terms. Our policy means that Council is able to be proactive and to confidently enter into higher level discussions on behalf of our community with other levels of government in particular.

It is clear that Latrobe Valley will be impacted by carbon constraining legislation in partnerships between all level of governments. And a wide range of stakeholders will be required to maximise the potential for a prosperous new future for our community.

Finally, it's important to note that the Gippsland region will be impacted by a price on carbon, potentially more so than any other region in Australia. Regional leadership, combined with a commitment from all levels of government to work in partnership will be key to our capacity to adapt and successfully transition to an economy of the future.

Please allow me to recognise the excellent work undertaken by Monash University Gippsland and Regional Development Australia who've partnered with Latrobe City Council in the organisation of this event this evening. Well done, thank you very much. And also a big thank you to our panel members and especially to our facilitator, Mr Gerry Callinan, who I'm sure is going to do a fine job here tonight.

This evening is a special and unique occasion and an excellent example of regional partnerships and leadership coming to the fore within Gippsland. I'd personally like to thank Professor Garnaut for his willingness to return and engage with a broad cross-section of our community to share his thinking and to listen to our community concerns.

I'm keenly looking forward to this evening's action and sincerely hope that you will find this evening's session informative and enlightening. Thank you all for being here.

[Applause]

GERARD CALLINAN: Just a little bit of housekeeping before you introduce Professor Garnaut up to the lectern here. We have obviously a whole range of speakers here to speak with you this evening. We'll be introducing Professor Garnaut to you in just a few moments; he'll speak for maybe twenty-five odd minutes and then I'll introduce, just briefly, the guys - or I'll ask the fellows here to my right to give a brief response to what Professor Garnaut tells us during his presentation.

At that stage it's very much over to you. We have about an hour - about thirty-five, forty minutes for questions from the floor. I won't be asking any questions; anybody who listens to my radio program will know it normally takes me about thirty minutes to ask a question anyway.

So we'll be passing - I think there are three or four radio mikes and they'll be making their way around the room. If you wish to ask a question please just lift your hand and we'll get one of those guys to you. So you can ask the question of either Professor Garnaut or any of the gentlemen here to my right.

There's been an awful lot of heat and some vitriol around the debate around climate change and about what our future might look like in this part of the country and indeed, around the country. I'm confident that tonight we'll be able to have a civil conversation with a frank exchange of views. People will be able to ask a question of one of the advisors to the Federal Government and to some of these other gentlemen about what plans are being made, about what the future may be like.

However, I have to stress that there's a great hope amongst the organisers of this event that this will be a civil conversation and that we are quite prepared - and we will basically say that if people are not abiding by what might be construed as the rules of engagement, that we will ask that person firstly to be quiet and then we will perhaps even have them removed from the auditorium.

I'm pretty confident that won't come to that. In discussing this and in planning for this there's been a very strong belief that country manners will come to the fore. We'll see. My role is to introduce these fellows to you and once you've asked your question, to ensure that your question is answered. So I'll be trying to keep referee on that, I suppose.

What I'd ask of you to do is to note that on your chairs there's a small A5 - I think it might be - little card to prompt you and to insist you once you come to ask your question. If you could perhaps think about writing that question down; we don't particularly want people to stand up and make speeches. We have a very limited time for you to ask questions and so therefore if you can be succinct and hopefully our respondents can be succinct, that would be rather fabulous. We'll get more of your questions - excuse me - more of your questions to these people to my right.

Those people to my right are - and I'll introduce them finishing with Professor Garnaut. At the end of the table here, Charlie Speirs is a civil engineer with postgraduate qualifications in labour management and an MBA. He has had a long career in coalmine development from both the technical operations and management perspective, and is now with Clean Coal Victoria. We'll introduce Charlie later on and we'll find out more about Clean Coal Victoria.

To his left is Professor Mark Sandeman from Monash University. Until 2010 Professor Sandeman was head of agricultural sciences and deputy dean of the faculty of Science, Technology and Engineering at Latrobe University, before realising that Gippsland has it all, coming to the Monash University campus here at Churchill.

Professor Sandeman is also a member of the Gippsland Climate Change Network and the Low Carbon Emissions Future Transition Committee of Latrobe Council. I hope you're getting paid by the syllable there Mark. Mark will be very interested to answer questions and I'm sure to ask questions of Professor Garnaut indeed, around issues related to agricultural, obviously one of our key industries here in the Gippsland region.

John Parker is secretary of the Gippsland Trades and Labour Council and an organiser for the Construction, Forestry, Mining and Energy Union; the construction division of that organisation. Since 2003 John has led a reformed Gippsland Trades and Labour Council into what has become a high profile and progressive organisation. John has sat on numerous government and community boards. He's currently working with RMIT towards a, quote, 'just transition' for workers and communities as the region inevitably moves towards a low carbon economy.

And this gentleman to my right is Richard Elkington. He's a mechanical engineer who's spent almost all of his working life in the Latrobe Valley power stations. Richard led the environment portfolio at Loy Yang Power from 1996 and was accountable for the greenhouse issues management and brown coal research and development program there.

He is chair of Regional Development Australia, the Gippsland branch of that organisation, director of East Gippsland Water, broadcaster on Gippsland FM, Richard. Well there you go, we've got a vacancy coming up - and has served on the executive council of VECCI since 1999. All of these gentlemen will be answering questions from you later on this evening.

Our guest of honour this evening, one might say, is Professor Ross Garnaut. Ross is one of Australia's most distinguished and well-known economists. He is Vice-Chancellor's Fellow and Professorial Fellow in Economics at the University of Melbourne. He's also Distinguished Professor of Economics at the Australian National University.

He's an Officer of the Order of Australia for services to education and international relations. Separately to his work on the Climate Change Review Update, he is an independent expert adviser to the Multi-Party Climate Change Committee - a busy gentleman indeed. I'll invite Professor Ross Garnaut to come and speak with you for the next few moments. Make him welcome ladies and gentlemen.

[Applause]

ROSS GARNAUT: Thanks Gerard, thanks Darrell. Thanks to Pro Vice-Chancellor, Professor Helen Bartlett and to Monash for hosting this event. And

thanks in advance to the panel with whom I'll share the evening's discussion.

I'm very glad to be back here. As Darrell recalled, I spoke to the inaugural meeting of the Low Carbon Emissions Future Transition Committee here in the Latrobe Valley and that was a very informative meeting for me. I was very pleased to see the constructive and forward-looking approach that was being taken by members of the community here, thinking - recognising that change had to take place, thinking through the various shapes that change could take and seeking to plan and to shape the future and not just take whatever comes.

And I think that's the sort of attitude that can build a very important future for the region. This is the responsible and the pragmatic approach and it's a necessary approach because unfortunately climate change and efforts to deal with it will not go away. I would have been delighted if the Government's invitation for me to update my 2008 review had led me to conclude that it was all a furphy and that we could forget about it. But regrettably the new information, the evolution of knowledge has confirmed that this is a problem which we will fail to deal with at our peril.

There's very firm evidence from the science, from observation, that the world is warming; the warming has a human footprint; and if we don't do something urgently about it then there will be major disruption of a number of systems that are essential to our ways of life.

This is the fourth time that governments in Australia have attempted to put a price on carbon. If we're unsuccessful again this time the issue won't go away because the climate change problem won't go away.

Failure this time, however, might end the possibility of action in a smooth way, in a way that allows gradual and considered responses and at relatively low cost. That's what's at stake in the debate that we're holding now. The increasing impact of climate change and the increasing impact on Australia of overseas policy developments would prompt continued pressure for new policy in Australia if we turned our backs on action now.

And inaction by Australia would invite retaliation in trade and other areas of international cooperation. Debate would continue over how much Australia should do and how we should do it. This would raise the supply price of investment in businesses. The political system in Australia would respond to continued community interest in climate change action by many costly interventions.

It would lead to the increasing clamour for the closing down of production, investment and trade in fossil fuels, especially coal. And instead of an orderly process we would have a highly political, highly contentious approach that's likely to be much more costly and much more difficult carefully to manage. The failure of current efforts would lead to a long period of incoherence and policy instability.

In 2008, in my climate change review, I pointed out that Australia would be affected more by climate change than any other developed country. But by contrast, we have the most to gain amongst the developed countries from strong mitigation, not only because we gain from avoiding climate change, but we gain because we have exceptional low emissions energy resources.

We have exceptional opportunities for geosequestration and biosequestration, capturing the wastes from coal combustion and dealing with them in a safe way. And we have exceptional skills and professional services that will be important to the shift to the low

carbon economy. We've got the engineering, project management and other skills that are going to be so important to a successful transition to a low carbon economy and many of those skills are rich here in the Latrobe Valley.

Well if strong mitigation is in Australia's interest, then it's important that we do our fair share to improve the chances of effective global mitigation. We are not doing that currently; we've committed to a five per cent reduction in emissions over 2000 levels. This is a bipartisan target with the support of both Government and Opposition, but we are currently on track to a twenty-four per cent increase in emissions by 2020, even with the renewable energy target and various other policy measures.

Australia stands out for two things: the modesty of our ambition and the yawning gap between the trajectory we are on and the modest target we have set ourselves. We saw, just a week ago, the release of the Productivity Commission's report on what other countries are doing.

I think that it was already clear to most Australians that there's no substance in the claims that are sometimes made that if we were taking action we would somehow be acting alone. There's no substance in the claims that Australia is in danger of getting out in front of the rest of the world. That's not a possibility. Whether that would be a good or bad thing is not relevant. We are just so far behind that getting in front is not a risk.

The Productivity Commission report laid out what is happening in seven other countries - a couple in Europe and others elsewhere in the world. In the world as a whole, for some time Europe has been at the forefront of policy action. The Scandinavian countries have been pricing carbon since 1991 - for twenty years - and some of the results of that show. We think of ourselves with the highest per capita emissions in the world, over twenty-seven tonnes per person a year, the highest amongst developed countries.

We think of ourselves as being in that position because we've got a rich endowment of fossil fuels. Well, Norway has an even richer endowment of fossil fuels per person and its emissions per person per year are just a touch above ten tonnes, compared with our above twenty-seven tonnes. And one of the reasons is twenty years of a systematic policy to constrain emissions through carbon pricing and in other ways.

The European Union and some other countries that have joined the European Union's Emissions Trading Scheme - well we're talking about half-a-billion people here; about half of all of the people in the developed world; about half of all the high income people on earth. They've had carbon pricing for half-a-dozen years and their targets for emissions reduction are ambitious.

And although the European Union has such a strong approach, some of its larger members - Germany, France and the United Kingdom, for example - have gone well beyond the mitigation requirements of the European Union, of which they are members. The United Kingdom under the Conservative-led Coalition Government will legislate to halve its emissions by 2025 over 1990 levels, notwithstanding Britain's slow recovery from the great crash.

There's a lot of talk in Australia about how the two big emitters of the world, China and the United States, each with a touch under twenty per cent of global emissions aren't doing anything, so what's the point of us doing something? Well, the reality is that both China and the

United States are doing quite a lot - and again you see some of the actions documented in the Productivity Commission report.

China is committed to cutting emissions intensity of output by forty to forty-five per cent from 2005 levels by 2020. And under my calculations for the 2008 review, this represents China's fair share - or a bit more than China's fair share of an ambitious international effort. They're doing this through a whole range of regulatory actions and as a response of all of those actions it's innovating across a very wide front to reduce emissions.

In the United States there's been a lot of focus on how President Obama was not able to get the support of the Senate in the US Congress for his plans for carbon pricing, through an emission trading scheme. The United States, through President Obama, committed itself to reduce emissions by seventeen per cent from 2005 levels by 2020. It put that on the table at the United Nations conference in Copenhagen and then confirmed it at Cancun. Well, they were going to do that in an efficient low cost way through a national emissions trading scheme.

They were not able to - the Government was not able to get the support of the Senate for that - sorry, of the House of Representatives for that; it went through the Senate. And the Government didn't take no for an answer and they decided that they would maintain commitment to that target.

And they're seeking to do that through a range of other measures, especially regulatory, through the Environmental Protection Agency, putting strong restrictions on the emissions that must be met by power generators. You also have quite strong regulations in the transport industry - much stronger controls on emissions from vehicles than we have for example - and in many other spheres of activity.

Also in America you've got strong controls on emissions in some state governments and some state governments have introduced, or are moving to, carbon pricing, including California, from the beginning of next year. My assessment is that through a combination of these and other developments, the United States has a reasonable prospect of meeting its target of reducing emissions by seventeen per cent from 2005 levels by 2020.

Alongside all of this I've already mentioned our bipartisan, unconditional target, minimum target, of reducing emissions by five per cent by 2020. The Government has said that in the context of an international agreement on a stronger target Australia would do more, but the big worry is that we're not even well positioned to reach our minimum target. Quite a lot will need to be done to get anywhere near that minimum target.

Over time, we have a strong national interest in avoiding the effects of climate change, because we will be damaged more than other countries. And it doesn't make sense for us to be a drag on the international effort - to make it less likely that the international effort would be effective. And I've recommended in my report that we should seek to raise our effort from being a laggard to something like the average effort of developed countries.

Not leading, but not being a drag on the pack; just doing the average of what other developed countries are doing and all of that in the context of the big developing countries doing their fair shares as they are measured by the international community. And China, Indonesia, other big developing countries are doing their fair share.

Once we've decided that we are going to reduce emissions by a large amount - and that has bipartisan support in Australia because both Government and Opposition are committed to reducing emissions from - by about thirty per cent from business as usual, from the trajectory that we're headed on. Once we've agreed that we should do that then the next question for us is, what policy should we use to reach those targets? And this comes down to a debate between carbon pricing and regulation. And this debate is very active in Australia at the moment.

Direct action ends up being very much more costly than putting a price on carbon, very much more costly for the economy as a whole; very much more costly for Australian households; very much more costly for Australian businesses. A lot of the costs are hidden when you do it through regulation, but they're costs nevertheless and one difference between direct action and carbon pricing, apart from the fact that carbon pricing is much cheaper, is that with carbon pricing the Government collects revenue that it can then use to ease the process of adjustment.

And that revenue can be paid back as tax cuts or adjustments in social security arrangements. It can be spent on encouraging innovation, incentives for innovation, in low emissions technologies and in other ways. I'll come back to that in a moment.

Well, a little bit about the scheme that I've recommended - and we'll all know early next month what the Government and the Multi-Party Committee on Climate Change have decided. I've made some proposals which are being discussed, but this is not Government policy. I hope that it will have some influence; it's certainly being discussed.

But I've recommended that Australia's initial carbon price be in the range of twenty to thirty dollars and something like the midpoint of that would be appropriate in the absence of compelling reasons to move away from it. And I've suggested that the other crucial element of policy to reduce emissions should be Government support for innovation, using an amount of - a proportion of the revenue the Government raises from carbon pricing, a proportion that rises gradually to about twenty per cent of the revenue to support innovation.

The reason for this is that when a private business invests in innovation in new technologies, if it's successful - or even if it's unsuccessful - it generates knowledge that's valuable for the whole community. And because the private investor can't capture all of the benefits of innovation, all the benefits of the knowledge, then the community won't get enough of it if it's just left to private decisions.

There's a strong economic case for fiscal support for innovation and I'm suggesting that this should be a major focus of the use of revenue. That's going to be tremendously important for the future of these extraordinary brown coal resources in the Latrobe Valley because used as they have been in the past, then they are a high emissions source of electricity, of energy.

But they need not stay high emission sources of electricity, energy, forever. That depends - whether or not they stay high emission sources of electricity, of energy, depends on innovation. And there's a rich menu of possibilities for innovation in new technologies that could turn these energy resources into much lower emission sources and give quite a different future for the use of the resource in the region.

One of the areas of possible technological innovation relates to geosequestration, the capturing of carbon wastes, carbon dioxide wastes and storage of them in geological structures. There's a lot of

interest in this in the world, quite a lot of investment in Europe, in America, some in Australia. Well, if it's going to work anywhere in the world it will work in this region because you've got the known geological structures, well explored through the gas and petroleum developments in Bass Strait and East Gippsland, not so far away from the Latrobe Valley.

You've also here got a very cheap energy source and one of the biggest sources of costs in geosequestration, carbon capture and storage, is energy to capture the carbon dioxide and to pump it into geological structures. Well, if you've got a cheap energy source, then those processes are relatively cheap; if you've got excellent geological structures not very far away, it's cheaper.

So this should be a major focus of effort in innovation. We can't be certain that it will work commercially. If it's going to work anywhere in the world it will work here. If it works, then this region is transformed from a high emissions to a low emissions location for generation of electricity.

But there are other possibilities. There's a lot of clever work going on, especially in the United States, some in Australia, on biosequestration using waste from power stations and industrial wastes focused on, for example, on use of algae, pumping carbon dioxide waste into water and using that to grow algae which can be used as a base for biofuel.

There are very important technological experiments going on; a bit more than that. They include some early stage commercialisation of technologies to turn carbon dioxide into other chemicals that can be used for building materials. If we've got the incentive of a carbon price and use some of that revenue to support innovation, then we'll have experimentation with all of these opportunities for sequestering carbon dioxide. And the chance is kept alive of turning high emissions into a low emissions source of energy.

In addition, colleagues of mine at the University of Melbourne are very interested in the possibility of using some of the hot water that they think is trapped beneath the blanket of the carbon. Using that as a feed into boilers could reduce the amount of energy that's required for power generation and therefore reduce emissions. There are a range of technologies that can reduce emissions from brown coal through drying the coal before use for gasification.

The story of Australia's adjustment to a low carbon economy is going to be a story of innovation. It's going to be the places with the interest in the future, with the range of engineering and technical and trades and other skills to make good use of innovation opportunities, with the incentives provided by carbon pricing and some of that revenue being allocated to innovation. These are going to be the winners, the countries and the regions that are winners in the low carbon economy.

Now, it is in the nature of structural change relying on markets - it's in the nature of market oriented adjustment processes and carbon pricing is a market oriented process - it's in their nature that one cannot predict with certainty the success of various kinds of innovation. One of the possibilities is that innovation will lead to the energy resources of this region being even better placed in the future than they are in the past.

Well, we can't be sure of that and if none of that innovation is successful then carbon pricing will lead, over time, to a reduction in the role of brown coal energy in the Victorian and Australian economies. And inevitably if that happened - and that's one of the possibilities - over time there would be a reduction in output and employment in those industries.

Through carbon pricing it's most - well, such adjustments won't happen overnight. If one - it's not certain that the efficient response to a rising carbon price would be the complete closure of any power station. It may be changes in their modes of operation. If one power station were to close, then that would improve the prospects of all others, because it would lead to higher electricity prices and that would prolong the profitability and the lives of others. So certainly, there's not going to be a sudden once for all adjustment in the worst of circumstances.

And let's keep in mind that these adjustments are not avoided if you don't adopt carbon pricing. If you adopt the alternative of regulation, then you'll have ministers and bureaucrats deciding that some high emissions activity should be closed and the focus will turn to high emission sources of electricity in that situation just as well.

And there's no reason at all to expect the employment effects of the adjustment through direct action to be any less than through carbon pricing. And what you don't have is the support for innovation that would keep alive the possibility of a quite different kind of future as a source of lower emissions energy. That could be the future of this region with successful innovation.

And when thinking of this region, one is mindful of the capacity that's been shown for innovation in the past and one is aware that outside the electricity sector there's going to be a lot of opportunities for innovation. Carbon pricing won't - despite a lot of the wild assertions that have been made in some newspaper commentaries - carbon pricing won't lead to a reduction in employment for the manufacturing sector as a whole.

In fact, to the extent that it leads to some reduction in the rate of growth of employment in the resources sector, to the extent that it leads to some dimming of the huge expansion of the resources boom, it will keep the exchange rate down a little bit and give a stronger position to all the other industries that are exporting or competing with imports. That would actually give a boost to manufacturing, to exports of education services, to tourism, so - and all of these have big opportunities in this region.

And this is a great region for agriculture and forestry and the processing of the products of agriculture and forestry. And the recommendations that I've put forward, including linking of carbon farming to carbon pricing, will provide very strong incentives for use of our soils, our pastures, our woodlands, our forests, for sequestering carbon.

I suggested that for Australia as a whole the opportunities that I identified coming from the linking of carbon pricing to the Carbon Farming Initiative could lead to a new rural industry in Australia as big as the wool industry was last year. Well, this is one of the regions where that could be especially valuable.

So to sum up, how well any country or any region does in a world of climate change mitigation is going to depend on that country or that region's capacity for innovation, for structural change. There's a lot of opportunities in Australia, probably more than in any other country in the world, for success with low emissions technologies.

This region has more than its fair share of Australian opportunities and so long as we keep our minds open to innovation, so long as we embrace structural change rather than run away from it, there's every reason to think that we'll have opportunities to build a strong future. Thanks.

[Applause]

GERARD CALLINAN: Well, we'll let Professor Garnaut just perhaps have a glass of water and prepare for the questions that undoubtedly will follow. I might introduce once again the gentlemen here to my right to perhaps give their point of view on what we've just heard and some of the issues that of course are currently in play. I might start off with Charlie Speirs if I may. Charlie at the end there, from Clean Coal Victoria. Professor Garnaut Spoke about geosequestration and it being one of the potential futures for the brown coal reserve here in the Latrobe Valley. How confident are you that [interruption] - did you get that everybody?

[Laughter]

GERARD CALLINAN: The killer question there, and Charlie gave us a killer answer. How confident are you, Charlie, that geosequestration will actually provide the magic bullets, if you like? You've got two minutes to answer that question.

CHARLIE SPEIRS: Okay, I'm confident that...

Bit of voice projection. I'm certainly confident that, as an engineer, and Professor Garnaut mentioned it, we've been innovative for many, many years in all sorts of ways. Every piece of plank we've built in the Valley's been better than the last one. So as we go forward, Clean Coal really is about using innovation to make sure we use the coal in a sustainable manner - drying, gasification, combustion and carbon capture and storage.

Even today, Alstom came out in the European press and said that they believed they were getting close to commercial operation for CCS. We're lucky we have a great resource here and a great facility to store carbon so we've just got to go and get the technology right.

GERARD CALLINAN: Hopefully the people in charge of geosequestration aren't the people in charge of the microphones, let's put it that way.

[Laughter]

GERARD CALLINAN: They're working very hard over there so good luck in fixing our remedies. Mark Sandeman from Monash University here with a very keen interest in agricultural sciences. Carbon farming, the future of farming, in a carbon constrained future. Your two minutes starts now.

MARK SANDEMAN: Well, I think if farmers can't make a buck out of this then nobody can. The bio in biosequestration and biomass and biofuels is photosynthesis and farmers are experts at producing plants for growing other things such as milk and everything else. The tying of - as Professor Garnaut mentioned, the tying of the carbon farming initiative to carbon pricing is very important. That brings in the opportunities for making money from various aspects of biosequestration and other opportunities. Everything from biochar to improved management practice, to forestry practices and everything else.

And if those offset markets and everything else get going, then there's a very good opportunity for farmers to do reasonably well out of this. The other interesting and important aspect is the research and development because, although there are opportunities, we've got to turn those opportunities into on farm changes and on farm practice. And to do that, we need some research and development funds to get out there and show farmers and pilot plants and demonstration works into how we do things. And how these will improve not only their own farming practices, but also bring in some money from these other markets.

So I think it's a very good opportunity for farming. There's some challenges as well, climate change itself will provide the greatest challenges and how to grow food when you've got major weather events and other things that are going on. Not only drought but also flooding and everything else that we're seeing these days, that's the challenge. And I think between those two sets of different challenges and opportunities we have to find the way to best support farming throughout Gippsland. But certainly the opportunities are very large.

GERARD CALLINAN: Okay. Thank you very much. John Parker from the Gippsland Trades and Labour Council. This region of course has been through a transition once before which one would argue was not particularly well managed and has left lasting scars on the regions of the Latrobe Valley. What are you doing, what are you involved in, to suggest that - that past won't be repeated?

JOHN PARKER: Well, certainly that is our interest. Our interest is in two areas. By and large, there's the political aspect and the industrial aspect. What we've always said and we've maintained and the reason for us getting involved in this debate, is because it is our members what's going to be affected the most and we demand to be at the table. You can't be at the table if you're just going to suck your thumb and sit around and be deniers of this and not get into the debate. So we looked at carbon pricing and we looked at the climate change and either way, in the Latrobe Valley, it doesn't matter.

We've got power stations which is - old power stations which is past their use-by date. So by 2020, those power stations will be in the firing line to be closed; by the banks, by the companies themselves, or whatever. New technology, whatever that new technology, a brand new coal-fired power station would reduce - if you were to build a power station such as Hazelwood, you would reduce the workforce by half, at least. Gas-fired power stations - a gas-fired power station employs about forty-five workers.

If you were to replace TRUenergy - let's put it on the table. A couple of weeks ago, and they've done that over a number of years, that they would be building a gas-fired power station. The issue is that that would cut the workforce by half or more. So, what we're saying is, technology's coming, we want to have a look at it. There's a race on throughout the world for new technology. By 2030, we'll also be looking at peak oil, peak phosphates - there's a whole range of different issues that we're looking at.

And people need to keep in mind this region has one politician that would lose their seat. One federal politician and probably one, maybe two, state politicians would lose their seat because of the debate. So we need to be making sure that we're out in front and being very, very positive about how we can seize the nettle. Because last time when we sat around people knew that it was coming - that the privatisation was coming. They sat around, they waited for it to come, and we got it in the neck.

This time we're not going to sit around, we're going to try to make sure that we're at the table and we're looking at the new technologies. We've got the highest skill base anywhere in the country. Our workers go to the north-west shelf and everywhere...

GERARD CALLINAN: I might wind you up a wee bit, John, because we've got to move on.

JOHN PARKER: So that's why we're here and that's what we want to make sure.

GERARD CALLINAN: Thank you. Thank you very much, John. Apologies for having to wind you up, we've just got the time thing to work out, of course. Richard Elkington from Regional Development Australia, I've printed off your

charter this afternoon in preparation for this and I've got a question that comes off it. It says your organisation will have a pivotal role in ensuring the long-term sustainability of Australia's regions. We've heard particularly from the first two gentlemen on this panel this evening who have an optimistic view, one might say, that the challenge is before us, we're innovative people, we will find solutions.

John, not quite so much but perhaps still some guarded optimism. How on earth is your organisation going to manage this process so that sustainability and vitalism stays within an area such as the Latrobe Valley?

RICHARD ELKINGTON: Well, it won't be easy.

GERARD CALLINAN: Thanks very much for your time, Richard.

RICHARD ELKINGTON: One of my roles in life is to actually try and sit above and look inside all the processes that are going on within this region. This region has some terrific advantages. We actually have a local government that's prepared to work together as one. We actually have heads of State Government departments prepared to work together as one. We have one regional plan, which is unique in Victoria. We have one plan for Gippsland and we have a transitional plan, which astonishes many outside observers that, already in Gippsland, we have a group of decision makers, a community essentially, that acknowledges the need to transition.

That it's not on the point of rioting because we perceive there's going to be some tremendous change coming. So we have a lot of positive processes already in place. I guess what we're trying to do essentially is to ensure that we transition from where we are to where we want to be in an orderly way, and that we actually create a new vision. I mean, if you go back to the 1980s, the vision for the Latrobe Valley was we built one power station and as soon as that was finished, we all just moved on and operated and built the next one. So there was a vision for twenty-seven power stations in the Latrobe Valley in the early 1980s.

I mean, we're a part of that process. That's changed. Now what's the vision for the future? If the vision is that we won't be producing - digging brown coal essentially for power generation purposes, what else are we going to use it for? I guess it's up to me, it's up to other community leaders, to be creating a new vision for the Latrobe Valley and then talking about that vision, getting people on board, preparing ourselves and making ourselves attractive for investors.

GERARD CALLINAN: Thank you. Well, we've heard from our invited guests, we've heard from our panellists here, and now it's an opportunity for you to ask questions. We have about thirty or so minutes of Q and A. If I can ask you, I'll just repeat, to be quite succinct in your question. Please, no speeches. We want to get as many people through this as possible and all I will see is hands in the air. I've got one microphone here - where are the other microphones? One at the back and - three. There we go, thank you very much.

Okay, Glyn Baker, I see your hand up there, please. If you could ask a question? Thanks, Glyn.

GLYN BAKER: My question is for Professor Garnaut. Professor Garnaut, thank you for coming to Latrobe Valley and meeting with the public and talking with the people. My question relates to the economics of the advice that you're providing the Federal Government. I have a two-part question. One is - with the advice that you're presenting the Federal Government, how can you explain how it is not based on the economic theory of the broken window fallacy where, if you - if the

Government centralises its economic policy into rebuilding the power industry, which is rebuilding the broken window, so to speak, that doesn't take money out of elsewhere in the economy, that affects other goods and services? That's the first question.

And the second question I have is - you mentioned before about embracing structural change and my question is - that appears to be based on Keynesian Economic theory. My question is, history will look back and judge this time and they will question as to ask whether or not - how can you reassure the Australian people that your advice is not based on Keynesian Economics and that it's actually maybe based on other economics. If you had Austrian School of Economics or Chicago School of Economics I don't think they would be presenting the advice that you're presenting.

My question is - how can you reassure the Australian people that you're not a Keynesian Economist?

GERARD CALLINAN: Can we just keep other people with their hands in the air so we can go straight to you in a few moments? Thank you. Professor Garnaut, if you could take on that question about perhaps robbing Peter to pay Paul, taking money out of the economy, and also the roots, I suppose, of the philosophy which you perhaps espoused? Hopefully that microphone is going to be working okay. Thank you, Mr Baker.

ROSS GARNAUT: I'd like the chance before the end to say something in response from the very constructive comments from the members of the panel but, just on the questions there, I don't think we are robbing Peter to pay Paul. What we're trying to do is introduce incentives to take every opportunity to reduce emissions in the lowest cost way and it doesn't focus exclusively on the power sector. Putting a price on emissions across a substantial part of the economy will mean that, wherever business people or individuals, households, can see an opportunity to save money by reducing emissions, they'll have an incentive to do that.

It doesn't privilege one area of the economy over another. In fact, I think it has the opposite effect to that which you were suggesting. And then, on the School of Economics, I actually have a very high regard for John Maynard Keynes, but I think that the emphasis on the market economy that I've had, the advantages of using a decentralised market-based approach, rather than a highly centralised direct action, highly centralised interventionist approach, which has the minister and the bureaucrat deciding that these things will be done to reduce emissions.

Whereas the approach that I've suggested, having a carbon price providing incentives for any activity where people have a good idea about reducing emissions and also supporting innovation, using part of the revenue to support innovation without favouring one technology over another, I think that Hayek and the Austrian School and Friedman in the Chicago School would be pretty happy about it. I don't think Keynes would be unhappy either.

[Laughter and Applause]

GERARD CALLINAN: We'll move on now. We've got a number of people on this side of the room who we'll go to in a moment. I see you, sir, and I see you, sir. We'll get to you in just a few moments. There's a gentleman who's stood up. If you could just say who you are and where you're from please, sir, that would be great.

DON TYLEY: Yes, good evening. I'm Don Tyley. I'm just from Traralgon, a citizen. I have a question for Professor Garnaut. It seems to me that a lot of the conversation is not saying anything at all about the conservation of energy. I'm wondering in a sense, is there any of the evidence out of

Scandinavia or Europe that tells us that there is some contribution to reducing emissions through conserving energy? And I guess a supplementary question is, can our community thrive if we consume less energy? Do you have a vision for that, please?

ROSS GARNAUT:

Conservation of energy, doing the same things but in a way that uses less energy, is a very important part of the solution. Carbon pricing helps. The studies abroad show that if the price of electricity increases by ten per cent then people will find ways of reducing consumption of energy immediately by about three per cent and over time, when there's been time to adjust behaviour and appliances, by about seven per cent so that will have some effect.

The support for innovation that I have in mind would be available for energy efficiency as well as other things and the experience of other countries shows that you can go a long way with energy efficiency with conservation of energy. Australia is very wasteful in the way that it uses energy. That twenty-seven tonnes per person of emissions, higher than any other developed country, has a lot of causes. And one of them is that we do the same things using a lot more electricity, a lot more energy, than other countries.

And we've put less emphasis on energy efficiency just in the cars we drive. The standards of emissions, the amount of energy, the amount of emissions per kilometre driven, our standards are much weaker than those of Europe, of Japan, of China, of the United States. I'm not saying that's necessarily the best way to improve energy efficiency but our standards are lower and the cars we drive as a result are not as efficient in use of energy. So carbon pricing will help, support for innovation will help.

And this is an area where I think that Governments at all levels, including and maybe especially, local governments have a role in providing information on how households and small businesses can efficiently do the same things using much less energy. I think that information can be very helpful in a community adjustment.

Just a comparison of how change can take place over a relatively short period of time. I've been studying the Japanese economy pretty closely since I first went there in the late sixties. At that time, Japan's energy use and emissions per person were similar to Australia's. In the late seventies, they set about encouraging more efficient energy use in lots of ways. Now their energy use per person and their emissions per person is less than half of Australia's.

Another example - California compared with the United States. California's energy use per person was similar to other States back in the early seventies. A succession of Governors of California have taken first energy efficiency and then reducing emissions very seriously. Most recently, Governor Schwarzenegger, had that as his major policy and now the return of Governor Brown has this as a major policy. Well, California now has about half the energy use per person of the rest of the United States and that's that consistent focus on energy efficiency.

So you've drawn attention to a very important question and there's no evidence that economies that use energy much less wastefully need grow more slowly.

GERARD CALLINAN:

I'm sure the nuclear question will come up from somebody on the floor but Japan, of course, has had quite a bit of nuclear over the last number of years but I'll leave that to a member of public. Can I bring the microphone forward - the gentleman in the middle of this very front row, please. Again, sir, if you just tell us who you are, where you're

from and then ask your question? Do bear in mind we've got a lot of local experts as well as our visiting Professor Ross Garnaut.

HOWARD LOVELL: Howard Lovell from a manufacturing background. Yes, Professor, the question is to you. Sorry, local guys. As you mentioned earlier, China's got the intention of reducing its intensity of CO2 emissions of forty to forty-five per cent by 2020, compared with 2005. Also, you gave them twenty per cent of global emissions and, I'd guess, between twenty and twenty-five per cent but still one of the largest emitters in terms of emissions. They've got a GDP that's running nine to nine-point-five per cent at the moment and projected going forward in those sort of rates.

So that should, over that period, increase the economy by about threefold in terms of China. So with that intensity reduction, the economy growth, that means that the emissions and actual outcome is going to double between now and that period in terms of the actual emissions out of China.

GERARD CALLINAN: Can I get a question, please?

HOWARD LOVELL: Yes, I'm moving to that. So in the context of that, how will burdening the Australian economy with the cost of carbon, whether it's through a tax or a trading scheme or whatever scheme it is, have any significant impact on the effect of global warming, other than to chase manufacturing offshore?

[Applause]

ROSS GARNAUT: A few points there. What we should seek to do is to do our fair share. Australia taking steps by itself, does not significantly reduce global emissions but exactly the same can be said about most countries on earth, including the United States and China. If you account for twenty per cent of global emissions then if you reduce your emissions by half or by ninety per cent you don't actually take away the global warming problem. We're only going to solve this problem by everyone contributing. It's a collective action problem, it's the sort of problem we often run into in our own communities, but you don't get a solution to the problem without everyone pulling their weight.

The difference between a clean city and a real mess is whether individuals take responsibility for looking after their own waste. You could say that the waste that any individual throws out on the dirt, throws out the car window, doesn't make much difference. A lot of individuals doing it makes all the difference in the world, between a liveable town and a disgusting town. It's only by everyone doing their fair share that you get a good result.

Well, putting China in perspective. China's emissions per person are less than a quarter of Australia's. China is a rapidly growing economy and one of the ways - one of the reasons its emissions have grown quite a lot lately is it's doing a fair bit of manufacturing for the rest of the world, simply because of the stage of economic development that it's at. It's tremendously important that China committed itself greatly to reduce emissions below what they otherwise would have been.

It's also going to be very important that China, once its emissions are approaching those of the average for developed countries, starts bringing its total emissions down with those. That's being actively discussed in China, there has to be a peaking and then an absolute reduction in emissions. That peaking needs to occur when China's average emissions per person is well below Australia's. They accept that, they accept that their people will never be able to have the wasteful emissions that Australians have, but it's very discouraging for

people in developing countries. Chinese people, on average, are still much poorer than Australians.

It's very discouraging if people in the developing countries accept that their emissions will never go anywhere near as high as Australia and if countries like Australia are not pulling their weight and not reducing their emissions in a way that others can think it's a fair share. So, put it all in perspective. China's emissions per person are much lower than Australia. They've dragged them down very much lower than they would have been, without taking action on climate change. They're doing what I judge to be their fair share. They'll have to do more later, have to absolutely reduce their emissions later. They're on a path to do that.

If each country can make sure it's on that sort of trajectory, and I've set out in my final report trajectory that each country needs to be on, then that's the only way we're going to solve this problem.

[Applause]

GERARD CALLINAN: I think we've got a person at the back there - the lady, lovely. We'll also then go - if we get a microphone to the gentleman by the WIN news camera here, that would be fabulous. And there's a lady behind, from where I am, this camera here as well by the pillar. So we'll go here, here, here and then we'll go around again. Thank you, madam.

CHERYL WRAGG Can I just start with a housekeeping comment. My name is Cheryl Wragg, I'm from Moe and District Residents Association. To the organisers of this event, thank you for organising it but if you're going to have a community conversation I think it would be really useful if we could have a community organisation - a woman and a young person on the panel to participate in that conversation, that would be very useful.

[Applause]

CHERYL WRAGG: My comment really goes to the notion of using a market-based policy setting to try and decarbonise our economy and the lack of attention to developing a comprehensive case study based on the experience of Latrobe Valley around market-based solutions. After all, privatisation of the electricity industry was a privatised market for electricity being imposed on this region...

GERARD CALLINAN: Can I get a question, please?

CHERYL WRAGG: ...and the consequences are still being experienced by this region to this day, and yet there appears to have been no...

GERARD CALLINAN: I need a question. I need to move you on and get a question. We've got other people to speak and we have a limited amount of time. Can I get the question, please?

CHERYL WRAGG: There appears to have been no case studies done to ascertain the effects, to ascertain the effects of carbon tax in this region, to lay out what industry planning might look like for this region and to make sure that those innovative industries are developed here. If any of the panel could address that - are you aware of any case studies? Has any work been done over the last ten years to identify what the impact was here, and has anyone in government learned from what happened in this region?

GERARD CALLINAN: A number of questions there but regarding the recent history of the region perhaps some of our local people might like to comment on that? I see you with a microphone in your hand here, go ahead.

RICHARD ELKINGTON: Actually I've participated in some, in fact led some, modelling for the power generators with the Victorian Government back in the late 1990s, which I presume that would be the same order of magnitude impact at a carbon price of twenty dollars a tonne. It showed that the macroeconomic impact on Victoria - nationally was sort of one per cent. When you get down to Latrobe Valley it's something like a sixteen or seventeen per cent reduction in the product in the Latrobe Valley. So that's some recent - that's economic work, I'm sure that's been repeated elsewhere. That's more contemporary.

There's certainly a lot of work going on at a number of levels. To look at mitigation, what's the mitigation options in Gippsland? On climate change, that work is occurring now. There's also some work going on looking at adaptation of Gippsland in a carbon constrained environment so there are a host of studies looking at the impact of climate change and the impact of economic instruments on the region.

GERARD CALLINAN: John Parker, do you have a comment on this?

JOHN PARKER: Yeah. Certainly one of the impacts that we know what's going to come is that there's going to be a change in jobs. And as I said before, we can say that we don't want to do anything about it - the oncoming change, but there is change coming. My emphasis is to have a look at - and this is what we have to do and, to my knowledge, it hasn't been done anywhere in the world - that there is a transition takes place before the chain goes on the gate, because the chain will go on the gate sooner or later. And there's two of the power stations have already put up their hands to be paid out. That's the political aspect.

So we know that they're ready to walk away and we know that the banks aren't going to fund coal - the coal industry. One of the problems is that the social contract is running out and, if they don't come up with a technology to produce power from the coal, it has to be better than gas. And if they haven't got that on the drawing board, it's not going to happen. So we know that two of those power stations are in the firing line to go. What we've got to do is we've got to make sure that the jobs that we've got in the Valley are going to be meaningful jobs.

I want to know what Bill and Jane's job is going to look like. I'm not going to accept that there's forty thousand new Clean Energy jobs, which is some bodgie training program and putting insulation batts in the walls. Not at thirty-thousand dollars a year when our workers are being paid eighty to a hundred-thousand dollars a year.

So we know that we've got a task in front of us and we need every person in the Gippsland region to start to look at how we can get into that race. Because the world will not allow us just to simply sit by. They'll just go round us. The technology will be in China.

China is developing up the technologies. India is developing up the technologies faster than we are. And so we've got to get into that race. So that's what we're trying to do.

GERARD CALLINAN: Okay, thank you.

Order of batting here - and I've told you we're a friendly audience Professor Garnaut. A gentleman just handed me a card - Professor Garnaut needs to hold his microphone like John Parker. So a little tip for you there.

We're going to go to the lady who definitely won't be on television tomorrow 'cause she's right behind all the TV cameras. Then we'll go to the gentleman here with the white jacket and the grey beard if I may. And then the gentleman here with the blue jacket and the blue shirt;

which is a bit confusing 'cause there's a gentleman behind him in a blue shirt as well.

So we'll go to the lady here please firstly. If you could just say who you are and where you're from.

FEMALE: I'll be quick. Politicians ignore the many scientists who say there is no evidence of man-made climate change.

: Why don't politicians discuss these scientist's views so that people can have both sides of the story and decide for themselves. So people want to hear both sides of the stories of the views of the scientists that don't - say there's no evidence of man-made climate change.

Now it sounds funny, but I have a Bachelor of Science and I graduated in 2009, so I know what I'm talking about.

GERARD CALLINAN: Can I just paraphrase your question - just 'cause people may have missed the beginning.

FEMALE: Will I do it again?

GERARD CALLINAN: No I can do it from here. That microphone's a bit not well.

Your question is why don't we hear from both sides of the scientific debate? Why don't politicians refer to both sides of that debate?

Is that a fair - yes, that's good. Professor Garnaut, you wouldn't mind answering.

[Applause]

ROSS GARNAUT: I really wish - I really wish it were true that a significant number of climate scientists thought there was no problem with global warming. But unfortunately...

UNIDENTIFIED MALE: Take your blinkers off.

ROSS GARNAUT: Unfortunately, every academy of science in the world which takes science seriously - in Australia, in the United States, in Canada, in Japan, in China, in Russia, in India, in Germany and Italy and France, in Britain - The Royal Society in Britain - accepts the views of its specialist scientific members that global warming is happening, that human activity is a major cause of it and that if we don't take strong and urgent action we will all suffer from it.

Unfortunately that is what the overwhelming majority of science says and I don't think that we do other members of our community and above all, we don't do future generations of Australians any good by pretending the reality is not a reality.

[Applause]

GERARD CALLINAN: We've got Richard Elkington from Regional Development Australia, quick comment?

RICHARD ELKINGTON: Just an observation. I think the community certainly has moved on from questioning the science. I mean we have bipartisan support for the science. We have bipartisan support for direct action. We have a CCS flagships program being funded by the Commonwealth. We have direct action being - R&D on coal is being funded by the Commonwealth. So we have a direct action agenda for both the Commonwealth - for both the opposition and the government.

We have a bipartisan approach to the target. So what are we arguing about? We're really arguing about the transition, on how we transition from where we are to that target. And then what happens - what happens in 2020 when the direct action ceases - presumably we all - we're presumably agreed on a bipartisan approach to a market-based mechanism.

So we're really talking about the period between now and 2020. That's how I see it in simple terms.

GERARD CALLINAN: We'll keep moving on. We've got fifteen minutes of Q&A left. We're going to go to the gentleman in the white jumper here, the gentleman in the blue jacket just placed his hand up. There's a lady in a red jacket over here please, and there's a lady with her hand up here with an orangey sort of shirt on. A question please and just say who you are and where you're from please sir.

JOHN CRIBBIES: My name is John Cribbies and I used to work at the Hobson Park Hospital. I wonder why carbon dioxide is now a pollutant. The IPCC has no record of any scientific work that proves that it is a pollutant. And I have here a copy of the email from the IPCC if anyone wishes to examine it.

[Applause]

GERARD CALLINAN: Thank you John.

Mark Sandeman, would you like to respond to that as the man of science on the table here. And use what's left of our microphone system if you wouldn't mind.

MARK SANDEMAN: Okay, CO2 as a pollutant. Whether it's a pollutant or not it's a global warming gas. It puts a protective blanket over the world and that has been shown in early 1900s by science and nobody's ever dismissed or disproved that.

UNIDENTIFIED MALE: Not true, not true.

JOHN CRIBBIES: You're still living in the 1900s.

GERARD CALLINAN: Difference of opinion is not a bad thing, but if we can just keep civil with each other that would be fabulous.

Gentleman here who's waving furiously. Thank you sir.

JOHN LAWSON: Thank you for being so patient. My name's John Lawson. I've had a background in the power generation industry. My question is to probably Richard Elkington. Hi Richard.

RICHARD ELKINGTON: Hi John.

JOHN LAWSON: Given the acceptance by major financial institutions of a market mechanism for carbon, what leverage could you envisage these institutions having on current energy producers to diversify into renewables?

RICHARD ELKINGTON: I guess one of the issues for the Latrobe Valley is that you've got international power, which is a vertically integrated generator retailer. And so - like Hazelwood and Loy Yang B. You've also got TRUenergy with Yallourn and Loy Yang Power with its major generating station near here.

I guess the thing to be borne in mind is that they're all project financed - they're all project financed institutions. So they operate with a framework around them of needing to generate returns to their

shareholders. In Loy Yang Power's case, to the - in the period ending in 2048.

So just take Loy Yang Power which is the one I'm most familiar with - that has a licence to operate the generating station til 2048 generating x billion dollars for its shareholder, from brown coal. It has no mandate - it has no mandate as a current entity to enter into any other part of the market place. So there's all sorts of finance issues associated with the ongoing operation of that plant.

In the case of TRUenergy - TRUenergy and International Power as major entities - corporate entities - may choose to invest in renewables. But my simple understanding is that their component units, Hazelwood and Loy Yang B would not.

So as corporations they may choose to, but Hazelwood and Loy Yang B will continue to operate as brown coal power stations.

GERARD CALLINAN: Okay. Back of the room - lady just taking the microphone now. Then the lady in red here please. And we've got to move quickly through these questions if we may, thank you. And say who you are, where you're from.

JAMIE CATHARN: Jamie Catharn from Sale. Every time a bigwig comes down from either the Federal Government in Canberra or down from Melbourne, it seems that all they've got to offer is carbon capture and storage. And I find myself screaming at the radio and the TV, "but what happens if it doesn't work?" Is there anything else?

So my question is, what are the State and Federal Government doing about anything else other than clean coal and are they going to fund anything else seriously?

[Applause]

GERARD CALLINAN: Charlie? Charlie Speirs from Clean Coal Victoria and then anybody else on the panel who wants to have a go.

CHARLIE SPEIRS: I think that opens an interesting part of the debate. And the point that was made over here before about honest and open debate is really, really important. We need to understand all the aspects that go into our future energy. Renewables are as big a part of it, as is clean coal. And it's important that we bring the cost of renewables down because the cost of clean coal's going to go up.

We're looking for the most sustainable future energy of all the resources we have, not just clean coal. Certainly the Victorian Government is doing that, and my reading of it, the Federal Government's doing is, is also incentivising renewable energy projects as well.

GERARD CALLINAN: Anybody else on the panel want a stab at this? Like what else is there other than CCS, carbon capture and storage. John Parker; and against the clock please, John.

JOHN PARKER: Look, my understanding is that, by and large, because we - Victoria is a private - it operates on a private market, my view is that the next generation of power stations will be gas, because they're quick, they solve the political issue and the carbon capture, by the time it is ready, I would say that it would be in between 2020 and 2030 before it would be ready. That's my understanding - to be as a full blown power station.

By then they'll have replaced them with gas. And that's so that - that's the political reality. TRUenergy has already said that that's the way that they perceive it to go.

GERARD CALLINAN: Okay, got a number of people with hands up. We've got only so many minutes in the - I'll tell you where we're going. This gentleman in the red jumper has been - has his hand up since the very beginning. We'll go to him. We'll come to - there's a gentleman here with his hand up, there, thank you. Then we'll work out where we go after that. Sir?

BERNIE ROWLEY: Thank you. Bernie Rowley from Trafalgar. We run a business, nursery and we've slashed their own energy use by sixty odd per cent. It's not difficult.

Mine is to Charlie. The USA, as far as I understand, has scrapped most of the research time - carbon capture and storage. Could you please advise where and how many power stations in the world, are capturing CO2 and sequestering it in a geologically stable substrate.

[Applause]

GERARD CALLINAN: Important question. Ross Garnaut, you mentioned something around this in your presentation, that you just heard in recent days. And then we'll go to Charlie, of course. But, Ross Garnaut - if you could pick up on this point. Where is this working? Where has this been trialed?

ROSS GARNAUT: There are trials in the United States and the United Kingdom, in mainland Europe. It's still a new technology. There's no reason for doing this until you start taking climate change very seriously. And it's only in recent years that it's come on to the agenda.

But we have other - in Australia we have some successful examples of capturing carbon dioxide and storing it safely. The Gorgon natural gas project in Western Australia would other - would, naturally, have just emitted into the atmosphere two or three million tonnes per annum of carbon dioxide.

For an investment of two billion dollars, they're capturing that carbon dioxide and putting it back, not into the geological structure that the gas came out of - because that would complicate the production - but into another geological process. That will represent about a quarter of the emissions of one of the big power stations of this valley. So it's not a trivially small thing. The investment's going in right now.

This is an early stage technology. It requires a lot more research, development and commercialisation to get costs down. We've got some successful examples, including that important example in Australia. But it's going to require a lot more support for innovation before it's working on a large scale. If it works anywhere in the world, it'll work here.

GERARD CALLINAN: Charlie Speirs.

CHARLIE SPEIRS: Yes, look, there's a project in the Otway Ranges where CO2 is being removed from deep in the ground, transported a couple of kilometres and reinjected. And the purpose of that project is to measure, measure, measure, understand what's happening, why it's happening, how it's happening, so that we get into serious CO2 sequestration activity we will have a good knowledge base to work on.

GERARD CALLINAN: Okay. There's a lady here please. So the microphone. She's already got the microphone. Excellent, thank you.

SHARON GIBSON: Thank you. Sharon Gibson, Deputy Mayor for Latrobe City. Right. What green industries would you suggest are set up or developed

here? Is it anything like the green industries that are in the UK or the UK and Germany have set up, please?

GERARD CALLINAN: Who wants to have a stab at that? Richard? John? Just in case, people didn't hear the question because the microphone was a bit sus, what green industries would you suggest - the panel suggest - would be established in the Latrobe Valley? Would they be anything like the industries in the United Kingdom and Germany? Was that the other jurisdiction? John?

JOHN PARKER: I think that that's still an open question yet. I think that my view is that the various industry groups have got to come together and have a look at that. There's a whole range of - the food industry, for instance, has huge amounts of waste. There's a whole range of industries and they can produce energy from that through the methane gases; through their biodigesters.

There's a whole range of industries connected which there's a lot of waste with the pulp and paper industries, the cellulose industries which can be connected to the pulp and paper industries. There's a large amount of industries, I believe, and Gippsland is one of those areas which has huge opportunities to go into a lot of industries. It's a matter of teasing those out.

I don't think that it is just one industry. It's a whole range of industries from - going from Bairnsdale through to Warragul - has huge opportunities. And I think there's a whole range of green opportunities in those. And my challenge is to - for each of the industries to come up with those ones, especially in the food, manufacturing, the timber industry and in the coal industry.

There is a whole raft of industries. For instance, the fertilisation industry at - is running out of fertilisers. The coal industry can assist. So there's a lot of cross-pollination that needs to take place over the next - and I believe that we've only got about three years to get our act together. If we don't have our act together within the next three years, and a very strong plan over the next three years, then we will find Tasmania and Portland areas will have - will have beaten us into the - to the punch.

GERARD CALLINAN: Richard Elkington, you've got one minute. And then we'll go to the gentleman here please.

RICHARD ELKINGTON: I think we need to change the paradigm here. If we talk about - if it's about coal then we need to be looking at alternative uses for brown coal and power generation.

On a wider scale we have some comparative advantages in Gippsland. We've got unallocated water, for example. We have food processing capacity and skills in the Latrobe Valley. So I would, you know, if we accept that climate change is real, then Gippsland is going to be in - I would suggest - in a wonderful position from an agricultural production point of view. And those processing facilities could be right here in the Latrobe Valley.

So when you start thinking wider than simply energy, there are - there will be a host of opportunities that we can capitalise on and prepare ourselves for.

GERARD CALLINAN: We're already over time. I'm going to take three more questions. We've got a gentleman here. We've got the lady in green at the back there please, and we've got a lady here. So that's where we're going to go, and I'm afraid that's where we're going to have to conclude the evening. Sir?

**MATTHEW DAVEY:** Matthew Davey from Newborough. I've seen a number of technologies to process emissions into useful products over the years. I'm just wondering why there's been little discussion on that in the media and has an emissions pipeline been considered for emissions processing? Because even with gas powered stations, we'll still need to process emissions to reduce...

**GERARD CALLINAN:** Who wants to have a stab? Professor Garnaut and Mark by the looks of things. So...

**ROSS GARNAUT:** I did mention that in my address. Two obvious possibilities are the biosequestration where you can put the waste from power stations into water. That provides a very rich bed for development of algae, which is being developed as a base for biofuel and other products, including animal feed. That's one possibility.

And the turning of carbon dioxide into carbonates used for building materials is under active consideration; a lot of work going on, some of it in New South Wales. So they certainly should be on the innovation agenda.

**GERARD CALLINAN:** Mark, a quick response?

**MARK SANDEMAN:** The algae story just got a whole lot better. In America they've just succeeded in producing algae that actually secrete oil, so you don't have to break them open and get it out anymore; you can just scoop it off the top of the pond. So that actually brings algae a lot closer in terms of cost and competitiveness. And growing them out of CO2 out of power stations is an obvious and very good way to produce it.

The other one is in biomass and those sorts of areas, where CO2 is a good resource for growing plants. So basically almost any plant access area - tomatoes, whatever you want, can use those things and they're doing that in Europe already.

**GERARD CALLINAN:** Charlie Speirs at the end, and then we'll go to the lady in green towards the back of the room please.

**CHARLIE SPEIRS:** Just a quick addition to that. Two years ago when I started with the DPI, the game was CCS, carbon capture storage underground. Now CCS is capture it, use it, mitigate it biologically, and then store what's left. So the game's moved along just in the last two years, and I expect it will continue to move.

**GERARD CALLINAN:** That's interesting. Lady in the back there. And we are going to take one more question after this. I'm very, very sorry. I know people have had their hands up but we've run out of time and what have you. Madam, if you could just let us know who you are and go ahead.

**UNIDENTIFIED FEMALE:** Hi, my name's Tracy and thank you for this opportunity to have the chance to ask questions. Now, it doesn't take a scientist to work out that something is changing and yes we do need to move to an alternative power.

My question is, if the government's so concerned about cleaning up the world and ridding the world of carbon, why are we not using Nikola Tesla's technology on free energy. It's been developed further by John Broden. It's free energy, it's there for everyone to use, and he's been suppressed for way too long. This could be a very good answer, a very real answer, and it's time that Nikola Tesla's technology was brought back and not suppressed any longer, because it is clean, it is a good answer.

**GERARD CALLINAN:** Who knows anything about Nicholas Teslas? Nikola. I'm afraid it's a new name to me.

- ROSS GARNAUT: I don't know the technology, but if it is a low cost way of producing energy, with low emissions, then carbon pricing plus support for innovation is exactly what it needs.
- UNIDENTIFIED FEMALE: There's no emissions, there's no price; it's free energy. That's a problem. Because it's free, no one will make money from it.
- CHARLIE SPEIRS: Anything with the title free energy is very suspicious.
- GERARD CALLINAN: We might have to leave the debate about that particular form of energy but taking Professor Garnaut's point, if it's there, perhaps an ETS might see it come to the fore. Lady here, and then we'll finish the evening with a quick cheerio.
- MENDY URIE: Mendy Urie, I'm a councillor with East Gippsland Shire Council. Professor Garnaut, you mentioned this, that local government does have a large role to play in education. I'm wondering, and we are doing - I'm sure councillors across Gippsland are doing a lot of work with community development, developing resilience and community planning.
- In our conversations that we're having with community, how do you see - if your recommendations do become policy, what will the effect be on the household budget? I'm thinking of our communities in far East Gippsland. Will it be fuel or power or in food? Could you give us some - speak to that please?
- ROSS GARNAUT: Yeah. If my recommendations are accepted and, as Martin Ferguson said recently, that's just one input into the process. But if my recommendations were accepted, then it would increase average prices of everything by a bit less than one per cent. The government would collect in revenue about eleven-and-a-half billion dollars, because every power station, every steel mill, everyone using or making big emissions, every company that's putting more than twenty-five thousand tonnes of carbon into the atmosphere would have to buy a permit. The government would get about eleven-and-a-half billion a year from that, initially.
- I'm suggesting that a bit more than half of that be paid back to households. I think there should be a tax cut covering people on low and middle incomes. I suggested for each individual up to eighty thousand dollars. Now, that can be debated, whether that's the appropriate cut-off. In addition, I've suggested adjustments of pensions and benefits, so that no one receiving pensions and benefits is worse off.
- So for every low and middle income earner, more than half of Australians, they would get back as a tax cut or an adjustment of benefits, a lump of money that's big enough to pay for the less than one per cent increase in consumer prices.
- That does not take away the reason for doing the carbon pricing, because while they'll get a lump sum back as a tax cut or an increase in benefits, the price of things that have got a lot of emissions in them, like electricity, will go up, and other prices won't. So there'll be an incentive to economise on the use of electricity or other things that have got a lot of emissions in them. So there'll still be an incentive to use less of the things with a lot of emissions, so emissions will be reduced. But the low and middle income earners should not have their standard of living damaged at all.
- GERARD CALLINAN: Ladies and gentlemen, that will conclude our Q&A for this evening. I'm going to introduce Professor Helen Bartlett to you, from Monash University Gippsland, in just a moment.

But on behalf of - in my role as the MC for this evening, thank you very much for your patience. I apologise - I know there are people who had questions to ask but we just quite simply couldn't get through them in the time permitted. Perhaps, to take on Cheryl Wragg's comment, the next time this forum occurs there might be women up here and there might be community representatives. Perhaps we might extend the Q&A as well. So we'll perhaps take that back in the wash up of tonight's event.

Thank you very much to our panellists here this evening. Perhaps you might acknowledge their contribution to the evening.

[Applause]

While that happens, I'll introduce Professor Helen Bartlett, Pro Vice-Chancellor of Monash University Gippsland, to say a few words. Thank you very much Helen. You can applaud if you like; it's her house.

[Applause]

HELEN BARTLETT:

I get to have the last word; that's the great thing about my job. But I will be brief. It's my job just to wrap up the evening and to thank everybody.

I think the purpose of tonight was to have a conversation about how we can transition the region to a low carbon economy in the future, and I do feel that we've had a bit of a conversation. Of course we could go on all night I think. But we've really rehearsed some of the vital issues that are challenging us all.

I think from the panel, from Professor Garnaut and our local panel tonight, we've heard a lot about opportunities, a lot about the need for innovation, a lot about the skill base in the valley and the potential of that for the future. And in John Parker's words, that we have to be at the table and I think that's a very important point that's underlined a lot of our discussions here tonight.

From the community questions that we've had, I lost count, we probably had 15 or so questions, very informed questions that cover a whole gamut of issues from, you know, what is going to be the impact on the community, on community resilience, on manufacturing, and questions about the science, needing to hear all sides of the story.

I think we are all becoming much more informed about these issues, and I think the questions and the discussion tonight do demonstrate that. And I hope that the answers from the panel and Professor Garnaut have increased all of our knowledge on this topic a bit more, and helped us to engage in much more informed and meaningful debate about these issues.

So it's simply now my job to thank everybody. To thank Professor Garnaut for coming back to the valley, to thank Charlie Speirs, Mark Sandeman, John Parker, Richard Elkington, for being terrific panel members. And for Gerard Callinan, who has kept us all in order. I think he's done a terrific job tonight and I certainly would have kept my behaviour. So thank you so much.

And a special thank you to Latrobe City, who really have initiated this event. Monash University Gippsland has been delighted to collaborate in this initiative. I think we should definitely do it more often and I'd like to thank you all, members of the community, for coming here. It's just terrific to see so many of you here, and I hope we'll see you here on many other occasions in the future. Thank you all so much.

GERARD CALLINAN: And just finally, before you all head off, there'll be an encore of all of this on the ABC Gippsland website from tomorrow afternoon, for those of you tragics who want to listen to every word all over again, microphones permitting. Also, I'm hoping to record an interview with Professor Garnaut about this evening, which will be on the ABC Gippsland breakfast program tomorrow. Thanks a lot for your attention and your participation this evening. Safe journey home. We'll see you another time. Thank you.

- ENDS -

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