

## *Setting Australia's emissions reduction targets - Melbourne*

**29 April 2015**

This year, Australia and other countries will announce new emissions reduction targets for the period beyond 2020 as its contribution to the global task of addressing climate change.

The Minister for the Environment has asked the Climate Change Authority to recommend targets for Australia. This requires a broad assessment of relevant evidence and value judgments. Targets must be adequate to the challenge identified by climate science, comparable to the efforts of other countries and balanced in light of the costs and benefits of reducing Australia's emissions. In April, the Authority will release its draft report on post-2020 targets for consultation. At this public forum, the panel discussed the Authority's draft recommendations and considered how Australia should contribute to global climate action.

**Speakers:** Tony Wood, Energy Program Director, Grattan Institute  
Shayleen Thompson, CCA  
Erwin Jackson, The Climate Institute

TONY WOOD: My name is Tony Wood and I am the Energy Program Director for the Grattan Institute. Firstly, let me begin by acknowledging the traditional owners and custodians of the land on which meet this evening, the Wurundjeri people of the Kulin nation, and I pay my respect to their Elders past and present. This evening is a non-trivial issue that we're discussing and in some ways it goes to some fairly deep issues and some I'm sure might even be somewhat trivial as we get into the discussion and we'll see how things go, but there are some significant challenges. So what we're going to do this evening is open up a discussion about a topic which could become very mathematical or very emotional, and the issue is really what should Australia's post-2020 targets be? This evening we're very happy to have two people to join me to have this discussion.

One of them is Shayleen Thompson. Shayleen is the Acting CEO of the Climate Change Authority. Now setting targets post-2020 is so important that the Australian government has allocated two groups to basically do exactly the same thing and Shayleen will explain how it's going to work. Shayleen's been in this job only a relatively short time so she's got a challenge, but she is probably one of the most experienced bureaucrats in the country on these issues to do with environment and climate change policy. Shayleen will go through and explain exactly what the Climate Change Authority is doing and discuss in particular their draft report on what Australia's targets should be.

The second speaker who's joining me is Erwin Jackson. Erwin is the Deputy CEO of the Climate Institute. The Climate Institute is one of the most respected independent advocates for climate change policy in the country and Erwin in particular has been doing a lot of work not only domestically looking at climate change policy for well over a decade, but also has been heavily involved with Australia's activities internationally. Because the way Australia sets targets is also not just a domestic issue but it's also an international issue and Erwin will put it in perspective in that regard as well.

So we'll have the presentations, we'll then have a bit of a discussion about some of the issues between the three of us, then, if we all survive that without hitting each other, we will open it up to questions from the audience, and our objective is to finish pretty much at eight o'clock. So hopefully you will have enough information to ask all sorts of interesting questions and if we run out of questions I've got quite a few that have already been submitted in writing from people who may be in this room or not and we'll go to those as well. We've never yet had trouble with running out of questions on the topics that we discuss here in this room.

So, what I wanted to do very briefly is just a couple of slides to illustrate why I and the work that we've been doing at Grattan think this is an important enough issue to dedicate an evening of our lives to thinking seriously about how we might influence what's going to happen in this regard. I think Australia has a very high national interest in a global response to climate change for several reasons and we have in some ways almost an unusually high level of national interest.

Firstly, we are a member of the global community and in that global community Australia has an unusually high greenhouse gas footprint and it turns out, as a result of that, we are now on the wrong side of what's called the "market failure". A market failure in this situation is where those who damage others by emitting greenhouse gases generally do not pay for the damage. So when the market works to correct that market failure then someone pays for the damage, ideally those who did the damage in the first place, and so that is one of the reasons why we have an interest in the way the global community responds to this because it will have an impact on us.

Secondly, we are an energy export superpower. In three or four years' time we may very well be the largest exporter of LNG and we're already one of the largest exporters of coal, and there are several times more greenhouse gases in the fossil fuels we export than the greenhouse gases we actually emit within Australia. But if the world acts on its commitment to limit global average temperature increases to no more than 2° Celsius then the global share of energy in the world by fossil fuels drops from about 80% today to less than 60% by 2030/2040, and that is significant if you're interested in Australia's export earnings. And while Joe Hockey may very well not be the Treasurer in 2030 or 2040, somebody will be and they may have a significant issue about balancing budgets.

Thirdly, Australia is a country that will be severely impacted by unmitigated climate change. I won't bore you with the science of that, that's a topic that I'm sure many of you have already heard about and don't need convincing on that regard. Finally and fourthly, we have an urgent need for clarity for our domestic policy on climate change. The recently released energy white paper, it was released only a couple of weeks ago by the Federal Government, basically said that the government is committed to maintaining stable and predictable policy settings. If you look at climate change policy, whether it's emissions trading schemes or whether it's renewable energy targets, what we've had is unstable and unpredictable policies. So where we go from that I think is an important challenge.

The think that really struck me when I was looking at some of this stuff recently – and I tend to be struck by charts and numbers I suppose as much as most people – is this. Firstly, and Shayleen may refer to this, is the whole concept of the idea of a carbon budget. The world has a carbon budget that is the total amount of greenhouse gases we can emit to maintain that 2° limit of global warming and we've already spent half of it. That means we've only got another half to go and the way we're going it will all be finished in 2040, so everybody had better start holding their breath on the 1<sup>st</sup> of January

2041 because otherwise we've got a problem. So there is an interesting challenge that emerges from that.

Secondly, we've got a challenge that if the world continues the path we're on now we're going to be in trouble. And just from an export earnings perspective, if the world does respond to this 2° challenge, which Australia has already committed to, both the current government and the previous Labor government, then you can see in the top left-hand chart what happens to our coal exports: they drop significantly. They drop from where they are now significantly and that only happens this 450 scenario, which is the 2° scenario, coal only retains that market share if 80% of all the coal-fired power stations in the world are running on carbon capture and storage by 2040. At the moment, as far as I'm aware, there is one power station running in that way in the world, so there is a challenge there as well I'd suggest. And then equally our gas exports will be affected. So I think the challenge here is even if you take a perspective about economic activity, there is a significant economic impact.

So it opens up the question for our discussion tonight and that is what might Australia's fair share be? And you will see lots of discussion taking place over the next little while which will argue that Australia has a particular national interest in the way we currently produce electricity, the way we currently generate electricity from coal, the way we export coal and gas, and therefore we should have special considerations. And equally every other one of the close to 200 countries that will discuss how they should set targets will also have their own national interest argument. So the question of how national interest gets played out is important.

So with that introduction and this Looney cartoon, I will pass over to Shayleen who, as I said, is the Acting Chief Executive of the Climate Change Authority and she will talk to you and explain the approach that they've been taking in the draft report, which some of you may already have read.

SHAYLEEN THOMPSON: Good evening everyone and thanks very much to Grattan for the opportunity to present on the Climate Change Authority's Special Review draft report and thanks for the kind words; they were a nice start to the evening. So just a little bit of context to set the scene and to explain why the Climate Change Authority put out this report that we're discussing tonight.

So the Minister for the Environment requested a Special Review, which is one of the things that our legislation empowers us to do, and that Special Review has three tasks, which are actually up on the board. Of course, the context for the Special Review was the discussions in the parliament on the legislation to set up the emissions reduction fund, but it's important to note that the terms of reference for the review are quite wide-ranging; they allow us to look at a range of factors and issues down the track. But the sequence is that there's the draft report that we put out, I think it was last week although it seems a lot longer ago now, and the reason we put that out a little earlier than we were originally scheduled to do was, as Tony mentioned, there is also a process being led by the Department of Prime Minister & Cabinet which is also looking at targets for emissions reductions that Australia should take to the Paris conference. So they're two parallel processes and there are some informal discussions between the two which is keeping us abreast of the work that PM&C are doing and vice versa.

So this is the first phase of that review which is looking, as I say, at the targets. The second is the draft report on whether Australia should have an emissions trading scheme, that's due by the end of November. And then a final report wrapping it all up together and including the action or policies that

Australia should take to implement the outcomes of the Paris meeting is due by June next year. So where we're up to at the moment is that we called for initial comments on the targets in February and received 24 submissions and we're now welcoming submissions, in fact, encouraging submissions on the recommendations contained in this report. So I might move on to what the recommendations actually were.

So the Authority remains of the view that Australia should go beyond the minimum 2020 target of 5% below 2000 levels and we're also of the view that the previous recommended 2020 target of 19% below 2000 levels remains appropriate. With respect to the 2020 and the post-2020 period, the Authority recommends that the government should adopt the 2025 target of 30% below 2000 levels and the Authority believes that this is in line with what comparable countries are doing. We also recommended a trajectory range of 40% to 60% reductions in 2030, again, below 2000 levels. And this range is quite important because it's designed to ensure that Australia can contribute its fair share to global efforts to avoid the worst impacts of climate change, but also providing some flexibility so that the government can respond to developments in climate change science, international action or, indeed, things going on in the global or domestic economy.

So what considerations did the Authority use in terms of reaching these recommendations? I think the first important point to note here is that it always starts with the science. The science, as we know, highlights Australia's exposure to climate change impacts and the need for robust global action to limit emissions. Science also points to the need to achieve an atmospheric concentration that can limit temperature increases to less than 2° and the question then arises as to what Australia's fair share of this global emissions budget should be. We also look at international action and this has a number of components.

So firstly, what have countries already done to reduce their emissions over the last couple of decades and what are they pledging to do in the future and then, ultimately, what will all these efforts deliver in terms of a global carbon budget? And in this context, what would comparable targets of emissions budgets for Australia look like in 2020, 2030 and beyond? And then finally the Authority looks at the economic and social implications of the actions it's recommending for Australia. How can we minimise the costs of reducing our emissions and transforming our economy, particularly the all-important energy sector? So I'll talk a bit more about these broad considerations as I go through the presentation and I'm sure that other points will be teased out in the discussion and questions.

So this graph shows the 2025 target and the trajectory needed to reach the 30% reduction in 2025 and the range for 2030 and it starts at the -5% starting point. It does show that if we start at the -5% point that we'll need an annual emissions reduction after this point that's equivalent to 4.6% of 2010 levels. So I guess the point to note here is that if the government did decide to move beyond the -5% target then you could have a more gradual rate of emissions reductions to 2030 and beyond. So Tony talked a bit in his opening remarks about budgets and the Authority considers that the emissions budget approach is the most useful form of long term guidance because it links cumulative emissions of greenhouse gases which drive global warming and climate change to people's budget share.

So in the Targets & Progress Review, which was the previous big report, affectionately known as "the brick" in the Climate Change Authority, the Authority estimated an Australian budget for between 2030 and 2050 of 10.1 gigatons. And the useful thing about budgets is that they highlight the trade-offs between actions now and those necessary later. They don't set specific pathways to meet the budget,

but they do demonstrate that weaker action now leaves more emissions reductions work for the future and the next few slides demonstrate this in hopefully a fairly graphic way. So this first slide is showing that if you use the unconditional 5% 2020 target then you've still got a fair amount of effort to do and go forward and, in fact, I guess the key point is actually you're burning through your budget in a way that doesn't leave a lot left for the later years of the time sequence. So in fact under this scenario we would have used almost half of the budget in the years between 2013 and 2020 and a fairly small slice between 2021 and 2025. So that's an effort to show the budget in graphic terms.

I mentioned earlier on that the Authority was mindful of the targets and actions that other countries have been taking and this slide is intending to show that international action to address climate change is growing. So we see here the announced post-2020 targets of several developed and developing countries and collectively the countries on the slide account for over half the world's emissions. Most small countries are expected to announce their pledges in coming months. So just to reflect on the recent history of some of these target commitments, in 1990 there were no international commitments to reduce emission. By 1997, which of course was the year that the Kyoto Protocol was agreed, 37 countries had Kyoto targets, but by 2014, as a result of the Copenhagen and Cancun climate meetings, 99 countries had put forward pledges to reduce emissions and these 99 countries cover more than 90% of the world's economy.

So the comparable countries that people often look at, India, China, and compare those to what Australia might be doing, and I'll talk a bit more about that later on. Another common misconception is that countries haven't been taking their Kyoto targets really seriously and this map is intended to show a rather different picture. So of the 38 developed countries that took targets for the first commitment period of the Kyoto Protocol, 36 countries met their targets according to initial evaluations. Of the remaining two, the US didn't participate in the treaty and Canada withdrew after initially saying they would be part of it. But, on the other side of the ledger, 36 countries remained in the Kyoto Protocol and accounted for over 20% of global emissions in 2010 and the aggregate reduction on 1990 over the period was 24%, which is considerably better than the aggregate Annex B or developed country target that the Protocol was expected to deliver.

So as I've flagged, I just wanted to look a little bit at what the United States is doing on climate action. One of the things that's often cited is the move to shale gas in the US and how that's enabled the US to reduce its emissions considerably. That's certainly true, but in fact there's rather more going on in the United States than just that. So a range of state and federal policies have been put in place, including most notably recently the Clean Air Act rules to cut pollution from new and existing power plants, and these have been aligned with federal and state government incentives for renewable energy and electric vehicles, and also the ongoing work on mandatory emissions standards for vehicles. In addition of course, there's a range of emissions trading initiatives including the state-based schemes and as well there's renewable energy approaches in most states.

So what about China? China has committed to ensuring that its emissions peak by 2030, or earlier if possible, and to increase the non-fossil fuel share of all energy to around 20% by 2030 and China is the world's largest investor in renewable energy. There are also a raft of other policies which you see on the slide and most notably perhaps the seven pilot emissions trading schemes and the undertaking to commence a national emissions trading scheme in 2016 which will be the largest trading scheme in the world. So then looking at India, which is another of course major emitting developing country, they're expected to bring their 2020 pledge forward by September. It's expected that this will build on

their existing national action plan, but include some new initiatives. And one of the things that's quite, I think, remarkable is that their current installed renewable capacity is the sixth highest in the world and there are plans to increase this many fold by 2022. They also have an energy efficiency target which covers 25% of their GDP and about 45% of their primary energy consumption. So in that context of growing global action and some serious efforts by some of the major emitting countries, where does Australia sit in terms of the targets that the Authority has proposed for 2025 and beyond?

So when we're looking at country's targets, the Authority looks at four key criteria: capacity to reduce emissions; adequacy relative to global goals; responsibility to reduce emissions; and the effort required to meet the targets. This slide looks at the capacity particularly and this is really about the country's wherewithal to reduce emissions, its wealth, its level of development, its governance and institutional capabilities, as well as the opportunities it has to reduce emissions including what natural resources are at its disposal. And this chart shows two measures of capacity, GDP per person and ranking on the HDI (Human Development Index) which is calculated by the UN and incorporates measures of income, health and education of people within a country. Australia is represented by the blue dot and it shows that on both these metrics Australia is very well-placed to reduce its emissions.

So the Authority also compares responsibility for global emissions and this slide highlights two of the key criteria the Authority used when comparing its recommended target with those of other developed countries. The first is responsibility to reduce emissions and this references Australia's absolute emissions, its per person emissions and its emissions intensity. So in this context it's worth noting that Australia in 2010 was the 13<sup>th</sup> largest greenhouse gas emitter in the world. While its total emissions are about 1.3% of global emissions, only seven countries have national emissions of more than 2% of the total and Australia has the highest per capita emissions in the developed world. So we do have an emissions-intensive economy and some of the commentary around the report has highlighted this, particularly relative to other developed countries. So the amount of emissions reductions that we would need to make, even if Australia meets the target that the Authority has recommended, would still mean that we had one of the most emissions-intensive countries and economies in the world.

This is another slide comparing responsibility and effort. So effort I think can be considered as relating to the adjustment task or the costs that people would need to bear to meet their targets and, as I alluded to earlier, Australia would face a bigger adjustment task and potentially higher costs to reduce emissions than any other developed country. But I think it's important to note about costs that they depend very crucially on the policies that are put in place to help meet the target and with efficient policies the Authority considers that Australia could achieve its recommended target at modest cost. So moving now to comparing reductions over time, so what this chart seeks to do is to look at both the reductions that countries have already achieved and delivered on and the ones that are still to come, the ones in prospect that would derive from the new pledges or commitments that countries have been making to reduce their emissions in the lead up to the Paris conference.

So the paler blocks are the changes in emissions as a result of these earlier efforts from 1990 to 2012 and the darker blocks show the future efforts that would be required under the new targets. So compared to some of the countries represented here, Australia has made relatively little progress to-date in reducing overall emissions. The 30% target, as you can see, for Australia represents a broadly similar reduction to the EU and other European nations, although less than the UK and Germany, and would represent a greater reduction from 1990 levels than the US. And then, as I said, the darker

blocks show where everyone would have to go to next to meet their 2025 targets, and just to note that where countries set 2030 targets we interpolated a 2025 target.

So this slide illustrates through the trajectories with targets for Australia, the EU and the US against an assessment of where developed countries as a group would need to be in 2030 and the yellow bar on my right is from a European study which found that aggregate emissions from OECD countries will need to be between 33% and 74% below 1990 levels in 2030. So the chart shows how Australia are using the Authority's recommended 2025 target but starting from the current -5% target; the US and the EU are tracking towards this yellow range. And it does show I think very obviously that all three countries in fact will need to do a lot more to achieve that crucial 2° range.

So we hear quite a lot of discussion about different base years in the current debate and in fact Australia's targets are usually presented against a 2000 base year, and what this chart seeks to do is illustrate the Authority's recommended target for 2025 against different base years. I guess the take-home message here is that the amount of effort remains the same in terms of what the reduction needs to be, but the different base year can make the target look harder to achieve or bigger. So the blue line shows Australia's historical emissions. They fell after 1990. They actually peaked in 2005/6 and have fallen since then. So emissions do go up and down for a range of reasons, including economic growth, structural shifts in the economy, fuel prices, population growth, technology development and consumer preferences all play a role and, of course, policies influence emissions, both climate policies and those that affect emissions-intensive activities.

So next steps, the report is on the Authority's website and, as I said earlier, submissions are welcome. That's the website address up there if you want to have a look at the report and to find out how to make a submission, or you can simply email us a submission at the email address on the screen. So once we've worked our way through the consultations and other discussions around the report, the Authority may decide to make a further statement on the report but, as I said earlier, the second draft report on emissions trading schemes and other policies is due to be completed in November this year with a final report being done after the Paris conference in June 2016, and the idea is that that recommends the sorts of actions Australia will have to do picking up the outcomes from that Paris meeting.

ERWIN JACKSON: Thank you Shayleen, thank you Tony and thank you Grattan for the invitation to come along tonight and the kind introduction. Tony's asked me to run through a bit of the international context for the decision that Australia will make later in the year and, given the time constraints, I won't go into detail too much about who the Institute is; I'm assuming most of you here know who we are. The key things I wanted to really focus on in terms of the international context for Australia's targets and the process I've outlined here, and the first being that we've heard a bit of conversation already tonight about the 2° goal. This came out, really was driven by the Europeans and it's probably one of their most successful climate policy, foreign policy objectives and successes over the years where they've got this 2° goal entrenched in global agreements on climate change, the first being the Cancun accords then formalised within the UNFCCC process in Cancun.

The important thing to say about this is that while I've got up here 2°, and that's the one that's commonly talked about in the conversation in Australia and in most advanced economies, most countries think that's too high. You have at the moment a review going on in the international process to look about strengthening this goal to 1.5° and if you just looked at the numbers of countries who

support the 1.5° to the 2° goal you see about two-thirds of countries support 1.5° and a third only support 2°. So through time I think there'll be an ongoing conversation about whether the 2° itself is inadequate. But in some respects in terms of the targets it imposed and international expectations it doesn't matter. This is the international benchmark that has been set and Australia has formally agreed to that through those agreements I mentioned, but importantly in Lima last year countries set out what upfront information countries needed to come forward when they justify their targets to the international community and key amongst that was countries providing information to the international community that show how their target is a fair and ambitious contribution to achieving the objective of the Convention, which is effectively avoiding a 2° increase in temperature. From the INDCs all the post-2020 targets that have already come forward, and Shayleen's run through those, we've seen all the other countries do that. So the US have justified their target against a 2° goal, the Europeans have, the Swiss, the Norwegians and other countries we would normally compare ourselves to are justifying their target versus that goal. So that's the first thing to say and that's important in terms of the ongoing architecture I'm going to talk about.

The other thing is that the Australian target isn't going to happen in isolation, so what we've had in the past in international agreements and target-setting processes is a pattern of two things. One is, whether it be the Kyoto Protocol first commendment period or the agreements that were put into the Cancun agreements, they were sort of one-off targets or short-lived targets. We haven't really had an enduring international architecture which all countries are signed up to where they're advancing targets in some form of binding way, and this time round it will be different. I think all major players in the conversation want to establish a framework post-Paris which is enduring; which doesn't just see one target being set then we come back a few years later to negotiate another round. I think what countries are looking for out of Paris is a framework which is enduring and drives progressive and ever-increasing action through time and I'll talk a bit about that in a second.

So when we think about our target we can't only be thinking about what happens at 2025 or 2030. We need to be thinking that we are going to have to come up with a target after that that is going to be stronger than the next one; we're going to have to come up with a target after that which is stronger than the next one; and every time we do that it's going to need to be justified against the global goal. The other thing that's changed a lot over the last few years has been, as Shayleen's already mentioned, many more domestic policies are being implemented around the world. That's happening regardless of what's happening in the UNFCCC negotiations. I do remember very clearly the Chinese Premier in Copenhagen saying, "We will get on and meet this target regardless of what the rest of you do" and they're doing it. And they're doing it for lots of reasons, climate change only being one, but they're still getting on with it.

So what we're seeing around the world is countries implementing domestic policies to drive clean energy, improve energy productivity and energy efficiency, and directly limit emissions, and they're all having effectively the same outcome which is a global boom in renewable energy. We saw again last year that total installed capacity in renewable energy at a global level again was more than total installed capacity in fossil fuels last year. So we're seeing an ongoing trend that's being driven by these domestic policies. In the international context that's really important because countries generally only commit to targets if they think they're going to achieve them, so by having domestic policies in place that allow and give you the confidence that you can achieve your target countries are more likely to be ambitious in what they do.



The other thing I think is important and I'll bring it back into the domestic context for a second is that the discussion around the post-2020 target is a really important one for Australia. We've been arguing over the scraps of policies in Australia for the last 12 to 18 months I would probably characterise it as, so we've been talking about how we're going to meet a very inadequate and woeful 2020 target of a 5% reduction; we've been talking about the scraps of a renewable energy target; and we haven't been talking about how we're going to decarbonise our energy system overall and how we're going to achieve the long term goals that we need. And I think the post-2020 target conversation is an opportunity for us to start doing that again. It's basically to get back to basics: what are we really trying to achieve and what are we really trying to do and how are we going to do it?

So what does all this mean for our target in terms of the international context? So what I've tried to illustrate here is the point I was trying to make is that the agreement we see in Paris is likely to be a combination of what's generally called a top-down framework and a bottom-up framework. So what we're going to see from the top-down is this ongoing international pressure for us to justify our target against the 2° goal. The other really important thing that was, again, agreed in Lima last year, that every new target is a progression from the previous undertaking. So effectively it needs to be stronger, and I'll talk a bit about that in a minute, and what countries are seeking to do there is ensure that we don't just have special pleading. I've been through many of these processes and watching the countries come forward in Bonn in advance of the Copenhagen conference and one country after another said, "It's really hard for us. It's really, really hard for all these different reasons". And Australia said it because we dig up lots of fossil fuels and sell them to other countries, Japan said it because we're really efficient already and there is some justification in that, but it's not just about special pleading anymore. You've got to justify your target against these other things, which I think is an important evolution in the framework internationally.

The other thing that we're going to see is it's likely that when the targets themselves are finally attached to the Paris outcome will not be binding, but it will be binding that you have one and there's also a chance that it will also be binding that you implement domestic policies to achieve them, a bit like the Chemical Weapons Convention does. And that's again important, as I already talked about, where you have this bottom-up pressure coming from domestic actions that build ambition, trust and confidence, because as countries see other countries taking more action they themselves will feel more confident that they can. And this is where Australia also has a particularly important role.

Tony talked a bit about our unique circumstances and that actually in some respects can be an important gift to the world. We have traditionally been a resource-extractive nation, but there are other resource-extractive nations who are much poorer than us who are looking for development analogues. And if we can show that we can do it as a high per capita emitting country then that will give confidence to countries like South Africa and Brazil that they can actually go along a similar pathway and reduce emission while maintaining their economic growth. But the real point I wanted to make here is the pressure's going to come from two ways. It's going to come from domestic policies that continue to drive investment, but it's also going to come from top-down expectations and we're going to have this ongoing cycle of care coming back, so we have a target for 2025, then we have a target for 2030, then targets for 2040, 2050, and at some point we're going to have to get to net zero. So the pressure isn't going to go away.

The other thing I wanted to quickly talk about was progression. Now this was again another important thing that was agreed in Lima last year where countries need progression from their previous

undertaking. If I was the government, and heaven forbid that they would do this, how I would define progression is we can do a 7% reduction by 2025, that's stronger than a 5% by 2020 – and I wouldn't be surprised if they try and do that. However, progression isn't only about the scale of your target. What we're actually also seeing now from countries as we've got here is the rate of emission reductions that countries are undertaking is accelerating and for Australia's benefit I've put a little star where the Climate Change Authority want it to be on here as well. So what we're seeing is that progression is just not having a bigger target, it's progression towards the 2°, goal but it's also a progression in the pace in which you're undertaking your action and you can see here that the US is increasing its action significantly, the Europeans are, the UK. I've stuck up Japan; it's probably going to announce its draft target tomorrow so I've stuck up what they're probably going to do. And then probably the exception of Norway who I think made a mistake in setting their own target, they're the exception to this rule, but most countries are significantly increasing the pace of the action that they're taking.

So what are the few things that we think about when we're setting a target, and some of this has already been touched on. One is vulnerability to climate change. It is in our national interest to get the most effective and strongest national response, as Tony's already talked about, but the key thing from an Australian government point of view is the approach that the government, no matter what it's colour is over the years, has always taken is that our goal is to maximise participation, so we want to get as many countries in. Which is absolutely right, we do need to get as many countries into the agreement is absolutely possible, but if you take the view that 2° matters to us then it's not just about participation that matters, it's also the ambition that those countries are taking that matters.

I've already talked about the top-down/bottom-up expectations but that's important because countries are making their own nationally determined targets, they're setting them in a bottom-up way effectively. The norms that are set internationally by that are going to be set by national governments. So if Australia wants to achieve a 2° outcome it itself needs to come forward with a 2° degree target. Unless we actually start creating expectations and norms internationally and strengthening those then we're not going to get what we need, which is warming below 2°. So through time we need to build that, so coming forward with a target that's consistent with below 2° becomes the norm, not the exception.

The other thing I'll quickly touch on, which Shayleen has already touched on, is that we're also going to hear a lot about the national impacts of our targets in a little while as the debate heats up no doubt, but I think it's important to reiterate that the net benefit and cost of action on climate change by country is not determined by its target; it's fundamentally determined by the policies put in place to achieve it. You can put in place policies to achieve emission reductions really expensively or you can put in place policies to achieve emission reductions really cheaply. You can also put in place policies to shield your trade-exposed industries, as we've done in the past, from action. So there's a range of things that you can do to manage any costs that you may be concerned about, but the scale of the target, you shouldn't weaken your target to try and manage those costs; you should define your policies to do that, not your target.

The final point that I probably want to consider when we set our target is decarbonisation I think is inevitable. While it's not going fast enough, it's happening. The climate, political, technological trends are all heading in the one direction and if we want to create an energy policy, for example, that is stable in the long term we need to recognise that and design a policy to do that, because otherwise

we're going to keep coming back to it. And you can already see this with the renewable energy conversation. So we haven't been able to land an outcome and now we're already seeing one of the major political parties say, "Okay, we're going to revisit that and think about what we're going to do post-2020". It's just to think about how they can strengthen the target. So that's an example of the kind of thing that we're going to continue to see until we actually start setting both major parties getting us on a pathway towards decarbonisation.

So I'll wrap up there, but I think the key thing for me really is the national conversation about targets is an opportunity for us to do a reset. We've had a horrible political debate over the last, oh gee, too long now on this issue. Now is the time to actually start to get a more sensible conversation about what we're doing in the longer term and if we do that well we can benefit ourselves and the generations that follow us. Thank you.

TONY WOOD: So what we're going to do now is I'm going to try and raise a couple of the issues and maybe a couple of comments in relation to what we've already heard for about 15 minutes or so, 20 minutes, and then turn it over to the audience for questions. That should give us plenty of time to hopefully tease out some of the issues and then provide the substance for the submissions that I'm sure you'll be flooding in to Shayleen's organisation.

One of the things I did want to raise and that is this issue of comparative effort or the cost or however you frame it because already since, Shayleen, your organisation put out its draft report there's already been strong reactions from some various sectors saying that that's just going to basically send us all broke, it's going to shut down industry etc. etc. In some cases the cost for some specific industries, depending on policy as Erwin said, might be quite considerable over time depending on how we implement our policies. So clearly the debate's been set up already. The question, given that Australia does have that particular profile and you made the point that it will cost us more than many countries because we are so high, how do you respond to that question that this is going to cost us more than it's going to cost other countries and therefore we have a special case?

SHAYLEEN THOMPSON: Well, I think that Erwin's point that everyone's special is well taken and in a previous life I was one of the people sitting behind the Australian flag and yes, it's absolutely the case that everyone's special. With respect to the costs, I think it's important to look at both sides of the equation. So yes, we are an emissions-intensive economy, we rely currently very highly on fossil fuel use, we export a lot in that regard. On the other hand, there are some very strong opportunities to reduce emissions and there's been any number of studies that have pointed out that emission reductions can be achieved at fairly modest costs. That said, it is true that there will be costs and one of the things that people often focus on is what economists call "the distributional impacts" and that's I suppose the point that the cost impacts affect different sectors and industries differently.

In the report the Authority made the point that actually how you best address those sorts of issues is through the design of the policies themselves. Ultimately the fact that the Authority considers that Australia is a high per capita emissions-intensive economy doesn't mean we shouldn't be acting, because everyone in the world needs to act to achieve the global goal that we're aiming for.

TONY WOOD: I think what surprises me a little in this discussion that doesn't get brought up, issues from another context is that if we were, as we are, a major exporter of food and if it turns out that some of the food we're exporting is contaminated, it's having a bad impact on other people, the first

thing you do is stop. You don't get any chance to say, "We've got special circumstances in which we should be allowed to continue to export poisonous food just because it's going to cost us more to shut down our poisonous food industry". So I'm not quite sure why people don't make that argument that we are doing things which are causing damage to the entire planet as a result of – not we personally, but the consequences of the stuff we export etc. We've had the benefit of all this arguably cheap coal and gas for many, many years and now arguably the global community, together with us Australians, have to pay for this.

So I'm not sure why that argument even gets any traction at all, but I guess it will play out for a while yet in the way things actually develop because it seems to me to be quite a perverse argument that because it costs us more we should – clearly we're concerned about it, but why we should get any consideration for that. It should almost be the reverse consideration I would think.

ERWIN JACKSON: But I think the other issue is it's how you define the cost as well because yes, when Shayleen talked about compare us to other advanced economies in terms of what the modelling shows, if you believe what the models say then it does look like it's more expensive for Australia. But if you compare us to the entire world it's not. If you look at the costs associated with the Chinese de-carbonising, for example, in these models, it's much more than it is for us yet they're getting on and doing it.

I think the other thing we need to be careful about with the cost estimate is that the cost of reducing emissions or the aggregate impact on Australia's economy of reducing global emissions is not only determined by what we do, which doesn't get brought out in the conversation around the economic model that's done very often, because a proportion of that cost is driven by the actions of other countries: they don't buy as much coal, they don't buy as much X or Y, and that also needs to be considered. But I think from the international perspective, when I talk to people about it they think about why should we continue to subsidise you? You have not taken as much action as we have, why should we continue to subsidise your bad behaviour?

TONY WOOD: Sounds like a fair question doesn't it? Shayleen put up a lot of actions that countries are taking and one point might be well, the US isn't really serious. I mean, we've already seen a situation in which parts of the American Congress have said to other countries the President can't speak on behalf of the country in this particular area. It sounds like an incredibly unusual thing for a Congress to say about their President, but that's what they seem to have done. So I'm not sure that the Republican Party in the US would necessarily see the same targets that Obama's trying to put in place and may very well try and unwind some of those. Any equally in China, in many parts of China the emissions are actually quite high on a per capita basis if you take them separately and I've heard people suggesting that India has got a long way to go before they're really serious about those sorts of targets. There you've got two developing countries and one developed country.

So are you seriously expecting that countries will actually turn up by the middle of the year at Paris with numbers that will actually add up to 2° and if they don't then what are the expectations that this time it will be different? Because it seems to me you made that point Erwin that this time you're expecting it will be different for the reasons you mentioned, but I wonder whether it will just disintegrate back into the same old again. So what might make this one really different if people just turn up with numbers that don't add up?

ERWIN JACKSON: Because I think the core issue is that if you look at the numbers that are being put on the table at the moment and the trajectory that we're on, we're not on a 2° trajectory. The estimates last year we were on a 4° trajectory. Now with what the US and China have put on the table they've probably knocked about a third of the gap off between the 4° and the 2°, which is not insignificant but it's not enough. So I don't think anyone should expect Paris itself to deliver a 2° outcome, but that comes back to the role you see of an international negotiation. International negotiations don't reduce emissions; what decides whether we reduce emissions is the actions in national capitals and the policies that national governments put in place. So the role of the international agreement is to facilitate and increase the ambition of those actions.

If we out of Paris can continue to see and put pressure on national governments that they live up to their 2° commitment, if we start to see a long term credible framework which sends a signal to business and national governments that this issue isn't going to go away, we're going to continue to ratchet, that will put downward pressure. And if we don't lock in for long periods of time targets of, say, 2030 but limit it to, say, 2025, then we're keeping open the option of the 2°, but we're also creating a framework which is going to increasingly put pressure on national governments to do more. And that's what we want in Paris. We don't want Paris to save the world; it's not going to save the world. What Paris is going to do is hopefully accelerate the already substantial action.

TONY WOOD: Right. So just for the way of clarity for those who may not follow some of the numbers that Erwin was talking about, I guess you're referring to the IEA put out its major report, *The World Energy Outlook for 2014* which basically said if the world implements all the policies that had then been announced – this was back in the middle of last year – then we're on a pathway to 3.6° and they also suggested that we need to get 2°. And I understand that between now and the next month or so the IEA will release an updated set of those projections on how we're now looking, and that will take into account the extent to which the commitments that China and the United States have made would be factored into those sorts of projections, and I guess any other targets that have been announced in the time that's gone past since then.

So the dynamic around this and the way this is going to work. Shayleen, you've been involved in this yourself as well. Our target, isn't it just an ambit claim and we're just going to start from there and see how we go, or do you think this now seriously is going to be the number we're going to stick with? What's going to be the dynamic between now and Paris?

SHAYLEEN THOMPSON: I haven't been personally close to the negotiations for quite a while. Erwin's probably got more of a box seat in terms of what the expectations are. One of the things I have heard from many people though is that after the disappointing outcome in Copenhagen that things are looking a lot more prospective this time. I think the Authority's view has been that if Australia was to take on-board this recommendation of the 2025 target and then find a landing spot by 2030 that's within the 40-60 range, that puts us on a pathway towards 2° as a fair and equitable share of Australia. And, I guess picking up on your point Erwin, the hope with Paris is that it puts globally the world on the pathway to 2° even if we don't quite get there at Paris.

If I could just make one personal observation, when I was doing the negotiations a phrase you'd hear a lot was, "Don't let the perfect be the enemy of the good" and my own hope is that Paris finds a good outcome, even if it's not a perfect one.

ERWIN JACKSON: Coming to the issue of is the target locked in when the government announces it in June or July, formally no. These are intended nationally determined contributions; they're basically countries' initial offer. I think some countries will have more flexibility to change that than others, but what Australia's contribution ultimately will be will be determined not just by the government but also by the position of the ALP. And this is not just a question for how the government advances its target, but it's also a question for how the ALP responds to it because the worst case scenario would be that the government announces a poor target and then, by default, the ALP fall into that and we have bipartisan support for a poor target. The best outcome of course would be that they could both come to an agreement that we're both serious about avoiding 2° and we'll both agree to a target and a policy to get there.

TONY WOOD: The other question I had was we introduced the topic of the fact that the Department of Prime Minister & Cabinet is also doing a piece of work associated with setting targets and they've had an issues paper out for a few weeks and submissions have closed, and I'm sure people in this room are part of organisations that have already made submissions to that activity. How do you see the two interacting with each other? Is there a formal or informal way in which they'll come together or are they going to be fighting with each other or is it a competition to see who gets the biggest target? How do you see that happening Shayleen? This is being recorded, but we won't send it to anybody else, alright?

SHAYLEEN THOMPSON: I think perhaps it's worth stepping back and just refreshing what the Authority's role is. We have a legislative role to provide in effect policy advice to the government; we're doing that through the special report. Governments can take policy advice from a whole raft of different people and processes; in this case they've set up the process that the PM&C task force is leading. On an informal basis we talk to them and they talk to us, so there is I guess some cross-pollination of ideas and so on. At the end of the day, it will be up to the government how it chooses to reconcile the various pieces of policy advice that it gets on these and other issues to do with addressing climate change.

TONY WOOD: It seems like the Climate Change Authority has an interesting history where the government set it up and then every time it does something it gets something else in opposition to it. Now the renewable energy target process and the Climate Change Authority had the job of doing it last year and the government set up a separate process to do another review of exactly the same thing. So maybe there's a message there about the way they tend to do reviews with the Climate Change Authority.

It's about 7.30, which means we've got a good half-hour of discussion. I've got quite a few questions here that I can throw to both Erwin and to Shayleen, but why don't we start and give you an opportunity to ask some questions?

AUDIENCE: It seems to me that one of the important things about specifying a carbon budget is that you need to specify the probability that you're willing to accept in exceeding 2°, so one of the diagrams in here is indicating that for a 90% chance our carbon budget is already zero. It seems to me that specifying the probability is a really key part of specifying anything about what we're going to do and that's a real problem with the international agreement, it doesn't specify the probability that is acceptable but exceeding the target. Do you agree that we've got zero carbon budget left for a 90% chance?

TONY WOOD: At the moment most of our discussion has been around the 2°, although Erwin you raised the issue of whether or not we should have a more aggressive target of 1.5°. Do you want to comment on that issue of should we think about targets in a slightly broader sense? Shayleen, is that part of your remit? Have you looked at that issue?

SHAYLEEN THOMPSON: So what the Authority did with the draft review report was I guess really backed off the work that had been done previously in the targets and progress review and it did, through that process, settle on the view that it thought that a 67% chance of reaching 2° was appropriate and then did its work to identify a fair and equitable share for Australia of the 10.1 gigatons that I talked briefly about earlier. So I understand and respect the view that a 90% chance would be better. That's not the position that the Authority reached in the targets and progress review, but I certainly understand why people feel that they want a higher degree of certainty than the 67% that the Authority has been working off.

TONY WOOD: The actual calculation is based on Australia's per capita share? Basically you've taken the global carbon budget and your allocation to Australia is based upon what, our per capita, is that the number of heads that we'll have in 2050 or something? How does that work?

SHAYLEEN THOMPSON: So it's a modified per capita convergence approach and it was first identified and really articulated in the Ghana Review of a few years ago. And basically what it does is say okay, let's start with the per capita emissions that countries have now and let's converge to a lower universal set of per capita emissions. Where the modified bit comes in is it does recognise that a number of the rapidly industrialising developing countries need a bit of headroom to allow their emissions to grow before they begin the work of contracting their emissions to meet that per capita level that everyone will need to meet.

TONY WOOD: So effectively, by the time we get to this destination everyone basically is working on the same emissions per capita in the world?

SHAYLEEN THOMPSON: Equal rights to the global budget, in effect.

TONY WOOD: Okay.

ERWIN JACKSON: But I would note that how you allocate a carbon budget is a moral and ethical question, it's not a scientific one in some respects. The budget that the Authority uses is very generous to Australia. If you ask a Chinese negotiator whether that's a fair budget I'm fairly sure he will give you a rather different answer.

TONY WOOD: Right.

AUDIENCE: I've got a question and a comment about emissions reduction targets and also the 2° goal and I guess that goes a little bit to the point that the previous question made about the likelihood of achieving that. So the CCA has a 30% by 2025 target and Grattan I understand has announced a 15-20% by 2025 target. Just to make the point that the evidence is that we are already out of step with the rest of the world, we've seen tonight that current policies put us on track for 4° and our existing emissions and the climate change that they cause are already extremely harmful to health, the 2° cap is dangerous and, as we've heard, the 1.5° is supported by a majority of countries.

So Erwin, you said the difference between the two doesn't really matter, but I would argue that the difference is a massive human cost. The difference is thousands of deaths, destruction of livelihoods, settlement, displacement and conflict that will arise from that warming. As Shayleen has said, Australia clearly has responsibility and capacity to meet the targets that the CCA has outlined. Why would Grattan propose lower targets than the CCA? I'd be interested to hear a few more comments about the 1.5° target.

ERWIN JACKSON: When I say talk about the difference between 1.5° and 2°, the reason I say that it doesn't matter, I said it was in the context of how other countries will be looking at it and Australia will justify its contribution. Of course it matters in terms of the long term impact. The way we think about this in terms of the probabilities that people have already raised is not just whether the budget gives us a reasonable chance of avoiding 2°, and you could argue about what's reasonable, but does it actually leave open the chance of avoiding 1.5°? And that's why we've recommended a stronger budget than the Climate Change Authority, for example, because it leaves open the opportunity to achieve 1.5° and unfortunately all the models that we have, the best chance we've currently got of that is 50:50. Even if we were as aggressive as we absolutely could be, we've got a 50:50 chance of avoiding that 1.5°, but that's an option we think is worth going for.

But the short term actions to achieve 1.5° and 2° are actually pretty similar. The emission trajectories that you would get to achieve a 1.5° goal or a 2° goal are much the same. The big difference is after 2050 where for a 1.5° temperature goal you need to have massive amounts of negative emissions; we need to be drawing very large amounts of carbon out of the atmosphere. So that's the really big difference between the emission profiles of those two scenarios.

TONY WOOD: I guess in terms of the 2025 target, the important issue it seems to me is to, for God's sake, create some momentum in this country towards serious abatement and what worried me about the maths, the way the Climate Change Authority has calculated its 2025 target, I wouldn't in any way try to refute at all. I think the maths work, as Shayleen described, perfectly well and you end up with the number you end up with. The question is: are we likely to see that, given the particular political situation we have in Australia? And it may be a pathetic excuse for a political situation we have in Australia, but that's where we are.

So the question I had then was if we're seriously going to try and do this then isn't really the first thing to do is create some momentum beyond 2020, because we've had a long and painful debate and we ended up with a 5% target. Can we create some momentum and 15/20% to me seems like if we could get bipartisan support of the sort that Erwin was talking about towards that target, we know it's going to have to be ratcheted up and because it is a lesser target than the 30% it will have to be ratcheted up faster later. That is a consequence of doing this sooner. If we'd had a better target than 5%, as Shayleen said, we wouldn't need as aggressive target as 30%, but if we have a lesser target than 30% we'll do more later. It seems to me, given we are where we are in the current political debate in this country, the chances of pushing for the 30% are hard and may very well be so polarising so we don't get anywhere. So if we could start by getting 20% on the table it seems to me that would at least create some momentum to then go harder later. It's the only way I think you can justify that sort of outcome.



AUDIENCE: Explain to me whether a worldwide emission trading system, would that give a much more cost effective solution to climate change if you set a particular number you then look wherever you can in the world to get the cheapest way of delivering it?

SHAYLEEN THOMPSON: Well, the short answer is yes. So one of the things that the Authority has said in both its early reports and this one is that with access to international permits through the sort of international trading that you're talking about it's a way of achieving targets that can be considered on the ambitious side without imposing big costs. And you're exactly right, that sort of arrangement allows the global economy, if you like, to find and use the cheapest abatement options through international trade.

The corollary to the points about international units though is that the Authority also believes that it is necessary to strike a balance between taking advantage of these low cost opportunities in other countries, but also finding ways to affect the sort of transformation of our own economy so that we decarbonise and, in particular, with respect to power generation and heavy industry. So that leads you to the view that you can't really do it all through international permits, you do need to ensure that you're doing some of the transformation through the changes you make at home.

ERWIN JACKSON: Well, the short answer is no.

SHAYLEEN THOMPSON: Why?

ERWIN JACKSON: Shayleen and I had to disagree on something tonight.

SHAYLEEN THOMPSON: And you promised!

ERWIN JACKSON: No, seriously, broadly speaking I agree with what Shayleen said, but I think that there's a caveat I'd stick on it in that the way that we sometimes or those global markets are communicated assumes that we have an optimal world where people are rational, that businesses and any global carbon market will set a forward trajectory of price which is consistent with 2° and we'll on get on and do our job and we'll see those prices and we'll get on and make investments on that basis.

That's not how the real world works, so I think when we're designing policy yes, actually we do need access to international marks and one of the things we've said in our submission to the Prime Minister's task group is that the target that is set should be a net target, so it includes domestic action and access to international units. But, at the same time, we also need to recognise we're in a suboptimal world, so if you're in a suboptimal world how do you manage risk? And a way to manage risk is have those kinds of policies, but also to make sure that you're decarbonising, as Shayleen said, your major emitting sources so that you're not racking up, increasing pain, not putting money on your credit card as opposed to paying it off. So you need to actually get on and actually do things at home as well.

AUDIENCE: I note that the Australian government has said already and it's quite clear that the emissions, they sort of drop substantially since the targets were set due to a whole lot of things like action by individuals putting solar panels on their roof and terms of credit changing and so on. I guess my interest is if we were setting National policy in Australia aside and looked at some of those more local actions and factors for the sorts of policies that states are putting in place in terms of renewable

energy emission reduction targets. How far would that get us towards the sorts of targets that you have talked about tonight and how important is it to have that much of a policy setting in terms of providing certainty in driving sustained and progressive emission reductions over a long period?

SHAYLEEN THOMPSON: I think I understand the question to be what if the state governments go ahead and put their own policies in place to achieve emissions reductions, is that what you meant?

AUDIENCE: If we ignored the Federal government, could we do this ourselves?

TONY WOOD: It depends who "we" is I guess.

SHAYLEEN THOMPSON: Certainly there's a lot of history in Australia of the state governments doing just that and some years ago the states worked together to propose a national emissions trading scheme, so I think there has been a lot of action at state and also some initiatives at local government. It goes a little bit to the point I was trying to make earlier about costs being very dependent on the sorts of policies you put in place and one of the issues people sometimes raise about state governments putting in place policies is that they can work out over the longer term to be more costly because you get different approaches to the same sorts of things in different jurisdictions, which means that companies that have to comply across a number of different jurisdictions and have to bear different sorts of transaction costs and reporting requirements and all that sort of thing.

Perhaps as a Commonwealth public servant I would take this view, but I think there are some advantages to national approaches in terms of lowering administration and other transaction costs. But certainly it's possible.

TONY WOOD: People I'm sure in this room would know that there have been some changes of government at the state level since the current Federal government was elected and some of those state governments are making noises in that very direction, so whether they're talking about having state-based climate change targets or state-based renewable energy targets. That may very well come out of as much about state government frustration as it might come out of individual frustration. The real question is can those things be effective or does the whole thing become horribly mangled and we end up with a complete dog's breakfast, as people might describe it?

Erwin, your organisation has been one of those that's taken a pretty high profile at an activist level. Maybe you go back to the other end, the grass roots organisations, because many people here I'm sure belong to organisations that are asking what can we do at the community level to try and influence this discussion. What would your advice to those groups be?

ERWIN JACKSON: I was thinking about this before because one of the things that often gets lost in the conversation when we have about this - and I'm as much to blame for this as anyone else because I talk a lot about Paris and all those kinds of things - we're held hostage to what others are doing, whether it be an international process or what the Americans are doing or the Chinese are doing. But at the end of the day, there are two words in what we've got to announce this year which are really important and are nationally determined. So each country has to make its own decision about what it thinks its fair share should be and how ambitious it should be and that is a decision that's made in Canberra.

So I think that's why in some respects it actually doesn't matter what other countries are doing; what matters is what we as a country want to do and certainly everyone I think has a role to play in that conversation, whether you be in business or whether you're a local activist. It's actually what is in the long term interest of our country and make sure that all political parties and your energy company or your bank or whoever you want to influence hear your view on that. And it's been interesting, I've been working on climate change now for over 20 years and it is actually probably now one of the most exciting times I've ever been in. If someone had said to me five years ago that China was going to have an emission trading scheme and the global divestment movement would be growing faster than the apartheid movement was then I would have laughed at them.

TONY WOOD: It's at least positive anyway.

AUDIENCE: One of the issues that has concerned me greatly is the issue of measurement of what you are doing. So, for example, if we're talking trading certificates and trading systems, as I understand it all the offsets will come from agriculture and forestry and a lot of that's coming from countries which are corrupt and where it is very difficult to measure. So you end up with a whole series of fraudulent certificates which in fact do not reduce the CO<sub>2</sub> and you have huge expenses that are going with that. When I look at the systems that I hear proposed I do not see how you are accurately measuring rather than just taking a deemed amount of reductions, and I think it's a series flaw in almost everything that I've heard to-date.

SHAYLEEN THOMPSON: So look, the concerns you raised I think are the concerns that a lot of people have working in this space and you're right, the land sector does pose some particular challenges for estimating carbon abatement. In fact, my understanding is that the primary source of international permits in developing countries is the Clean Development Mechanism and there are actually very few opportunities under that mechanism for land-based carbon credits. There are some forestry projects, but they're very small in number and, as far as I know, there aren't other agricultural land-based abatement opportunities that people are trading. My knowledge could be a little out of date on that.

Certainly Australia wrestled with these problems very seriously when the Carbon Farming Initiative (CFI) was put in place and we were fortunate because in Australia we have a strong system of governance and the CFI is a legislated scheme and it backs off the national inventory and accounting system that Australia has used for many years. The approach that Australia has taken and a number of other countries have taken, including some developing countries now, is to accept that going out and measuring the carbon in every bit of soil or slapping a tape measure around every tree is just, as you say, not feasible and there is a lot of effort that's being put in to ensuring that modelled approaches are robust and ground truthed.

So I probably have a little more optimism than you do that there are ways that this sort of abatement can be estimated and quantified and then traded, but you're exactly right, it does rely on very strong governance arrangements. My own view is it's probably best done on the basis of a legislative scheme. But the IPCC, who we talked about earlier in terms of putting out these very important state of the science reports and also advising on what global carbon budgets should be also have another role that they perform which is issuing what's known as best practice guidance for inventories and emissions measurement, including on the land sector. And all developed countries use those for preparing their national inventories which they report to the UN every year and, in fact, they're sort of

a gold standard of how countries measure and estimate these things. So there is a lot of international work and effort that's put into them and an effort that's been going on for many years.

AUDIENCE: Measuring our emissions, how is it we can get away with using hundred year global warming measurements for methane when we don't have a hundred years to fix this? My understanding is that the 20 year time horizon global warming potential is four times the number that is used in our accounting of carbon, so doesn't that call into question the integrity of the CO<sub>2</sub> measurements overall?

SHAYLEEN THOMPSON: I'm not sure, but it sounds like you might be reflecting on the change to the permanence obligation that the government brought in?

TONY WOOD: This is the global warming potential of –

SHAYLEEN THOMPSON: Yes, so I'm not sure about the four times and the hundred years.

AUDIENCE: Should we be using a shorter time horizon measurement in accounting for methane fugitives which would, I think, have the effect of making our measured emissions much greater than those today?

SHAYLEEN THOMPSON: So the global warming potentials are, again, some of the guidance that the international community and the IPCC puts out and, as you say, it's about the radiator forcing that you would get from a ton of carbon dioxide in the atmosphere, and methane is actually 25 times that. So the radiator forcing effect of methane is actually recognised through international accounting as many, many, many times more potent as a greenhouse gas than carbon dioxide is. So I think maybe we're not quite connecting on what the issue you're wanting to discuss is, so I'm very happy to talk to you some more about it afterwards if that would help.

AUDIENCE: I just wanted to touch a little bit on the Australian political situation about how we get targets in place and then how we seek to achieve them. The Labor Environment Action Network is an internal lobby within the Labor Party and leading into the national conference this year they have a campaign to adopt the targets that the CCA set and also the climate works targets in terms of renewable energy. But in reaching that target they need to justify to the Party and to the conference how can they make the impacts both in terms of cost of living and in terms of employment more palatable to the electorate going into the next election?

ERWIN JACKSON: Making in more palatable is difficult. I'll just make a comment on the nature of the debate in recent times. The first is, don't lead with your chin. I think one of the mistakes that the previous government made was it talked about a mechanism as opposed to an outcome. The outcome we actually want is lower levels of pollution and we want to avoid climate change and I think that's where we've got to have the conversation, then you can get into the mechanism. Inevitably you'll get into the mechanism conversation after that.

I think in terms of the cost of living questions, it's a difficult one because there will be people out there who scaremonger and there's no doubt about that, we've seen that over the last two or three years. We know the costs are manageable with the appropriate policies and we also know that there are benefits associated with those policies. So I think when I talk to the community about this and I talk to the Labor Party about this and I talk to the Coalition about this I just always come back to some

central things, that basically this change is inevitable, we can do it the easy way, we can do it the hard way. The easy way is to start now and get serious about it; the hard way is to wait because if we wait it's going to be much more difficult.

But there is a broader issue I think about how we manage the transition because there are certainly communities, like if you think of the Latrobe Valley or up in the Hunter where they've got coal-fired generators, we do need to exit those very old coal-fired generators relatively quickly. And I think we've seen some good signs from some of the energy companies recently recognising that, so let's have a conversation about how we do that with those communities as well. The risk with doing that is that they've heard it all before, so they actually need some credible signals from government that this is actually really going to happen and that will be, in some respects, the worst thing for them if we keep flipping on it.

TONY WOOD: One of the things about this, all three of us here, and Shayleen and Erwin more than I, have been involved in this debate for quite some time and you do get disillusioned by some of it, you may lose some of your ambition, but I think when you get at the extremes of things then you're almost inevitably going to fail because you won't carry the electorate with you, right? So one of the issues is to really develop the arguments, the fundamental narrative around this is a thing that needs to be done and there will be ways in which it's going to cost, and I don't think you can shy away from that. I think those who suggest it's going to be cost-free and it's going to be painless and that there won't be losers as well as there'll be winners are kidding themselves and will be caught out on that.

Equally, I forget the name of the particular comedy, but I remember watching it not very long ago and these guys were gathered on Saturday night on top of the mountain and they were talking about the fact that the world was going to end at midnight that night and they were just discussing the consequences, what the world was like and how bad it was but it was going to end at midnight. And when midnight came and went and the world hadn't ended they all just packed up and went back and said, "We'll see you next Saturday night". So if you starting creating that wrong narrative – you only have to see what happened in Australia very recently when organisations and companies were saying to the New South Wales government, "You need to let us develop coal seam gas because we're going to run out of gas" and then only a month or so later the Australian Energy Market Operator says, "Oh by the way, we're not going to run out of gas". So making those sorts of threats and raising those sorts of profiles equally loses the debate politically.

So I think the issue is how do you start to have that narrative to make sure that people don't think it's going to be either we need to do this tomorrow otherwise the sky's going to fall, because most likely it won't I suspect, and, equally, arguing that this is all going to be happy and we're just going to basically wander off into the future singing together isn't going to be the answer either. The real problem I think we've had is our political leadership have just lost that narrative to put to the population what this is all about and what the choices are that we need to make in this country about how we're going to move forward on this. And sadly I think that happened with the Labor Party and is certainly a current issue within the Liberal party, because even within the Liberal Coalition there are many people who a) absolutely understand this stuff and b) are as committed to trying to do something about it as me and people in this room are. The problem is they haven't yet got the ear of the wider electorate, and I think that's where organisations like the Labor Environment Action Network have to try and do something.

AUDIENCE: Just to follow-on from that question a little bit and talk about we seem to get caught up in this cost to transition and it appears to me that there is always a cost, but it never takes into account the net benefit. So there's very credible economic analysis coming out of the US, for example, that demonstrates that the societal cost of the coal-fired power generation sector is actually negative. So the cost to society, the health and environment damage actually exceeds the economic benefit of the jobs and the electricity that's produced. So I guess the question Shayleen to you is the Climate Change Authority in trying to do that sort of assessment of targets and impacts and the like, is the Authority looking more to move to looking at the net economic impacts?

SHAYLEEN THOMPSON: That's a very good question. We didn't say an awful lot about costs in this current report. So it's the position that the Authority has put forward that costs are very contingent on the sorts of policies you choose to implement to achieve your targets. And actually I think that it's in some ways quite a useful circuit breaker to step back from the debate about costs and policies and actually just look at the goal and the objective of what we're trying to achieve because, as we've been alluding to, there's been any number of debates and discussions over the last probably two decades about what the best policies and what the cost should be.

So the Authority will be looking at policies and the impacts of those policies in its next report, so that will be part of the mix of what people are looking at.

TONY WOOD: Erwin, any final comments this evening or are you done?

ERWIN JACKSON: I'm done I think. Yes, I'm done.

TONY WOOD: Great. Shayleen? That doesn't happen very often I can assure you!

SHAYLEEN THOMPSON: I just wanted to let everyone know that I'm sitting here shivering with cold, not stark terror. You've been a great audience, thank you for all the engagement.

TONY WOOD: Okay, so we'll let everybody head off. Just a couple of comments from me finally is to firstly say thank you for coming along this evening to be part of this discussion, without an audience it will be a bit boring. It keeps the room maybe slightly warmer as well the more people we have here. We have recorded this tonight and if any of you know people who haven't seen it but would have liked to have come this evening, please suggest to them they'll be able to get access to it. And particularly importantly, I encourage you if any of you have got any particular suggestions to the draft report that Shayleen's talked about make a submission. You don't have to respond to every point, you don't have to put in a hundred page submission, but if you've got any particular thoughts please make those to Shayleen.

I'd like to thank the people who have helped organise this, both the people in Shayleen's staff but also in Grattan Institute; Andrew McDonald is here this evening and Alex Stott, who helped organise the event. And we are going to be intending to follow this discussion over the rest of this year and into next year. Clearly as both organisations, the Prime Minister's Department and the Climate Change Authority, start to finalise their work there may be an opportunity to have a similar discussion around how this is progressing and, equally importantly, as we start to turn to the domestic policy of how Australia will achieve whatever target we agree to between now and the end of the year, what sort of domestic policy we should do there, we'll almost certainly be having similar events. So look out for

those events, please join us for that occasion and, again, please if you could join me in thanking both Shayleen and Erwin. Thank you.

END OF RECORDING