Leanne:

So, our next session this morning looks at the potential impacts of the federal election outcomes on Australia's pathway to net zero. And to help us with that discussion, we are delighted to be joined by Tony Wood, energy and climate change director from the Grattan Institute. He'll be in conversation with Connie Sokaris executive corporate finance here at NAB. Again, we do invite questions from viewers so please feel free to send in questions via the Q and A function, and time permitting will respond to these live or directly on the conference site. Introducing Connie.

Connie Sokaris:

Good morning everyone. And thank you for joining us and thank you Leanne for that great introduction. I am the executive of corporate finance in corporate institutional banking at NAB. With the recent change of government in Canberra all lies are on labor to see how Australia's pathway to net zero might change as a result. We will see significant changes in new programs or will there be some softer movement around the edges of our core pathway as defined by the coalition. Well, here with us today to give his views on this is Tony Wood, energy and climate change program director from the Grattan Institute. A very warm welcome to the conference, Tony, thank you for joining us today.

Tony Wood:

Thanks Connie.

Connie Sokaris:

Tony is going to speak in a moment on what he's seeing for our net zero future, and then we'll have a short Q and A session. If you have a question for Tony, please use the Q and A function you'll see on your screen adjacent to the live stream, and we'll endeavor to get through as many questions as we can. For those of you who may not be familiar with Tony's work, he has been director of the energy program at Grattan Institute since 2011, after 14 years, working at Origin Energy. From 2009 to 2014, he was also program director of clean energy projects at the Clinton Foundation, advising governments in the Asia Pacific region on effective deployment of large scale, lower emissions energy technologies. In 2008, he was seconded to provide an industry perspective to the first Garnaut climate change review. In January 2018, Tony was awarded a Member of the Order of Australia in recognition of his significant service to conation and the environment, particularly in the areas of energy policy, climate change and sustainability. In October 2019, Tony was elected as a fellow to the Australian Academy of Technology and Engineering.

Connie Sokaris:

We're very fortunate to have someone with Tony's global policy setting and on the ground industry experience with us today. So without further ado, it's over to you, Tony. Thanks for joining us.

Tony Wood:

Thanks Connie. Thank you to the NAB for inviting me today. This afternoon the energy ministers are going to solve all these problems, so I'm just going, try and give you some clues as to what they might think about. They're all meeting via virtually this afternoon, and we'll see what comes out of that.

Tony Wood:

Look, I think there's a few points and I'll use a couple of charts, Connie, to illustrate a few things and then we can certainly open up questions because I can probably talk underwater on this sort of stuff for far too bloody long. This chart is one that some of the people watching this may have already seen and this basically is trying to set out really, what does the emissions pathway to net zero look like? And net zero obviously means at some point the positives of the negatives outweigh each other to be net zero, but this chart shows well, look, we've actually been going okay in Australia. Emissions came down from 28, 2005 to 2020, most of that was to do with land clearing. Then they'd slowed down a bit. Mostly the things that have been helping has been solar energy, particularly on rooftops.

Tony Wood:

The coalition had a target or expectation more accurately of getting to about 30% below 2005 levels by 2030, and of course the labor government has a target of 43%. Interestingly, the 43% target is almost on a straight line to net zero. So at least we're making progress in that direction all I have to do is meet it, which just sounds pretty simple really. This is shows you a bit of the challenges however, because while we talk about electricity a lot and you can see electricity, this is a version of the same chart but what it's showing is the emissions by industry sector. Australia's about 500 million tons a year of greenhouse gas emissions. What this is showing as you can see is the top middle chart, electricity is coming down and continues to come down. The only other one that's really shown much movement in the downward direction is this lovely term is LULUCF, land use, land use change in clearing, which basically means we didn't clear as much trees as we used to. Unfortunately, as you can see that one's going up. Everything else is going up. Of course, we can move transport emissions to electricity and we'll move some stationary engine emissions to electricity, but that's going to require quite a challenge. So it's a very difficult challenge when you think about the breadth of what has to be done. In terms of net zero, one of the interesting things about this is, well, if you want to get to net zero, what does that look like in 2050? And this is the chart it's a bit detailed to look at, but anyone who wants to get access to the chart we're happy to provide it. What is trying to show is that even if you take a lot of reasonable views about each of the individual sectors and you can see on the left hand chart, a whole lot of sectors going into some detail, things like grazing beef, for example, becomes a very big source of emissions by 2050, because we can do a lot about things like electricity and industrial emissions and transport. What you find is even if with a reasonable set of assumptions in our view of what could be done by 2050 and that's 28 years away, there's still a lot of emissions left and they have to be offset. People talk about offset, but the problem is that offsets are either expensive or technically challenging or both.

Tony Wood:

This chart on the right hand side shows how the physical limits to removing carbon from the atmosphere are actually very high indeed. So if you want to plant trees, you want to reforest areas, that's very hard to do because it's quite controversial as to, well, are you really planting trees? Are they really growing? What happens if there's a bushfire, all that sort of stuff, who's responsible for those sorts of things. The third one down on this chart just shows what happens if we try and put carbon back into the soil, which we've taken carbon out of the soil over the last couple hundred years. And the more interesting one now is people who are seriously trying to think about what is called direct air capture and carbon capture and destroy. Basically that's a big reverse fan that sucks air through these devices, they separate the carbon dioxide from the rest of the air and then you bury the carbon dioxide. This is basically rubbish collection and dumping. It is very expensive at the moment, but when you look at that chart there's not much left and getting those numbers to add up what's required on the left hand side could be a very big challenge for those people who think that they're just going to solve their problem with offsets.

Tony Wood:

On electricity things look particularly tough. Some of you may be aware, is certainly in the media at the moment, that electricity system is struggling right now and this chart illustrates one of the problems. It's the closure of coal fired power stations. Over the last four months, about a quarter of those power stations have been shut down more or less all the time, not the same ones, but on average that's about. And you can't take a quarter of the sector out of the system and not expect to see a negative reaction. And we're expecting these things to close progressively between now and 2015. And almost certainly that timetable of closure on that chart, Connie, is almost too optimistic if you want to keep them in place or too pessimistic if you think they're going to close too late.

Tony Wood:

The other term, which I think is always, everyone should learn something every day in my view and this is something hopefully some of you may have already come across this term, Connie, I don't know about you, Dunkelflaute. Dunkelflaute, I'm not sure it's a literal translation, but means the dark doldrums and what this chart is showing is even-

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Tony Wood:

It means the dark doldrums, and what this chart is showing is that even if we get to 90% renewable, there will be periods of time, and this is an actual set of data over a period of nine or 10 years, when you see that level of renewables, a lot of the time, that number above zero, we've got plenty of capacity, the yellow, but some of the time, we don't have enough capacity, and that's the red. In particular, a little bit circle there in 2013 shows that over a fortnight period, if we'd repeated the weather from 2013 and we had 90% renewables, we would be short nine gigawatts of power. That's the equivalent of having nine Snowy Hydro offline at the beginning of the two weeks, and they're empty at the end of that two weeks. We don't have any more Snowy Hydro. So this is one of the most significant problems we need to solve. Not today, but well before 2050, and that's going to be a very interesting challenge.

Tony Wood:

So, look, in summary, kind of, there's a few things I think we can say with some clarity and others which are very uncertain. I think that the broad labor policy and commitment to the target, both the long term and the short term, is pretty strong. The two policies that are introducing, I think, are reasonably clear. However, the detail will be very important. There are sectors outside electricity that labor hasn't talked about very much, although they do talk about industrial emissions.

Tony Wood:

The 2030 target actually looks pretty hard, and remember that the Greens want an even higher target for 2030. Electricity is going reasonably well at the moment, but we've probably done the easy bit. The harder bits are ahead of us, and then what we don't talk about enough is the future of natural gas, because we did have a thing called the gas led recovery, but gas right now is, in fact, in some ways, making the challenge even more difficult, because gas has now become very expensive courtesy of what's going on in the Ukraine. So look, Connie, I think we'll leave it there and then sort of let's have a conversation.

Connie Sokaris:

Excellent. Thank you very much, Tony, and I have learnt quite a bit today, so it feels like I've done a good... You've done a good job in not just learning one thing today. I think there's some thought provoking views there, and very interested to see how labor delivers on their program priorities over the next term.

Connie Sokaris:

Before we take some... Well, lots of questions coming in, which is great. Before we take some questions, I did want to ask a question around... You've been doing a lot of work, obviously, with Gradon Institute, and I have seen that labor has adopted some of the recommendations in particular around the tight base lines, the safeguard mechanism. Can this approach really make a difference, and how easy is it to implement?

Tony Wood:

Yes, it can. Basically, what they've done is taken a policy instrument that was designed by Greg Hunt when he was the minister back in 2010, and he, I think, always intended that it could be used in the way labor's now proposing, but he was never allowed to, and of course, he moved on, and then the rest of the coalition period in government didn't do much about it.

Tony Wood:

What it basically says is, look, one of the biggest sectors of emissions in Australia, and I had the chart on this earlier, Connie, is industrial emissions. That is big manufacturers. Coal, coal mines, LNG facilities, and so forth. What labor's proposing to do is set a cap on the emissions from that sector, and then gradually decline that cap over time to zero by 2050. Now, what that means, of course, is that those organizations under that cap are going to have to do something, and we'll see how that plays out, because it won't be always easy to do.

Tony Wood:

I think we can expect that coal mines will close, but interestingly, there's a debate around whether or not the government should allow any new gas developments, and the Greens are very much against that. Well, under this policy, emissions from a LNG facility would not increase Australia's emissions, because they would be included in the cap. So something else would have to give, and what that would be is up to the people who participate in that cap, and he went up with almost a sector based emissions trading scheme, because people who could go under the cap can create credits and they can trade them with people above the cap, but there's a long way to go yet in terms of the detail, but it probably is one of the more interesting policy initiatives, and if it's done well, it should make a difference to what will become, very shortly, one of the biggest sources of emissions in the country.

Connie Sokaris:

Just talking about that gas question, and we're seeing discussions about gas shortages, gas prices, and we know that coalition had a very strong policy around a gas led recovery. With the success of labor in this election, we've got the Greens and Independence looking at our harder targets. What are the implications around that gas led recovery, and in particular, for gas infrastructure owners?

Tony Wood:

Well, my view of the gas led recovery, it was near enough to complete nonsense, to be honest. For several reasons. Firstly, gas is a fossil fuel. We've got to stop using it. Secondly, in Australia, gas has become expensive because we've run out of all the cheap gas. Thirdly, we don't really have that much dependence on gas most of the time, and we should reduce our dependence on gas pretty strongly over the next 10 to 15 years. Finally, if cheap gas was the answer to a manufacturing [inaudible] since we're a gas led recovery, we'd have done it decades ago. It's not really the answer.

Tony Wood:

So I think this is a very significant policy challenge. In the media term, we've got an interesting challenge, because we know we've got to move away from gas as a fossil fuel, but in the short term, we need gas, and how do we manage that transition is becoming very, very difficult, [inaudible] Victoria, and Victoria is running out of gas very rapidly, because the traditional source of gas has depleted, it's a physical resource, and we haven't replaced it now. Do we replace it, or do we get off gas? Right now, we don't have an answer to that. There are solutions, but they haven't been implemented.

Connie Sokaris:

So with all these challenges, do you still see that the power sector, and despite seeing the improvements in that, is it still at the forefront of decarbonization because of the impacts across the other sectors? Investment in sort of utility scale renewables, that's run into major headwinds. We've got transmission and conjection. Does labor's proposed policy improve that outlook, and how do we fix some of those real challenges that we've got?

Tony Wood:

Well ever since the blackout in south Australia in 2016 and the subsequent review by the then chief scientist, Alan Finkel, the group called the Energy Security Board's been trying to grapple with this issue of, how do we transform our energy market to do the sort of thing we need? So far, they've been monumentally unsuccessful, to be honest, because there's been ongoing fights between the governments, state and [inaudible] federal, who can't agree on what they want to do. Industry doesn't agree on what the solution should be. Of course, somewhat famously, Malcolm Turnbull lost his job as leader of the liberal party for the second time, and lost his job as prime minister over the issue of what was then called the National Energy Guarantee, or NEG.

Tony Wood:

Ever since then, we've been struggling to find a solution to that problem. Now, the weather or not... There are two big issues, really. One is that while we have been encouraging renewable energy through mostly state based policies, recently, we haven't been building the infrastructure to balance the wind and solar that we need. That's not an argument against renewables. It's an argument for doing it properly. We haven't been building the transmission. Labor is absolutely right that what we do need is to build out that transmission system with storage to balance the wind and solar. I'm not sure that low cost finance, which is what they're proposing through their $20 billion rewiring the nation fund, is the right answer, but the problem is absolutely the right one. They've got to get on with that. One of the things that they'll be talking about today with the meeting shared by Chris Bowen will be how they get on with that, and the second bit...

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Tony Wood:

Being chaired by Chris Bowen will be how they get on with that. And the second bit is making sure that when the wind isn't blowing and the sun isn't shining, we can fill in those gaps with something else. At the moment, those things are probably mostly gas, but for the reasons I mentioned, in the long term it won't be gas. So we've still got to come up with a solution for that longer term objective.

Connie Sokaris:

Excellent. Thank you. Now we've got quite a few audience questions, so I'm going to kick off with a couple of those now.

Connie Sokaris:

We have been talking a little bit about coal assets being off, still cheapest in the form, not of creating new coal mines, but in how we electrify the nation. There's a question here, would it be worthwhile for government to explore policy around the introduction of avoidance offsets that incentivize early retirement of coal assets?

Tony Wood:

Look, I think the trick with the retirement of the coal assets is that in the absence of clear policy, and you could blame, as I tried to a little bit, the previous Coalition government, but you could go back right to the days of Julia Gillard and Kevin Rudd who failed eventually, sometimes with the help of the Greens to prosecute having a really credible emissions reduction policy.

Tony Wood:

Because once you've got that, then it creates the sort of clear signals to investors as to what's going to have to be built and what's going to have to be shut down. Because if the market's working properly, then the price signals that cause people to keep their coal fired power stations open or close them will be clear. That's where we're ending up in a bit of a problem, and I think that's where the solution lies.

Tony Wood:

You could do other things. Most of them are far more clunky, like forcing coal fired power stations to close in some way, but I don't think that would be the best answer, and probably it might not even work, because right now we're seeing physical problems with coal fired power stations anyway, so I'm not sure that's the right answer.

Connie Sokaris:

So moving from coal to hydro, a question around, do you see the role for large scale storage, like Snowy 2.0, as well as the upgrade of transmission and inter-connector capacity, what do you see that role being in the transition to net zero?

Tony Wood:

Look, Snowy Hydro is clearly a significant project. There is what could be a very embarrassing outcome if Snowy Hydro itself was completed in 2025-26, and the transmission to connect it to the grid wasn't finished, that would look very bad.

Tony Wood:

Hopefully that won't happen, but again, this issue of building out the transmission grid Connie, is really quite a tricky one. Because you've got to build a lot of stuff around the country, people in those communities won't like transmission lines coming through their communities. The companies who have to build it will be doing it in a very short space of time, which raises a lot of risks in terms of cost, and just getting the people to build all this stuff is going to be a big challenge, so that's at Snowy Hydro by itself and the transmission to connect renewables.

Tony Wood:

We don't have that many Snowy Hydros, as far as I know there's only one in the country. Tassie Hydro is a bit like this, and we can, and probably will put a second interconnector between Tasmania and the mainland, to bring in more of, in that case, bring in not just the Tassie Hydro, but also the renewables.

Tony Wood:

So the hydro can work as a battery, problem is that any sort of battery is always going to be limited in how much capacity it's got. So we are going to need other solutions, but what I think is very clear is that the value of the interconnected system only increases, and all the states and territories that will depend more on being connected to their neighbors than they have in the past, because we will need to move electricity around the system, sometimes store in large pumped hydro facilities, sometimes in big batteries and sometimes in small batteries.

Connie Sokaris:

What do you see some of the innovation that has to occur to support things like Snowy and Tassie Hydro, because it's not the answer to everything. What is some of that you aren't seen commercialized yet or is too expensive that you think will help?

Tony Wood:

Well, probably the one that gets talked about most, and then because it gets talked about a lot, it can come across as a lot of hype in a sense is hydrogen.

Tony Wood:

Hydrogen is a tricky little molecule, it's the most pervasive element in the universe, but it also doesn't behave itself very well most of the time. So we know about hydrogen because it's part of natural gas, methane, it's also part of water, so hydrogen is very pervasive in that sense.

Tony Wood:

It has the potential, if we were to make hydrogen from water using renewable energy, you'd have effectively an energy source or an energy mechanism without any emissions. Now at the moment, doing it that way is quite expensive, doing it at scale would be expensive, but it has interesting potential because hydrogen could be used as a carrier of energy.

Tony Wood:

We could export energy, because Australia is going to have a huge comparative advantage with our low cost renewables in the future, we could export hydrogen and hydrogen could also be used potentially to fill in that gap I was talking about before, when we have high levels of renewables, wind and solar, but we have periods when the wind isn't blowing in the sun isn't shining. And so solving the [inaudible] problem could be one of the roles for hydrogen. Now a lot of that is just possibilities, there's a lot of work to be done to understand how this is actually going to work.

Connie Sokaris:

So interestingly, you just talked about Australia's potential and opportunity, and there's a lot of talk about Australia's potential as an energy superpower. Are there policy elements that could contribute to realizing this potential? Do you think it's real?

Tony Wood:

Well, it's real. This is an area where the idea of dreaming that we could make stuff is not a dream, it's a reality, we could do this, right?

Tony Wood:

I'll give you a specific example, historically what we've done very well, dig out iron or from the Pilbara, metallurgical coal from the Bowen Basin and the Hunter Valley in Queensland, and send those two materials somewhere else, somebody else combines the iron ore and the carbon, the coal, and makes iron and steel. Now that's the economically efficient way to do it.

Tony Wood:

However, if you were to replace the role of metallurgical coal with renewable hydrogen, the economics changed quite dramatically, and it would almost certainly be cheaper to combine Australian iron ore, and Australian renewable hydrogen to make the iron and steel in Australia. That's the steel version of what I'm talking about.

Tony Wood:

There are other similar examples in the critical minerals, things like lithium, cobalt, manganese, which Australia has a significant part of the world's resources. But if we process them in Australia, we could seriously more than double the revenue that Australia currently gets from its coal exports from critical minerals processing in this country.

Tony Wood:

Not only that, we would actually replace all the jobs that are progressively going to go and do, as we will close down the coal industry. So this is almost a win, win, win, but to do it will require a lot of focus and there are things governments will need to do to support this. To be fair, the Coalition government has already been supporting critical minerals, and I'm confident that the new Labor government will follow through on that.

Connie Sokaris:

That sounds very exciting and very positive and an alternative to what some of the, in particular, the Coalition was worried about around job loss in some key regions. Have we got the right policy to really be able to deliver this energy superpower or do we need more?

Tony Wood:

Well, we've actually got a lot of the bits. There's no sort of single policy that we need to announce which is going to solve all these problems. What we do need to do is integrate them a lot better. I mean, what governments tend to do is scatter money around through various, relatively small grant schemes, and lots of them, but there's no strategic focus.

Tony Wood:

I think what this needs, and other countries are already doing this Connie, what we need is what I call a new approach to industry policy. It's almost like we are facing an industrial-

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Tony Wood:

Policy. It's almost like we are facing an industrial revolution on a timetable. We've got to basically take this entire economy and turn it on its head in 25 years. Now that is not a trivial problem. I think sometimes we both underestimate and overestimate the nature of the challenge. So I think that therefore, what that requires is a very strong focus from government, but working much more cooperatively with industry.

Tony Wood:

I mean, we've seen, I think in recent times, a tendency for governments to think it's good political hobby to beat up big companies. I don't think that we are going to need really serious cooperative work, federals government, state, government, and industry working this through. And then also working with local communities because there are tens of thousands of people employed in the Hunter Valley, central Queensland, the Latrobe Valley, and so forth, and they know these jobs are going to go. They're just looking for a plan.

Tony Wood:

So I think what we need is this sort of an industry policy in which people work together rather than against each other. Other countries can do it. We should be able to do that. It's not something we've traditionally done, but I think it's the core to what has to be done to transform our economy in the way we need.

Connie Sokaris:

Thank you. It sounds obviously extremely important and critical, but within our grasp. Now we've got a question on nuclear power. Any views on the commercial reality of developing nuclear power as part of the transition to zero emissions for electricity sector? Is it a wide elephant really or a real compliment to wind and solar given our natural advantages?

Tony Wood:

Well, Australia amongst a couple of other countries like Kazakhstan, has a significant amount of the world's known identified uranium resource. Now you can make nuclear power from other things, thorium for example, but uranium is probably the most common one. The trick is this, that historically we haven't needed it because at the time we actually were talking about building a nuclear power station, well, you and I weren't, but some people were in the late 1960s, there was a proposal to build a nuclear power station in Australia. But at that time we discovered how to build really big, really cheap coal fired power. So the economics killed it. Now we've been exporting uranium for a long time. We do have a ban. It is illegal to make electricity from uranium or nuclear power in this country. I don't think it's a particularly sensible ban. The issue is the economics again.

Tony Wood:

So at the moment, I don't think uranium or nuclear power is part of plan A, because we've got so many choices in this country. We've got to sort out those choices. However, if it turns out that as we get closer to the difficult part of plan A, that is we're getting to 80 and 90% renewal, we've made electrified transport, we've electrified the gas load, a lot of electricity, it might turn out to be that the last bit's getting really hard.

Tony Wood:

At the same time, the developments in small modular nuclear reactors, which have a number of advantages compared to the big stuff that's being built in the UK at the moment, I mean France is now recommitted to more nuclear power and so on. These are big bespoke machines, right? A better idea potentially is to make smaller machines in a factory, probably not dissimilar to the size of the nuclear power facility in a submarine.

Tony Wood:

Now I'm not suggesting we take the nuclear submarines and just plug them into our grid when they arrive here whenever they do. But that's the sort of size we're talking about. Now that's commercially a little way off yet. Although companies around the world are working very hard on it and they may succeed. So those two things, if plan A proves to be hard, and if the small modular reactors turn out to be commercially viable, two big ifs, then we need to be thinking seriously about nuclear. It's not something we need to worry about today, but I would not rule it out. We need to be keeping an eye on it while we work on plan A

Connie Sokaris:

Do you think in the meantime, government needs to do and industry to do some work because there's a real community fear and real very small appetite for that type of capability. Do you think, because we may need it in the future, should we be desensitizing or immunizing community as we head towards that 2050 period?

Tony Wood:

I guess a conversation we have to start having, I mean, many Australians have traveled to other parts of the world. We don't sort of, I'm not going to go there because they've got nuclear power for example. But of course we don't, in those cases, we don't actually go and live next to a nuclear power station. Maybe we should. Maybe we'd find that, in that case, it isn't so bad after all. But there is a very deep and understandable psychological reaction to nuclear power. And it's a bit like comparing air travel with cars. We know that statistically, which is the safer one, but emotionally we go the other way. And the same thing applies here. More people probably get killed from the impact of coal fired power stations over the entire supply chain than the nuclear in the world.

Tony Wood:

But that doesn't stop people being scared of radioactivity, meltdowns of nuclear power stations and nuclear weapons. So all of those issues have to be confronted if this was ever to be a viable alternative. There are other more exotic nuclear alternatives, such as thorium, which doesn't lead to nuclear weapons or even nuclear fusion, but nuclear fusion's been 30 or 40 years away for a long time. They're making some progress. It would be an amazing thing to solve. It basically is what the sun does today. I don't think that's going to happen. So I'm not suggesting the nuclear is the answer at all, but I think it needs to be at least considered because plan A is we don't all have the bits working together for plan A.

Connie Sokaris:

Okay, well we've run out of time. Thank you very much, Tony, for sharing all your thoughts and provoking us to think about things differently. So it's been a pleasure to have you here with us. We have run out of time and I hope you've enjoyed our crystal ball view into what might be our new or change path to net zero under the incoming labor administration. Tony again, thank you very much for spending the time with us today. It's been great to hear from Australia's key independent public policy making organization at this early stage in labor's term. I'm sure you found it as interesting as I have with some surprises we've talked about. And so, thank you again and thank you very much for joining us today. And I'd like to hand back to Leanne Block-Jorgensen with such an interesting and thought provoking topic relevant to us all.

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