



COMMITTEE FOR ECONOMIC DEVELOPMENT OF AUSTRALIA (CEDA)

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It's always great to do a presentation at CEDA and have the opportunity to wander across the energy policy landscape and the climate policy landscape, which I intend to do, but hopefully for some clear purpose as we go through and make a series of points.

I wanted to begin by noting that clearly here today we are at the Committee for Economic Development, and I want to stress "for Economic Development" because this is often one of the most contentious points at the centre of many of the debates we have in the energy industry when we talk about climate policy and energy policy and how it all comes together. That's in substantial part because for all of us involved in the industry we know that we're always trying to balance three things: the reliable supply that communities seek; an affordable price; and, of course, on a sustainable basis, and that's our challenge – to balance those three things as clearly and as simply as we can.

And in thinking broadly – not just in Australia, but broadly about the question of energy policy and climate policy, it's worth dealing firstly with the question of reliability.

In Australia we take for granted the fact that we go home and turn our lights on or have a hot shower and therefore, the debate in Australia is very polarised between economic development and environmental outcomes in ways I will explain shortly.

I just want to deal with the question of reliability for a minute. Our table was talking about reliability a minute ago and concerns about whether regulated network pricing outcomes are going to ensure we have a reliable supply. At the end of the day, I have no doubt that whatever the outcome is, it will still ensure our reliable supply of energy, but the numbers are different on a global level. In a world where population is projected to grow from 7.3 billion today to 11 billion people by 2100, there is no doubt that the demand for energy will grow substantially. Energy, of course, is central to all human aspiration, it's probably the most central enabler. At the end of the day you might say that, food is more important, but without the mechanisation of food production made possible through energy, the world would not be able to support the population it does today.

In today's world, let alone tomorrow's, a world of 11 billion people, 1.3 billion people do not have access to electricity and 2.5 billion people have no clean cooking facilities. 95 per cent of those people are in Sub-Saharan Africa and developing Asia, and around 400 million people in India have no access to electricity at all.

It's estimated that 4.3 million people each year die from indoor air pollution from burning dung and firewood to cook and keep warm, and a further 2.6 million people die from outdoor air pollution. A recent World Bank report found that outdoor air pollution alone in Pakistan causes almost five million cases of respiratory disease per year. I remember, just the other day, listening to a news report saying that the unreliability of power supply in Pakistan resulted in four deaths a day, because people could simply not get out of the heat in the summers experienced in those areas. The World Health Organisation reports that New Delhi is now the world's most polluted city and 13 of the world's 20 most polluted cities are in India. Of course, many have thought that might have been China, but India now holds the record in that regard.

And, of course, to clean all of this up, to bring reliable supplies of energy to the world for the greater human good – not just here in Australia, but the entire world – is estimated by the International Energy Agency to cost \$2 trillion a year.

Now, when we talk about the Committee for Economic Development, why would I even question something that would seem so evident, that economic development is good? The debate that we often hear around energy policy and climate policy is between two groups of people shouting at each other, those groups that place economic development at highest order and those who place environmental outcomes at the highest order.

Last week, I got home in time to catch the end of Q&A on the ABC. One party was saying a figure that many of us know, and that is that the US has made a huge contribution to reduce carbon emissions, greater than all of Australia's emissions, largely attributable to the extraordinary shale phenomenon, the substitution of gas for coal. The environmentalists on the panel responded by saying that probably was not true and it was equally likely that "the greater part of that contribution was from reduced economic activity. Isn't that good?" Therein lies the problem, because it's not good. What we're trying to do and what humans have been trying to do for all of human history is to strike that balance between the benefits of increased energy use and, of course, the consequence that comes with that.

Occasionally my mind does turn to our human ancestors in a cold cave, lighting a fire and thinking "Isn't it wonderful that I can cook my food and have some light, but that soot's really ruining my painting on the wall and, you know, my eyes are watering." This dichotomy has been with us forever and humans will not give up, people will not give up, today's society will not give up the economic gains solely for the purpose of environmental outcomes.

The consequence for many of us in the energy industry is that we are simply struggling to find the right answer. How do we balance? How do we even know what progress we're making in respect of the balance between environmental and economic outcomes? To the extent that Origin is often involved in these discussions and these debates publicly, and obviously in the process of policy formulation, it was an issue that we have puzzled a great deal over.

Two years ago, we thought it was time we tried to do something about it and bring some facts and clear thinking to this debate. We commissioned Deloitte Access Economics to look at how to find the right measure? Most of us in business know that if we haven't asked the right question and picked the right measure, we will not get the right outcomes. So what should we be measuring that tells us whether we're getting the balance right and whether we're making progress on this issue?

The debate in Australia has picked the wrong measure and allowed a very unproductive conversation to occur for way too long. And that wrong measure is that, of course, Australia is the world's worst polluters because we have one of the highest carbon emissions per capita of any country in the world. That is mathematically true and completely misrepresents, in fact, ignores the balance that we would seek between economic development and environmental outcomes. The reason is that Australia will always fail on that measure, because our share of world carbon emissions is much more than our share of world population and much less than our share of world GDP.

The right measure is clearly something that seeks to understand the carbon intensity of economies. The work we did with Deloitte focused around carbon intensity per unit of GDP and

how efficient are economies in the world at generating economic growth, GDP, in relation to increases or reductions in carbon intensity.

We launched the first phase of this work just not quite a year ago here in Brisbane in conjunction with the G20 conference. To give you a very high level snapshot, the trifecta in this world of energy policy is to achieve three things simultaneously: economic growth, reduction in absolute carbon emissions and a reduction in carbon intensity in an economy.

With Deloitte, we looked at the G20 countries, the 20 top economies, and there were only three that have achieved that trifecta. The three countries that achieved the trifecta were the US, Canada and Australia. The US never signed the Kyoto Protocol, Canada signed and withdrew and Australia was, of course, late to the party. But those are the only three G20 countries that have actually reduced their total emissions, improved their carbon intensity and grown their economies at the same time. A fourth country, Italy, achieved lower carbon emissions in absolute terms and lower emission intensity, but of course, it did so because its economy contracted significantly.

Australia has done best of all and has done it longer than the other two. And that's the absolute trifecta in this game, to grow our economy, reduce emissions and reduce emissions intensities. So Australia is not a laggard, contrary to what you will hear in the public debate. Australia is actually a leader in the context of reducing or improving the emissions intensity of its economy and I think that's very important.

And the second thing that came out of that study is that this world of carbon commitments has a fair bit of smoke and mirrors. This is relevant because, of course, we're looking towards COP21 in Paris at the end of the year, and countries taking forward their Intended Nationally Determined Contributions. As you know, our government here in Australia has committed us to a 26 per cent reduction on 2005 levels by 2030. Now, before we talk about that and whether that's an easy target or a hard target, let's just go back to the more general point.

When we looked at the performance of individual economies, it became very clear that there is no single, uniform measure or consistent measure that allows these easy comparisons to be made. The economies that perform better than Australia in terms of carbon intensity, that is, lower carbon emissions per unit of GDP were, not surprisingly, countries like France with a high level of nuclear in their generation fleet, and Canada and Brazil, which have high levels of hydro in their generation fleet. The second point is the fact that the world has chosen to measure the effort and contribution that countries make on the basis of carbon production within their economy.

What becomes very clear when you look at the data is that countries have been outsourcing their carbon emissions for years. So the countries that are held up as making big and meaningful

commitments and making good process have simply outsourced their carbon emissions. Most of it has been outsourced to China. So China is actually the worst in terms of growing absolute carbon emissions and they have a very carbon inefficient economy but the goods and emissions produced in China are consumed elsewhere.

The UK, which is often held up as a country that's made substantial commitments through renewable targets, has over the past 20 years reduced its carbon emissions on a production basis by 20 per cent. That is a great outcome. But when you measure emissions on a consumption basis, it has grown one per cent, and that gap is growing, because the UK continues to outsource emissions to other countries.

When I get into debates with people who have very strong ideological views about renewable energy, Germany and Spain are often held up as the icons of commitment to renewable energy. Germany was not one of the countries that grew its economy, improved its emission intensity and reduced its carbon emissions. It has made its economy uncompetitive by subsidising renewables and is averaging its energy costs down, to be competitive against countries like the US, with more and more coal and carbon emissions have gone up. So there's a country that has been held as a leader in respect of its advocacy for renewable. Its carbon emissions have gone up because it has sought to average down its cost of energy and is going back to coal. So very strange outcomes are occurring.

The misallocation of resources in Europe is extraordinary, and for those of you who love travelling, you will know that, in very simple terms, the sun shines more often in Spain and the wind blows more often in Germany. Where are the most solar panels in Europe? In Germany. Where are the most wind farms? In Spain. A recent World Economic Forum study found that some \$100 billion of capital has been misallocated because of the way policies have been applied on a national basis, trying to solve a truly global problem.

Australia is also a country to which others are outsourcing emissions. I used China as an example before. It makes little sense for the world to be outsourcing its manufacturing to an economy that burns four billion tonnes of coal a year, because that's how much coal is burned in China, and that coal quality is not great. I find it one of the great ironies that China is the centre of solar PV manufacturing for which we are providing massive subsidies in Australia for those panels to be produced on electricity from brown coal fired power stations in Mongolia, it does sound slightly contradictory that that would be the case.

We lose sight of the fact that, really, in order for the world to reduce its carbon emissions, it is simply a question of fuel substitution. When we get into debates in Australia about the production of our own coal and whether projects should proceed in the Galilee Basin, for example, we ignore the fact that the carbon intensity of that coal is very efficient relative to many other coals that are being burnt.

Before I turn to that point, I just want to talk about the government's 26 per cent commitment. The government ran a consultation process earlier this year. You can see and read in the public domain the various views that have been proffered. Those that hold economic development to be at the top of the hierarchy would say "Let's not make too big a commitment, because we don't want to disadvantage our economy", and for those that hold environmental outcomes to be the most important thing, they would be calling for big commitments, and the bigger the number, the better. So you were hearing proposals from some for 50 per cent plus reductions in carbon emissions by 2030.

At the end of the day, the government has taken forward a 26 per cent target. It's not my job to either advocate or defend the number they have chosen, but I can simply say it is a very significant target. If you look at business as usual emissions, it's actually a much bigger reduction and does compare very favourably with the targets and commitments that have been made by other countries.

When we released Deloitte's work here in Brisbane at the time of the G20 meeting, some of you might recall that the biggest news item was the commitments the US had made and China had made to reduce carbon emissions. The US had announced their Clean Power Plan and the fact that it would significantly reduce carbon emissions. Their national target is not dissimilar to Australia, about a 26 per cent reduction. But most of that is in the bank, and it's in the bank because gas is substituting for coal, largely for all of the reasons to do with shale and the economics of shale at a rate that makes that not that difficult a target to achieve.

Whereas, in Australia, our economy is growing because of investments made in the development of resources. Whether those resources are iron ore or coal or the industry I'm involved in, natural gas, they will increase Australia's carbon emissions significantly. So our business as usual trajectory is quite high and a 26 per cent reduction on 2005 is, in fact, a much bigger reduction than it might sound.

How do you turn that reduction into something tangible that you might be able to relate to? Well, if we went to the renewable energy target and used that as an analogue, because most of us have a bit of a sense of what that means. For those of you deeply involved in that industry, you will know that 41 TWh was the original RET target for the amount of renewable energy by 2020. The reduction in demand for electricity and the slowing of our economy meant that had become very close to 30 per cent, not 20 per cent of renewable energy by 2020, so it was thrown open. It doesn't matter now what happened in between, it was settled at 33 TWh.

Now, you may know that 33 TWh is about twice the current level. It's currently around, 17 TWh coming from renewables. To build that balance and to give you two ways of thinking about it, I think the Queensland Government is supporting the development of a large utility scale solar project of 40 megawatts. 250 of those projects would be required by 2020 to achieve the

renewable energy target. If you were to do the same sum in respect of wind – we recently commenced production at a 270 MW wind farm called Snowtown the second largest wind farm in the country. Around 18 new Snowtown wind farms would be required to be built to meet the current renewable energy target. This would be around \$10 billion of investment.

If we then equate that effort to the 26 per cent, if the renewable energy target was essentially doubled to 50 per cent by 2030, which Labor has proposed, we would only be halfway towards satisfying that 26 per cent reduction. So that 26 per cent target is a very big and very challenging target and will not be met through, if you like, incremental thinking. It won't be met by small steps. It will require investment on a scale of tens of billions of dollars. And it will require policies to be implemented, frankly, that will cause that change to occur on an accelerated basis.

One of the fears I have is that back in 1997 when the Kyoto Protocol emerged and Australia was committed to a five per cent reduction by 2020 on 2000 levels, that drove, in my view, 20 years of chaos in the energy industry. Having said that, the chaos in Australia has been far less than the chaos in Europe. It's estimated that 70 per cent of the market capitalisation of European utilities has been destroyed over the last 10-15 years because of the changes in European energy policy, largely around the forced introduction of renewables. These things have huge impacts on our companies and the irony is that these companies are the companies that have to fund, globally, \$2 trillion a year of investment to bring a reliable supply of energy to a growing world. And of course, energy is so central to human aspirations that we can't ignore the importance of that challenge.

If we are to make significant changes in our energy and climate policies and drive a significant decarbonisation of the world's energy production systems, it is just a question of fuel substitution and substituting more carbon intensive fuels such as coal for less carbon intensive fuels, like gas and renewables. As difficult a challenge as it is, it is not made easier if it's shrouded in ideology which puts fuels into good and bad baskets. All these debates have at their core ideological views about whether growth is good and whether fossil fuels are good or bad.

We saw this recently in Queensland around approval of a coal project in the Galilee Basin where, unquestionably, in my mind, the greater global good would be served by the development of that resource. The fact is many Indians find themselves without a reliable and competitively priced supply of energy and in China very low quality coal is being burnt. You cannot argue that the greater global good would not be served with the sort of fuel substitution that can occur with much lower carbon intensity fuels.

Many of you would know that in respect of the LNG industry in Australia, it's on the cusp of an extraordinary achievement, with seven major LNG projects coming into production in the 2014 to 2017 period. A period of growth and investment and then growth that will see Australia become the largest producer of LNG in the world. It is true that right now LNG is not worth quite as much

as it was just 12 months ago, but I'm quite sure it will be worth quite a bit more again in the not too distant future.

I wanted to reflect, for a few minutes, on the development of the APLNG project that we have been involved in, along with our partners, ConocoPhillips and Sinopec. I want to dwell not so much on the project per se, but the approval of that project. When APLNG comes online and we commence production, we will reflect on what an extraordinary achievement all of these Australian projects have been.

This is not to ignore the very legitimate rights of the community to be satisfied that when these projects are developed, there is an appropriate balance between the environmental impacts and the economic benefits they bring. Through the construction phase, with this and many other projects, there were tens of thousands of people involved and billions of dollars spent on these projects. I think, at one stage, when the three projects in Queensland, through the last couple of years were at their peak, I did a quick calculation that the spend rate over the two-year peak was around \$40,000 a minute.

I actually think, though, the most amazing achievement, particularly through today's lens, is that the projects were permitted at all, because we can see the enormous difficulty that we face in developing projects in Australia and getting everyone on side. To give you a flavour of that, the environmental impact statement for APLNG was 10,000 pages long, a metre high, a staggeringly big endeavour. In an 18-month period, the APLNG team met with 6,000 stakeholders, landowners, members of the community and non-government organisations etc. Our consent involved 1,500 initial conditions and many of those required studies to be done before permits were issued – all manner of species, flora and fauna studies, community impacts etc. The standards to which this project had to be built and operated are extraordinary, with very low tolerance levels for just about anything you can imagine.

In respect of byproducts like water, the amount of investment in the treatment of water is substantial. About 85 per cent of the water produced in APLNG goes to beneficial use, like irrigation, and is subject to incredibly tight standards. The water is treated to match ambient water and has to be within plus or minus half a degree of the ambient temperature of the water that it is discharged into which, of course, changes. We did very extensive basin-wide hydrological studies. That project was permitted in two years. It has proceeded – it has been through that construction phase, and of course, in its operational phase, it will leave probably something like 2,000 jobs in the community. Lots of jobs for people in regional Queensland and, of course, royalties for government.

Now, the interesting thing, of course, is that all of those beneficiaries bear very little of the risk. The owners take the risk, and of course, the risk is that the price moves and that's what's happening at the moment. But at the end of the day, these are extraordinarily long life projects

which does nothing other than illustrate the point that Australia has an enormous role to play in the giant task of fuel switching, substituting less carbon intensive fuels for more carbon intensive fuels.

Australia's carbon emissions will go up because of these projects but global emissions will go down. Worley Parsons found that for each tonne of increased emissions in Australia because of these projects there will be a reduction of four tonnes of emissions, through substitution of coal, in China.

If we stuck by the measure of emissions per capita as the measure of good, Australia's emissions per capita are going to go up, because that is the fundamental nature of the Australian economy, an exporting economy with world leading positions in the export of major minerals and commodities – iron ore, coal, bauxite, copper, gold, LNG – or gas and agricultural products.

Our challenge is to make sure that in this broad world of climate and energy policy, we remain very firmly focused on the fact that this is a global problem and it needs solutions that are looked at on a global basis. The key to doing that is to have measures that allow us to truly understand the contribution that countries are making, and particularly in the context of Australia, recognise that Australia's actually doing well. That is not the view you would get from just reading the newspapers. But the reality is Australia can, essentially, claim to be doing about the best of any economy in the world in meeting that trifecta in balancing that desire for growth, improved emissions intensity and, of course, lower emissions in absolute terms.

The next step in the process is how we're going to meet the 26 per cent target. As I said earlier, my fear is that we do not know more about the answer to that question than we did 20 years ago, in 1997, when the last target was set. But quite clearly, what I hope we have learnt is that we need to get going early on this subject, and very quickly decide what are the big levers that we can pull in Australia, because we do need to fundamentally change the way we use energy. It will require fuel substitution on a massive scale and it will create challenges but, of course, extraordinary opportunities. Many of those opportunities will be in Queensland and whether they're in Queensland or elsewhere in Australia, ought be developed for the benefit of the world.

It is not right to say that coal is somehow bad and should not be developed. It was extraordinary we achieved approval for APLNG in 18 months to two years, but I would hate to be doing it today. We do need to make sure that there's a balance in those approval processes between the legitimate concerns of communities and stakeholders in the development of these projects and the claims that might be more ideologically based because if we don't do that, we will not give the world the benefit of the great resources that we have in Australia and that we have in Queensland. Queensland is well placed to be part of that great story of the future, which is one of fuel substitution, because there are great high quality resources in Queensland.

There are great gas resources in Queensland, and those resources will be made available to the world through the extraordinary development of these three large projects on Curtis Island which are now coming into production. Queensland has a great solar resource as well, and if we come back to domestic issues and how those renewable energy targets are going to be met – and my view is they're not going to get smaller, they're only going to get bigger – we will see the emergence of utility scale solar on a large scale. We would need 250 40 megawatt solar projects to meet the current renewable energy target by 2020 with solar and this is only the start, much more renewable energy will be needed to meet our 2030 target. That is an extraordinary outcome to contemplate. It sounds almost unachievable, although so did saying that 25 million tonnes of LNG processing capacity will be built in six years in Queensland. Extraordinary things can be achieved when people are really focused on these developments. Queensland has extraordinary opportunities to participate in all of those stories, to provide its resources to the world, to provide its resource to Australia.

The next great round of investment in Queensland will be in utility-scale solar, and you can see it happening. In any industry, if you want to watch what's happening, just watch where the prospectors are going. And the prospectors are in Queensland looking for utility-scale solar sites. That tells you what's going to happen. 10 years ago, 15 years ago, the prospectors were in Queensland looking for CSG resources and they were looking for coal.

This will result in billions of dollars of development in Queensland, and the challenge for Queensland will be to become the centre of utility-scale solar in much the same way, in respect of eastern Australia, Queensland has become the centre of LNG production. That was a fabulous achievement, nearly all on line, and there will be other great achievements in Queensland provided we get the balance right, and pay due regard to the competing demands of economic development and of course sustainable environmental outcomes.

Thank you very much.

ENDS

This is an edited transcript of Grant King's 9 September speech to CEDA in Brisbane