

**MORAN, Dr Alan John, Chief Executive Officer, Regulation Economics**

[10:42]

*Evidence was taken via teleconference—*

**CHAIR:** I welcome Dr Alan Moran from Regulation Economics via teleconference. Could you please confirm that the information on parliamentary privilege and the protection of witnesses and evidence has been provided to you.

**Dr Moran:** Yes, it has.

**CHAIR:** The committee has your submission. I now invite you to make a short opening statement. At the conclusion of your remarks, I will invite members of the committee to put questions to you.

**Dr Moran:** Thank you. My submission is really confined to the economics of the issue, and the issue concerns the renewable scheme, which is dominated by wind power, which is the cheapest source of exotic renewable energy. The scheme does entail costs, which are borne by the commercial sector and by consumers directly. On the basis of these costs, there is a differential between wind and coal, and coal is the energy source which wind is intended to displace. The cheapest wind available is around \$100 per megawatt hour, and coal in the eastern states can generate electricity at \$35 to \$40 per megawatt hour. So the difference between those two is paid for by electricity customers. Added to this there are some backup costs caused by the inherent unreliability of wind and indeed of solar, and these increase exponentially with the increased share of renewables. But, based on market data, which we have from AEMO, the regulator in Australia, it is about an additional \$12 direct subsidy to wind in addition to the \$40 to \$60 per megawatt hour which wind receives.

According to the Warburton inquiry, the cost of the program running its full course would be between \$30 billion and \$53 billion. This would be around \$3.5 billion per year by 2020. Even in the current year, we have the AEMC data which adds about nine per cent to the retail price, or 17 per cent to the energy component. The issue is particularly topical at the present time because many politicians and industry lobbyists have welcomed the agreement of the government and the ALP to a compromise 33,000 gigawatt hour target.

Many see this as a boost to investment and to jobs. The Victorian energy minister, for example, has claimed that there would be 2,600 jobs created and \$5 billion new investment in that state as a result of this agreement. However, the opposite result will eventuate, because investment in goods that reduce efficiency and increase prices brings lower levels of real income. Policies that force the replacement of higher with lower productivity assets are akin to regulations where the government, say, bans taxis and requires them to be replaced by rickshaws. 'Just think'—the policy advocates would say—'of the extra jobs created from such a move, both in pulling the vehicles and in manufacturing them.' What we have found is that careful studies have demonstrated that the opposite is true—that there are jobs lost. One of the most celebrated is a study by Calzada Alvarez in Spain which estimated that, for every four jobs created by wind subsidies, nine jobs were lost. The truth is that regulations that force the spending of money and the creation of jobs in ventures that require subsidies mean less overall income and, with the wage inflexibilities which we have in Australia, fewer jobs. Capital and labour are diverted from more productive activities, and everyone except the direct recipients of the government largesse is worse off.

That is the kernel of my argument. I would add that there is the issue about the ultimate justification for the renewable scheme, which is a means of reducing greenhouse gas emissions. Whatever the case may be for this, it is **clearly not optimal to do it** by specifying a particular means of meeting the goal in terms of renewables. Indeed, the government has claimed that its Direct Action auction has netted emission reductions at \$14 per tonne, and that figure is only one-third of the cost of the renewable program, even at current prices. That is the kernel of what I have to say. I am happy to elaborate on particular issues.

**ACTING CHAIR (Senator Day):** Thank you. Senator Urquhart?

**Senator URQUHART:** Thanks, Dr Moran, for that opening statement. Do you disagree with the vast majority of climate scientists and global bodies that human activity is having a significant impact on climate change?

**Dr Moran:** No, I do not necessarily disagree with that, although I am reluctant to dip my foot in that water. It is not my area of expertise. I read the literature, as indeed you have, and I think most people would suggest that human activity has had some effects. The issue is what effects, whether it has been trivial or whether it has been quite substantial. It certainly has increased the amount of carbon dioxide and similar gases in the atmosphere, and there is a physics equation of this with higher levels of temperature.

**Senator URQUHART:** In your submission you have said that there has been no discernible warming for the past 15 years, but the UN's World Meteorological Organization say that 13 of the hottest 14 years have

occurred this century. They have also said that the last three decades have been warmer than the preceding ones. So do you disagree with those claims?

**Dr Moran:** I do not know about the first one, but the second one is probably true because the earth has been warming for about a hundred years, for reasons that have nothing to do with the greenhouse phenomena. What is certainly true—and three sources of satellite data confirm this—is that there has been no discernible warming for the last 15 or 17 years, depending on what series of data you use. I do not think that is controversial. Certainly the interpretation of that is controversial. Some say that it is simply a pause and that the heat is hiding in the deep ocean, or wherever it is, and that it will resume in the future, but certainly the evidence from all the satellite data is that there has not been a warming for the last 15 or 17 years.

**Senator URQUHART:** You have also argued against the RET. What role do you think renewables should play in Australia's economic transition as the mining boom recedes?

**Dr Moran:** Zero role. Anything that renewables do—certainly as a result of subsidies—would detract from economic growth and job creation.

**Senator URQUHART:** So you do not think there is a role for renewable energy?

**Dr Moran:** I do not think there is a role for renewable energy which is subsidised. Certainly I am very much in favour of renewable energy which meets the normal economic tests, and certainly there are areas—for example, in hydro-electricity—where renewables can have an increased presence in Australia.

**Senator URQUHART:** The government's own review, which was headed up by Dick Warburton, found that the RET would reduce pressure on electricity bills due to the downward pressure on wholesale electricity costs. If we are getting cleaner energy, driving investment and jobs, and delivering cheaper electricity, surely that has to be a good thing, doesn't it?

**Dr Moran:** Well, yes and no. Simply, you can always get cheap electricity if you actually subsidise it. Let me just put it to you: supposing we have a situation where the government gives away free Mars bars—free confectionery. The price of Mars bars would be driven down quite remarkably, and yet that certainly would not constitute in your eyes, or in anybody else's eyes, a benefit for the society, because one knows that the free Mars bars are being paid for by the government from somewhere else. So there would be a transitory downward trend as a result of the inflexibility of production from the introduction of free or highly subsidised goods, and we would see that, and that is what the Warburton report was arguing. But, as you would know, the Warburton report's analysis used the ACIL and various other sources' information to demonstrate the aggregate cost over the course of the period to the economy was something between \$30 billion and \$50 billion.

**Senator URQUHART:** Environment Victoria has done work that found the federal government loses \$10 billion a year in the form of subsidies and incentives to the fossil fuel industry. As a strong advocate for the free market and small government, would you like to see these subsidies removed altogether?

**Dr Moran:** If there are any subsidies for fossil fuels then the answer is yes. I think that you would find that work done on this on by the federal Treasury has indicated that there are not any or, if there are, they are trivial. The subsidies which Environment Victoria has pointed to are general for the encouragement of R&D and various things like that, which are available to all sectors of the economy.

**Senator URQUHART:** So you agree with the R&D subsidies but not other subsidies

**Dr Moran:** I do not necessarily agree with any subsidy, but I think that if you are picking out a particular sector which is subsidised then that is not appropriate. There may well be a case for removing altogether the R&D subsidies, but one would do that across the whole economy, not just the one sector.

**Senator URQUHART:** This is my final question. Your submission states that wind power costs \$100 per megawatt hour compared to black and brown coal at less than \$40 per megawatt hour, but surely we need to compare like with like. According to Bloomberg New Energy Finance in 2013, wind energy was 14 per cent cheaper than a new baseload coal-fired power station, even without a carbon price. Isn't this a more appropriate comparison, especially given that experts advise that 75 per cent of existing thermal plant in Australia has passed its useful life?

**Dr Moran:** I think that is a terrific statistic. What it actually says is that we do not need any subsidies, because if wind is already competitive—and indeed, it is 13 per cent more competitive—then what are we talking about here? Why do we have a subsidy? There is no case for one. My scepticism about the Bloomberg study is that there is nobody in the wind industry, or the renewable energy industry, who says: 'Great! We are now competitive; we do not need the government's support. We will stand toe to toe against these fossil fuels and we will win.'

**Senator LEYONHJELM:** Dr Moran, you outline in your submission that Australian electricity has been among the cheapest in the world a decade ago, but by 2013 it had risen to become among the most expensive. Do you know which country has the highest ratio of wind energy in their electricity grid?

**Dr Moran:** I would guess Spain, but I could be corrected.

**Senator LEYONHJELM:** My information is that it might be Denmark.

**Dr Moran:** It probably is Denmark, but the problem is that Denmark does not really exist—it is not really an electrical entity. It exists as a state, but Denmark is sandwiched between the Scandinavian countries and the German grid, while Spain is relatively isolated from the rest of Europe. It is like saying the ACT uses a lot of renewable energy; it does not really exist as a stand-alone electrical entity.

**Senator LEYONHJELM:** Which Australian state has the highest ratio of wind energy in the national grid?

**Dr Moran:** Almost certainly South Australia.

**Senator LEYONHJELM:** How do Denmark's or Spain's electricity prices compare in Europe?

**Dr Moran:** Both of them are relatively high. One of the things you have to bear in mind when you are looking at prices is that often the subsidies are paid in such a way that looking at the prices gives you an unrealistic valuation of how much it is costing. In any event, the Danish price is amongst the highest in Europe, and the Spanish price is also quite high.

**Senator LEYONHJELM:** How do South Australia's prices compare internationally?

**Dr Moran:** They should not really differ very much from the rest because, again, South Australia is not really an electrical entity. Its prices are the same as in Victoria and New South Wales; it is part of the national electricity market and the prices there are pretty much the same. They tend to be a bit higher in South Australia than in the rest of Australia, possibly partly because of wind, but largely because the South Australian sources of electricity are somewhat more expensive than those for New South Wales and Victoria.

**Senator LEYONHJELM:** The committee has been told that wind energy is lowering the price of electricity. Indeed the department, in its submission—and we heard from them this morning, although they were not questioned about this—also made the point that wind energy will lower the price of electricity. Given Spain's, Denmark's and South Australia's prices, is that happening yet? Is it going to happen? Do we just have to wait longer?

**Dr Moran:** It cannot happen. It can happen in a transitory basis, and that is an issue which Senator Urquhart raised. It can happen if you pile subsidised fuel into the market. That will reduce the price because **the cost of exiting the market for** firms which have got a high capital investment involved is considerable, so they will stay in even if they are only covering the marginal cost, and the prices will fall as a result of that. But overall, basically the issue of wind is that you are trying to drive out coal which costs \$35 or \$40 per megawatt hour with wind which costs \$100 per megawatt hour. Overall, it cannot reduce the price of energy, except in that transitory period when you are fighting for market share.

**Senator LEYONHJELM:** Many people have scoffed at the concerns raised about wind energy's unreliability and its having a stabilising effect on the grid. It has been suggested to us that there is no cause for concern when wind energy represents less than five per cent of electricity generated. Do you have a view as to what the impact might be if it rose to, say, 15 per cent?

**Dr Moran:** A recent UK study only been published in the last week or so indicates that when the **share**—wind is about nine or 10 per cent in the UK—reaches 15 per cent there is an additional cost of something like A\$12 imposed as a result of that because of the need for backup. There is some real-market data available, which I have cited in my submission, that the cost of buying what they call a hedge against wind being not available, if you are reliant on the wind, averages about \$12. In other words, that is the cost of insuring yourself against wind's unpredictability. That is an additional cost, which I think was considered in parts of the ACIL study and other studies that have been undertaken as a result of the Warburton inquiry.

**Senator LEYONHJELM:** Do you have a view on the capital payback period for turbine establishment at wind farms? Do you have a view as to the period they require to operate under current circumstances, with the renewable energy program in place, to recover their cost of capital?

**Dr Moran:** I do not have a unique view. I understand from lots and lots of secondary data that it is about 15 years. Wind is not actually free; there are marginal costs associated with wind of about \$12 per megawatt hour—these are maintenance costs and things like that. But I understand that, to ensure that the capital is recovered, it is about a 15-year period.

**Senator LEYONHJELM:** We have had other evidence that suggests it is quite a lot shorter than that. The question that occurs to me is that, if there is a defined period of some years during which the capital is recovered, and then after that they are operating on a marginal cost basis and are competitive with other generation sources, the policy issue is: is their subsidy justified during that period once they are competing on a marginal cost basis with other sources of generation?

**Dr Moran:** I think that is an interesting question. The issue with subsidies all along is that favours readily given by government can be readily taken away by government, which I think was said by former Treasurer John Stone when he was referring to the customs tariff. People will always claim that they base their decisions upon the government saying that it would give a subsidy for 10, 15, 20 or 100 years or whatever, but I think it is unwise of governments to lock themselves into lengthy periods on that basis.

**Senator BACK:** Thank you for your submission. I take you to your chart 3, 'Residential electricity prices 2009 and 2013' across 15 countries and ask if I am right in my assessment. In 2009, Australia had the lowest residential electricity prices of the 15. By 2013, four years later, according to chart 3, those prices had doubled from about US\$7 to US\$15 per kilowatt hour and Australia had gone from being the lowest of those 15 to being equally third highest. Is that an accurate summary of the data you have provided in chart 3?

**Dr Moran:** Yes, I think it is. The data is readily available from different sources; I used an NUS electricity report for that. Yes, certainly it is unquestionably a fact that Australian electricity prices rose over that period. I do not maintain that this is solely because of greenhouse type impositions; there are other factors at play as well, but certainly we moved from a period of one of the cheapest sources of electricity in the world 10 or 15 years ago to quite an expensive source of electricity today.

**Senator BACK:** You say it is not renewables only. What other factors have come into play, in contrast to other countries in the world who are surely experiencing similar challenges. What causes do you attribute to us doubling the residential price and going from the cheapest to the third highest?

**Dr Moran:** We had the carbon tax in place in that period as well. Also, there has been some increase in the line charge—the network charges. Some of that has been basically a catch-up, because the charges were too low. It is argued, quite plausibly, that that catch-up has overdone things a bit and that the prices will now be reduced. The network charges are fundamentally regulated by the Australian Energy Regulator. The regulator herself has indicated in recent decisions that she will be reducing the allowable prices that the networks charge, and that will have a flow-on effect to consumer prices.

**Senator BACK:** Presumably, whilst these are residential electricity prices, would it be logical to ask if they would also be reflective of commercial and industrial electricity prices? Would they be, if not different in price, different in the actual trend across the countries as well, if you were to chart them?

**Dr Moran:** No, there would not be that much difference in trend. What you will find is, for residential prices, more than half the cost is in the networks, and for commercial, depending on the size of the commercial entity—for example, in aluminium smelters or whatever—a much smaller proportion, maybe only 25 per cent, of the cost is the network cost. The actual energy cost looms larger the more energy intensive the business is.

**Senator BACK:** What do you think will be the impact now in the commercial space rather than the residential space? What impact is this likely to have, if we are seeing such a significant increase in electricity prices to manufacturers and others?

**Dr Moran:** Basically, it has reversed our comparative advantage. Australia built itself on the basis of cheap electricity, especially once we had privatised and otherwise improved the efficiency of the electricity industry. That will be reversed. A lot of people maintain, for example, that Australia has a very high level of greenhouse gas emissions per capita. It is about as high as the United States and a few other places. One of the reasons it is high is that, in the past, a great deal of our exports were quite energy intensive. In the case of aluminium, that is clearly the case—and we seem to be destroying that industry now by jacking up electricity prices. It is also the case with agricultural products, which entail quite a lot of electricity in their processing. If these trends progress and we cease to encourage, or we actively discourage low-cost electricity, we will see a transformation of our industry. In my view, that will almost certainly leave us less well-off than we would otherwise have been.

**Senator BACK:** If, and as, the Renewable Energy Certificate value goes from \$43.50 to \$94 per certificate, what impact do you think that is going to have on electricity prices?

**Dr Moran:** I could not tell you off the top of my head, but arithmetically one could work it out. It would almost double the cost of wind, which retailers are obliged to include within the total availability of energy, and that will have quite a strong effect in pushing up prices. It would not be difficult to offer an estimate of the actual effect of that, but it would be quite substantial.

**ACTING CHAIR:** We heard evidence this morning that approximately 4,000 gigawatt hours of energy are going to be required from wind over ensuing years. Do you have a view on the ability or the capacity of the wind sector to provide that level of energy?

**Dr Moran:** It has been suggested that it might not be possible to be provided. In my view it would be possible, it is just a question of price. Firms will respond if in fact the subsidy is great enough and the certainty that the subsidy will be maintained is strong enough. It is not a difficult process to actually erect wind turbines; it may be more difficult to get the planning permission for that, and you would know a lot about planning permission generally. But in terms of erecting these things, they are manufactured off the shelf and erected in quite a straightforward way. With a strong enough incentive, I am sure almost any quantity you could imagine would be built.

**ACTING CHAIR:** There has been an estimate of a thousand new wind turbines required.

**Dr Moran:** Which sounds not unreasonable to me. **There** are a lot of wind turbines. There are about 4,000 in the UK onshore. Incidentally, as you probably would have heard, the new UK government has said it will not allow any further ones onshore unless it gets the full support of the local people nearby. Getting another thousand in a period of years would be a difficult ask, but not impossible.

**ACTING CHAIR:** So to pick up on your opening statement comment about the economic benefits as a result of yesterday's announcement of 33,000 gigawatt hours, are there any economic benefits to this project?

**Dr Moran:** The only economic benefit is that it is not as bad as it might have been. Clearly any substitution of high-cost electricity or high-cost anything for low cost, which is the intent of the present scheme, will leave us worse off. It will mean a reduction in GNP, and that reduction could actually be amplified by the issues that I think Senator Back was discussing—that is, the costs of electricity to secondary industry, which would need to restructure away from energy intensive industries to less intensive industries with considerable dislocation costs involved.

**Senator BACK:** Dr Moran, you made a comment on hydro. I also believe there is tremendous scope for hydro in the renewable space. With regard to yesterday's announcement of 33,000 gigawatt hours, what role do you think improvement in hydroelectricity could play in meeting those targets? How quickly could the hydroelectricity generators do that if they had the incentives?

**Dr Moran:** As I understand the 33,000 for eligible subsidy, it is only small hydro that is eligible. In other words, we do have some capacity to increase hydro, but it is mainly in Tasmania, which has long been a political problem. I do not think that would fall within the eligibility criteria, although others may correct me, for renewables. So the answer then is that there are incremental changes that can be made, and have in fact been made to various aspects to the hydro system across the various states, and there will be some further improvements possible there, but unless one allows the large licks of hydro, which basically means Tasmania at the present stage I guess, hydro will only be a modest share, in my view, of that 33,000 incremental.

**CHAIR:** Thank you, Dr Moran, for your evidence today.

**Dr Moran:** Thank you very much, Chair.