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**THE SENATE**

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## SPEECH

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**Senator FAWCETT** (South Australia—Deputy Government Whip in the Senate) (16:51): I want to concur with a couple of things my colleague Senator Bernardi has just said: yes, dump the ideology and that we do need a conservative government. I would just remind members in this place and the public who are listening that it has been said of the Liberal Party that it is the home of classical liberal thought but also the natural home for preserving conservative values. That is what Menzies brought to Australia and it has seen some of the best decades in Australia's development in history post World War II.

**Senator Bernardi:** You're stealing my party name.

**Senator FAWCETT:** I am being accused of stealing the conservative name. I think we had it first in terms of the character, Senator Bernardi. As a conservative—in fact, I said this in my maiden speech in this place—one of the reasons I am attracted to the Liberal Party is that as an experimental test pilot, which was my previous career, I am open to new ideas. That is the whole purpose of testing things and trying things and experimenting with things. But I am also a conservative because there are fundamental principles, particularly in the engineering space, that you just cannot walk away from because of ideology or marketing or hope or anything else. The two have to work in balance.

This energy debate, I think, is a classic example of where those two things have got out of balance. There is a whole bunch of dynamics at play here and even the tabling of Dr Finkel's review brings out some of the worst in Australia's polity, in the media and in community debate. What we see is people assuming that you are either for it or you are against it, and if you dare to talk about or question or look at alternatives then people assume that you are either a climate denier or you are whatever—that label they want to put on you. But I have to say it is that attitude that has got Australia into the problem that we are currently in. Certainly speaking as a South Australian, I see the problems in my home state where what the Premier there called the great big experiment in renewable energy has gone horribly wrong. So we do need to take the report that Dr Finkel has handed down in response to a direction from COAG, who have recognised finally that the system we have had for many years needs changing. The National Electricity Market is over 20 years old. It was designed in a day where the generation of power was predominantly from things with spinning turbines. Whether it was from hydro or coal or gas, it generated a consistent power that was essentially different sources of the same kind of power fed into a network.

The introduction of renewable energy, particularly where it has been accelerated by schemes like the RET and by government, often local or state government, regulations to encourage the uptake or placement of things like wind farms by providers of renewable energy, has occurred without the required systems engineering to understand what all the inputs are and what the failure modes of systems are. Just in the last few months, people in this place have finally started talking about some of these principles of engineering as opposed to the ideology or the legal basis or other considerations that often constrain or guide debate in this place. I am on record as saying it and I will say it again: I think the Australian nation would be well served if we had more systems engineers and fewer lawyers in the parliament so that legislation and policy going forward was actually based on a good requirements analysis and an understanding of the constraints and the objectives, working through the different models and approaches and then looking at how we test the implementation to make sure that what we have put in place works. We are part way down that path.

So what do we need to do in this area? As Senator Xenophon stated, we do have to address the current situation. There are a number of factors that have driven electricity prices sky high. We have stabilised that in part by getting rid of the carbon tax, but back in May 2014, to take a particular month, the electricity price was set by the peak gas price only nine per cent of the time, whereas in May 2017 it was set by the gas price 24 per cent of the time, which means all of the other generators are actually dragged up to the price of the highest input at that particular time. So we have seen this distortion of the market driving prices up. The other key thing that we need to do, other than getting prices back down to an affordable level, as I said yesterday in another contribution to this debate, is lower the cost of energy. It is the low cost of energy that has traditionally allowed Australia

to be competitive in manufacturing and a range of other industries. If we want to maintain good wages and a First World standard of living, then we cannot compete with other nations unless some of our input costs are more competitive. Low energy prices are one of those key input costs for many business sectors. Pricing is one thing, reliability is another.

We need to understand the true cost of integrating renewable energy—in fact, all forms of energy. We need to understand the system requirements in terms of interfaces and failure modes and what the true cost of those things like wind farms, for example, are. I am completely technology agnostic when it comes to generation, but I do believe you need to look at the system as a whole. If you need to look at ways of addressing system stability and frequency issues as part of increasing the amount of power coming from something like wind, that needs to be one of the costs which is weighed up against how much this is costing us to bring it into the marketplace. In South Australia's case—everyone has talked about the blackouts there and we have had members opposite call out that it was a storm that caused it—I again come back to my test flying background. When we test an aircraft, we look at the response and the controllability of the platform in a range of environmental conditions. One of the things we look at is what we call the gust response, and some aircraft are just dreadful. It only takes a gust of wind, almost, for some very light aircraft to be almost uncontrollable. Others, heavier aircraft or aircraft with better designed control systems, can respond to a whole range of turbulence and still be quite controllable. What we are talking about here is the trigger event. The trigger event may well have been a storm; the trigger event may well be a lack of wind. There could be a range of trigger events, but the thing that we are concerned about is the design of the NEM and the design of the system so that it is resilient and able to withstand shocks to the system—and, again, that is where systems engineering comes in.

The third area that I think we need to get right in looking at the NEM is making sure that we have certainty so that people are prepared to actually invest into new generating capacity, into new distribution systems and into new storage systems. That requires policy certainty. A lot of the people who have come out in response to the tabling of the Finkel report have said, 'This is fantastic. Let's adopt it, because we need certainty.' I agree with them that we need certainty. But what I would just caution is that—while Dr Finkel's report is a very well informed, considered and expert input into this debate—it is an input and not the solution. With any report that is given to government, the government will normally take some time to consider it and obtain a range of opinions from other stakeholders before deciding on how they will actually respond.

Why do I think that is important? Already, what we see is people looking at the Finkel review. Other than those who are just retreating to their camps, there are those who say it is fantastic and that we should just adopt it, to those who say it allows coal and therefore it is bad and to those who say it does not allow enough coal and therefore it is bad. There are some people within the industry who have started looking at things like the modelling. Again, I am not an engineer in terms of power systems and electricity, but I do understand modelling. Again, we use a lot of that in the world of flight testing. It is a fantastic tool to work out what might happen and it is a fantastic tool to analyse why something happened, but it is not perfect. Certainly, speaking as a test pilot, the ultimate certification needs to rely on tests as opposed to just modelling.

One of the reasons that is so critical is that the design of your modelling tool is important but also the assumptions that you make are important. Having gone and had a look at the report, I notice here that they have used one particular software tool called STRATEGIST. I have gone back to the US Department of Energy and had a look at their power sector modelling reports, where they have done an analysis of different tools: it is a well-regarded tool. But it is one of a number of tools. There is another tool called PLEXOS, which happens to actually be written by a company called Energy Exemplar in South Australia, in Adelaide, my hometown. Interestingly, that is used by numerous academics, universities, regulators and power providers. In fact, it is used by the majority of people, like AEMO and others, here in Australia. This tool was used by the firm that was supporting the Finkel review was but one tool in the market. It probably does not have the penetration of perhaps some other tool. That is not to say it is not valid, but it is one view and one method of analysing data. They also used some other tools, particularly around renewables, to understand some of the changes in that.

What I want to go to particularly is annex B, where it talks about some of the assumptions that are used. For example, the assumptions around the existing renewable energy target. With modelling, you can have a model or perhaps even a couple of models, something that people trust to be transparent and reliable. As I have looked at something like PLEXOS, it is used by a number of regulators and market operators. The extent of its uptake around the globe says that there are software products that are accepted as a good baseline that everybody would trust to do a sensitivity analysis, as you vary the inputs and the assumptions to it.

So let us take the assumption here that the existing RET is going to remain for all scenarios. That is what it has said here. If we varied that—there are some people who hate the RET; there are some people who think the RET should be greater—what would happen in terms of the decisions to invest in new coal by people who perhaps favour clean coal technology?

What would happen if we varied it in terms of reduction? Where would the investment level in renewables be? Just that one factor could actually make some quite remarkable differences in who would invest and then what the impact would be in terms of pricing and reliability, and, importantly, understanding things like emissions.

There are other factors that we should be looking at. For example, availability of international offsets. The model in this report has assumed that there are no domestic or international offsets allowed. That is fine—that is one assumption. But what if we did a sensitivity analysis on that? What if we said: 'Let's play with that variable to see what the impacts are on some of the other considerations? Are there combinations or permutations of the assumptions and inputs that potentially could deliver us an even better outcome in terms of lower prices and reliability of power, and still achieve emissions outcomes?' There is a whole list. I will not go through the whole lot; I think I have made my point with those.

The other part that I think is really important is that as a society we also need to do a cost-benefit analysis. One of the parts that I found interesting in the report by Dr Finkel was when he looked at Australia's emissions—it is generally accepted that they are around 1.3 per cent—and what the contributions are by different sectors to that. The NEM contributes about 30 per cent. So in terms of Australia's emissions in the world, we are talking about 30 per cent of 1.3 per cent here.

As my colleague mentioned earlier today, when he asked Dr Finkel in estimates:

... if we reduce the world's carbon emissions by 1.3 per cent,

Completely, which would essentially mean shutting down Australia—

what impact would that have on the changing climate of the world?

And Dr Finkel said:

Virtually nothing.

What we are seeing here is that even if we achieved perfection by shutting down Australia, at a huge cost to everyone, it would not make very much difference at all.

I am not asking us to pull out of Paris or other things like that—I think it is great to put on the record that Australia has consistently exceeded the targets that have been agreed to at the various international conferences and that we are well on track again to meet our current targets. I think that is a great thing. But I think there is a valid question to ask about not being afraid to have a transparent approach. We should take the reports by people like Dr Finkel and take other concepts, and look at doing that sensitivity analysis around the inputs and assumptions and also weigh up the cost benefits. We should ask, 'Can we reduce power prices by 50 per cent and could we increase reliability to close to 100 per cent?' Is the difference in terms of the actual output we make—that 30 per cent of 1.3 per cent, that is not very much—something that we could live with? Can we say, 'Yes, we think we can still meet our emissions targets.' Or, if there had to be a variation to that, can we find an amount where we could say, 'Yes, we're happy to work with that with the international community.' We should not be afraid to have that discussion.

My view, from what I have read and from different people I have spoken to, is that it would be possible to meet our emissions targets but at the same time be driving down the price of electricity as an equal priority with reliability. That means both systems engineering and integrity in the redesign of the NEM. What that requires is for people to have confidence in the process. That is why I think that we need to move away from the situation that has developed, even in the last two or three days, of people taking sides and assuming that the Finkel report is the be-all and end-all—that we either accept it or we reject it. We should take a sensible systems-engineering approach which says: 'This is a rigorous and very valuable input to the debate. Now let's set up—let's get AEMO and some of our key universities; let's get people who produce tools that are accepted and validated around the world to do that sensitivity analysis. Let's work out what the best combination is that will achieve the lowest

price, the greatest reliability and our emissions target.' The people who hate coal may not like to hear this, but it is just possible that if you varied those parameters—if you varied, for example, the RET: took it down, got rid of it—you might get to a point where you actually get enough investment in good, solid baseload power that enables us to meet our emissions targets, but drives down prices to the extent that our economy is able to compete more effectively, creating more jobs and a better environment for people in the nation. All of these things will remain unknown unless we are prepared to engage in the discussion.

We have the tools. As I said, I can—not that I am vouching for the company, but they work out of Adelaide, they are used by our regulators, by regulators overseas. We have the tools. We have the academics. We have the people in the market. Let us have the maturity as a nation to go beyond the binary positions that people adopt; let us do that analysis to challenge some of these assumptions, to look at the different options and then be prepared to say: here is a transparent matrix of test results that show that this combination is going to achieve these results. We can then pick the combination of price reliability and emissions that the Australian community says is in our national interest. If there is one thing to come out of the debate this week, it is that we need to be prepared to move beyond the simplistic binary debate, engage in more depth and work together towards what is in the national interest, and certainly that requires engineering and not ideology.