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Minister for the Environment and Energy

***Ensuring energy security and affordability, as we transition to a lower emissions
future***

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Sydney Institute

Thank you Gerard and Anne for the invitation to speak tonight.

I'm delighted to be back at The Sydney Institute and it's a privilege to discuss with you tonight one of the most important issues confronting the nation, the security and affordability of Australian's energy system.

The National Electricity Market connects a power system more than 5,000 kms long, spanning from Port Douglas in North Queensland, to Port Lincoln in South Australia, and across the Bass Strait to Tasmania.

As the Chief Scientist Dr Alan Finkel has observed, we are currently undergoing a once-in-a-century transformation, akin to when the telecommunications sector went from the landline to the mobile.

It's the biggest change in the electricity system since the 1890s when Tesla beat Edison in the war of the AC/DC currents, which led to electricity being supplied to the grid by central generators.

Driven by consumer preferences and technological advances, we are now moving towards a more distributed energy system, one that also includes more intermittent sources of generation.

All this is occurring in a complex energy market with shared state and federal responsibilities, managed under the auspices of the COAG Energy Council.

Introduction

Tonight I want to make three points:

- First, the need to maintain baseload generation so that our households and businesses continue to enjoy a secure and reliable supply of energy.
- Second, the importance of reducing pressure on electricity prices so that Australian consumers who are already struggling do not face further unnecessary rises.
- Third, our strong record in meeting our emissions reduction targets, and doing so without undermining energy security and affordability.

In transitioning to a lower emissions future, the Prime Minister has been clear that Australia should achieve the trifecta of affordable, reliable and secure energy. And that the only way to do this is by being technology neutral.

Energy Security

Recent events in South Australia

Let me start by commenting on recent events.

South Australia has been struck by a series of price spikes and outages.

The state-wide blackout in South Australia on 28 September was a wake-up call to the nation. It was the first time an entire state has lost its power.

We saw gridlock on the roads, people stuck in lifts, 1.7 million people in the dark and it was estimated to have cost businesses 367 million dollars – let alone the impact on future investment in the state.

Three more blackouts have followed in December, January and February.

These events show the vulnerability of a jurisdiction that relies too heavily on intermittent sources of generation such as wind and solar without the necessary storage and back-up support.

On average 41 per cent of electricity generation in South Australia comes from wind and solar – among the highest penetration on a per capita basis anywhere in the world.

The challenge is that the quantity of generation varies from supplying less than one per cent of South Australia's demand compared to 80 per cent in another.

When the wind's not blowing and the sun's not shining, power is not being generated.

This means that the days of easily forecastable supply are over.

Nowhere was this more clear than during the last South Australian blackout, when 90,000 consumers lost power.

It is a telling case study. At 6.30 pm on 8 February, just before load shedding:

Thermal generation was supplying 68 per cent of the state's electricity, operating at 81 per cent capacity, near its highest point for the day.

Wind generation was supplying 3 per cent of electricity, operating at 6 per cent capacity, near its lowest point for the day. This was 50 per cent lower than the forecast two hours earlier and a 90 per cent fall from its highest point that day.

Solar generation was supplying 5 per cent of electricity, operating at 22 per cent of its capacity, less than a third of its peak for the day.

Interconnectors from Victoria, ironically providing brown coal-fired power from the Latrobe Valley, were supplying the balance of power into South Australia (24 per cent) and were operating at 93 per cent of their capacity.

Closure of Hazelwood

The impending closure of Hazelwood in Victoria will present additional challenges for South Australia, Victoria and the rest of the NEM.

Hazelwood supplied 22 per cent of Victoria's electricity demand in 2015 and 14 per cent of South Australia's consumption in 2015-16.

When Hazelwood closes, AEMO forecasts Victoria will go from being an exporter to an importer of power during times of peak demand.

Since the closure of Port Augusta's Northern coal-fired power station last year, South Australia has doubled its reliance on Victoria, which now provides about a quarter of its needs.

Ten coal-fired power stations have closed since 2001. Hazelwood is the 11th.

As the generation mix changes, there is also a vital need for new frequency control and ancillary services to help stabilise the grid. Historically provided by baseload coal generators, these services have been taken for granted and new markets will need to be created to fill the gap created by a higher uptake of wind and solar.

More baseload power

This is why we need to have an all-of-the-above approach to new technologies with the goal of providing sufficient baseload power to help maintain energy security.

We should not dismiss the new technologies that can maintain coal and gas as a key part of our energy mix while at the same time substantially reducing emissions.

As the Prime Minister has said, Australia is the largest exporter of coal and we have invested \$590 million since 2009 in carbon capture and storage (CCS) technology and research.

Yet we do not have one modern high-efficiency-low-emissions (HELE) coal-fired generator, let alone one with CCS.

It has to be said that these are not experimental technologies.

As Australia's Chief Scientist Dr Alan Finkel has said:

“existing coal, and new coal, with CCS, is a very legitimate low emissions technology.”

HELE coal-fired generators, which can reduce emissions by up to 40 per cent, are being deployed around the world including in countries like Germany, where a new plant is planned to come online next year, and Japan, where 45 are in train, in order to meet the twin objectives of emissions reductions and energy security.

Across East Asia there are already 725 HELE coal-fired generators with more than 1000 in planning.

Even in Europe, there is 8 GW of ultra-supercritical coal capacity being built in the next five years.

Encouragingly, research into CCS released by the University of Queensland just last week shows that today 15 large-scale CCS projects are in operation, storing 28 mega tonnes of carbon per year, and by the end of this year there will be 22 large-scale projects storing 40 mega tonnes.

Here in Australia, the Gorgon LNG project in Western Australia will have the capacity to store up to 4 million tonnes of carbon per year.

The Intergovernmental Panel on Climate Change and the International Energy Agency have repeatedly warned that CCS will need to play a critical role if the world is to meet its emission reduction targets. At the same time, the IEA has

estimated that CCS could reduce the cost of electricity sector decarbonisation by around US\$3.5 trillion between 2012 and 2035.

Storage and renewables

The importance of baseload power has been acknowledged by Dr Finkel in his preliminary report to the COAG Energy Council on the future security of the NEM. Where he noted that there are security and reliability issues resulting from an increasing penetration of renewables in the grid.

The final report, due in the first half of this year, will set out a long-term national reform blueprint for the security, reliability and affordability of the NEM.

Dr Finkel has already identified several proof-of-concept projects to help address this challenge. Projects to be fast tracked include synchronous condensers, synthetic inertia and power conversion systems.

Higher penetration of renewable technologies is not possible without storage to balance their intermittent nature.

This is why the Government is investing heavily in storage technologies, with over \$220 million committed to date.

In his National Press Club speech, the Prime Minister announced ARENA and the Clean Energy Finance Corporation had formally commenced a funding round to support demonstration-scale projects with an initial commitment of \$20 million.

This includes support for flexible capacity and large scale storage technologies like batteries, pumped hydro, concentrated solar thermal, biomass and demand management technology.

Storage technologies are already helping smooth out solar generation and reduce the evening peak. At least 6,750 battery storage systems were installed in 2016, and some are predicting that this figure will triple this year to more than 20,000 installations.

In August 2016, AGL, in partnership with ARENA announced the launch of the world's largest 'virtual power plant' in South Australia. The project links 1,000 household battery systems together, allowing peak demand to be met by stored, pooled energy from rooftop solar systems.

Serious issue

The Government's number one energy priority is energy security.

Recent events are not, as Labor's Energy Spokesman Mark Butler has called them, 'hiccups'.

The challenges in South Australia are real and serious.

As the Australian Energy Market Operator has noted:

'The growing proportion of this type of generating plant within the generation portfolio is leading to more periods with low inertia and low available fault levels, hence a lower resilience to extreme events.'

Our political opponents are looking for scapegoats rather than confronting the very real problems facing the South Australian electricity system.

They want to blame a storm, they want to blame the market operator.

They want to muddy the issue by conflating events in South Australia with NSW.

It's now clear to all Australians, and particularly South Australians, that the Weatherill Government's self-described 'big experiment' has failed and that better planning should have been in place to prepare for the high uptake of intermittent sources of generation.

Energy affordability

It's not only energy security that has been compromised in South Australia's big experiment. We've also seen significant price rises in that state.

South Australian consumers now face the highest prices in the NEM, about 50 per cent above the average.

When the Northern power station closed in South Australia last May, contract prices in the state jumped.

Consider large industrial users in South Australia, looking to limit their exposure to volatile wholesale prices.

In June 2015, a contract covering supply in the first quarter of 2017 cost about \$62. But by June 2016, within weeks of Northern's closure, the same contract cost about \$93. That's a 50 per cent increase.

For those who instead chose to rely on the spot market, about two months after Northern closed the average wholesale price in South Australia had increased from \$50 to \$163 per Megawatt hour. An increase of more than 200 per cent.

As a result of Hazelwood's closure in Victoria, the AEMC forecasts wholesale electricity costs will increase by around 35 per cent for Victoria, South Australia and Tasmania in 2017-18.

Households are also under pressure. The average annual household bill across Australia in 2018-19 will increase by \$78, for Victorians it will increase by \$99 and for South Australians by \$150. Here in New South Wales, it will increase by \$74.

Rising prices

During the Labor Party's last six years in office from 2007-2013, electricity prices went up by 101 per cent.

The Coalition's repeal of the Carbon Tax led to the largest price fall on record according to the Australian Bureau of Statistics.

Nevertheless household electricity prices are now the 7th highest in the OECD on a market exchange rate basis and 22nd highest on a purchasing power parity basis.

And now the Labor Party, at both the State and Federal level, wants to see a 50 per cent Renewable Energy Target by 2030.

Even the CFMEU National President wrote to Labor MPs telling them:

"An increased Renewable Energy Target of 50% by 2030 will increase the cost of electricity for manufacturing and ordinary households while being a poor tool to reduce Australia's overall global warming emissions."

That is why the Prime Minister and I have been putting the pressure on the Shorten Opposition to tell the Australian people exactly what their target would cost and how they would reach it.

Despite the occasional admission that their target will require \$48 billion in investment, ultimately to be recouped from consumers, confusion still reigns

about whether Labor has an ambition, an aspiration, a goal or in fact a target, let alone whether it will be legislated.

In contrast, the Government has been up-front about the cost of its 23.5 per cent renewable energy target, which the AEMC has estimated adds \$63 to an average annual household power bill.

Reforms

It is against this backdrop that we are pursuing a number of reforms to reduce pressure on power prices.

The COAG Energy Council has agreed to significant reforms to stop energy businesses gaming the system by appealing how much they can re-coup from customers.

These significant reforms are important as network costs make up around 50 per cent of household energy bills.

Under the new regime network businesses would no longer be able to appeal certain decisions of the Australian Energy Regulator through the Limited Merits Review process.

In the current round of appeals, network businesses sought to add \$7.3 billion to energy bills by using the LMR process.

In NSW a current appeal is putting at risk a reduction of up to \$300 on household energy bills because of this appeal mechanism.

COAG is committed to delivering these reforms in the first half of this year.

Gas

Lowering energy costs will also require more gas supplies and more gas suppliers in the market.

The growth in gas production for LNG export, coupled with high exploration and development costs, has put pressure on domestic gas prices.

When a \$9 per gigajoule wholesale gas price translates into \$100 per megawatt hour electricity price, sustained high gas prices make it extremely difficult for gas to fill its role as a transition fuel that is affordable to consumers.

The Government is also working to reduce costs across the supply chain by reforming gas markets to make price of gas more affordable.

Last year, the Energy Council commissioned Dr Michael Vertigan to investigate the bargaining relationship around the transport of gas.

His report found there is an uneven bargaining relationship in the transport of gas. Transportation accounts for up to 15 per cent of the price of gas.

Again at our COAG meeting on Friday, Ministers agreed on the introduction of national legislation that will lower costs by mandating greater disclosure and transparency for pipeline services and pricing.

We have also agreed that there should be mandatory commercial arbitration in the regulated gas pipeline sector.

These are important reforms and will help put downward pressure on gas prices.

Energy efficiency

The Government is also targeting energy productivity to help reduce energy costs and emissions across the economy.

Our National Energy Productivity Plan will improve energy productivity by 40 per cent by 2030. As part of this, the Commonwealth's expansion of the Commercial Building Disclosure program will lead to an estimated \$50 million in new energy savings, and about 3.5 million tonnes of emission reductions over five years.

The Government is also pursuing a range of energy saving initiatives around appliances, lighting and vehicles. Lighting efficiency enhancements alone have the potential to save households \$2,400 over ten years.

Emissions reductions

It is not often appreciated that Australia's emissions per capita and per unit of GDP are at their lowest level in 27 years. This is despite Australia enjoying one of the highest rates of population growth and longest periods of economic growth among advanced economies.

Australia has always had a strong track record of meeting its international commitments and beating its emissions reduction targets.

We beat our first Kyoto target by 128 million tonnes and are on track to beat our 2020 target by 224 million tonnes of carbon dioxide equivalent.

The Government made a strong pledge in Paris and is committed to reducing emissions by 26 to 28 per cent on 2005 levels by 2030 – a 50 per cent reduction on a per capita basis.

The means and methods of achieving this goal are vitally important. We must place a premium on the reliability and affordability of energy as we transition.

That is why the Government has a strong suite of policies such as the Emissions Reduction Fund, the 2020 Renewable Energy Target, the National Energy Productivity Plan and phasing down hydrofluorocarbons (HFCs).

Incredibly, the international effort on HFCs is estimated to achieve up to 72 billion tonnes in carbon dioxide equivalent emission savings by 2050. This is roughly 1.3 times global annual emissions.

This year we are also conducting a review of our climate change policies.

The review will ensure we continue to remain on track to meet our 2030 target, a task that has been halved based on the most recent projections, improving our position by more than one billion tonnes.

Conclusion

In order to maintain energy security during the transition to a lower emissions future, we need to keep baseload power in the system.

We can ill afford a myopic ideological approach which preferences one set of technologies over another and which will only lead to higher prices and instability.

The Government is committed to a truly national reform agenda for Australia's energy markets – reforms which prioritise stabilising our electricity system.

The Government is already taking steps to:

- Maintain energy security with the important Finkel Review well underway;
- Put downward pressure on prices by reforming gas markets and network regulation; and

- Adopting a technology neutral approach to emissions reduction which will ensure energy security is not jeopardised.

It's a complex and challenging area, but one that is vital for Australia's future prosperity.

Thank you.