CLIMATE COUNCIL

UNPACKING THE FINKEL REVIEW

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Introduction

On Friday, Australia's Chief Scientist, Dr Alan Finkel (together with a panel of reviewers) released the findings of a review into the future of the National Electricity Market (Finkel Review).

The Finkel Review was tasked with developing a "blueprint" for the national electricity market (NEM) that:

- delivers on Australia's emissions reduction commitments
- provides affordable electricity, and
- ensures a high level of security and reliability.

Australia's electricity sector is expected to undergo a massive transition in the coming decades due to the closure of ageing coal fired power stations; escalating extreme weather events (like heatwaves, bushfires and storms) driven by climate change; increasing gas prices and rapidly declining costs of wind, solar and battery storage.

The Finkel Review made 50 recommendations for the electricity sector addressing seven areas: i) preparing for next summer; ii) increased security; iii) a reliable and low emissions future – the need for an orderly transition; iv) more efficient gas market; v) improved system planning; vi) rewarding customers; and vii) stronger governance.

What has Finkel recommended?

The following Finkel Review recommendations are important from a climate perspective:

1. Emission reductions for the electricity sector

The electricity sector is Australia's largest source of pollution accounting for 35% of our emissions (Figure 1).

The Finkel Review recommends a minimum target for reducing emissions in the electricity sector should be a 28% emissions reduction below 2005 levels by 2030. While it places responsibility for more aspirational targets to 2030 and beyond with Government(s), it cautions higher targets could have "larger consequences for energy security" and "implications should be re-examined".

The Finkel Review identifies broad political and stakeholder support as its the criteria for emissions reduction policy, rather than a climate science based approach. Further, it concludes there is no need for an environmental objective in the National Electricity Market Objectives if there are clear, effective national emissions reduction policies.

Figure 1 - Adelaide's Torrens Island Gas Power Station.

Image credit: "Where Adelaide's Electricity Comes From" by Flickr user Michael Coghlan licensed under CC BY-SA 2.0

2. Proposed Clean Energy Target

The Finkel Review proposes introducing a **Clean Energy Target**, which would effectively replace the current **Renewable Energy Target** from 2020. Gas and coal (with carbon capture and storage) would qualify under the Clean Energy Target, as well as renewable energy.

The Clean Energy Target would set a certain target amount of new "clean" electricity (expressed as GWh or % of electricity) based on the required emissions reductions for the electricity sector. The Finkel Review leaves the target baseline and emissions trajectory to 2030 and beyond for politicians to decide. Technologies with lower emissions, like renewables, would receive higher benefits than those with higher emissions, like gas and coal (which would still be required to be below a set emissions intensity level to receive any benefit). New coal stations that do not meet the target can still be built without penalty, increasing the emissions reduction burden from "clean" electricity.

Modelling undertaken for the Finkel Review (based on 28% emissions reduction for the electricity sector) indicates **the Clean Energy Target mechanism (and an Emissions Intensity scheme) would result in lower costs to households and businesses** compared with no action at all (business as usual). The modelling shows renewable power continuing to grow, up to 42% of electricity supply by 2030

(58% still comes from fossil fuels by then, with no further brown coal closures), in contrast to business as usual of 35% renewable electricity.

Limited details about the design of the modelled Clean Energy Target were provided, however the Finkel Review notes that the mechanism was "significantly different" (different design parameters, emissions targets, feasible generation, assumptions) to the Low Emissions Target which has been considered by the Climate Change Authority.

The Review also indicates that existing gas generators could benefit by receiving *"certificates for any electricity that they produce above their historical output."* As our Gas Report explains, gas is already a polluting and expensive form of generating electricity.

3. Renewable energy

The Finkel Review notes the rapidly declining costs of wind, solar and utility scale batteries and the potential for more renewable energy to reduce wholesale electricity costs.

Even though the modelled Clean Energy Target mechanism did not identify any reliability concerns for adding more renewables, the Finkel Review recommends a new requirement on new wind and solar power plants to provide a certain level of "dispatchable" capacity (this was called a Generator Reliability Obligation). Dispatchable capacity is electricity that is available on call, as and when needed.

New wind and solar would be required to provide a certain amount of storage or gas generation as determined by energy market bodies (the Australian Energy Market Operator and the Australian Energy Market Commission), taking account of local electricity market security conditions.

There was no equivalent requirement placed on new, or existing ageing gas or coal generation, despite the failure rate of ageing power stations increasing. For instance, in early February 2017, a severe heatwave across much of Australia's south, east and interior caused issues for the South Australian and New South Wales energy systems. In New South Wales around 3,000MW of coal and gas capacity was not available when needed in the heatwave (roughly the equivalent of two Hazelwood Power Stations). In South Australia, 90,000 people were left without power for about half an hour in the early evening while temperatures were over 40°C. This heatwave highlights the vulnerability of our energy systems to extreme weather. Climate change will make heatwaves longer, hotter and more frequent, increasing stresses on Australia's ageing energy infrastructure.

4. Coal

The Finkel Review recommendations focus on incentives to encourage new lower emissions power plants to be built, rather than phasing out or penalising polluting coal and gas plants. So the approach is intended to bring on new renewables without incentivising the phase out of existing polluting coal generators.

Coal generation would continue to provide over 50% Australia's electricity by 2030 and 24% by 2050.

Australia's coal fired power stations are old, and polluting by world standards (Figure 2). The Finkel Review acknowledges that **by 2035, "approximately 68% of the current coal generating plants will have reached 50 years of age".** Its modelling shows most still operating at 2030 and some even by 2050. The Review even considers it a "benefit" for these old, polluting coal plants to continue operating.

Figure 2 - Yallourn Power Station in Victoria is over 40 years old. Australia's coal plant fleet is ageing, inefficient and polluting.

Image credit: "Yallourn" by Flickr user Michael Greenhill licensed under CC BY-NC-ND 2.0

The key recommendation for coal fired power is a new requirement for power plants to provide three years notice before closing. This is in response to recent closures of the Northern power station in South Australia, which closed 11 months after announcing its retirement, and the Hazelwood power station in Victoria, which closed after 5 months. The three year notice period is intended to provide the electricity market with time to bring on new power plants, and to give communities and workers more time to plan for transition.

5. Gas

The Finkel Review anticipates an ongoing role for gas power in the future electricity mix. The review recommends information on gas, particularly unconventional gas, be made more accessible to regulators and the community on supply, emissions, chemicals used and water quality implications. Concerns about methane emissions from unconventional gas are dismissed.

The Finkel Review acknowledges gas prices (and, as a result gas power prices) will continue to rise in future due to the demands of Liquefied Natural Gas exports from Queensland, and the increasing price of producing gas from unconventional gas fields. At current gas market conditions, it observes that battery storage may be more cost effective than gas in providing security and reliability in the near future. However, the Finkel Review urges government and industry to prioritise gas exploration and development.

6. Extreme weather

Extreme weather driven by climate change is increasing pressure on the electricity system. The Finkel Review identifies the wide range of possible extreme weather risks to electricity supply, including heatwaves, bushfires, cyclones, floods, tornadoes, drought, and storms. For example, the Finkel Review notes, in the summer of 2017 the electricity system endured: “five tropical cyclones, one major fire outbreak, four separate heatwaves, 21 days of major storm activity, and major floods”. The Finkel Review acknowledged electricity infrastructure damaged by tornadoes contributed to the South Australian state-wide blackout on 28 September 2016 (Figure 3).

Figure 3 - Climate change is super-charging storms. A one-in-50 year storm hit South Australia in September 2016, toppling 23 transmission towers and cutting power to over 900,000 households.

Image credit: Clean Energy Council

How does the Finkel Review stack up on climate?

Currently the lack of policy on climate change is driving up pollution and electricty prices as it prevents long term investment in new renewable generation. Finkel Review is an opportunity for politicians, regulators and industry to put in place a energy scheme that will deliver some certainty for climate and energy policy in Australia and drive some new renewable energy generation.

The Climate Council raises the following concerns in relation to Finkel Review recommendations:

1) Emissions reductions for the electricity sector

The **28% minimum emissions reduction for the electricity sector is far too weak** even to meet the Federal Government’s 2030 economy wide targets.

The electricity sector is a heavy polluter so it should be a heavy lifter on climate policy. Reducing emissions in the electricity sector is much quicker, easier and cheaper than reducing emissions in other parts of the economy like transport and farming. Australia's high-polluting power stations are old and need replacing. Renewable energy can provide lowest cost (Figure 4) and zero emissions power. In fact, renewable energy like wind and solar is cheaper than new, polluting coal or gas power stations.

For comparison, the Climate Change Authority suggested the electricity sector reduce its emissions by around two-thirds by 2030 consistent with limiting temperature rise below 2 degrees Celsius, and by 2050 electricity emissions should be zero. The Climate Change Authority found emissions intensity of electricity generation needed to reduce from 0.81 t/MWh (tonnes carbon dioxide per megawatt hour) in 2015 to 0.25 t/MWh or lower by 2030 and below 0.1 by 2050 t/MWh.

Figure 4 - Wind and solar are now the cheapest form of new power generation in Australia.

Image credit: "Brown Hill Range wind turbines at sunrise" by flickr user David Clarke under CC BY-NC-ND 2.0

2) Proposed Clean Energy Target

Power generated by renewable energy in 2030 under the proposed Clean Energy Target – at 42% - is far too low. Under the Clean Energy Target, electricity supply from large scale renewable energy would only increase 9% from 2020-30 (about the same increase as has occurred in the past ten years, a decade marked by significant climate and energy policy uncertainty).

State and territory governments are already on track to deliver this amount of renewable energy on their own. Victoria, Queensland, Northern Territory, South

Australia are set to generate 40-50% renewable energy by 2030. Tasmania is already running off 90% renewable energy while the ACT has contracted enough renewable energy to meet all its electricity needs by 2020. The states are setting strong targets that will help Australia reach net zero emissions by (and ideally before) 2050 in order to protect Australians from worsening climate impacts.

Figure 5 - Adelaide Airport Solar Panels. South Australia is on track to generate over 50% renewable energy by 2030.

Image credit: Photo courtesy of SA Government

If the Federal Government is to introduce a new Clean Energy Target, this should certainly not result in outcomes less than state and territory actions underway now.

Climate Change Authority (2017) modelling of a similar mechanism to the Clean Energy Target consistent with Australia's Paris commitments indicated renewable energy would be expected to provide 70% of electricity by 2030.

The other critical point is what is considered "clean energy" under the Clean Energy Target. As gas and coal with carbon capture and storage are polluting they should not qualify..

Australia needs to reduce emissions from our electricity sector - we can't afford any new coal or gas, as these power plants would operate and pollute until 2050 or beyond when our emissions need to be near zero (for more details see our Electricity Fact Sheet). In tackling climate change effectively we should not lock in more pollution.

3) Renewable energy

Requirements on generators to provide dispatchable capacity should apply to all generation sources, including fossil fuels. Requiring new wind and solar plants to provide a certain amount of dispatchable capacity (by energy storage or gas generation) may result in the early, overbuilding of storage, adding an unnecessary cost burden on households and businesses.

The Generator Reliability Obligation could act as a restriction, and additional cost on wind and solar development at a time when we need renewable energy to reduce pollution, provide reliable and affordable energy and protect Australians from worsening climate impacts.

New fossil fuelled plants (and existing ageing coal and gas plants) are exempted from the proposed 'Generator Reliability Obligation', despite recent history showing these plants are frequently unavailable for technical and commercial reasons (for instance in the 2017 NSW February heatwave).

Any requirement to provide mandatory "dispatchable capacity" should apply equally to all new sources of new generation to ensure renewable energy is not unfairly disadvantaged. Scheme design and implementation should also take full advantage of the grid, supply diversity, demand management and efficiency improvements.

4) Coal

Australia needs to phase out coal, quickly. The Finkel Review does not place any requirement on coal plants to close (other than recommending a three-year notice of closure for generators). The lack of guidance on coal means there will be no requirement for the most polluting power plants to close first. Indeed, under the Target design, more coal plants could be built, placing an added burden with higher abatement targets to be met by more "clean" electricity.

Australia needs an orderly way to phase out coal with a clear timeline of when and which power stations will close if we really wish to provide the energy markets with certainty and communities a plan to advance and prosper in future.

5) Gas

Gas is polluting (Figure 6). The Review claims "gas contributes to emissions reduction". as, like coal is a source of climate pollution, both from gas plants and methane emissions from the gas supply chain. As our Gas Report explains, gas is already a polluting and expensive form of generating electricity. No new gas plants should be built if we are to tackle climate change effectively as new gas power plants would lock in pollution for decades. Existing plants should be used to accelerate the transition to renewable energy by providing similar services to storage technologies as wind, solar and other renewable energy and storage technologies are brought on at scale. The Finkel Review agrees that it is expensive, but does not sufficiently detail the pollution from gas burning or the supply chain.

Figure 6 - Gas is not sufficiently less polluting than coal to garner any climate benefit.

Photo credit: "Gas processing plant" by Flickr user John Carney licensed under CC BY-NC 2.0

Where to now?

The next steps include:

- Next six months: State and Federal governments to agree on a Clean Energy Target.
- One - three years: COAG Energy Council and governments to develop a whole-of-economy emissions reduction strategy for a 2050 target.
- Industry and regulatory agencies to agree and detail implementation mechanisms for much of the Finkel Review recommendations.

The Finkel Review report is a step forward, but much more needs to be done to reduce the emissions of Australia's biggest polluter - the electricity sector - by ramping up renewables and energy storage uptake, phasing out fossil fuels and making energy efficiency improvements.

The recommendations in the Finkel Review would provide a signal to investors – but a weak one. To really tackle pollution and capitalise on opportunities in renewable energy the policy levers must be much stronger.

Australians are crying out for a strong, clear direction from government. **The review is an orange rather than green light for a renewable powered future.**

IMAGE CREDITS

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Figure Three: Clean Energy Council

Figure Four: “Brown Hill Range wind turbines at sunrise” by flickr user David Clarke under CC BY-NC-ND 2.0

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