

The Transition to 100% Renewable Power for Australia

Briefing and Recommendations to the COAG Energy Council



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AUSTRALIAN CONSERVATION FOUNDATION



Friends of the Earth Australia



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Cover page: Hazelwood Power Station,
La Trobe Valley, Vic
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This page: Common Grace give Prime Minister
crowdfunded Christmas gift - solar panels for
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Executive Summary

As COAG Energy Ministers prepare to meet on 19 August 2016, the transition of Australia's stationary electricity sector is already underway, with renewable energy technologies promising new jobs, lower electricity prices and a pollution-free future. However, to date, this transition has been haphazard, with the Federal Government conspicuously absent in the provision of a clear path to a clean energy future. This has resulted in unnecessary costs being passed on to consumers, misinformation about Australia's electricity market and poor policy solutions, which came to a head in South Australia in July.

The environment sector, as well as the wider Australian public, are looking for regulatory certainty and national leadership for a transition to 100% renewable power. We welcome the COAG Energy Council's recognition of the need to better align energy and climate policy, and believe this is an opportunity for the Energy Council to show leadership in the transition.

This briefing paper calls for the modernisation of our electricity sector to further support renewable energy growth, the removal of barriers that distort the market in favour of fossil-fuel incumbents, and for the development of a roadmap that can enact a smooth and speedy transition to the rapidly approaching electricity market of the future.

We recommend that the COAG Energy Council take the following key steps:

- Facilitate a process to develop a national energy transition roadmap that will see a smooth transition to 100% renewable energy before 2035, including a clear plan with a timeline for the phase out of all coal fired power stations and just transition plans for affected workers and communities.
- Establish an independent expert panel, with representatives from key stakeholder groups to oversee roadmap development.
- Commission technical reviews of existing electricity infrastructure and the changes required to support renewable energy, as well as emerging renewable and storage technologies, to act as the basis for future decision-making.
- Commit to national electricity market reform, including amending the National Energy Objective to achieve 100% renewable electricity.
- Support long-term, stable policies that drive investment in clean energy, like extending the Renewable Energy Target and supporting more reverse auctions, as well as recommending that the Federal Government endorse State and Territory leadership on renewable energy.
- Avoid policies that lock-in the use of fossil-fuels and delay the transition to clean energy.

Introduction

Australia has signed up to the Paris Agreement, which has as its central goal to limit global warming to well below 2 degrees and pursue 1.5 degrees¹. In line with achieving this global goal Australia, as a wealthy developed country, will need to transition to net zero emissions before 2050 and decarbonise its electricity sector, transitioning away from outdated dirty power systems to a clean, flexible 21st century energy system².

The transition to a modern electricity and energy system powered by 100% renewable energy will unlock economic opportunities, create jobs, drive efficiencies, drive innovation, create health benefits, empower consumers and cut carbon pollution.

The transformation from centralised coal and gas to a diversified, decentralised, clean energy system is inevitable, desirable and is already happening.

The penetration of renewable energy in Tasmania, South Australia and the Australian Capital Territory demonstrates the transition to renewable energy is achievable.

However, the transition to date has not been smooth and is running up against numerous barriers. This is in large part because the policy and regulatory framework currently in place is not set up for the transition and is not coping well with it, leaving the transition open to criticism, misinformation, and poor policy solutions, which could significantly set back progress.

For example, renewable energy was wrongly blamed for the recent pricing issues in South Australia, leading to calls for a halt to renewable energy growth. In fact the high prices were due to a number of factors including: high demand for electricity during a cold snap, restricted interconnector capacity, the lack of competition between retailers, and high gas prices (made even higher from having to buy on the spot market).

The issues in South Australia have, however, brought to the fore the need for a national effort to modernise our energy market to support further renewable energy growth, remove barriers that distort the market in favour of incumbents, and develop a roadmap that provides a smooth and speedy transition.

1 UNFCCC, Paris Agreement, Article 2 (a).

2 Climate Analytics, Timetables for zero emissions and 2015 emissions reductions: State of the science for the ADP Agreement, Feb. 2015. Available at: <http://climateanalytics.org/publications/2015/timetables-for-zero-emissions-and-2015-emissions-reductions.html>

Role of COAG—Key Recommendations

We welcome the COAG Energy Council's recognition of the need to better align energy and carbon policy efforts. We believe the COAG Energy Council needs to show greater leadership in transitioning Australia's energy sector and take the following next steps:

1. Facilitate a process to develop a national energy transition roadmap to ensure all governments and agencies are working towards a smooth and speedy transition. The process should ensure that those jurisdictions wanting to transition more quickly than others are supported to do so.

To develop a national renewable energy transition roadmap, we recommend the COAG Energy Council undertakes the following:

- a. Ensures the roadmap covers at a minimum the following areas:
 - i. Energy Market reform to ensure a smooth transition to 100% renewable energy.
 - ii. The orderly closure of all coal fired power stations with clear timelines for phase-out, in line with a transition to 100% renewable electricity before 2035.
 - iii. Stimulating the uptake of renewable energy.
 - b. Establishes an independent expert panel to oversee roadmap development.
 - c. Commissions the following pieces of work as a priority:
 - i. A technical review of National Electricity Market (NEM) infrastructure including existing and new transmissions lines, interconnectors and other supports.
 - ii. A national energy storage plan that provides a technical basis for decision making and funding of new storage technologies.
 - iii. Update of Australian Energy Market Operator's (AEMO) 100% renewable electricity modelling.
2. Commit to a transition to 100% renewable electricity before 2035 and total renewable energy before 2050.
 3. Recommend to the Federal Government that it endorses state and territory leadership on renewable energy and provides greater support for state renewable energy targets by setting a strong Federal 2030 renewable energy target and supportive policy.

A Renewable Energy Transition Roadmap

There is growing consensus that a national energy transition is underway, and that a plan is needed to reform the National Electricity Market to better manage the high penetration of renewables. AGL, Origin, EnergyAustralia and even the AEMO are calling for a plan to close coal burning power stations. So, too, are Australia's leading think tanks, academics and businesses:

- Australian Industry Group (AIG) is calling for reform of the energy market to incentivise appropriate investment.
- Grattan Institute called for Australian governments to agree on a zero emission pathway.
- Australian Energy Council called for a coordinated national approach to transformation.
- Clean Energy Council is calling for long-term strategic energy planning to move to a zero-emissions future.
- AGL has called for a coherent national policy to manage transition.
- Australian Conservation Foundation (ACF) and University of New South Wales have brought together 17 prominent Australians who back an orderly transition to clean energy as essential for Australia's future.

In our view, a renewable energy transition roadmap should cover at a minimum the following areas.

1.0 Energy market reform

There is broad consensus that our energy market is not fit for purpose as we transition to higher penetrations of renewable energy. As such, significant market reform is required. Within this reform process, there are at least three areas that must be considered as a matter of urgency.

1.1 The inclusion of an environment/climate/carbon component to the National Electricity Objective (NEO)

We need objectives that can drive the clean energy transition through the day-to-day actions of all organisations and individuals involved in electricity delivery in Australia, from the Federal government and the COAG Energy Council down to the smallest solar provider and everyone in between - regulators, rule makers, market operators, retailers, network companies, commercial and household solar producers/consumers, and so on.

The commitment at the last COAG Energy Council meeting to better align climate and energy policy is not possible without a change to the NEO. Currently, the Australian Energy Market Commission (AEMC), the Australian Energy Regulator (AER) and AEMO cannot consider the environmental implications of critical decisions such as rule changes and network pricing determinations. This must change as a matter of urgency and the best way to do this is through changing the NEO.

Governments in places leading the energy transition globally, such as New York, the UK, Denmark and Germany, have aligned their energy market objectives with their climate and social justice objectives and targets.

1.2 Interventions to shift to variable/dispatchable clean energy solutions

A combination of market and policy mechanisms is likely to be required as we shift away from a baseload/peakload energy system (coal and gas) to a variable/dispatchable energy system (e.g., wind, solar, batteries, bioenergy, solar thermal).

In particular, attention should be paid to:

- Incentivising dispatchable energy solutions to enter the market. For example, reverse auctions targeting dispatchable energy.
- Changes to wholesale market price setting, to reduce price gaming. For example, switching from a 30-minute determination of the spot price to 5-minute determination.
- Assessing options to strengthen and increase the interconnection of the NEM.

As a priority we would urge the COAG Energy Council to commission thorough reviews of both energy storage opportunities and our national electricity grid infrastructure.

Storage solutions such as pumped hydro, batteries, and concentrated solar thermal provide flexibility and dispatchability to complement renewables such as wind and solar. A national energy storage plan that examines available technologies, considers geographic opportunities and constraints, and delivers optimal storage mapping, would provide the technical basis to inform decision making and the roll-out of storage technologies to complement renewable energy generation.

Similarly, the physical NEM infrastructure including interconnectors and transmissions lines will need to be updated. The details of this should be determined by a technical review of the grid that includes an urgent assessment of critical bottlenecks and optimal placement of new or expanded interconnectors.

1.3 Increase access for decentralised energy solutions to markets and the grid

Another key shift in our energy system is the move to derive a greater proportion of our energy from decentralised sources - solar, batteries, electric vehicles (EVs), as well as demand management solutions. Currently, decentralised energy solutions have difficulty accessing the energy and ancillary markets and are not utilised to deliver grid services.

Reforms are needed to ensure that decentralised energy solutions are considered on a level playing field with poles and wires in network pricing and planning processes. Consideration should also be given to opening up grid services to greater competition.

Reforms are also needed to ensure that small generators and demand aggregators can have better access to the energy market and are better recognised for the important role they play in the energy mix.

Consideration should be given to:

- Establishing grid connection processes that embrace technical capabilities to realise the potential of renewable energy and storage.
- Establishing fair, reasonable and independently approved commercial terms for connection.
- Ensuring that customers who elect to install non-exporting renewable energy and energy storage systems are not treated any differently to customers who make adjustments to their equipment, given they have no additional impact on the grid.
- Developing a grid connection opportunities mapping tool that maps location-specific hosting capability of the grid, reducing the burden on generator proponents and networks.

2.0 The orderly closure of coal fired power stations

Coal fired power stations represent the single largest source of Australia's greenhouse gas emissions. Australia's coal infrastructure is aging. Experts have described the design life of a coal-fired power plant as 25-30 years, meaning that 75 percent of the existing thermal plant in Australia has passed its useful life³. If we are to meet Australia's contribution to the Paris Agreement and decarbonise our energy system, we need a plan to phase out coal starting with the orderly closure of the oldest and dirtiest coal fired power plants in this term of Federal parliament, while ensuring a just transition for communities and workers.

When considering the closure of coal fired generators there are two areas that require the immediate attention of the COAG Energy Council.

2.1 Mechanisms and timelines for coal closure

We strongly recommend that the COAG Energy Council develop a national coal power station closure plan with clear timelines and supporting policies. For example, consider a combination of regulation and a reverse auction mechanism along the lines outlined by Dr Frank Jotzo from ANU.

The COAG Energy Council should seek to close all coal fired power stations with clear timelines for phase-out, in line with a transition to 100% renewable electricity before 2035.

2.2 A just transition for workers and communities

Australia urgently needs a plan to phase out coal fired power stations and as part of the process to ensure a just transition for workers and communities. The experience of power station closure in Port Augusta reconfirmed that it is essential that planned coal station retirements also actively consider affected workers and the community.

We call on the COAG Energy Council to establish a national tripartite (government, industry and union) group tasked with coordinating the redeployment, retraining and early retirement of coal power workers.

3.0 Stimulating the uptake of renewable energy

All jurisdictions, indeed all Australians, have a role to play and should be able to participate and benefit from the transition to clean renewable energy. To do this we need Federal and State Governments to:

- Set medium and long-term carbon pollution reduction targets in line with achieving national net zero emissions before 2050.
- Commit to the current 2020 national renewable energy target, while continuing to support separate state targets.
- Commit to post 2020 renewable energy targets in-line with achieving 100% renewable electricity before 2035.
- Support suitable long-term, stable policy mechanisms to drive investment in renewable energy such as extending the RET scheme and supporting more reverse auctions.
- Provide greater investment in Australian Renewable Energy Agency (ARENA) and the Clean Energy Finance Corporation (CEFC) to drive innovation and commercialisation of renewable energy, including reinstatement of ARENA's grant making function.

3 Nelson, T., Reid, C. & McNeill, J. (2014) 'Energy-only markets and renewable energy targets: complementary policy or policy collision?' AGL Applied Economic and Policy Research. Working Paper No. 43, p. 15.



Coal fired power station Hunter Valley, NSW
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Avoid Policies and Positions that Lock in Carbon Pollution and Delay Transition

There will be temptation to implement short-term solutions that if not considered against overall objectives to decarbonise our electricity sector, or if instituted at the expense of solutions that genuinely facilitate the transition to a clean energy system or broader societal concerns, could end up with significant perverse consequences. For example, we would urge the COAG Energy Council to avoid the following:

- Opening up new unconventional gas sources.
- Capacity markets, where we pay for fossil fuel generation to stay online. Providing financial support to coal and gas generators to stay open to provide energy ‘just in case’ will increase costs to consumers and delay the inevitable transition to renewables. Instead, support should be provided to encourage more suppliers of clean, dispatchable energy to enter the market.

Independent Expert Panel

Instituting the process of developing a clean energy transition roadmap needs to be a priority action from the COAG Energy Council’s upcoming meeting. We recommend that an independent expert panel be set up immediately to coordinate and launch these efforts and to drive the development of a national clean energy transition roadmap. There is a range of important sectors with views and expertise that should be included in the development of a roadmap. As such, we feel the panel should include a representative from generators, regulators including AEMC and AEMO, CSIRO, finance sector (e.g., CEFC), environmental sector, welfare sector, consumer sector and major energy users.