

Submission from
Climate Change Balmain-Rozelle
on
The Department of Environment and Energy's
**Review of Climate Change Policies,
Discussion Paper, March 2017**

4 May 2017

Background to submission

The Federal Government is reviewing its climate change policies to take stock of Australia's progress in reducing emissions, and ensure the Government's policies remain effective in achieving Australia's 2030 target and Paris Agreement commitments and has asked the Department of Environment and Energy to conduct a review¹ during 2017. The Department has released a Discussion Paper² inviting input from business and the community.

Who we are

Climate Change Balmain-Rozelle Inc.³ is a collective of parents and residents in the Inner West of Sydney who have come together out of mutual distress over Australia's excessive greenhouse gas emissions and the world our children will inherit. Our newsletters reach nearly 800 supporters.

Australia's commitments

We wish first to draw attention to some important gaps between Australia's COP21 commitments and the scope of the discussion paper.

- **Drawdown**
"Article 2

1. *This Agreement ... aims ... by:*

(a) Holding the increase in the global average temperature to well below 2 °C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5 °C above pre-industrial levels ..."

The ADVANCE Project⁴ research conference on October 24 2016 in Brussels revealed for the first time a range of 1.5°C scenarios derived from a new generation of scenarios from Integrated Assessment Models. The conclusion from the ADVANCE Project was clear: to meet the long term goal of the Paris Agreement, net emissions would need to reach zero by 2050, and then go below zero in the second half of the century. This conclusion reinforced the results of earlier Integrated Assessment Models.

These scenarios require deployment of carbon dioxide removal (CDR) technologies in the second half of the century, to compensate for the lack of climate action in the past. Among CDR technologies, models mostly rely on BECCS (bioenergy + carbon capture and storage) to achieve negative emissions. Those technologies, though, are currently available only at pilot scale. It is essential, therefore, that we act early with strong policies that will be effective over the time we have left.

As witnessed in the rapid growth of renewables in the last ten years, policies can provide strong incentives to the private sector to deploy bio-energy with carbon capture and storage at large scale, which in the scenarios is phased in by the 2030s.

1 <http://www.environment.gov.au/system/files/pages/64722841-01ab-4067-a978-40d63174d4c7/files/tor-climate-change-review.pdf>

2 <http://www.environment.gov.au/system/files/consultations/dcb346c1-f0c0-4ba4-aa83-047c062b4bbc/files/discussion-paper-review-of-climate-change-policies-2017.pdf>

3 <http://www.climatechangebr.org/>

4 <http://climateanalytics.org/blog/2016/new-research-confirms-feasibility-of-the-1-5c-limit.html>

- **Coal exports**

"Article 2

(c) Making finance flows consistent with a pathway towards low greenhouse gas emissions and climate-resilient development."

Selling coal would be a finance flow. This article clearly prevents Australia from exporting coal in quantities inconsistent with the World's meeting the Paris objectives.

- **Coal mining**

"Article 5

1. Parties should take action to conserve and enhance, as appropriate, sinks and reservoirs of greenhouse gases as referred to in Article 4, paragraph 1(d), of the Convention"

A coal deposit is as much a reservoir of carbon as is a forest or peatland. This article requires Australia to cease mining coal.

Questions posed in the discussion paper

"Australia has committed to considering a potential long-term emissions reduction goal for Australia beyond 2030. "

- *What factors should be considered in this process?*

The ERF

Despite the spin, the ERF is a proven failure.

- Much of the abatement has been purchased in the land sector, wherein, crazily, a 100 year sequestration is considered as good as permanent.
- The latest round was particularly disappointing⁵.
- The existing cap is so lenient as to be ineffective.

A Carbon Price

It is unfortunate that unprincipled political machinations have left the Australian public wary of a price on carbon. It is very clearly a key cost-effective way to cut emissions. The paradox is that Free Market enthusiasts ought be well aware of the need to compensate for externalities. The lack of a carbon price is effectively a subsidy, and a barrier to competition.

A way needs to be found to rehabilitate the idea of a price on carbon. The US Environmental Protection Authority performed a painstaking analysis to arrive at a "Social Cost of Carbon"⁶. E.g. at a 3% discount rate, each tonne emitted now is rated at USD38, rising to USD50 in 2030. This should serve as a model.

Meanwhile, at the least, the coal industry and fossil fuel power stations should pay a levy based on their more direct health harms from particulates, heavy metals and noxious gases, and pay the full value of the water they use.

Various international studies^{7,8,9} have put these direct health harms alone at upwards of AUD50/MWh.

The Long View

There is a risk that focusing on the cheapest way to achieve 2030 commitments is off-track for deeper emissions cuts beyond. New cleaner coal plant and gas plant would become stranded assets, and a diversion of much needed funds for zero-emissions technologies.

Planning must start now for mostly eliminating emissions by 2050.

The Urgency

The stretch goal in the Paris agreement of limiting to a 1.5°C rise is telling. It says we know that exceeding that will be unpleasant, but that it might be already too late to avoid it. Merely considering a substantial long-term emissions reduction is quite inadequate.

The Economics

Climate change and ocean acidification threaten Australia's economy in numerous ways.

We are already seeing the destruction of the Great Barrier Reef's ecosystem and an increase in major floods and heatwaves that can no longer be dismissed as part of the natural variability. The record breaking extremes of the 2016/17 summer were made 50 times as likely by existing climate change¹⁰. The rise in average temperatures is even more marked in the other seasons, with very

5 <http://reneweconomy.com.au/poor-results-at-auction-reflect-lack-of-faith-in-emissions-reduction-fund-33422/>

6 https://19january2017snapshot.epa.gov/climatechange/social-cost-carbon_.html

7 <http://in.reuters.com/article/eu-pollution-idINL6N0TE2Z620141125>

8 <https://www.sciencedaily.com/releases/2015/03/150304110402.htm>

9 <https://www.theguardian.com/environment/2015/sep/10/uk-ranks-in-top-3-of-europes-coal-league-of-shame>

10 <https://www.climatecouncil.org.au/angry-summer-report>

warm monthly maxima and minima 5 times as common as in the 1950-1980 period¹¹. These trends will cost Australia dearly in natural disasters, insurance premiums, agriculture, tourism, public health and industrial productivity.

While most of that is driven by global emissions, it is in our own interest to push much harder for emissions reduction, to lead by example, and to desist from mining thermal coal.

Non-power sectors

While cutting emissions from electricity generation has been the easiest path for now, it is time to address other sectors, principally transport and agriculture.

Agricultural emissions include a number of short-lived but high impact pollutants such as methane. This means the CO₂ equivalent depends on the timescale. Revised estimates put Australia's agricultural emissions at 42% of a 689MtCO₂-e total on a 100-year basis, but 54% of a 1497MtCO₂-e total on a 20-year basis¹².

Viewed purely with regard to meeting international standards, Australia has an interest in sticking with the 100-year basis. For avoiding climate disaster well before 2100, the 20-year basis would be more appropriate. Either way, greater strides need to be made on agriculture.

- *What are the issues in the transition to a lower emissions economy with respect to jobs, investment, trade competitiveness, households (including low income and vulnerable households) and regional Australia?*

Trade Competitiveness

This can only be solved by international agreements. A critical mass of countries needs to set trade barriers and tariffs according to the carbon footprint of goods. If the WTO objects, it may be necessary for the group to secede from it.

Until then, some dispensations for trade-exposed industries will be needed.

¹¹ <http://www.bom.gov.au/state-of-the-climate/australias-changing-climate.shtml>

¹² Longmire, A., Taylor, C. & Wedderburn-Bisshop, G. Land Use: Agriculture and Forestry Discussion Paper. (Beyond Zero Emissions; Melbourne Sustainable Society Institute, 2014)

"Emissions reduction policies in the electricity sector "

- *What are the opportunities and challenges of reducing emissions from the electricity sector?*

Opportunities

- Reduced health impacts from particulate emissions
- Reduced land damage from mining
- Ultimately, cheaper electricity than today

Challenges

- Workforce transition
- A renewables-dominated grid
- Early retirement of the most polluting power stations
- Redesign of the electricity market

Energy Storage

Incentives such as the Renewable Energy Targets and Emissions Intensity schemes do not take into account the long term need to power the grid with no fossil fuels at all. They drive investment in the lower emissions technologies of least immediate cost, such as gas, wind and solar PV. The lowest emitters of these may depend on some level of conventional power also being available.

In particular, a grid based entirely on gas would have significantly lower emissions than today's grid, but cutting emissions beyond 50% would involve scrapping these new power stations.

There is an urgent need to drive roll-out of storage to avoid the need for continued use of coal and gas. This may be some mix of pure storage (battery, pumped hydro, hydrogen) and renewable generation with in-built storage, such as concentrated solar thermal with heat storage. In comparing the economics of these, the pure storage must be taken to be in support of renewable generation, such as wind, or it may still only serve to lock in gas.

In particular, battery storage in support of PV would have to cope with a high recharge rate. For example, if we were to create a baseload (constant output) power station from a solar PV farm with battery storage, the average output over 24 hours would be about one sixth of the peak output from the solar panels. It follows that during that peak output, 5/6 of the power is going in recharging the batteries. The recharge rate needed is therefore five times the discharge rate needed.

The Market

The current 5-minute dispatch but 30-minute settlement arrangement favours incumbent generator technologies and encourages the manipulation of bidding and supply to maximise income. This needs to be rationalised.

- *Are there any implications for policy?*
 - Reintroduce a carbon price. In view of the increasing urgency, it now needs to be at least \$40/tCO₂e.
 - Charge power stations according to particulate emissions;
 - Ensure States require miners to place adequate bonds for, and to conduct, land remediation;
 - Act promptly and effectively on managing the workforce transition;
 - Subsidise the early installations of storage suitable for partnering with renewable generation;
 - Eliminate barriers to zero emissions generation;
 - Cease any and all subsidies for fossil fuel use;
 - Determine, by modelling, appropriate market rules for a grid dominated by solar and wind power.

- *How can energy and climate policy be better integrated, including the impact of state-based policies on achieving an effective national approach?*

Given the urgency and scale of the global problem, the Federal Government should not inhibit the low-carbon ambition of the more forward-looking States. But the Federal Government necessarily forges international agreements, so has the task of ensuring the aggregate effort is sufficient.

States' readiness to compete for Federal monies should be leveraged. ARENA is a proven effective vehicle for delivering these. More funding to ARENA should be money well spent.

- *Are there particular concerns or opportunities with respect to jobs, investment, trade competitiveness, households and regional Australia that should be considered when reducing emissions in the electricity sector?*

Jobs

For many years to come, the switch to clean energy will generate more jobs than it cuts. Automation in mining and transport of coal has significantly trimmed the labour force needed and continues to do so.

There will be some lost demand for health workers dealing with the pollution impacts, but there is plenty of growing demand in other areas.

The principle jobs problem is therefore transition to other activities. The State and Federal governments have much urgent work to do on this.

Investment

The fossil fuel industry is faced with massive stranded assets. If all the coal in all the operating coalmines in the world is dug up and burnt the world will have blown its carbon budget.

Governments must drop the idea that the companies have the right to realise the assets they have, and discourage their investment in more.

The economic opportunities presented by local generation of cheap and abundant power anywhere on the continent has the potential to renew regional economies. It can be compared to the National Broadband Network as an enabler of economic activity and driver of competitive efficiency.

Trade Competitiveness

See sector-independent answer above on page 4. Further, several renewable energy technologies are more readily provided at small scale in remote regions than are conventional power. This would boost economies in those areas.

Low income households

The existing flat tariff households are charged for electricity is broken.

Most of the actual cost of providing connectivity and peak demand is bundled into the per-kWh price. While this is progressive in that households with high total demand take a higher fraction of the burden, it is regressive in that households with high peak demand relative to total demand (e.g. for air conditioning) take a lower fraction. It has been estimated that for each \$1 spent on installing aircon, the network spends \$3 to support it.

(The fairness with regard to PV households is less clear. While they also benefit because of their reduced total demand, they also serve to trim what otherwise would be the yearly peak: mid-afternoon in summer.)

Removing the regressive element while improving fairness would involve charging a household a premium for high usage during high network demand.

Regions

For remote areas, minigrids powered largely from renewables can provide electricity both more

cheaply and more reliably. There are various options for back-up.

"Emissions reduction policies in Australia's transport sector "

- *What are the opportunities and challenges of reducing emissions in the transport sector?*

Electric Vehicles versus Improved Efficiency

In grid regions where the power is still almost entirely from coal, electric vehicles have about the same carbon footprint as (reasonably efficient) combustion engines. As low-carbon generation expands, there will be benefit in encouraging the switch to electric vehicles. Meanwhile, Australia lags world best practice on engine efficiency, so much could be achieved by lifting standards.

This leads to a dilemma. Driving investment in more efficient petrol vehicles (not Diesel because of the health problems) will divert it from the switch to electric. The ideal is to cut electricity emissions rapidly and go straight to electric vehicles. A pollution tax on inefficient petrol and Diesel vehicles would assist that, whereas discounts on more efficient petrol vehicles would hinder it.

- *Are there particular concerns or opportunities with respect to jobs, investment, trade competitiveness, households and regional Australia associated with policies to reduce emissions in the transport sector?*

Jobs

Support for development of electric vehicles within Australia is now largely a missed opportunity. There remains the possibility of encouraging their manufacture here.

The corresponding roll-out and maintenance of infrastructure will also provide some employment. At the same time, jobs will be lost in the distribution of conventional fuels.

Balance of Trade

Reduced fuel imports will improve the balance of trade. Although peak oil predictions have a long history of failing to account for new technology, the trend in predictions since 1970¹³ converges at around 2084. Meanwhile, extracting the less accessible reserves has progressively higher cost.

Energy Security

Cutting fuel imports will also make Australia far less vulnerable to oil shocks and disrupted maritime traffic¹⁴. Given the ever-volatile state of the Middle East and present tensions in the Korean peninsula and the South China Sea, this is already a concern.

13 https://en.wikipedia.org/wiki/Peak_oil#Predictions

14 <http://www.abc.net.au/news/2016-02-24/fuel-imports-a-risk-amid-south-china-sea-tensions-nrma-advisor/7149648>

"Current policy settings that support low-emissions innovation "

- *What is the role of research, development, innovation and technology in reducing Australia's emissions?*

The question is too parochial.

Climate change is a worldwide problem. Australian research, development, innovation and technology have the potential to reduce global emissions. Although Australia's *per capita* emissions are shockingly high, our total emissions are modest on the world scale. Consequently, our technological advances have the potential to benefit Australia more than merely reducing domestic emissions will.

- *Are there any implications for policy?*
- *Are there particular concerns or opportunities with respect to jobs, investment, trade competitiveness, households and regional Australia that should be considered in relation to research, development, innovation and technology?*

The history of technological advances in renewable energy in Australia ending up as overseas development is well documented.