

Submission to Clean Energy Finance Corporation

Expert Review

I support the Clean Energy Finance Corporation (CEFC) as a first step in Australia's necessary transition away from its current fossil fuel economy toward the renewable energy one of the future. The creation of this independent body should provide some certainty for the renewable energy industry. However, I remain concerned that CEFC:

- may not receive enough funding
- may fund non-renewable technologies
- may neglect to fund the emerging technology of concentrated solar power
- may be too risk-averse in selecting projects to fund
- may be impeded by existing policies
- may not be additional to existing policies

#1 The Big Picture

The world's governments have agreed to prevent “[dangerous anthropogenic interference with the climate system](#)” and “[hold the increase in global average temperature below 2°C above pre-industrial levels](#)”. To achieve these goals requires urgent and radical change to the global and Australian economy. The extent of climate impacts centuries and millennia from now will be determined by policy decisions taken in the near future. The Government's own Climate Commission has identified the 2010s as the “Critical Decade” for climate change mitigation.

[To avoid climate feedbacks that could lead to dangerous warming](#), humanity needs to return the Earth to energy balance, which means reducing atmospheric CO₂ to ~350 ppm. Every year the world delays, CO₂ rises by another 2 ppm and the 350 goal slips further from our grasp. Because of the long lifetime of CO₂ in the atmosphere, to reduce its concentration humanity must cut fossil fuel emissions to zero or near-zero as soon as possible. The central solution is to switch from fossil fuels to renewable energy as fast as possible.

CEFC, in its presently proposed form, is nowhere near what is required. According to Treasury modeling for the “Clean Energy Future”, only 40% of Australia's energy in 2050 will come from renewable sources. Australia can, should, and must do better. Australian action should not be conditional on international action; if every nation makes this argument then nobody will ever do anything. If any nation has an imperative to take a leadership position, it is wealthy, sunburned, fossil-fuel-intensive Australia.

The [Zero Carbon Australia 2020 Stationary Energy Plan](#) by Beyond Zero Emissions shows it is practical for Australia to achieve 100% renewable energy within ten years, by rapidly scaling up existing technologies. What is lacking is political will and financial investment. CEFC must help Australia transition to 100% renewable energy as rapidly as possible; this is the main guiding principle in the following analysis.

#2 Funding

The Government has announced \$10 billion for CEFC over five years from 2013-14, suggesting an average of \$2 billion per year. Yet according to the [fiscal tables accompanying the Clean Energy Bill](#), less than \$1 billion is expected to be spent by 2014-15. It is not at all obvious how, in the remaining three years, the Government is suddenly going to find an average of \$3 billion per year for CEFC. It seems counterproductive that support for the industries of the future takes so long to ramp up, while a much larger proportion of carbon price revenue goes to polluting industries.

If the Government's negotiations with the Multi-Party Climate Change Committee were in good faith, then all of the promised funding must be provided. At least \$10 billion funding to be spent within five years must be guaranteed in law, so the Government cannot break its promise. If possible CEFC should begin investing in 2012-13 to complement the carbon price as soon as it comes into effect, and spend at least \$2 billion per year from the beginning. Construction of at least one project (preferably a concentrated solar power plant – see #4) must begin before the next election to make it difficult for an incoming government to abolish CEFC.

Additional funding could come from cutting fossil fuel subsidies (see #6) and/or redirecting carbon price revenue that would otherwise be returned to polluting industries (which in itself could be considered a fossil fuel subsidy). The Productivity Commission is scheduled to review industry compensation in 2014-15; this review should occur in 2013-14 when one full year of data on its impacts will be available. It is important that the Productivity Commission review occur as early as possible, because there is a three-year notice period for any changes to the Jobs and Competitiveness Program which have a negative effect on businesses. Wherever an overallocation of free permits is identified, the revenue must be redirected to CEFC.

#3 Choice of Technologies

In choosing which projects to finance, one principle is even more important than getting a return on investment: as a body established to finance a “Clean Energy Future”, CEFC must invest only in zero-emissions energy. It should be renamed the Renewable Energy Finance Corporation and all of its funding directed to renewable energy technologies. (Although there may be some emissions associated with construction of renewable energy projects, there are zero emissions after construction.) CEFC must not invest in any fossil fuel or fossil-renewable hybrid projects – not even natural gas, which is a fossil fuel and thus part of the problem, not the solution.

All fossil fuel technologies emit carbon dioxide, because burning carbon means reacting it with oxygen. It is questionable whether gas is even a low-carbon fuel: when fugitive emissions of methane are [taken into account](#), gas may be comparable to coal on a 100-year timescale, and far worse on a 20-year timescale. The only realistic way to achieve the required rapid transition to a zero-carbon economy is to phase out fossil fuels as quickly as possible. The currently fashionable notion of a two-staged transition, from coal to gas to renewables, wastes precious time. From the perspective of businesses, gas

investments carry the political risk of eventually being shut down to mitigate climate change. For humanity, the far worse risk is that we build a fleet of polluting gas power plants and run them for their full lifetime of up to 60 years.

Also, there is no need to build hybrid power plants; Australia can build the real thing.

#4 Baseload Power

[A common misconception](#) is that renewable energy cannot provide power continuously throughout the day and year, analogous to the “baseload” power provided by coal-fired plants. But [concentrated solar power](#) (pictured) does have the storage capacity to provide continuous power. Mirrors track the Sun and focus sunlight onto a central power tower. This energy is stored in molten salt as heat, warming the salt to 565°C. To produce electricity, the heated salt is pumped into a generator where it is used to boil water which drives a turbine, as in a conventional power plant. Once the salt is cooled to 290°C (still warm enough to be molten), it returns to the tank to be reheated.



The fact that the Sun doesn’t shine at night is not a problem for a concentrated solar power plant, because it has a store of energy ready to go at any time. In some ways this type of power is actually better than “baseload” because it is both continuous and flexible, so can be used to complement more intermittent sources like wind power.

Concentrated solar power plants are already operating in Spain, a country with less sunlight than Australia. Yet current policies in Australia are unfriendly to the technology (see #6). CEFC must help to fill this gap by delivering concentrated solar power plants. CEFC should fund 2 GW of concentrated solar power to replace the 2 GW of coal power plants that will be paid to close. Even an initial small-scale project would provide proof of concept and bring down the cost of future ones.

CEFC should consider the work done by Beyond Zero Emissions in its [Zero Carbon Australia 2020 Stationary Energy Plan](#). Based on comprehensive modeling, the report concluded that concentrated solar power could supply 60% of Australia's electricity. The rest could be provided primarily by wind, with biomass and existing hydro capacity as backup to fill any gaps, and demand reduced by off-grid small-scale solar. A 100% renewable economy would also require an upgraded electricity grid, electrification of transport, and dramatic improvements in energy efficiency.

#5 Costs

The costs of renewable energy technologies are improving rapidly, and can be further reduced by more investment. [A report commissioned by the Garnaut Review](#) found the costs of renewable technologies are already far lower, and falling much faster, than outdated government estimates. And although fossil fuel technologies still appear cheaper than renewable ones, it is only because current policies fail to fully account for their climate costs. The [true cost of CO₂ emissions](#) could be up to \$900 per tonne today and could rise to \$1,500 per tonne by 2050. In other words, there is a significant risk the damage is so high that practically any measures to move to a zero-carbon economy are worth taking.

Existing policies only support the lowest-cost renewable technologies, if any (see #6). There is a danger of CEFC falling into the same trap if it is too risk-averse. The test of a good project to fund should be not “how much does it cost today in dollars per tonne of CO₂e abatement?” – a narrow, short-term way of looking at the problem – but instead “how much does it contribute to the long-term transition to a zero-carbon economy?” That transition urgently requires investment in large-scale emerging technologies like concentrated solar power.

#6 Barriers to Deployment

The CEFC is intended to help renewable energy technologies enter the market, but existing policies will be working against it. Firstly, in 2010-11 [Australia spent \\$12.2 billion per year on perverse fossil fuel subsidies](#), including fuel tax rebates, non-indexing of fuel excise, aviation concessions, and depreciation concessions for fossil fuel assets. Thus Australia spends more on fossil fuels every year than CEFC might spend on renewable energy over five years, contradicting the Government's stated vision of a “Clean Energy Future”. All these fossil fuel subsidies must be cut entirely from future budgets and transferred to CEFC.

Secondly, Australia's carbon price of \$23 per tonne is far too low to support renewable energy. Businesses must have certainty that they will face a higher carbon price in the future. A carbon price of perhaps ~\$100 per tonne is required to make renewable energy economically attractive. The carbon price also must not be diluted by international offsets which discourage structural change in the Australian economy.

Thirdly, the current configuration of the electricity market, with an oligopoly of three major retailers, is biased against renewable energy. This could be remedied by a national feed-in tariff.

A feed-in tariff means electricity retailers must give renewable energy generators long-term contracts paying them for the excess cost compared to non-renewable energy. The subsidy is decreased as the costs of renewable energy technologies improve over time. 87% of global solar energy capacity and 64% of global wind capacity [were delivered by feed-in tariffs](#). For maximum impact, the feed-in tariff must be nationally consistent, apply at all scales from rooftops to power plants, and pay different rates for different technologies so as to support all of them.

Renewable energy targets are to feed-in tariffs as emissions trading schemes are to carbon taxes. The former fix the quantity and allow the market to determine the price, whereas the latter fix the price and allow the market to determine the quantity. A target supports only the cheapest renewable energy – wind – which, as noted above, is not enough to repower Australia. Nevertheless, Australia's renewable energy target must remain in place because the industry needs all the support it can get. It can be improved by increasing the target, instituting a floor price, and/or carveouts for specific technologies.

Finally, a non-financial factor that inhibits renewable energy is the belief held by most of Australia's leaders that the future is in fossil fuels, not renewable energy. Fossil fuel industry points of view dominate advice to governments; for example, the reference group on the Government's upcoming Energy White Paper is stacked with fossil fuel interests, with zero representatives from the renewable industry. However, opinion polls (eg. [here](#)) suggest that renewable energy is popular among the public, so investing in it makes political sense as well as being good policy.

#7 Additionality

CEFC-funded projects must be additional to the renewable energy target, and the emissions reductions achieved must be additional to Australia's emissions trading scheme.

Conclusion

In summary, the Clean Energy Finance Corporation has the potential to assist Australia in the journey to a renewable energy economy. To maximize results, CEFC must spend at least the promised funds as soon as possible; invest only in renewable energy; begin building concentrated solar power; support emerging technologies to improve their costs; advocate the removal of barriers to deployment; and be additional to existing policies. I hope your work will lead to a truly clean energy future.

Yours faithfully,
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