

13 March 2018

ACF Submission: Inquiry into the Clean Energy Finance Corporation Amendment (Carbon Capture and Storage) Bill 2017

Key Points

- Recent growth in Australia's clean energy sector is encouraging, but an acceleration in action is required to meet our global emission reduction commitments under the Paris Agreement.
- The CEFC has made an important contribution to the growth of renewable energy technologies in Australia over the last five years. It has stimulated flows of private investment in the clean energy sector, particularly into large scale renewable energy projects.
- The CEFC's specifically defined investment mandate has provided it with a clear organisational and investment focus which has materially contributed to its success.
- So-called "clean coal" technology is economically uncompetitive in Australia and wholly incompatible with our global emissions commitments.
- Carbon Capture and Storage (CCS) technology, when theoretically applied to new coal-fired power stations, yields only a marginal emissions reduction. As a result, such investment is inefficient, particularly in light of readily available, cheaper renewable energy technologies with zero ongoing emissions.

Key Recommendations

- **The CEFC's investment mandate should not be expanded to include investment in CCS technologies, particularly where such investment would ostensibly seek to facilitate the construction of new coal-fired power stations**
- **Maintain the current scope of CEFC's investment mandate, with a primary focus on promoting investment in renewable energy technologies.**

The CEFC as catalyst for Australian renewable energy investment

Australia's emissions challenge

Australia's per capita carbon emissions are among the highest of advanced countries. Our fossil fuel intensive electricity system is aging and highly polluting. Coal is the most carbon intensive fossil fuel and is still Australia's primary energy source. This contributes significantly to the overall emissions profile of our country. We continue to lag other advanced economies in both our current production of renewable energy and overall investment in the sector. Australia's electricity system produces nearly twice as much carbon than is produced on average by other OECD member countries.¹

The Federal Government has committed to significantly reduce our emissions under the Paris Agreement. An acceleration in action is necessary to meet our emissions reduction commitments and diminish the reliance on harmful fossil fuels across our economy. Given Australia's current emissions profile, decarbonising our electricity system is an essential step towards meeting our global commitments. This will require focused, long-term investment and a strong resolve to honour our emissions reduction objectives.

In recent years, there has been promising growth in the Australian clean energy sector. The CEFC has played an integral role in this growth, contributing to sectoral stability and promoting increased flows of funding from private investors. While recent progress is encouraging, there is still more work to be done. The CEFC is a critical component of Australia's transition to a clean energy future. Therefore, it is vital that current and future governments empower it to fulfil its essential role in the sector.

Success of the CEFC to date

Since its establishment, the CEFC has successfully increased flows of finance into clean energy technologies, improved access to capital for prospective projects and built the capacity of private investors in the Australian clean energy market. The CEFC has also engaged with the broader finance community, working to both de-risk and lower the cost of financing new clean energy projects. This has increased the commercialisation and deployment of clean energy technologies across the sector.

The CEFC is now established as a major investor in the Australian clean energy market. Since its inception, the CEFC has provided over \$5.8 billion in finance to 85 projects. Collectively, these projects are forecasted to reduce Australia's annual emission by 11.1 million tonnes of CO₂-e.²

The CEFC has played a vital counter-cyclical role within the clean energy market. Over the past five years, the CEFC has contributed a greater proportion of renewable energy project financing when total investment flows have contracted. As a result, the CEFC has

¹ International Energy Agency, October 2017, 'CO2 Emission from Fuel Combustion 2017', link: http://www.oecd-ilibrary.org/energy/co2-emissions-from-fuel-combustion_22199446

² Statutory Review of the CEFC, February 2018, CEFC Submission, link: https://www.cefc.com.au/media/390711/statutory-review-cefc-submission-february-2018.pdf?mc_cid=21fa96f0bf&mc_eid=93303fb590

helped maintain funding momentum in the clean energy sector during periods of subdued private investment.

The CEFC has played a diversified and important role in the development of the Australian clean energy sector over the last five years. At its core, the CEFC has acted as structural pillar in the market, stabilising investment flows and catalysing greater private sector participation.

Importance of focused investment mandate

A key contributor to the CEFC's success has been its adherence to a narrowly defined investment mandate, focused on promoting investment in clean, renewable technologies. Moving forward, the scope of the CEFC's investment mandate should remain unchanged. Investment or organisational focus on industries and products that bear only a tangential connection to the Australian clean energy sector risks diminishing the CEFC's overall effectiveness. Recent attempts by the Federal Government to divert CEFC funding towards projects related to the Reef 2050 plan is evidence of a potential stretch in scope.³

The CEFC is at its most effective when participating as a catalytic agent in the Australian clean energy market. Under its current investment mandate, it has had notable success in stimulating investment and deployment in the large scale renewable market. The CEFC's current investments now collectively include one gigawatt of large-scale solar power from over 20 projects. This history of large-scale solar investment is one example of its ability to improve the cost competitiveness and economic viability of a large-scale renewable energy technology.⁴

The CEFC must not invest in enablers of fossil fuel energy production

The CEFC investment mandate must, under no circumstances, allow for the financing of coal or other fossil-fuel related projects. Members of the Coalition Government have previously indicated their willingness to direct CEFC funding toward new coal-fired power stations.⁵ Expanding the investment mandate of the CEFC to enable investment in CCS technology would be one such way of providing an avenue for these kind of financing arrangements. Such a move would be antithetical to the stated goals and purpose of the CEFC and would compromise Australia's international credibility on climate change action.

³ Statutory Review of the CEFC, February 2018, CEFC Submission, link:

https://www.cefc.com.au/media/390711/statutory-review-cefc-submission-february-2018.pdf?mc_cid=21fa96f0bf&mc_eid=93303fb590

⁴ <http://reneweconomy.com.au/cefc-passes-1gw-big-solar-milestone-after-backing-two-new-projects-58383/>

⁵ <http://www.abc.net.au/news/2017-02-02/clean-energy-money-could-fund-coal-power-stations-morrison-says/8234118>

There are two main reason why the CEFC's investment mandate should not be modified to allow for investments in CCS technologies:

- 1) The investment case for Australian renewable energy projects is improving rapidly. The CEFC has a proven record of catalysing investment in large scale renewable energy projects and this should remain its primary focus.
- 2) CCS technology has been proposed as a way to justify investment in the construction of new coal-fired power stations. The arguments for coal-fired power supported by CCS, sometimes referred to as "clean coal", do not stack up commercially or environmentally. According to research from Bloomberg New Energy Finance (BNEF), The Levelised Cost of Energy (LCoE) of a new ultra-supercritical coal-fired power station in Australia is significantly more expensive than the LCOE of new-build wind or solar.⁶ In addition, the burning of so-called "clean coal" still yields unacceptable levels of carbon emissions.

These points have been expended upon in the sections below.

1) Renewable energy: investment in Australia's energy future

Australia's clean energy market has matured significantly over the past five years. Technological advancement, and availability of tailored financing options have improved the viability and attractiveness of large scale clean energy projects. Sustained sectoral growth has precipitated the development of an ecosystem of businesses and stakeholders. Developers, engineers, equipment suppliers, consultants and financial institutions now form a mature network of firms with specialist knowledge in the clean energy sector. Renewable energy projects currently under construction in Australia will create enough jobs to employ 15,691 people.⁷

Globally, the investment case for renewable energy has improved considerably, buoyed by improving technology, cheaper build costs and expanding grid-scale energy storage. Increasing demand from investors and consumers of renewable energy has put downward pressure on prices, further improving its commercial advantage over many polluting fossil fuel energy sources (see Figure 1 below). This, coupled with a growing international consensus to protect our natural world from the impacts of climate change, has resulted in a period of sustained growth for the Australian clean energy sector.

⁶ <http://reneweconomy.com.au/clean-coal-most-expensive-new-power-supply-says-bnef-and-not-all-that-clean-74531/>

⁷ Green Energy Markets, January 2018, 'Renewable Energy Index: December 2017' link: [https://d68ej2dhub09.cloudfront.net/2397-Renewable_Energy_Index_-_Dec_2017_\(1\).pdf](https://d68ej2dhub09.cloudfront.net/2397-Renewable_Energy_Index_-_Dec_2017_(1).pdf)

Figure 1: 2017 levelized cost of energy for new build technologies in Australia (AUD/MWh)



Source: Bloomberg New Energy Finance

A strong suite of domestic policy settings has built upon organic sectoral growth. Better market conditions for power purchase agreements and consistent high prices for generation certificates under the Large-scale Renewable Energy Target have attracted domestic and international investors to the Australian market. Debt and grant funding from the CEFC and the ARENA have encouraged innovation, and improved the flow of finance into large-scale renewable energy projects. In 2017, Australia ranked seventh globally in renewable energy investment.

As discussed above, the CEFC has played an important role in the growth of the clean energy sector in Australia and continued enhancement and viability of renewable energy technologies. Given its effectiveness to date, the CEFC should be empowered to continue its vital role and not dilute its focus through an expansion of investment mandate.

2) “Clean coal” does not exist

While the investment case for renewable technologies has improved over the last five years the economic rationale for new fossil fuel projects, particularly coal, has deteriorated dramatically. Australia’s fleet of aging coal assets have become dangerously unreliable and expensive to maintain, and their ongoing emissions are wholly incompatible with our global climate commitments. This has led to the closure of 13 coal-power stations in the past five years, with many more slated for shutdown.⁸

Nevertheless, some politicians and special interest groups have used the potential of CCS technology as a means to advocate for more coal-fired electricity generation in Australia. This is a position directly contradicted by prevailing energy market trends, the urgent

⁸ <http://www.smh.com.au/comment/no-one-is-buying-the-minerals-councils-coal-slime-20180208-h0vrgc.html>

need to address our national emissions profile and the new economic reality facing coal in Australia. Put simply, coal-fired power stations, even those theoretically supported by CCS technology, are economically uncompetitive and wholly incompatible with our global emissions commitments.

As shown in Figure 1, the 2017 LCoE of new ultra-supercritical coal-fired power in Australia sits at AUD\$134-\$203/MWh. This is substantially higher than new build wind and solar, at AUD\$61-\$118/MWh and AUD\$78-\$140/MWh respectively. The economics for coal is even worse when CCS technology is added to the build, BNEF estimates a LCoE of around AUD\$352/MWh for such a build.⁹ BNEF modelling suggests that even in a 'best case' scenario where a government were to de-risk a new coal build by paying for the entire plant and guaranteeing all future liabilities, the lowest LCoE that could be achieved is \$94/MWh - still comfortably higher than new wind or solar.¹⁰ Today, the construction of new coal infrastructure economically uncompetitive and would only serve to increase electricity prices across Australia.

In addition to its economic shortcomings, reporting from BNEF also suggests that new build coal supported by CCS is far from being 'clean'. Emissions from Australia's existing coal fleet are 0.85-1.52tCO₂-e/MWh. New coal with CCS is moderately less intensive, with emissions around 0.76tCO₂e-MWh. However, these emissions are still double the intensity of a combined cycle gas turbine generator, which sits between 0.37-0.46tCO₂-e/MWh.¹¹ And of course, infinitely more than renewable energy sources, whose ongoing emissions are ostensibly zero. Burning coal, whether through our existing fleet or a new station supported by CCS technology is not 'clean'. Investing in CCS technology that will marginally lessen the damaging emissions associated with burning coal is an inefficient allocation of resources, particularly when cheaper renewable energy technology, with no ongoing emissions, are readily available.

The economic and environmental reality for 'clean coal' is clear. As an energy source it is too expensive and emissions intensive to be considered a realistic component of Australia's future energy mix. The CEFC principally acts as a catalyser of new investment and stimulator of sectoral innovation. As a result, it should not be encouraged to invest in CCS technology insofar as it would operate to provide artificial support to an uncompetitive and environmentally harmful energy solution for Australia. Such investments would detract from the progress already made by the CEFC in the Australian clean energy sector.

⁹ <http://reneweconomy.com.au/clean-coal-most-expensive-new-power-supply-says-bnef-and-not-all-that-clean-74531/>

¹⁰ <https://cleantechnica.com/2017/02/07/new-coal-build-expensive-energy-option-australia-bnef/>

¹¹ <https://cleantechnica.com/2017/02/07/new-coal-build-expensive-energy-option-australia-bnef/>

The role of the CEFC moving forward

While recent growth in the clean energy sector is encouraging, Australia's electricity system remains one of the most emission-intensive among advanced economies. There remains significant work to be done to decarbonise our economy and clean up our electricity system. Ongoing investment in clean energy technologies will be critical.

Despite current sectoral growth trends and strong investment levels, the clean energy market in Australia is yet to reach maturity. The market is still highly sensitive to external change. Anticipated or actual modifications to policy settings, risk appetite of investors and international economic conditions are all proven to have material impacts on annual levels of private sector investment. At present, there are still many clean energy projects that are dependent on CEFC investment to proceed. Continued, long term policy and investment focus is required to achieve our ambitious global commitments.

To this end, the CEFC's role as a catalyst for private sector financing must be preserved and promoted. Policy makers must continue to recognise its importance to the future development of the clean energy sector in Australia and maintain policy settings that empower it to fulfil its mandate. The CEFC has demonstrated its ability to successfully accelerate investment in the clean energy sector.

To maximise its effectiveness, the objectives and mandate of the CEFC should remain tightly focused on catalysing investment in clean energy technology and innovation in Australia. Amending the investment mandate of the CEFC to enable investment in technologies that would support non-renewable energy production and increase Australia's emissions would be a decision in complete contradiction with the CEFC's central purpose.

Climate change threatens all Australians. Our electricity system's continued reliance on burning highly polluting fossil fuels contributes significantly to the overall emissions of our country. Over the past five years, the CEFC has demonstrated an ability to have a positive impact on our clean energy sector as an enabler and accelerator of clean energy investment. Powering Australia with clean energy is technically feasible and economically responsible. The CEFC should be empowered to continue its work towards this future.

For more information please contact:

Fergus Kinnaird, Economic Analyst

Phone: 61 3 9345 1224

Email: fergus.kinnaird@acf.org.au

The Australian Conservation Foundation strives to advance lasting solutions to Australia's environmental problems and to create a sustainable future and better quality of life.

www.acf.org.au