ATSE

SUBMISSION TO THE

Department of the Environment and Energy Clean Energy Finance Corporation Statutory Review

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AUSTRALIAN ACADEMY OF
TECHNOLOGY AND ENGINEERING

ATSE SUBMISSION TO THE CLEAN ENERGY FINANCE CORPORATION STATUTORY REVIEW

The Australian Academy of Technology and Engineering (ATSE)[1] welcomes the opportunity to provide input into the Statutory Review of the Clean Energy Finance Corporation (CEFC). The CEFC has been broadly successful in its objective of facilitating increased flows of finance into the clean energy sector. However, the CEFC's investment mandate must allow it the flexibility to evolve and ensure the institution's ongoing impact. In addition to responding to the questions put forth in the Consultation Paper, ATSE makes the following key recommendations:

Recommendation 1
Allow the CEFC to occupy a higher risk niche for increased impact and additionality through an expansion of the Clean Energy Innovation Fund

The clean energy sector has changed dramatically since the CEFC's inception and there is now a great deal more private sector interest in financing wind, solar and energy storage projects. ATSE recommends allowing the expansion of the Clean Energy Innovation Fund, which occupies a higher risk niche with a greater emphasis on demonstration projects and early-stage commercialisation. Minimising investment in mature technologies and projects that can already attract private finance is also important to ensure the additionality of CEFC investment. Ideally, it should regularly assess the degree to which private capital is available for certain classes of project to guide its investments. ATSE also recommends that the CEFC continue to target projects with market risk in order to demonstrate their commercial feasibility. Support for projects that are first of a kind in Australia should be a priority.

Recommendation 2
Futureproof the CEFC's mandate by targeting technology and sector neutral outcomes

The Academy notes that a well-integrated climate change and energy policy is a much more important driver of reduced emissions in the energy sector than CEFC investments. If well designed, the National Energy Guarantee could present a satisfactory mechanism to drive deep emissions reductions in the National Energy Market. However, the broader economy still lacks a coherent emissions reduction framework.

The CEFC's ability to finance projects should not be constrained to particular classes of technology or industry sectors. Instead, they should target the outcomes of increased energy efficiency/productivity and reduced emissions. The CEFC mandate should be updated to reflect a focus on outcomes and the principle of technology neutrality.

There are emissions reduction opportunities outside the energy sector that could benefit from CEFC financing. ATSE notes that the CEFC has potential to expand its investment scope to support emissions reduction outside of the energy sector.

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[1] ATSE is an independent think tank that comprises the leaders in the fields of technology and engineering, who gain Fellowship to the Academy in a highly competitive process. ATSE is one of Australia's four national Learned Academies but uniquely its 800-strong Fellowship come from industry, government and research organisations, as well as academia. Our Fellowship develops trusted, informed and visionary views to persuade decision-makers to implement the most progressive policies on the development of technology for the betterment of Australia and its people. www.atse.org.au

Recommendation 3
Undertake a thorough analysis of available data to improve the evidence base for this review

As it stands, the Consultation Paper is very light on analysis of relevant data and case studies from the CEFC and the broader clean energy sector. Many of the questions in the consultation paper require empirical analysis to be answered adequately. ATSE recommends that the reviewers undertake a more thorough analysis of the available data to ensure that the recommendations of the review are well founded.

Detailed responses to the Consultation Paper

How has the Australian clean energy sector evolved?

1. What are the key factors that have contributed to clean energy sector growth in the past four years?

Recent growth in renewables has been driven largely by the Renewable Energy Target, following the hiatus caused by policy uncertainty associated with the Warburton review. Growth is also supported by State and Territory government policies, including reverse auction programs. Declining capital costs have contributed too, notably of large scale solar, while increases in energy prices are also contributing to greater uptake of energy efficiency technologies.

2. What are appropriate measures and metrics to assess or characterise growth of clean energy sector investment?

Growth can be measured quantitatively either in absolute terms or relative to the total investment in the energy sector or to other relevant industries. However, it is challenging to measure the impact and additionality of the CEFC's investments due to the lack of a definitive counterfactual. In addition, because most clean energy projects benefit from more than one form of incentive, attribution between them is complicated. Other important measures that should be tracked include:

- The ratio of debt and equity funding as clean energy technologies mature in the Australian market
- The number and diversity of investors in clean energy technologies
- Refinancing rates of clean energy projects

Between the Clean Energy Regulator, the Clean Energy Council and analysts (such as Bloomberg New Energy Finance), Australia has access to very good data sets for the renewable energy sector. However, good data sets for the broader clean energy and low emissions technology sector can be harder to obtain. It also important to track the outcomes of investment, such as emissions abatement, energy savings, and returns on investment.

3. What barriers are currently facing clean energy sector project proponents in developing projects and attracting private sector investment? How have these barriers changed over the past four years?

Policy uncertainty has been a major impediment to renewable energy financing. It has amplified revenue risk and broader uncertainty about the outlook for demand and hence wholesale energy prices. Consequently, many financiers have been reluctant to support merchant projects, limiting their

interest to projects with long-term power purchase agreements (PPAs). Structural issues in the NEM coupled with the preferred risk management strategies of retailers (based on the unwillingness of their own customers to enter into long term contracts) have constrained the availability of PPAs.

Given the acceleration of investment in new renewable projects in the last twelve months, this impasse appears to have broken. It would be feasible and useful for Deloitte to undertake an empirical analysis of where the equity and debt finance is coming from for new clean energy projects and the balance between merchant and contracted projects at the Final Investment Decision for renewable energy projects.

4. What patterns have emerged in the financing of clean energy sector projects? How has the interest of traditional financing institutions (i.e. banks), funds or international financiers changed over the past four years?

ATSE recommends that the reviewers undertake further empirical analysis to address this question.

Anecdotally, ATSE Fellows have conveyed that Australian banks often express an appetite for clean energy investment but in practice find that the available projects do not meet their criteria for risk. Many projects are too small for them to consider worthwhile. Fellows of the Academy have also reported seeing more investors willing to invest in renewable energy and energy storage projects than there are viable projects available.

In the other investment areas, there is still significant untapped potential in energy efficiency for action on the demand side. Numerous studies have shown that energy efficiency is one of the most cost-effective forms of emissions reductions. It is unclear if access to capital is a significant barrier to uptake of energy efficiency technologies. However, to drive radical improvements in Australia's energy productivity, there is a case for government support for the deployment of energy efficiency technologies. As such, ATSE is pleased to note the CEFC's significant investments in energy efficiency technologies in the last two financial years.

It is apparent from the consultation paper (Figure 3) that there have been minimal CEFC commitments to date towards *low emissions technologies* (as defined in the CEFC Act). ATSE would like to see greater clarity regarding the CEFC Board's low emission technology guidelines.

The successful green bond issuances are encouraging but should not be confused with project finance – as it appears that bonds are mainly being used to refinance established assets. Interest from international investors (both equity and debt) has waxed and waned according to conditions in their home markets as well as their perceptions of the growth opportunities in Australia.

How effective has the CEFC been in the evolution of the Australian clean energy sector?

5. What impact did the CEFC's decision to proceed or not proceed in supporting projects have on the financing of the clean energy sector?

This question requires careful analysis of CEFC investment data and case studies, although it will be difficult to establish causation. It would also be useful for the CEFC to consider whether projects that they have rejected have proceeded.

6. How effective is the CEFC in addressing barriers to clean energy sector finance?

A high proportion of renewable energy projects have benefitted from CEFC finance and probably would not have gone ahead without it.

It is also likely that the CEFC has developed a superior capability to assess clean energy project risk and therefore is better able to make investment decisions than many of their private sector counterparts are. If their funding partners are willing to rely on CEFC assessments, this would be a genuine value-add. If the banks assess the projects in exactly the same way as they would if not co-investing with the CEFC, the benefit is less obvious.

The CEFC has also developed some products that enable aggregation of smaller scale projects than would usually be able to access project finance. This is another way in which the CEFC may have been effective in overcoming barriers.

Barriers that are a result of policy or structural issues have been offset to an extent by the availability of CEFC finance. These barriers (including the lack of a coherent emissions reduction policy for the Australian economy) still remain and it will be necessary to address these directly.

a) **What are the current barriers to firms accessing the CEFC's finance, and how could these be addressed?**

No comment.

7. How has the CEFC facilitated the growth of private financing in the clean energy sector, be it private equity or private debt?

Please refer to the response to Question 6. The CEFC has actively pursued partnerships. Its main contributions include its specialist risk assessments and product innovation for aggregation of small projects.

8. How did the existence of CEFC diversify the type of clean energy sector projects commissioned over the past four years?

It is not obvious whether the CEFC has achieved this significantly, because of the relatively conservative risk and return settings imposed by its investment mandate.

Many renewable energy projects have benefited from both an ARENA grant and a CEFC loan. It is likely that this has helped early-stage and higher risk projects to be funded. As an example this appears to have helped the shift from investments in large-scale wind to solar projects, which otherwise might not have met the CEFC's financial criteria. The Clean Energy Innovation Fund, operated in partnership with ARENA, is another important driver of project diversification. ATSE recommends expansion of the Clean Energy Innovation Fund, which occupies a higher risk niche with a greater emphasis on demonstration projects and early-stage commercialisation.

a) **How did the CEFC support the emergence of different financial products (e.g. climate bonds, co-financing programs) in the market?**

The CEFC has successfully anchored a number of these products as evidenced in its annual reports. It is likely that climate bonds would have become available without CEFC involvement but this may have taken longer. Nevertheless, innovation in financing is an important role for a dedicated institution like the CEFC.

9. What are the appropriate measures to evaluate the CEFC's contribution to the development of the clean energy sector? For example, direct vs indirect investment, carbon savings and the availability and cost of finance.

The main measures reported by the CEFC – tCO2e avoided and leverage with co-funders – are informative. To address additionality, a greater emphasis on innovation could be appropriate. The CEFC could consider the percentage of funds invested through novel funding mechanisms, supporting

previously unserved sectors such as community housing or deployment of new technologies, products and processes.

10. Does the CEFC provide other benefits to the clean energy sector that are not provided by the private sector? For example, information and education benefit.

No comment.

11. How effective has the energy efficiency program been in influencing energy savings across the industry sectors in which it operates?

No comment.

12. What is the impact on the market of dedicated funds and programs (i.e. the Clean Energy Innovation Fund) with specific directions?

The market will flow to wherever finance is available, so the dedicated funds can be expected to have impact. It is necessary to analyse case studies and data from each program to answer this question in more detail.

It is the government's prerogative to determine funding priorities but the focus on co-benefits (e.g. achieving improved water quality through the Reef Funding Program) while admirable, will dilute the core purpose of the CEFC. Too much prescription from the government also undermines the accountability of the board and management of the CEFC for results.

How has the Act enabled the CEFC to efficiently allocate its resources?

13. How has the Act enabled the CEFC to efficiently allocate finance to increase the flows of finance in the clean energy sector? In particular, please consider:

a) Projects that qualify for finance and the allocation and prioritisation of finance between the projects

No comment.

b) Types of financial products the CEFC has deployed

No comment.

c) Level of risk that CEFC is able to assume

This is a significant constraint on the additionality of the CEFC's investment. Given the increased availability of private finance for the clean energy sector, it may be better to allow the CEFC to assume a higher level of risk with a greater emphasis on commercialisation and demonstration projects. The more conservative the risk-return setting, the higher the probability that the CEFC is simply replacing private sector finance. The CEFC is already funding innovative and first of a kind (in the Australian market at least) projects but allowing it to take on greater risks will further improve the additionality of CEFC finance. ATSE suggests that this could be accomplished through an expansion of the Clean Energy Innovation Fund program, which targets earlier stage companies and technologies that would be less likely to receive private finance. This would increase the complementarity of and collaboration between ARENA and the CEFC, and better support clean energy innovation.

d) Concessional terms offered

No comment.

e) Direction provided through the Investment Mandate, including special focus areas detailed in Chapter 2.

No comment.

f) Collaboration with co-financing partners

No comment.

g) Timeframes to assess application and make an offer of finance and draw down

No comment.

Are there any gaps in the scope of the Act?

14. What are the current barriers or market failures in the financing of clean energy sector projects?

a) Are the barriers and market failures widespread, or do they just apply to a sub-set of technologies or project types?

No comment.

b) What role could the CEFC play to help alleviate these barriers and/or address market failures?

As discussed previously, the CEFC can offer specialist insight and superior risk assessment that may help other financial institutions participate in the clean energy market. Please refer to the response to Question 6.

Structuring finance in ways that suit other investors is also important. Large investment funds (such as super funds and the Future Fund) can be adverse to direct investments in infrastructure, especially in the case of small-scale investments like renewable energy projects. However, they are more likely to invest in a vehicle that includes a portfolio of assets (which in itself reduces risk) and where an expert manager has assessed each individual asset. A recent example of this occurred when AGL set up its Powering Australian Renewables Fund, which raised external capital from QIC who in turn have the Future Fund as a client.

15. What trends are important when considering whether there may be gaps in clean energy sector investments in the future?

Decarbonising Australia's economy is a massive challenge. The primary purpose of the CEFC relates to this goal and its objective should not be limited to a proportionate share of the global effort but should be to maximise our capability to contribute. As a high income, high technology economy we can play a leading role and demonstrate the economic as well as environmental benefits of clean energy (i.e. by capitalising on industry development and export opportunities). In this respect, a striking trend is the support of many of our major corporations. Offsetting this is anxiety about the international competiveness of some of our traditional industries, particularly those facing rapidly rising energy bills.

The business case for early stage investment in clean energy technologies may not meet a corporate board's internal rate of return hurdle and in such case investment may be facilitated by the availability of CEFC finance (not necessarily on concessional terms). This can drive early adoption and help to move new technologies along their learning/cost curves.

The most important trends today are systemic rather than project specific. The confluence of digitisation, disintermediation, artificial intelligence, and internet of things technologies will be transformational and applicable to any industry. For this reason, the CEFC's ability to finance projects (and its performance measures) should not be constrained to particular classes of technology or industry sectors. Instead, they should target the outcomes of energy productivity on the consumption side and emissions reduction on the side of energy production. The CEFC's strategic framework reflects this somewhat, but the Act and mandate should be updated to reflect a focus on outcomes and the principle of technology neutrality. Collaboration with ARENA and other specialist institutions such as Data 61 will be essential to provide the CEFC with the research capacity to identify and assess prospects. This will allow the CEFC to focus its own capabilities on structuring finance and portfolio management.

16. Are there any limitations on the CEFC imposed by the Act that prevent it from addressing market gaps?

As outlined in the answer above, the CEFC's Act and investment mandate should avoid being overly prescriptive about the technologies or sectors that the CEFC may finance. The CEFC's risk and return settings also have a significant impact. If they are too loose, the CEFC will lose its desired commercial focus. If they are too conservative, the CEFC will crowd out private finance and lose its capacity to innovate.

Carbon capture and storage (CCS), nuclear power and nuclear technology are currently prohibited technologies for CEFC investment. However, given the scale of emissions reduction that Australia faces, a broad suite of technologies is likely to be necessary. Technology neutral policy mechanisms are essential to support the development of diverse and innovative solutions to this challenge. Carbon capture and storage will be essential for decarbonisation of many industrial processes, and in some cases, may be a cost effective option for emissions reduction in the energy sector[2]. As such, ATSE supports the *Clean Energy Finance Corporation Amendment (Carbon Capture and Storage) Bill 2017*.

In principle, ATSE also objects to the prohibition of investment of nuclear technology. It is possible that next generation nuclear technologies (Gen IV and beyond) could play an important role in decarbonising Australia's future energy mix, if the moratorium on nuclear power is lifted[3]. However, in reality, facilitating finance for nuclear power in Australia would require more than simply removing the prohibition from the CEFC's Act.

There are emissions reduction opportunities outside the energy sector that could benefit from CEFC financing. ATSE notes that the CEFC has potential to expand its investment scope to support emissions reduction outside of the energy sector that are unlikely to attract conventional finance. An example of one such technology is using agricultural soil as a carbon sink. The potential for improved soils to benefit both agricultural output as well as carbon capture is well known. Over the long term, it is possible to measure increased soil carbon stores and ERF funding can provide an income stream from which the project proponent can service its finance. However, as banks are conservative lenders

[2] See ATSE's Action Statement, Deep reductions in emissions using CCS, for more information.

[3] ATSE notes that the Nuclear Fuel Cycle (Facilitation) Bill 2017 is being considered by Parliament.

there remains a role for specialist project financiers in this area. Given Australia's huge land mass and agricultural potential, this should be a policy priority for Australian governments.