PacificHydro

Clean Energy Finance Corporation

Pacific Hydro Submission to the Expert Review Panel

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1. Background and introduction

Pacific Hydro is a wholly Australian owned renewable energy company. We have nearly 20 years experience in project finance, development and operation in renewable energy industries in Australia, Chile and Brazil.

As a leading Australian renewable energy company with investment and jobs which can be materially affected by both climate change and renewable energy policy settings, we have a strong interest in the CEFC Review and welcome the opportunity to provide input via this submission.

We are pleased to note that the national carbon mechanism, which establishes the funding mechanism for the operations of the CEFC, is now law.

Pacific Hydro's position has remained consistently that action on climate change is most effectively delivered by a price on carbon as the foundation mechanism alongside economically and environmentally effective complementary measures such as the large scale renewable energy target and *potentially* the Clean Energy Finance Corporation.

While there are many possible models for the CEFC to adopt, we consider there is a clear alignment with the Green Investment Bank (GIB) in the UK. The GIB identifies the areas of focus and then seeks to implement solutions in these areas. Importantly it is those issues identified and prioritised by industry participants that play a lead role in shaping the direction of the organisation.

Similar to the potential impact of the GIB in the UK, we view the CEFC as playing a facilitation role in enabling Australia to achieve its long term emissions reduction goals (80% by 2050) through a secure, efficient and effective energy market, that is largely, even if not fully, reliant on clean energy generation sources.

The following discussion summarises our perspective on the potential role, or roles, which the CEFC can play that would enhance Australia's energy security, enable the accelerated deployment of proven clean energy technologies and build a long term clean energy deployment platform that has already commenced under the Clean Energy Future package.

In our view, focusing on grid investment as a major part of the CEFCs role would be the most beneficial outcome as it could very likely enable a diverse range of renewable technologies to come forward (with limited impact on the existing RET), strengthen Australia's network and provide a clearer pathway to transition to clean energy supply system.

2. Institutional structure and objectives

A key element of the development of the Clean Energy Finance Corporation is the legislative mandate. In our view, this needs to incorporate a clear, identifiable objective which recognises the role of the CEFC within the context of the Australian clean energy market.

Pacific Hydro considers that the above will require clear articulation of the objectives, aims, principles and governance arrangements that will underpin the CEFC's activities – our view of these aspects are below.

2.1 CEFC objectives

Without a clear role and objectives for its operation, it is difficult for the market to understand where the CEFC will focus and why. The Government needs to clarify where it needs the CEFC to focus the greatest effort and then ensure that this is made clear to all market participants so as to avoid confusion and ensure there remains a transparent market for investment under the RET.

2.2 CEFC principles

In our view, the CEFC legislation needs to be unambiguous in *seeking* to avoid any unintended consequences in the renewable energy market.

We recommend that the CEFC legislation specifically note that: *the CEFC should seek to avoid distorting the market for renewable energy, currently underpinned by the Renewable Energy Target*.

This principle notwithstanding, we note that it is likely that the CEFC will not completely avoid some impact on the RET market. To the extent that this ensures that private sector capital is incentivised and enhanced deployment of renewables is encouraged, the outcome could still be considered to be aligned with the *intent* to avoid distortion.

We recommend a further principle be adopted on complementarity to guide the CEFC's evolution such as: *Operations and activities of the CEFC must not be inconsistent with the LRET objectives or the clean energy future legislative package and should seek to enhance or accelerate long term clean energy deployment beyond current mandated levels.*

Additionally, a governance principle should be developed to enshrine the CEFC intent of independence. Such a principle should build on the intent that the CEFC be *independent from political influence, government policy cycles and private sector lobbying*.

That being said, the CEFC should include appropriate private sector involvement to some extent such as input from an expert advisory council with links to industry, technical experts, asset and finance sectors. This advice should assist the CEFC in its ability to make informed decisions on its investments.

3. Investment mandate

Pacific Hydro supports a clear investment mandate being developed so that the CEFC's role in the market is kept to areas which are largely *other* than those that financial institutions already provide and limits the interaction with the RET.

3.1 Investment preferences for the $5 billion fund for renewable energy

The CEFC should ensure that investment decisions should be determined on the basis of energy market improvement, financial additionality, greenhouse reductions or a combination of these. All assessments would evaluate and determine the ultimate level of risk that the CEFC would be willing to undertake in relation to each project

An assessment process for financial additionality could be drawn from carbon abatement project assessment methodologies which are used by the CDM Executive Board for projects in renewable energy. These methodologies require that proposed projects be able to prove that they would not be viable without the additional revenue stream from CDM credits.

In our view there are two key mutually supporting elements – (a) and (b) – which should underpin the CEFC's investment mandate for its renewable energy fund:

a. Help fund the deployment of infrastructure that will support the connection of renewable energy power generation to the grid and improve interconnection between the regions.

b. Support investment opportunities which target enhanced or accelerated deployment of renewable energy power generation that would not have been possible if not for CEFC participation. This should emphasise:

   (1) small to medium scale projects which meet other commercial and project finance criteria but lack critical capital support (seed funding) to underpin institutional backing; and

   (2) technologies which are close to or at demonstrated scale and ready for the supported commercial deployment phase; and/or

   (3) renewable energy facilities that can provide dispatchable generation.

As noted above, these investments should be developed to align with the intent that the operations and activities of the CEFC do not negatively and materially impact on the Large Scale Renewable

Energy Target. We note (again) our concern that CEFC activities could have unintended detrimental impacts on the operation of LRET and every effort should be made to ensure this situation does not eventuate.

4. Current policy settings in clean energy and interaction with the CEFC

The current settings in clean energy and energy markets make the role of the CEFC potentially complicated particularly in relation to grid investment but also in financing energy projects.

4.1 Policy settings for clean energy investment

Australia's national goal to deploy renewable energy in Australia is key to driving the longer term transition away from fossil fuel generation and investment. This is fundamentally driven by the Renewable Energy Target and also supported through funding support to earlier stage development projects through the Australian Renewable Energy Agency (ARENA).

The adoption of the Clean Energy Future legislation and the implementation of a market-based trading scheme for emissions reduction will provide the foundation for ongoing private sector incentives to increase energy efficiency and – longer term – provide incentives for future investment in clean energy.

That said, it will be some years before the Clean Energy legislation and the market are sufficiently mature to replace the existence of the RET.

In our view, while the CEFC can play a facilitation role to minimise the current gaps in renewable energy projects which face a range of commercial and market barriers, the major support for renewables should unambiguously remain through the Renewable Energy Target.

4.1.1 Funding support to renewable technologies

In terms of funding support, we readily accept that there are substantial funds allocated and announced for renewable energy projects. However, in a recent note to members, the Clean Energy Council reminded us that the 2009 commitment of $235 million to four projects under the Federal Government's Renewable Energy Demonstration Program is still yet to flow as project developers struggle to raise the matching funds. In September 2010, $126 million was committed towards an Emerging Renewables Program focused on geothermal and wave to be completed by June 2011. To date, that money has not been allocated.

Clearly it will be important for the CEFC to make sound commercial decisions based on a range of factors including technology, market and financial risk. The main barrier in the medium to longer term for renewable energy projects is access to sufficient grid capacity and the requirement for new entrant generators to bear the entire financial cost of any grid augmentation..

4.1.2 Grid capacity and connection barriers to project development

While the RET drives generation investment to a mandated level by 2020, the rest of the market (including network investment) can only respond to the 'market' signals.

As such, there is a point of disconnection as renewable energy generation is being built in response to policy targets that are not solely responding to the demand balance and locational price signals which drive investment across the broader electricity market.

Over the past decade both State and Federal governments have been reluctant to build infrastructure where it believes it may crowd out more efficient private investment. This stand-off has resulted in continual under-investment in grid maintenance, upgrades and expansion particularly in new transmission and interconnector capacity. This situation has been identified as a risk to the delivery of new generation capacity, both renewable and non renewable, in several recent Federal Government reports.

The current structures, if not addressed, are likely to drive renewable energy investors into areas with lower value resources with the possible outcome that the best (highest value and largest capacity) resources may not be deployed for many decades to come. The presently limited

mechanisms available to develop new transmission in remote areas will, in our view, continue to impede investment. The costs are prohibitive for the private sector *alone* to pursue under the present regulatory investment framework.

In our view this particular barrier offers a clear opportunity for the CEFC to play a role in grid investment via its renewable energy fund.

Identifying ways for the CEFC to unlock private sector support for grid investment would support the RET, the goals of the Clean Energy Future package and should deliver enhanced network security to the east coast NEM.

Well targeted grid augmentation could have a dramatic impact on the development of emerging renewable resources such as solar and geothermal. For example, grid infrastructure in the mid-north of South Australia would greatly facilitate development opportunities for baseload generation from geothermal power. Further, grid augmentation west of the existing grid infrastructure along the eastern states, from Queensland to Victoria, would similarly facilitate connection of large amounts of utility scale solar PV and solar thermal power.

The funding of shared grid infrastructure would benefit multiple projects and technologies and defray the risk of specific project funding leading to short term price effects in the renewable energy market.

5. Clean energy technology deployment in the Australian energy market

The Clean Energy Council's most recent update reported that 9.6% of Australia's electricity generation was produced from renewable energy sources in the last year (to September 2011). While over 67% of that generation was from hydros (benefitting from increased rainfall over the past two years), nearly 22% was provided by wind generation and 8.5% from bioenergy.

5.1 Renewable Energy Target technology mix

The RET drives the most efficient technology to market and has seen a clear drive towards wind generation as it is currently the lowest cost renewable technology.

The present mix of technology types being driven by the RET are hydro, wind and bioenergy (including bagasse, landfill gas and biomass) as shown by the creation of Large Generation Certificates (LGCs) by type for the past 10 years.

A range of views exist on the exact make up of the future technology mix under the RET. However, most forecasts agree that by 2020, the mix will remain reliant on a large portion of wind generation and a large deployment of solar (PV and thermal) and/or geothermal in the latter few years to 2020.

5.1.1 Renewable resources and costs

Australia is blessed with high value renewable energy resources across all known options from wave, ocean, biomass, solar, wind, and geothermal. While these technologies are at varying levels of deployment and in-situ Australian demonstration (in the case of ocean and wave), many are already operating at scale in other countries.

Conventional geothermal, which is a long-used and known technology overseas, has not been deployed in Australia despite the large potential for this resource to be utilised as a constant source of clean electricity generation. There are two key barriers. One barrier to the roll out of conventional geothermal is the absence of grid access in high value resource locations and the inability of existing market mechanisms to deliver an appropriate solution. The other key barrier is exploration risk – for which significant upfront capital is required to confirm resource quality and project economics.

Of the most deployed technologies – solar and wind – there are good levels of local deployment experience globally and locally. Regarding future costs, the cost projections for solar PV and large

scale wind turbines drop quickly once adopted at a more rapid rate. Clearly these results are linked to the rapid advances and expanding markets in China, India and European countries.

The cost of electricity from wind turbines is predicted to drop 12% in the next five years, according to research from Bloomberg New Energy Finance. Wind turbines still show a 7% experience curve – ie. a 7% cost reduction for every doubling of installed capacity. Bloomberg data also shows that by the end of 2011 there will be over 240 GW of installed wind capacity.

Solar manufacturing is also seeing significant competitive price pressure and increases in demand driving prices for flat plate panels now below $1 per Watt, and around $3 per Watt installed (Green Energy Markets update - November). Note that these costs exclude grid connection.

5.2 Current barriers that hinder financing renewable energy technologies

For renewable energy developers there are four identifiable major barriers:

a. Inability (difficulty) in negotiating long-term Power-Purchase-Agreements (PPAs) with a relatively concentrated number of retail electricity companies who have a short-term oversupply of RECs;

b. Regulatory market uncertainty on the long-term price of power incorporating carbon and in the RET market;

c. Risks around funding merchant energy power plant (with non-recourse project financing terms, tenure and pricing); and.

d. Transmission line access and grid constraint issues underscoring the issue of grid investment to support large scale wind power generation.

The above barriers (a, b and c) may not be insurmountable in isolation. Combined, however, they have the effect of delaying and increasing the costs, or lowering the return on a project in development. However, these earlier barriers are a relatively short-term problem driven by carbon policy uncertainty, historical distortions and policy inconsistencies in the RET market which have now been largely rectified.

In cases where grid capacity and access are major issues, these barriers will likely be sufficient to delay projects for many years even when they would otherwise be considered “commercially viable”.

6. Short, medium and long-term clean energy investment

Given the hurdles noted above for the accelerated deployment of renewable energy technologies at large scale, the potential for the Government to support renewables could be required (at least in some form) for some years.

We believe that the CEFC could play a significant role in unlocking private sector capital and enabling future clean energy investment to occur by focusing on the major barrier that will be in existence for some time - grid.

There are also other potential investment activities that the CEFC could undertake in the short, medium and longer term to set the platform for the long term transition to clean energy generation.

- Short term, the CEFC could play a role as an early stage equity investor – with the option of scaling down that equity at certain pre-agreed milestones;
- In the medium term, the CEFC *could* play a role as a larger equity investor, and/or provide loan guarantees along the lines of the US Department of Energy program;
- Medium to longer term, we consider that the most vital role for the CEFC to play is in grid investment support. Again, there are ways for this to be developed through structured finance and with a long term view to scale back the investment over time.

6.1 Short term

In the short term, the CEFC could play a role as an early stage equity investor. This would likely include an agreement procedure to allow the CEFC the option of scaling down that equity at certain generation or profit milestones.

The types of projects which currently face a large barrier at very early stages include small scale community clean energy projects.

The community energy sector provides a link between the renewable energy policy environment, climate change policy and personal connection with clean energy for a range of individual reasons from local sustainability interests to long term, low risk financial returns. As an example, Hepburn Windfarm (near Daylesford, Victoria) took over six years to develop and while the project generated substantial community support through local shareholding offers, raising sufficient capital above the local investment component for the project proved a long, hard road.

Were the CEFC to enter in as an early stage as an equity investor in such projects, it would bring forward by several years a number of nascent, but widely supported, projects in rural and regional areas across the country and provide connection between the successful operation of the CEFC and local communities.

6.2 Medium term

The CEFC *could* play a role as a large equity investor or provide loan guarantees to technologies close to or at demonstrated scale and ready for the supported commercial deployment phase.

However, we are concerned that if the CEFC focuses too much attention on this type of finance and project area, it may have perverse effects on renewable deployment and the LRET market.

6.3 Medium to longer term

In the medium to longer term, Pacific Hydro strongly supports the CEFC playing a role in enabling grid investment which supports the advanced deployment of high value renewable resources.

Identifying ways for the CEFC to unlock private sector support for grid investment would support the RET, the goals of the Clean Energy Future package and should deliver enhanced network security to regional networks (such as the WA SWIS) and the NEM.

Grid investment in networks and in interconnector capacity between the states could target particular zones where there are known high value renewable resources. This would create a renewable resource corridor which facilitates major clean energy investment in these zones heading into and beyond 2020.

A range of funding arrangements could provide long-term incentives to link high value renewable resource zones to the grid.

The funding of shared grid infrastructure would benefit multiple projects and technologies and defray the risk of specific project funding that may result in short term price effects in the renewable energy market.

In our view, the facilitation of a grid investment support strategy could incorporate:

- Identifying (with industry advice) critical network upgrades and extensions that would support emerging technologies or assist in the speedy extraction of renewable resources.
  - this could also include improving interconnection between states to facilitate continued expansion of existing technologies;
- Establishing a rolling capital fund where the CEFC provides up front funding for energy infrastructure.
  - once operational revenue streams are established the equity could be on-sold to institutional investors

- Developing infrastructure bonds to assist with raising additional capital and attracting private partners.
  - With a regulated rate of return, shared risk with private equity and a constant revenue stream, these bonds could provide a relatively safe investment option for institutional investors.

7. Summary of recommendations

With the Clean Energy Finance Corporation set to be in place by mid 2012, its role, objectives, governance arrangements and its investment mandate must all be clearly defined in legislation as early as possible following this Review.

Pacific Hydro believes that the mandate for the $5 billion renewable energy fund should be targeted to address short, medium and long term barriers to deployment of clean energy and be clearly separated from the approaches used by ARENA and other government funding mechanisms.

As noted above, our strong preference is for two mutually supporting elements – (a) and (b) – to drive the CEFC's investment mandate for its renewable energy fund:

a. Help fund the deployment of infrastructure that will support the connection of renewable energy power generation to the grid and improve interconnection between the states; and

b. Support investment opportunities which target enhanced or accelerated deployment of renewable energy power generation

These investments should be developed to align with the intent that the operations and activities of the CEFC do not negatively and materially impact on the Large Scale Renewable Energy Target.

Identifying ways for the CEFC to unlock private sector support for grid investment would support the RET, the goals of the Clean Energy Future package and should deliver enhanced network security to the nation's electricity grids.