Response to Clean Energy Finance Corporation Consultation Request

20 December 2011

Confidentiality Not Required

THE SCOPE FOR THE OPERATIONS OF THE CEFC

General Comments

The Commonwealth Government has positioned itself as a major player in the clean energy industry development policy and program space. The CEFC will need to be clear as to how its work interacts with programs targeting renewable energy funded under the Australian Renewable Energy Agency (ARENA) and energy efficiency initiatives such as the Community Energy Efficiency Program.

In particular, clean energy project proponents should be able to understand how the various programs support projects at different stages of the innovation chain. It should be clear how projects can progress seamlessly from one funding stream to the next, to the point of commercialisation (i.e. where there is adequate market based support - including that associated with the Renewable Energy Target (RET) and private capital financing). This might help prevent a small-scale demonstration project (<10MW) being successfully developed then ending up in 'limbo' without sufficient funding to build a commercial scale project.

Support from the CEFC should be equitable and public ownership should not preclude support of a legitimate renewable energy or energy efficiency project where a similar project from a private firm would be supported.

The CEFC should support renewable energy projects that will enable energy retailers to purchase the resulting output and sell this to customers on a commercial basis. An indication of satisfactory commercial arrangements with energy retailers should be a key consideration for the CEFC to ensure reasonable prospects that real projects will result.

State government officials are available to discuss the issues raised in this submission in further detail. Engagement with the Office of Energy at an early stage is likely to ensure that investments are sensitive to the characteristics of the Western Australian electricity market and State Government priorities.

1. How do you expect the CEFC to facilitate investment?

Capital markets are reasonably efficient. Renewable energy projects that can demonstrate low risk and high potential return within a short time should be prospective for commercial funding. It is considered that the value of the CEFC would come for projects with higher risk or a longer timeframe to achieve returns, key barriers to

renewable energy projects securing finance. It is recommended that overcoming these barriers should be a key focus of the CEFC.

Unless the CEFC can provide offerings not made by private venture capitalists, it is unlikely to make a difference relative to purely private financing. A fund looking to make a similar return to the private sector would be constrained to offer fairly similar terms and conditions and thus would be unlikely to result in different outcomes.

2. Are there principles beyond financial viability that could be used to prioritise investments, such as emissions impact or demonstration affect?

Allocating funds based solely on financial viability would ensure returns are achieved and minimise costs to taxpayers, but make the CEFC hard to distinguish from private suppliers of capital. This could both crowd out commercial investment and compromise the only rationale for establishing the CEFC. Financial returns, limiting risk and avoiding loss should be important, but not over-riding, aims. Principles for investment need to recognise and weigh all the public good outcomes against the financial risks. This should lead to accepting more commercial risk than private capital funds would in consciously chosen instances.

As a suggestion for comparison, the Low Emissions Energy Development (LEED) fund in Western Australia, assesses applicants against six criteria:

1. Business case/funding – it looks for a solid business case, and well-developed plans to get the required matching funding.
2. Organisational ability – it looks for evidence that the organisation has the capacity to deliver the project.
3. Emissions reduction – looks at emissions reduction from the project and also from wider adoption of the technology. In consideration of this criteria, the following characteristics are sought: likely good abatement outcomes; addressing a common problem or wide applicability of the technology (nationally or internationally); and approaching profitability on the cost curve, so that subsequent deployments will be viable without grants. Projects must also demonstrate that there will not be any other adverse environmental impacts from abatement measures.
4. Technological innovation – LEED requires a degree of novelty or innovation, or demonstration of a benefit from local adaptation of the technology.
5. Advantages to Western Australia – the fund looks for State-specific benefits, including secondary benefits, such as allowing network grid upgrades to be postponed, or reducing transmission losses by generating electricity closer to demand.
6. Risk management – LEED looks for evidence that the proponent understands the risks and how to manage them, and that the identified project risks are acceptable.

The LEED Fund targets projects in the following stages: development, commercial scale demonstration, commercialisation, local adaptation and the beginning of wide market take-up. Research projects are not eligible on the grounds that there is too much risk or uncertainty and likely too much time before abatement is realised.

The LEED Fund does not attempt to make a direct return, instead seeing the return as being faster and more effective introduction of low emissions technologies and the development of skills and capacities that help the sector to innovate and grow in Western Australia. While some degree of private financing is necessary to qualify for LEED Funding, it is expected that any project qualifying for LEED consideration would be unable to secure all of its funds from market sources.

Enabling technologies

CEFC merit evaluation could also explicitly consider the capacity of the project/technology to enhance grid integration of clean energy. This could reflect a number of project characteristics including:

- technologies with the capacity to match output with load (i.e. dispatchable technologies);
- technologies that incorporate storage (e.g., concentrating solar thermal, batteries, flywheels, vehicle-to-grid technologies, pumped hydro-electric);
- technologies to reduce transmission losses and thereby enhance the commercial viability of hot dry rock geothermal resources in central Australia;
- improved wind forecasting and/or demand side management; and
- technologies or projects to address power quality issues associated with high penetration of distributed generation.

Consideration could also be given to supporting partnering or co-location of complimentary projects and technologies in ways that test or demonstrate important synergies.

Jurisdictions are working with the Commonwealth through the Standing Council on Energy and Resources (SCER) to develop a collaborative framework for engagement on renewable energy matters that should inform funding priorities and structures for ARENA. The CEFC (and ARENA) should also consult with each of the sectors on how to overcome key limits and barriers to the expansion of the sector.

For example, a key constraint to the development of geothermal energy in Western Australia is the lack of suitable drilling equipment available to hire. It would not be capital efficient for geothermal companies to buy their own drilling rigs, but if CEFC supported a drilling operator to aquire and deploy a suitable rig, this could well be commercially successful. It is unclear whether this type of investment proposition would be considered by the CEFC as ‘enabling’ renewable energy development. The renewable technology ‘roadmaps’ which the Commonwealth has released in recent years should also be revisited.

Renewable energy for remote locations

Many remote locations in Western Australia have potential to utilise a number of different renewable energy resources and are remote from an existing integrated electricity grid. These sites currently use diesel generation, which is a relatively expensive and high-polluting power source (involving sustained trucking of diesel fuel over long distances), bringing associated social and environmental impacts. Although the high cost of supply would imply that renewable energy is a cost-effective option, there are other factors which inhibit use of the technologies in these areas. (See response under 5 & 6 for more detail.)

The barriers to commercial investment in developing renewable energy solutions are particularly relevant in remote regional areas where there is currently little choice but to use diesel for supplying electricity and where the high cost of supply is largely subsidised by various levels of government (such as in remote indigenous communities). Energy efficiency measures in these areas are also likely to deliver both economic and environmental benefits.

Given the extent of potential public benefits (including saving in fuel costs, subsidies and emissions plus improved energy supply for disadvantaged communities) and the greater barriers to investment, this area should be a focus of the CEFC.

3. What are the opportunities for the CEFC to partner with other organisations to deliver its objectives?

Rapid growth in Western Australia combined with the isolated and highly dispersed nature of energy demand is driving rapidly expanding capital requirements for energy investments in the State. Energy businesses, particularly the State-owned energy businesses, must allocate their limited available capital to urgent projects to ensure adequate, safe and secure supply. It is unlikely they will be able to allocate significant capital to less immediately critical projects in the near term. Clean energy project investment involving State Government support may also have implications for State debt levels.

However, Western Australia can leverage excellent renewable resources and growing minerals and energy sector loads in regional areas. There are significant opportunities for CEFC to partner with key industries in Western Australia such as the resources sector, where demand growth is high and potential access to private capital.

Other opportunities

Some potential key areas for prospective CEFC partnership investment in Western Australia that could address areas of particular concern are outlined below.

- *Demonstration plant at significant scale*

The Regional Renewable Energy Assessment report(s) for ACRE [1] recommended that a demonstration plant at 'significant scale on an existing grid' is required to overcome the credibility barrier for renewables in Pilbara and Mid-West operations.

The Solar Flagships program is an example where a substantial opportunity for solar development in Western Australia (WA) has been missed. Despite WA's excellent resources and high cost of supply, the program guidelines specifically ruled out projects located in the North West Interconnected System (NWIS) in the Pilbara Region, and projects were unlikely to be located on the State's main electricity grid due

[1] http://www.ret.gov.au/energy/clean/cei/acre/studies/Pages/Studies.aspx

to inappropriate scale. Closer engagement with the State during the design phase might have avoided this outcome.

- *Demonstration of renewable technologies that are currently high cost*

The ACRE Report noted that concentrating solar thermal technologies could be an attractive option in the Pilbara Region when coupled in a 'combined cycle' with gas or energy storage to deliver dispatchable power, given 'off-grid' system sizes and aversion to renewable energy options with integration issues. However this would require cost reductions for both storage and generation technologies to be achieved through technology advance and/or other enabling measures.

- *Grid augmentation*

Availability of funding/financing to support interconnections in the NWIS could facilitate deployment of intermittent renewable energy resources. (The need for such improvements is acknowledged in the ACRE Report referenced above.)

THE MARKET GAP IN FINANCING LOW EMISSIONS TECHNOLOGIES AND HOW THIS GAP IN FINANCING COULD BE OVERCOME

4. How could the CEFC catalyse the flow of funds from financial institutions?

The case for the CEFC rests on overcoming short term capital shortages and providing a track record for projects to assist the private sector in correctly assessing risk, thus facilitating future attraction of private sector investment to the sector. Given an active private sector funding environment, and the introduction of a carbon price, the circumstances where government support could be appropriate include:

- projects requiring large capital investments that will employ a new technology, or at a new scale or in a new setting. The lack of market experience with these projects means that capital providers cannot confidently price the risks of the project. They can anticipate extra costs, risks and delays associated with unfamiliarity. Many capital funds opt not to consider any such investments. Taking calculated risks to fund such projects is the key role of the CEFC. To get private capital to invest in such projects will require the CEFC to offer guarantees against certain risks.
- A key way to catalyse the flow of private capital will be to complete projects that can be seen to be commercially viable and are able to be replicated. Once innovative projects are up and running and earning revenues, the CEFC can sell its interest to more conventional investors. The conditions for such a sale might be agreed in advance of committing to the project.
- By funding projects that demonstrate commercial viability this will create a "track record" for application of relevant technologies and assist in overcoming any reluctance by private institutions in financing such projects. The CEFC will need to work closely with ACRE/ARENA which is targeting significant funding towards establishing demonstration projects for various renewable energy sources.

Various models have been applied in order to leverage private capital in support of new technologies, including the use of Government 'seed funding' with private sector screening of applicants in the United Kingdom. The CEFC should consider which models, or aspects of models, that are the most appropriate for application in Australia, given its particular circumstances and objectives.

5. What experiences have firms in the clean energy sector had with trying to obtain finance; have term, cost or availability of funds been the inhibitor?

The deepest pools of funding for renewable energy projects are offshore, particularly in Europe, USA, Japan and Korea. A coordinated approach from Government to promote Australian projects and locations to overseas investors would provide renewable projects with greater access to funding.

6. What non-financial factors inhibit clean energy projects?

Market failures

Clean technology projects often need to compete with existing technologies where environmental and other costs may be externalised, affecting the competitiveness of such clean energy projects. Renewable electricity project proponents have also forwarded views indicating difficulties in competing against established technologies based on generation using relatively lower cost fuel sources, which may attract subsidies.

The Western Australian Independent Market Operator is undertaking a number of market reform initiatives related to managing increasing levels of intermittent generation on electricity system operations and sending appropriate market signals for future investment.

Regulatory predictability

Projects will generally have payback periods ranging from several years to ten or twenty years. A clear regulatory framework, with necessary transitions phased in and signalled in advance, enhance the prospects for such project developments, whilst abrupt changes to regulatory or incentive regimes are disruptive. The more regulatory risk that is apparent to funders, the less technology risk they can accept.

Reliability and reputation

As noted in the previously referenced ACRE Report, the mining industry generally 'perceive[s] renewable energy generation to be unacceptably unreliable' and has little experience with renewable or hybrid renewable energy generation systems and therefore no basis on which to modify its perceptions. Mining companies often source their power supply on the basis of cost and reliability. While energy is a relatively small part of overall costs, interruptions to production processes can have significant economic impact, hence the aversion to risks associated with power supply.

Even if renewable energy is cost-effective, miners may prefer to use a proven and expedient power supply (diesel) that they have experience and skills available to repair and maintain. These power supplies are also more 'portable' as they are not dependent on a localised fuel source, so can be moved from mine to mine.

Demonstrating wind and solar hybrid systems to the mining industry is likely to multiply take-up and cumulative emissions reduction, given the quality of renewable resources in the Pilbara and Mid-West Regions of the State and projected growth in the mining sectors in those areas.

Intermittency

As the majority of currently deployed renewable energy sources are intermittent, hybrid systems are required to ensure reliable supply over different time-periods and seasons.

In a remote situation, dispatchable power is only available where renewable energy is coupled with gas or diesel back up capacity, increasing the effective cost of these technologies. Improved energy storage capability would significantly reduce the risk attached to renewable energy use in remote areas, however it is currently very expensive.

While the ACRE Reports specifically focussed on off-grid applications, it was acknowledged that significant network augmentation is required before the expected 1,000MW of additional load in the Mid-West Region of Western Australia can connect to the grid. It was also recognised that in general, electricity networks provide greater opportunities for connecting renewable energy sources. Integrating renewable energy sources into a grid provides both back-up for intermittency, and greater potential for recouping the high capital cost of the investment over a longer period of time and/or number of customers.

Long-lived assets

Like many other electricity generation assets, renewable energy generation plant has high up-front capital costs.

With the exception of exploration and greenfield site development, some miners assume very short project lifespans for investment/planning purposes. These short lifespans, driven by commodity volatility, are often too short to justify amortisation of capital costs of renewable energy projects. A financing mechanism which allowed tailoring of asset use and cost to mine life with subsequent redeployments could remove this barrier.

Network access

Clean energy projects may be located in areas which are remote from existing grids, significantly increasing project establishment costs. The Commonwealth acknowledged this issue in the establishment of the *Connecting Renewables* program and this remains a fundamental barrier to clean energy project development.

Project scale

Current forms of financial assistance generally target either small-scale early stage projects or large-scale deployment of clean energy technologies. This creates difficulties in accessing funding to support medium-scale clean energy projects.

7. Are there special factors that inhibit energy efficiency projects?

Energy efficiency investments are often subject to a range of market failures un-related to price or payback (which are often highly commercial). There has been a large body of work undertaken to inform the development of the National Strategy for Energy Efficiency and in the academic literature outlining and exploring different market

failures in the commercial and industrial space. Rather than repeat this work, this submission has sought to provide examples of the role financing may play to overcome market failures in energy efficiency.

- **Principal-agent issues**

  The CEFC might work with state, territory and local governments to provide a framework financing recovered through rate repayments or so called property assessed clean energy (PACE) financing. Low Carbon Australia is understood to have worked on supporting this type of financing but CEFC may provide a long term pool of funds from which local governments can leverage.

- **Public good externalities**

  Support for demonstration projects for emerging technologies would be a useful endeavour of the CEFC. De-risking the investments in demonstration projects through low interest capital may help establish technologies.

- **Firm failures**

  The Energy Efficiency Opportunities program has highlighted this as a material market failure impacting on the uptake of energy efficiency in the mining and manufacturing sectors. The CEFC may have a role in providing financing to assist transferable strategic demonstration technologies in key industries to enable emerging technologies in gaining a foothold.

HOW THE CEFC COULD WORK WITH OTHER GOVERNMENT AND MARKET ORGANISATIONS

8. How do you see the CEFC fitting with other government initiatives on clean energy?

Western Australia supports the progression of work on a *Collaborative Framework for Engagement on Renewable Energy* as announced at the Standing Council on Energy and Resources (SCER) Meeting on 9 December 2011[1]. As well as avoiding duplication/wastage of government resources, a framework will improve outcomes by exploiting synergies between national and regional priorities, facilitating more effective engagement of the private sector and support learning across jurisdictions and regions.

As indicated previously, it is considered that the Commonwealth should leverage its central position, and funding programs, to facilitate a comprehensive national approach to supporting renewable energy development. Included in these efforts should be clarity in the alignment of the CEFC with other related initiatives, particularly ACRE/ARENA and the RET.

[1] http://scer.govspace.gov.au/files/2011/12/SCER-Communique-9-Dec-2011.pdf - pg 4

There appears to be a degree of overlap between Low Carbon Australia and the CEFC that should be resolved. Low Carbon Australia might for example be used to demonstrate innovative financing models and the CEFC may become the vehicle for providing a more stable long term financing body of successful approaches.

As noted above in comments regarding the Solar Flagships program, Western Australia considers that there have been sub-optimal outcomes from existing Commonwealth Government clean energy initiatives due to poor consultation when developing programs. It is also noted that proponents can expend a lot of time and effort in seeking to rationalise national and state funding objectives and align funding or in-kind support. Where funding is used to meet leveraging ratios, failure to secure funding at the Commonwealth level disrupts programs at the state level, and vice versa.