

CLEAN ENERGY FINANCE CORPORATION

EXPERT REVIEW BY GERARD DOVER

Background

There is general consensus and copious data to support the view that the unit price of wholesale energy in Australia will increase in the medium to long-term. Factors include, but are not limited to, the expected roll-off of low priced thermal coal contracts, East coast domestic gas prices aligning with LNG export prices, the Carbon Tax, the closure of 2,000MW brown coal power plants under the Energy Security Fund, and continued domestic and global demand for energy. The Large-scale Renewable Energy Target (LRET) and Small-scale Renewable Energy Scheme (SRES) provide an additional source of value and certainty through mandated increases in the level of renewable energy supply, without the cost risks of purchasing fossil fuels in a volatile market. At the same time, the global deployment of clean energy technologies continues to reduce the unit cost of clean energy. On the face of it, the environment to attract financing for clean energy projects from the capital markets would appear to be substantially in place.

The need for CEFC support

With that said, key factors that are likely to hinder the financing, commercialisation and deployment of clean energy include the following:

1. Lack of scale

- Projects costing < c.\$75 million: project finance is typically only viable for a commercial bank if the facility is > c.\$50m¹. Therefore, smaller scale clean energy assets cannot access project financing on a stand-alone basis.
- Where the off-taker/consumer that provides revenue to a project is not deemed a large and creditworthy enough counterparty to satisfy project finance providers.
- Where there is demand for energy but the consumer is not connected to the main grid – often referred to as ‘distributed’ energy – which significantly focuses the project finance risk on the counterparty and off-take agreement, often making the project ‘unbankable’ in its own right.

Ironically, there may be grid/transmission/load constraints near a renewable resource preventing the viability of large-scale project(s). Deployment of smaller, local clean energy generation can fill the gap caused by the traditional bias toward centralized generation.

2. Limited track-record

- Where there is reduced long-term reference data to confirm a renewable energy resource².
- Where there is reduced certainty/track-record for the technology being deployed³. Commercial banks often take a risk averse approach to new technology making it unsuitable for traditional project finance, particularly during periods where banks’ access to wholesale funding is constrained, such as recent periods since the Global

1 This reflects the overheads of a commercial bank and the choices to earn fees and margin from other infrastructure projects that these resources could focus upon

2 Wind and solar resources at specific sites are usually correlated to long-term reference data such as that from the Bureau of Meteorology. Other renewable sources (eg wave/tidal; geothermal) often do not benefit from this long-term reference data. As for the technology track record, this prejudices against certain sources in obtaining traditional project finance.

3 Eg wave/tidal, geothermal, virtual power plants, widely distributed ceramic fuel cells, microcombined heat and power (mCHP) technology and web-based energy exchange/storage.

Financial Crisis.

3. Limited range of traditional capital providers

- Project finance is often the only choice for clean energy developers whose projects are innovative and commercially sound but whose corporate balance sheet cannot support a guarantee of the project. Non-recourse financing is designed to contain financial risk to the project but credit approval by a commercial bank requires substantial due diligence and documentation processes.
- 'Balance sheet' lending by relationship banks is limited to large corporates.
- Domestic and international investors in debt capital (bond) markets currently have no opportunity to invest in Australian clean energy debt as an asset class. This is due to:
 - Lack of scale of individual clean energy projects, and
 - Constraints in obtaining a credit rating for an individual project which is 'ring-fenced' with no recourse to a sponsor
 - Constraints in obtaining a credit rating for smaller, less well capitalized project developers
- Providers of equity capital to clean energy projects in Australia has been dominated by infrastructure investors typically seeking a 'regulated asset'/annuity return. However, equity investors that want exposure to the upside value of clean energy or to the scalability of alternative technologies have limited ability to do so if investment is limited to wind farms which are contracted at a fixed off-take price for substantially all their assumed working life.

Opportunities for the CEFC

Quantitative

1. Facilitate the 'pooling' of projects. This will have the following benefits:
 - Create necessary scale for capital markets
 - Leverage the 'portfolio effect' to diversify risks of individual projects thereby lowering the average risk of the portfolio
2. Enable 'investment grade' opportunities for debt providers including bond investors
3. Enable increased equity investor opportunities to access themes and economics of clean energy technologies through:
 - Debt finance provided with/without PPA (but with interest rate and other terms to reflect relative risk)
 - Preferred stock provided to first phase of commercial scale projects.

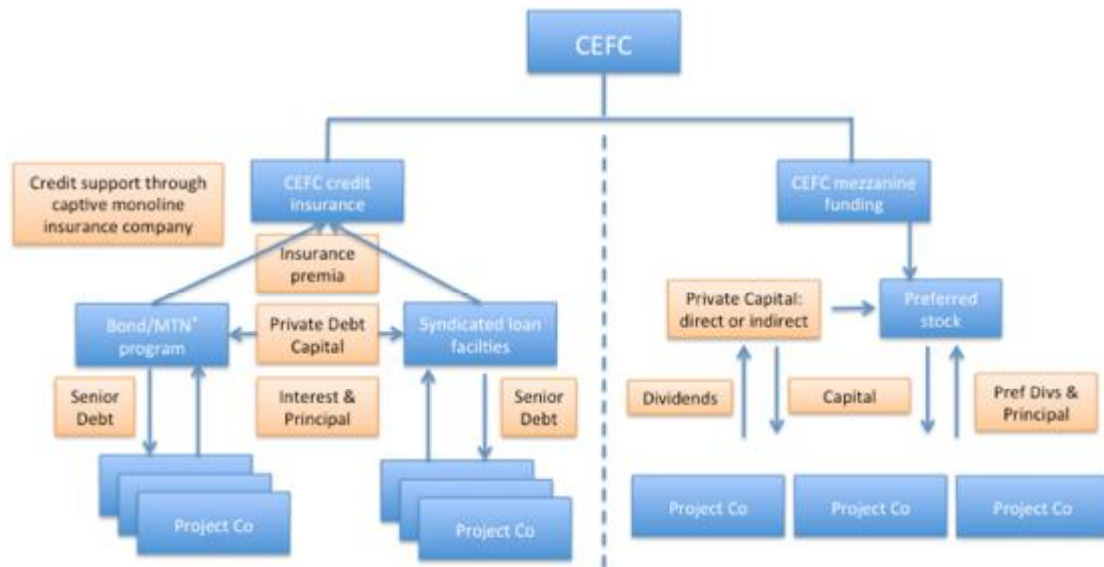
Qualitative

4. Capture the 'learning by doing' benefits of technology change within the CEFC and within its organizational partners (see Q.3 below)
5. Provide a complementary signal from the Australian Government to the debt and equity markets about the support being provided to Australian clean energy assets
6. Balance the demand-side policies already enacted with technology neutral supply-side support
7. Ensure probity and consistency in application of support but acknowledge the commercial reality that capital providers will expect technologies to be viable and management teams to be credible
8. 'Outsource' technology and market risk assessments to financial and expert intermediaries⁴.

⁴ Ensuring that such intermediaries are not motivated toward project approvals through their contractual terms (eg. no success fees or other terms which damage real or perceived independence).

Proposed role of the CEFC

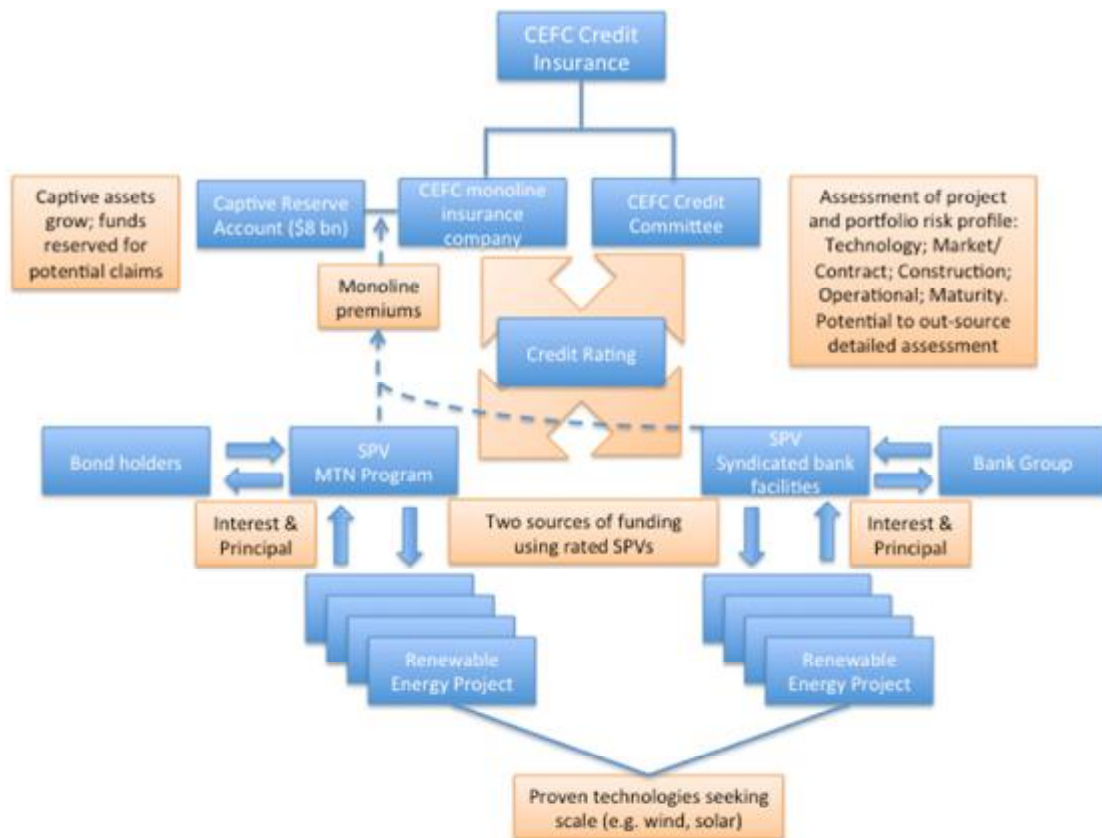
- A. Create credit insurance support mechanism to attract debt capital for proven technology portfolios
- B. Create mezzanine capital source for first stage investment into new (but commercially scalable) technologies



* MTN: Medium Term Note: Debt that usually matures in 5-10 years, most commonly issued as senior, unsecured debt of investment grade credit rated entities which have fixed rates. MTNs offer more flexibility to the issuer and investor both in terms of structure and documentation.

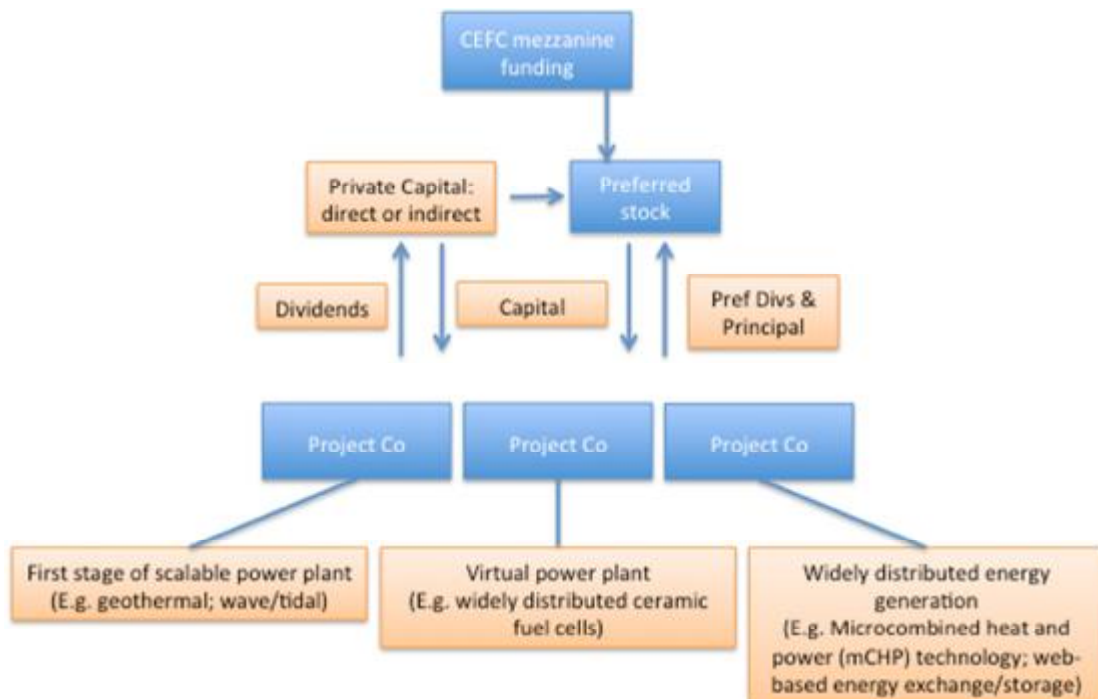
A. CEFC Credit Insurance

- Create portfolios of individual project-level debt (minimum \$5m; maximum \$50m for individual projects)
- Investment grade rating received based upon credit profile of portfolio + credit insurance cover
- Medium Term Note/Bonds issued OR syndicated bank facilities established based upon investment grade rating and debt capital market conditions
- Invite tenders from financial institutions to lead arrange/underwrite issuance
- Captive insurance fund owned and controlled by CEFC
- Leverage provided to individual projects reflects credit risks (including whether contracted or uncontracted revenue). Similarly, interest margin charged reflects projects' risks and is sufficient to cover all CEFC costs including a return on the insurance cover
- Utilize independent expertise and/or financial institutions' expertise to perform detailed and consistent credit risk assessments



B. CEFC mezzanine financing

- Invest in preferred stock (minimum \$5m; maximum \$50m) of individual projects
- Create opportunity for:
 - i. First stage projects of scalable clean energy plants
 - ii. Virtual power plants
 - iii. Widely distributed energy generation
- Enable two potential forms of investment alongside the private sector:
 - i. Direct investment by CEFC in preferred stock of project companies alongside equity from private owners/developers
 - ii. Preferred stock investment fund/platform for private sector. This would enable access for institutional/private investors to invest in CEFC mezzanine fund i.e. CEFC issues ordinary capital/preference share capital backed by the debentures of the companies which it has financed and therefore serve as an intermediary between private investors and small and medium-sized borrowers.
- Rates on preferred stock provided to projects to reflect venture capital rates of return; protections consistent with market practice for venture capital; conversion to ordinary stock to enable exit and repayment premium when second stage capital or trade sale of project occurs
- Provision of preferred stock designed to not displace private sector equity and senior debt. As in many venture capital scenarios, preferred status enables higher fixed return to CEFC with security package ranking ahead of project owners.
- As for the CEFC credit insurance proposal:
 - portfolio benefits from diversification and limits on individual project investment, thereby absorbing losses within revenues from portfolio returns
 - utilize independent expertise and/or financial institutions' expertise to perform detailed and consistent risk assessments



SCOPE OF THE CEFC

The CEFC will not provide grants. It is intended to be commercially oriented and to make a positive return on its investments. The CEFC will be able to make investments in businesses and projects in the clean energy sector with the objective of facilitating the flow of funds into the commercialisation and deployment of clean energy technologies. To achieve this objective, the CEFC may need to form partnerships with other organisations on projects and investments.

Questions

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

- a. Enable access to domestic and international debt capital markets
 - i. Aggregate project debt
 - ii. Provide credit enhancement
 - iii. Manage an investment grade credit rating
- b. Provide source of mezzanine financing for:
 - i. First stage of full-scale projects that have already passed R&D, proof of concept and demonstration stages
 - ii. Aggregating virtual power plants⁵
 - iii. Technologies that facilitate the adoption of widely distributed energy generation⁶
 - iv. Demand-side energy management systems⁷

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

- a. Creation of scalable and exportable intellectual property
- b. Demonstration and quantification of infrastructure savings (eg power transmission, reduced incidence of peak pricing events) that are widely applicable/scalable
- c. Impact on distribution networks of proposed projects

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

- a. Energy Regulators:
 - i. Australian Energy Regulator (AER) and state-based Transmission Networks Service Providers (TNSPs) to identify and co-ordinate transmission investment cost savings (and alternative investment opportunities) created by deployment of clean energy projects
 - ii. Australian Energy Market Operator (AEMO). For example, to establish an umbrella/master license for small clean energy projects to sell electricity to wholesale customers and into the National Electricity Market (NEM)⁸
 - iii. ASIC: as above, potential establishment of master AFSL and Letter of Credit
- b. Electricity retailers:
 - i. Potential purchasers of aggregated energy production from portfolio of clean energy projects
 - ii. As agents to deploy web-based/widely distributed technologies to their household customer base

5 E.g. widely distributed ceramic fuel cells

6 E.g. Microcombined heat and power (mCHP) technology and web-based energy exchange/storage

7 E.g. Systems that turn off load at threshold spot prices

8 This may also require CEFC to manage the monitoring of supply/demand balance relating to the portfolio of MW it will assist in this way

- c. Existing generators: to integrate clean energy generation technology with existing generation to provide a combined energy flow that could include storage (eg compressed air), supply prediction and delivery certainty benefits.
- d. Financial institutions:
 - i. Panel of banks to lead arrange/underwrite participate in bond or syndication processes
 - ii. Insurance/re-insurance companies to assess and manage credit risk of portfolio
 - iii. Co-investors/financiers with CEFC preferred stock of clean energy businesses
- e. Rating agencies: Education of agency analysts to quantify underlying projects' risks and optimize required financial support to achieve investment grade ratings

THE MARKET GAP AND OVERCOMING IT

The CEFC is not intended to compete directly with the private sector in the provision of financing to the clean energy sector; instead, it is intended that the CEFC will act as a catalyst to private investment that is currently not available for clean energy technologies.

Questions

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

As noted in 1) above:

- a. Enable access to domestic and international debt capital markets by aggregating project debt, provide credit enhancement, manage an investment grade credit rating
- b. Provide source of mezzanine funding⁹ for first stage of full-scale projects that have already passed R&D, proof of concept and demonstration stages; aggregating virtual power plants and technologies that facilitate the adoption of widely distributed energy generation.

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 path to obtain project financing for large-scale wind and solar farms is reasonably well established and has been successful where variability to cash flow is contained to a tolerance level that assures debt service and repayment. Due diligence criteria focuses on independent verification of the expected energy output (a function of the renewable resource and equipment used) and equipment performance (including track-record and warranties of availability and power conversion); and the terms of the off-take contract (Power Purchase Agreement or 'PPA') including the credit worthy status of the counterparty.

- Term of debt is typically a function of the term of the PPA and the assumed asset life, ensuring full repayment in a downside (e.g. P90¹⁰) scenario; typical tenor has been between 10 and 20 years (but has been shortening more recently)
- Cost (margin over LIBOR) has mirrored low investment grade spreads typically in the range of 150 to 350 basis points depending on market conditions
- Amount/proportion of debt is a function of the factors above with bankers seeking project net cashflows to achieve a base case Debt Service Cover Ratio (DSCR)

⁹ The need for a mezzanine funding component to the CEFC is similar to the 'Macmillan Gap' identified in the UK in 1931. The solution to the funding gap for small and medium sized business investment was the ICFC (Industrial and Commercial Financial Corporation) which ultimately became 3i. As for 3i there is the potential for the CEFC to follow a similar path to increase the initial capitalization of the CEFC through joint ownership with the private sector banks and insurance companies.

¹⁰ P90 = 90% probability of exceedance

of approximately 1.5x with downside (eg P90) of approximately 1.1x. Average proportion of debt to total project cost for a contracted wind farm is around 70%.

- Minimum project finance transaction is approximately \$50m

The alternative to project financing (described above), is for large companies (typically utilities) to utilize balance sheet capacity i.e. corporate level borrowing facilities.

Banks also reference the corporate relationship/sponsor risks.

For projects that cannot satisfy the criteria described above, the response from project financiers is typically a binary one – to support the project or to decline interest.

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

Key inhibitors have included:

- Development approval: constraints and timeliness
- Lack of community support if project development not approached sensitively and intelligently
- Connection approval: constraints and timeliness
- Transmission investment decisions (referred to in 3. above)
- Expense and complexity of licensing requirements to sell clean energy directly to end user customers and the NEM
- Uncertainty and changes to State and Federal policies which impacts both the provision of finance and the appetite of off-takers

The skill of clean energy project development is not only to understand the resource and the technology but also to navigate the issues above.

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

The Energy Efficiency Opportunities program, the Carbon Price and other Government initiatives combined with the significant balance sheet capacity possessed by the owners' of existing thermal generation plant and energy intensive businesses, should be sufficient to make investment in energy efficiency viable and profitable for many larger businesses without CEFC support.

At a consumer level, in addition to the measures above, the Government is making efforts to enable consumers to make energy efficient choices. These include the Mandatory Energy Performance Standards and Energy Efficiency Information programs. Coordination on the deployment of Smart Metering devices would further encourage energy efficient choices.

In summary and as noted on page 1, the special factors inhibiting energy efficiency for emerging businesses are often similar to those in clean energy, that is a lack of scale, track record and range of capital providers.

OTHER ISSUES

The CEFC is part of the Australian Government's Clean Energy Future package, which includes a suite of new programs and measures to tackle climate change and transform Australia's energy sector. These programs and measures include the introduction of a carbon price, the \$3.2 billion Australian Renewable Energy Agency and the \$1.2 billion Clean Technology Program. In addition, the Government has previously established a range of programs and measures to support clean energy, the most significant of which is the 20 per cent Renewable Energy Target.

Question

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

The CEFC may receive submissions that effectively state that current government initiatives are not enough. Some submissions may claim that the market power wielded by the private and government owned electricity retailers has prevented the signing of long-term Power Purchase Agreements (PPAs). PPAs have traditionally provided the necessary revenue certainty to support non-recourse project finance from commercial banks and annuity returns for equity investors. To overcome these issues, some may argue that the CEFC should provide a de-facto Feed-In Tariff (FIT) or contract for difference (COD) solution that effectively dis-intermediates the retailers.

The reality is that the three-year surplus of Renewable Energy Certificates (RECs), stimulated by previous Federal and State Government initiatives, combined with the continued and substantial reduction in capital cost of wind turbines and solar panels means that the electricity retailers are commercially rational in waiting for the right opportunities to commit to new PPAs¹¹ at lower prices now being offered by developers who are willing to pass on these material equipment cost reductions.

Further, and as noted in the Garnaut Climate Change Review - Update 2011, "These instruments can inappropriately insulate projects from legitimate commercial risks. In addition to encouraging inefficient levels of investment, this also exposes government to potentially unlimited fiscal exposure; the experience of the New South Wales Government with its premium feed-in tariff [for rooftop solar systems] is cautionary."

In the absence of CEFC support and, given the REC surplus is temporary, retailers are rational and project finance is tried and tested, these sources of finance should again support large-scale wind and solar farm investments.

The objective of the CEFC is to overcome capital market barriers that hinder investment. By implication, it should think and act for the long-term in order to be effective. International capital markets respond more to long-term fundamentals so the CEFC should think and act in the same way, taking a view on all aspects of project risk, pricing it accordingly, and then applying a portfolio approach to its own investment/support decisions. The qualification for its support and links to other Government initiatives should, therefore, be kept to a minimum (see question 2 for broader drivers to support projects) with the remit limited to supporting Australia's clean energy future.

Clearly, the board will need to set investment policy criteria which reflect the objectives of the CEFC. These could include minimum and maximum project sizes, specific approved technologies, portfolio weightings, technology aggregation strategies, etc.

¹¹ A PPA is a very substantial commitment. For example, a 20-year PPA for a 100MW wind farm represents a total financial commitment of c.\$500 million by an off-taker. In addition, the retailer normally manages the risk of variable supply from renewable energy generators within its portfolio of generation sources and using financial derivatives.

The CEFC Review Panel is also interested in receiving the views of stakeholders on other issues raised in the terms of reference at Attachment A.

Definition of Low emissions technologies

“Low emissions technologies” are at risk of being poorly defined and, therefore, difficult to advocate clear criteria for CEFC support.

Globally, these technologies can include:

Integrated gasification combined cycle (IGCC), oxy-fuel and post-combustion capture, ultrasupercritical pulverised fuel, poly-generation, waste heat recovery, hydrogen production, enhanced coal bed, waste coal mine methane, coal gasification and liquefaction, vehicles that are electric, hybrid, propane, gas, hydrogen or air powered.

An example of the difficulty of the definition is that 82% of subsidies from the Low Emissions Technology Demonstration Fund (LETDF) in Australia are concentrated in the Australian Government's 'Clean Coal Technology', with the remaining 18% of funds allocated to the renewable energy 'Project Solar Systems Australia' \$75 million. However, the CEFC has already stated clearly that *"It will not invest in carbon capture and storage technologies"*.

Carbon Farming Initiative

The Carbon Farming Initiative, while not related directly to “clean energy” might be significantly more effective if supported in attracting long-term financing by the CEFC. The potential to aggregate CFI projects and provide credit support could enable significant amounts of long-term domestic and international debt capital to finance the necessary up-front capital costs of soil and plant sequestration projects.

Advisory/advocacy role of CEFC

- i. To project owners/developers – provide clear guidelines and advice to optimize their investments for CEFC support. Also, more generally the ability to connect/network owners and developers with each other and with the investment community
- ii. To the energy regulators – advocate the deployment of clean energy technology and work actively to overcome barriers to entry through representing the aggregated benefits of, for example, potential savings on ‘poles and wires’, reduction in investment in peak load capacity through smart meters and load matching technologies (e.g. solar)

About the author

Gerard Dover has spent the last 5 years as a senior executive leading large-scale investment in clean energy (totaling around \$5 billion) across 8 different jurisdictions including as CFO of Infigen Energy, the largest owner of wind energy assets in Australia and more recently as an executive consultant with NBT AS across Asia. Relevant experience also includes the delivery of inaugural credit ratings, syndicated bank facilities, bond, Medium Term Note and Commercial Paper programs for Syngenta AG, a global agricultural products company as Debt Capital Markets Manager.

Gerard is a qualified chartered accountant and treasurer, and graduate of the Australian Institute of Company Directors. He has an established track record of success and leadership in IPO, equity and debt raising, acquisitions and divestments, and start-up/turnaround situations.