LOW CARBON AUSTRALIA - SUBMISSION TO THE CLEAN ENERGY FINANCE CORPORATION EXPERT REVIEW
REQUEST FOR SUBMISSIONS

EXECUTIVE SUMMARY

About LCAL

Low Carbon Australia is a public company limited by guarantee formed by the Australian Government with initial funding of more than $100 million and the structure, mandate and capability to be a flexible vehicle for the delivery of finance and other programs aimed at preserving and enhancing the Australian natural environment.

LCAL is in many respects a 'pilot model' for the CEFC. LCAL operates a revolving fund for clean technology finance through its Energy Efficiency Program (EEP) - on a small scale (approximately $75m), and a narrower investment remit.

LCAL has been operating in the marketplace since early 2010 and its experience to-date has focused on providing energy efficiency finance in the commercial and industrial sectors. As a small pilot fund, LCAL has taken the approach of co-investing in innovative financing with companies with significant customer reach. This is an effective means of demonstrating and catalysing change in the marketplace on a wider scale, and to achieving private sector financial leverage to realise greater total investment, greater capacity building of the marketplace and realising greater amounts of carbon savings than LCAL could achieve investing its small fund alone. LCAL has also used its funding to finance individual energy efficiency project proposals to provide demonstration projects

The CEFC and Low Carbon Australia

LCAL believes that it is well placed to act as a delivery vehicle for CEFC investment into clean energy technology. For the CEFC, there is a significant opportunity to use LCAL as an operator in the market to deliver funding to the sectors in which it has expertise. Under this arrangement, CEFC capital would be invested to deliver finance for clean energy technology and energy efficiency technology aimed at achieving transformation in the following sectors:

- Commercial, Industrial and Residential: (in-situ) energy efficiency demand reduction and Greenhouse abatement projects;
- Commercial, industrial and Residential: (in-situ) co-generation and tri-generation projects;
- Precinct scale tri-generation, co-generation and district cooling projects at city wide levels.

Given the CEFC's mandate to invest up to 50% of its $10bn in an energy efficiency and low emissions technologies stream, LCAL believes it could act as delivery vehicle for CEFC to provide finance and/or co-invest in energy efficiency and distributed generation projects in the order of $3bn to $5bn with a view to contributing to achievement of the necessary transformational change and emission reductions in these sectors for:

- Accelerated deployment of 'energy efficiency' and 'distributed generation' projects , at a sufficient scale to significantly transform the market and achieve estimated carbon savings of 10 to 30MtCO2e per annum;
- Creation of a significant new "energy efficiency" investment asset class overcoming existing market failures preventing project take-up;
- Leverage of private sector finance resulting in a total investment pool of between $10bn and up to $20bn being made available for this emerging asset class;

- An estimated net benefit of negative $100/tCO2e (i.e. an actual saving of costs) arising from these energy efficiency investments and amelioration of the potential impact of rising energy prices for commercial, industrial and residential sectors;
- A proven model for overcoming and pricing risks of energy efficiency and distributed generation investments, such that the market will invest, at scale, beyond the expected initial investment cycle of the CEFC, enabling the Australian Government's non-financial and broader policy objectives of a pursuing a clean energy future to be achieved.

This would require progressive scaling up of delivery capability according to CEFC investment priorities and market potential, beyond LCAL's current pilot size and existing commercial and industrial sector coverage.

There is strong rationale for the CEFC to utilise LCAL as its delivery vehicle:

i. LCAL and CEFC objectives are already strongly and strategically aligned.
ii. LCAL is already operating in this market, presenting the CEFC with the opportunity for earlier investments in the energy efficiency and commercially-available low emissions technology sectors than the CEFC might otherwise be able to achieve
iii. While the CEFC establishes itself and undergoes strategic development in the complex and challenging renewables and pre-commercial technologies sectors LCAL can continue to deliver.
iv. There are strong efficiency grounds and desire on the part of business, industry and other levels of government for simplifying and avoiding duplication and potential market confusion through overlapping government programs

The formal structure of such a relationship between the CEFC and LCAL is ultimately a matter for Government and will depend on how the CEFC is itself structured. The most straightforward means would be for LCAL to continue to exist in its present form as a wholly-owned subsidiary of the CEFC – this could be achieved through changes to the LCAL Constitution and Company Membership. This would ensure greatest continuity in the marketplace for current programs and providers.

Role of the CEFC

In framing this submission, LCAL has drawn on its experience of the existing market failures in commercial and industrial sectors and the need for Government-backed CEFC finance to overcome them. LCAL has not sought to address the specific issues in solar and other renewables technologies, and early stage technologies, except in so far as they relate to energy efficiency and other low-emissions technology or investment in clean energy technology sector in general.

On this basis LCAL expects the CEFC could:

- Achieve an objective of reducing emissions by building capital markets' capability to offer a broad range of options to access capital.
- Define sector specific objectives and return criteria for capital investment in those sectors.
- Adopt a model to deliver capital to fund managers and other third parties who have existing delivery capability and business relationships with the targeted investors. This delivery capability needs to extend beyond finance delivery capability and include the ability to offer

bundled finance and service offerings, such as energy performance contracts and guarantees.

- De-risk investment in the following ways:
    - Adopting a higher position on the risk curve to attract third party capital not currently available for technology types or from investors, at a risk-weighted return which supports investment.
    - Proving the business case for investors by supporting demonstration projects and pilot funding programs.
    - Bring sufficient technical expertise and commercial acumen to project investment decisions to ensure quality projects are supported. Recognition of this expertise by investors will reduce otherwise perceived risks.

CEFC priorities and performance objectives in this domain will need to recognise that despite the positive business case on paper, investing in energy efficiency remains a complex area of decision-making for most businesses as it involves a large array of energy saving technologies. Key issues include:

- Term: Many clean energy technologies have payback periods in excess of typical corporate funding finance terms (3 to 5 years) or internal capital allocation hurdles which require rates of return commensurate with 3 to 5 year paybacks.
- Availability of funds: Availability of funds for energy efficiency projects are not primarily driven by the technology type but rather by the credit position of the building or industry corporation and the finance market environment.
- There are other priorities for capital: Capital may well be available for investment but competing investment needs can displace clean technology investment as a priority.
- Demand is susceptible to general economic conditions: companies are generally risk adverse when considering investment in new capital projects that are non-core business.
- Complexity and internal decision making adds to time delays.
- Transactional cost may be too high for some businesses.
- Many organisations have difficulty identifying appropriate technology solutions and suppliers / vendors.
- Construction requires long project lead-times which in turn requires patient capital.
- Availability of grant funding places a dampener on demand for loan products.
- In the public sector, stringent central Treasury rules can make borrowing arrangements difficult.
- Immaturity of the clean technology market means there is inherent capacity constraints in terms of both skill and ability to successfully manage projects though to conclusion.

How the CEFC can Facilitate Investment: LCAL's Experience

The CEFC could facilitate investment:

- By adopting a commercial mode of operation
- By adopting a suite of financial solutions rather than a single approach, informed by best practice in Australia and overseas
- By clearly defining boundaries in what the CEFC will and will not invest in

By developing an investment approach that will adequately service the market segments identified (i.e. a) renewables, b) energy efficiency, c) other clean technology, and d) manufacturers that provide input into a), b) & c)). To facilitate investment, the CEFC's interventions and financial products should be directed at addressing specific financial market failures in the clean energy sector:

- Risk mitigation
- Innovative finance mechanisms
- Capital provision
- Information provision.

The ways in which the CEFC can change the project economics to catalyse the flow of funds from financial institutions and other investors are as follows:

- The CEFC can participate as an equity partner
- The CEFC can participate as a debt partner
- The CEFC can reduce risk of investments
- The CEFC can subsidise concept projects
- The CEFC can take the long position on investments
- The CEFC can demonstrate investment
- The CEFC can address market failures in investment by combining a mix of the above approaches
- The CEFC can achieve a commercially viable volume of clean energy transactions that can be bundled for re-financing or securitisation in a manner which can attract superannuation fund investments.
- The CEFC can partner with organisations like LCAL which undertake technology reviews and project approvals to confirm quality projects and provide education and understanding of the technology and directing those finance partners to market experts.
- The CEFC can capitalise on its Government backing, yet independent status to lend credibility to finance models and partners in the clean energy markets.

It is critical therefore that the CEFC is legally structured to enable it to the greatest extent possible to be run like a business, and make investment decisions like a business. If the CEFC is to be commercially oriented and to make a positive return on investments (but not necessarily the market return on investment) it is critical that the governance framework reflect commercial reality – principally by explicitly recognising that return is directly related to risk, and that inherent in this scenario is an expectation that some investments will underperform. The CEFC governance must be robust and independent.

Investment for Financial, Environmental and Public Benefit Returns,

The CEFC must be able to demonstrate the environmental return which it is generating as well as the commercial performance. Therefore, the cost of abatement is particularly important, as the way in which the CEFC is able to account for and demonstrate the public good contribution it is making through the cost of abatement it is delivering.

Additional criteria which the CEFC could adopt for evaluation of its Investment opportunities include: Demonstration effect, replicability, scalability, geographic spread, sectoral spread, project 'additionality' (that is, whether the project would have happened at the time it happened or at the scale but for the investment), and other finance leveraged etc. LCAL uses and finds these valuable to its assessment of both projects and financial vehicle proposals. These could be applied by the CEFC Board in its prioritisation of investments; however, these criteria should in LCAL's view remain within Board purview rather than being mandated.

LOW CARBON AUSTRALIA SUBMISSION TO THE CEFC EXPERT REVIEW PANEL

1. ABOUT THIS SUBMISSION

In framing this submission, LCAL has drawn on its experience of the existing market failures in commercial and industrial sectors and the need for Government-backed CEFC finance to overcome them.

It focuses on the CEFC's objective of overcoming capital market barriers that hinder the financing, commercialisation and deployment of energy efficiency and other low emissions technologies via the means of providing strategic finance on a risk-adjusted basis that recognises both the technology constraints and price risks inherent in energy efficiency and distributed generation projects. In many cases, these issues translate to the residential sector and therefore the CEFC's investment mandate should cover a broad range of sectors, including commercial, industrial and residential.

2. ABOUT LOW CARBON AUSTRALIA

Low Carbon Australia is a public company limited by guarantee formed by the Australian Government with the structure, mandate and capability to be a flexible vehicle for the delivery of finance and other programs aimed at preserving and enhancing the Australian natural environment.

LCAL's initial funding of more than $100 million from the Australian Government in 2010 has enabled its establishment and the start-up and rollout of two innovative programs:

- *The Energy Efficiency Program* – finance and advice to eligible businesses and the public sector for the upgrading of commercial buildings and industrial processes for cleaner energy use; and
- *The Carbon Neutral Program* – accreditation for organisations that have products, services or operations certified as carbon neutral under the Australian Government's National Carbon Offset Standard (NCOS). The Standard helps consumers reliably identify carbon-neutral products, services or organisations so they can make informed choices about their purchases.

Low Carbon Australia Limited's (LCAL) current programs are funded under agreement with the Department of Climate Change and Energy Efficiency. Oversight of Low Carbon Australia operations is exercised by the Board, the Minister (both as the sole Company Member and as portfolio Minister), the Parliamentary Secretary and the Department of Climate Change and Energy Efficiency.

In its short time in operation, Low Carbon Australia has built experience and is developing a comprehensive portfolio of innovative finance offerings and early projects in partnership with leading providers under the Energy Efficiency Program (EEP). This EEP is particularly relevant to the CEFC, and could be viewed as a pilot for the role the CEFC could provide in catalysing action on energy efficiency investment in Australia.

The EEP is a commercially based, revolving investment fund focused on providing demonstration to the marketplace on how to overcome market failure in order to achieve significant improvements in

energy efficiency and reduced carbon emissions from the non-residential building sector and in industry.

While the current funding places limits on LCAL's flexibility in the type of energy efficiency and greenhouse gas abatement projects LCAL can finance, the financial products and the capability it has developed can be cost effectively and readily scaled-up to address the broader economy-wide energy efficiency task.

Investment of substantial capital is required (ClimateWorks' best estimate for investment required in energy efficiency technologies to achieve cost effective carbon savings of 21MtCO2-2 pa in commercial buildings in 2020 is $12.2bn[1] and to achieve the cost effective industrial energy efficiency savings of 38MtCO2-e pa in 2020 a total investment of $18bn is required – refer to Table 2) to deliver least-cost emissions reductions. In each sector there are well-documented market failures inhibiting investment in energy efficiency and it is widely recognised Government intervention using innovative approaches to financing and risk-sharing is key to unlocking the desired efficiency gains and carbon savings.

As a relatively small pilot fund, LCAL has taken the approach of co-investing in innovative financing with companies with significant customer reach. This is a more effective means of driving change in the marketplace on a wide scale, achieving private sector financial leverage to realise greater total investment, greater capacity building of the marketplace and realising greater amounts of carbon savings than LCAL could achieve investing its small fund alone. LCAL products can then be accessed by small and medium sized business through the large financial, utility or leasing companies that support them.

At the same time LCAL's initial one-off direct loans for energy efficiency projects will provide important demonstration value of cost-effective energy and carbon savings. There is a distinct need for this in the market which is not being met at the current time. For example, mid-tier and smaller companies and organisations such as local councils have little internal capital and face constraints in raising finance to execute these projects.

LCAL's strategy is to offer finance at a market competitive rate with adjustment for risk-weighting, and usually on a longer fixed term than other financers in the market. LCAL is matching the repayments of finance to the energy savings. LCAL's financial modelling and assessment capability is based on a detailed cost of carbon abatement methodology where energy and carbon savings are estimated over the investment life of a project and repayments are set to match the forecast savings. LCAL has the flexibility to tailor the finance being offered to suit the individual company's needs.

[1] The $12.2bn investment is for energy efficiency improvements. ClimateWorks estimates an additional figure of up to $10.1bn of investment required to achieve uptake in commercial Co-generation and Tri-Generation.

3. LCAL'S UNDERSTANDING OF THE PURPOSE AND OBJECTIVE OF THE CEFC

As LCAL understands it, the CEFC's mission will be to protect the environment by accelerating private sector investment in Australia's transition to a clean energy future. The objective of the CEFC is described as being to overcome capital market barriers that hinder the financing, commercialisation and deployment of clean technologies. This objective is closely aligned to the objectives of LCAL – however, *capital* barriers to investment tend to be usually symptomatic of a broader market failure rather than being its single cause.

The CEFC is part of an extensive suite of policies and programs which make up the broader Australian Government response for the move to a clean energy economy and to the challenge of climate change. However, even after these programs and policies are implemented, particular market failures can affect the financing of clean energy and limit investment. Capital constraints prevalent in particular sectors, perceived policy and regulatory risk, a lack of information and information asymmetries around new technologies and their actual versus perceived risks, as well as high costs of transactions, all impact in the market to constrain the total amount of investment and raise the apparent level of risk of investments in clean energy. Without further intervention, these would lead to under-investment against achievement of the Australian Government's objectives for the transition to a clean energy economy. The CEFC's establishment as a single institution, rather than as a series of temporary Government interventions should address and reduce the impact of these sources of market failure.

LCAL's experience is that assistance in the form of finance – public finance, for a public good – with tailored and targeted interventions, can help to overcome risk aversion, high transaction costs, and the resulting lack of capital and complement other policies. By operating at arm's length from Government, on a commercial basis the CEFC can exercise expertise in financial markets and clean energy technologies to mobilise additional private sector capital and market credibility, making positive financial returns and at the same time achieving significant low carbon impact.

In this, the CEFC will have a different role than other public investment funds, like (for example) a Government superannuation fund or the Future Fund – in addition to its financial performance the CEFC will be delivering public good in terms of a 'triple bottom line' of financial, social and environmental outcome. This will place additional public responsibility and scrutiny on the CEFC.

The stated intent that the CEFC is not intended to compete directly with the private sector, but to act as a catalyst for that investment, is both critical and a philosophy that is closely aligned to LCAL's. The above observations, based on LCAL's experience, suggest that there is significant scope for CEFC capital to be applied in a way that supplements and catalyses investment of private capital towards clean technology rather than substituting for it; that is 'market making' rather than 'market taking'.

4. CEFC AND LCAL COMPLEMENT EACH OTHER

Low Carbon Australia has effectively been operating as a limited pilot - a small proto-type of how the CEFC could operate. However, LCAL is too small to be self-generating and has no secure access to further funding.

LCAL's funding agreement with the Australian Government mandates that the $84.6 million of initial funding under the EEP must be applied (i.e. contractually committed for investment) by 30 June 2013. LCAL is on track to achieve this milestone.

LCAL is required by the Australian Government to undertake the EEP in a manner that promotes the financial-sustainability of the program. LCAL has incorporated this requirement into its investment guidelines and looks to achieve an appropriate financial return to LCAL when making investment and resource allocation decisions. However, at LCAL's current level of funding, full financial-sustainability cannot be realised.

LCAL continues to pursue the goal of longer term financial sustainability via:

- An investment strategy where LCAL earns a risk adjusted return for its energy efficiency investments
- Providing finance in a way that places LCAL on a path towards cost recovery/self-sustaining return basis over the long term
- Co-investing with organisations with delivery capability, market base and alignment with LCAL objectives to minimise LCAL operating costs.

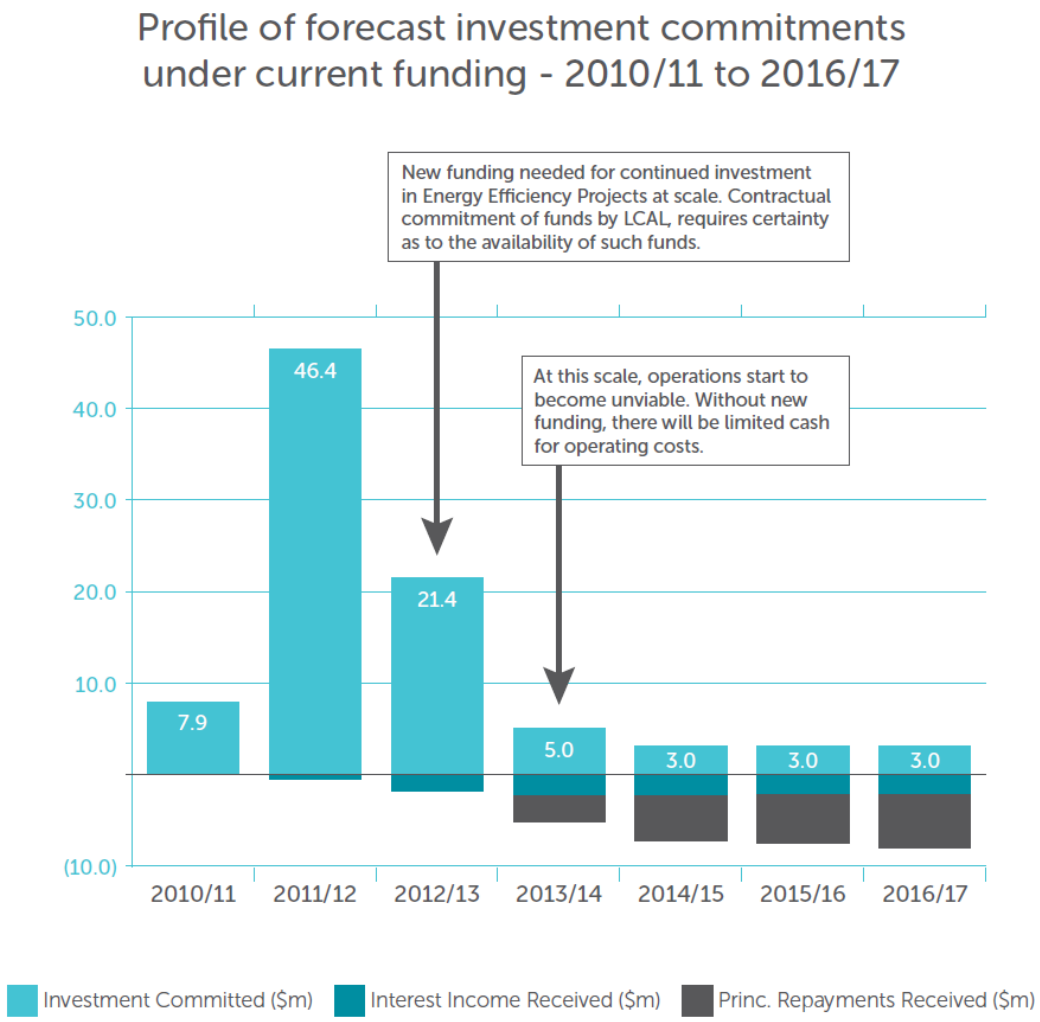
Given the size of the fund and the tenor of the finance needed to address the market failure, Low Carbon Australia cannot achieve the self-generation required to retain its current level of operations beyond FY 2012/13 -the duration of LCAL's financing solutions (averaging seven to eight years) mean that returns from the initial investments are not aligned with the timing of initial funds deployment. Based on current projections of cash flows, the funds available will not be sufficient to sustain the organisation at its current levels beyond mid-2013. Long term financial sustainability is not possible without either further Program funding or a scale down of operations to sub-critical levels. This creates challenges for LCAL, its private sector Program Delivery Partners and investment partners and the Australian Government in maintaining the market momentum which is being created to date.

LCAL will continue to demonstrate its ability to deploy and leverage funds for cost effective low carbon outcomes, utilising innovative financial solutions, win-win partnering arrangements with market leaders, and delivering tangible results in the successful deployment of clean energy funding in Australia.

However, without additional capital LCAL will not be able to sustain the current capabilities and level of market engagement once the initial EEP funding has been fully applied. As a public company, there are inherent constraints on the Board with respect to solvency. This means that maintenance of LCAL's current operational footprint and critical mass of staff expertise will not be possible if funds are not available to cover operating costs.

The graph below provides an illustration of the expected flow of funds over a seven year period from LCAL's commencement.

Figure 1. Profile of forecast investment commitments under current funding - 2010/11 to 2016/17.



There is much evidence to suggest that further funding to broaden and further develop the existing LCAL Energy Efficiency Program would realise significant results in the market place. Further capital would allow the scale-up and replication of successful projects, as well as achieve wider results in other sectors with significantly greater cost-effective potential early abatement opportunity, specifically commercial, industrial and residential energy efficiency and distributed generation).

Deepening the current Energy Efficiency Program at scale would drive market-ready abatement projects and help build positive engagement of the business community, helping accelerate the impact of wider carbon regulation under the Clean Energy Future package.

The CEFC can achieve abatement outcomes, specifically in commercial, industrial and residential energy efficiency and distributed generation through LCAL by utilising:

- the established operations of LCAL
- LCAL's experience, market relationships, delivery partners, market channels and know-how
- the significant work already performed by LCAL (including in establishing scalable finance products).

In summary, the LCAL offers the CEFC a ready-made delivery capability. LCAL believes this would be welcomed in the market-place as it is the market view is that it does not want to deal with multiple Government-backed entities and programs if it can be avoided.

5. POSSIBLE CEFC-LOW CARBON AUSTRALIA RELATIONSHIP

There appear to be three principal ways in which the CEFC could be established by Government:

1) As a *Corporations Act 2001* company, governed by the *Commonwealth Authorities and Companies Act 1997* (CAC Act) with a CEFC specific statutory overlay (in terms of subsuming LCAL, this would be preferred as the easiest way).
2) As a statutory authority by specific legislation with a CAC Act overlay (in terms of subsuming LCAL, this would be the second preference).
3) As a prescribed statutory agency by specific legislation with a *Financial Management and Accountability Act 1997* (FMA Act) overlay (in terms of subsuming LCAL this would not be advised).

These are essentially a matter for Government to decide, but for the purposes of examining on how LCAL could integrate its operations with the CEFC the three scenarios are outlined in Table 1 below and each examined in detail at **Appendix A**:

Table 1: Matrix of possible CEFC structures and LCAL relationship to the new body

CEFC Structure	**LCAL retained as a Corporations Act company but restructured as a CEFC subsidiary**	**LCAL rolled into CEFC as a delivery arm; retains separate brand identity and run independently by LCAL Advisory Board**
Created as a Corporations Act company, governed by the CAC Act with a CEFC specific statutory overlay (example: NBN Co Ltd)	No complicating issues.	No complicating issues. The easiest way to achieve an amalgamation.
As a statutory authority created by specific legislation with a CAC Act overlay (example Export Finance and Insurance Corporation)	Some issues may need to be dealt with in CEFC-specific legislation.	Some issues may need to be dealt with in CEFC-specific legislation.
As a prescribed statutory agency created by specific legislation with an FMA Act overlay (example: Future Fund Management Authority)	Multiple issues to deal with the incompatibility of business models need to be dealt with in CEFC-specific legislation.	This would involve a substantial restructure and retraining/replacement of staff that would be disruptive to LCAL business.

6. RESPONSE TO SPECIFIC QUESTIONS POSED IN CEFC REVIEW: REQUEST FOR SUBMISSIONS

QUESTION 1: How do you expect the CEFC to facilitate investment?

The most obvious way in which the CEFC can facilitate investment is through the sophisticated direction of its investments to achieve its 'public good' ends. This requires the setting of investment parameters and the adoption of governance measures and principles so as to define the public good that the CEFC will deliver.

CEFC activity in the market should be targeted at specific situations and structured to ensure effective, sustainable carbon reductions, 'additionality' and minimum market distortion.

To facilitate investment, the CEFC's interventions and financial products should be directed at addressing specific financial market failures in the clean energy sector:

- Risk mitigation: Change the risk/reward profile of investments by making higher risk investments at a return sufficient to catalyse market investment in projects through both construction and operating phases as well as facilitating the refinancing of projects.

- Innovative finance mechanisms: Develop or partner in the development and delivery of innovative finance products to overcome information asymmetries or high transaction costs by introducing new forms of capital to existing types of projects.

- Capital provision: Where necessary to meet targeted Government policy outcomes provide equity or debt capital, to increase the pool of capital available to back certain types of project.

- Information provision: Tackle information asymmetries through dissemination of case studies, research and targeted information into the market.

The financial products and programs could be designed to address different sector-specific investment needs. Determining where the CEFC will focus and the range of market failures it is giving priority to focus will be critical.

Some key questions to be addressed:

1. **Is Market Building an Objective?** Is the CEFC mandate best executed by using its capital to build capability and capacity in the capital markets or by investing its capital directly in emission reduction projects. LCAL's view is that the CEFC should have a clear mandate and performance requirements set to allow it operate as a market builder.

2. **Is the CEFC's Role to de-risk investment by others or to invest its capital directly independently of other capital providers or both?**
   LCAL's view is that the CEFC should be free to perform both roles according to market needs.

3. **Will the CEFC define a detailed Investment Strategy?** Will the CEFC determine its investment strategy around a cost of abatement model? Or will the CEFC determine a detailed direct investment strategy for nominated sectors or technologies? Or will the CEFC adopt a fund of funds model and allow those mandated to independently determine how each will achieve agreed investment objectives?
   LCAL's view is that subject to explicit Government policy outcomes, the CEFC should be free to develop and pursue a combination of approaches according to the needs of the market in order to best meet its investment objectives and performance requirements.

4. **Will the CEFC Originate and Deliver?** What degree of involvement will the CEFC retain in making individual project investment decisions? Will the CEFC:
   a. retain all direct project investment decisions and build the internal structure to originate and deliver its capital direct to project owners;
   b. retain all direct project investment decisions and build an origination capability and outsource service delivery;
   c. fund other organisations to originate and service project investments, with CEFC adopting a project approval role; or
   d. fund other organisations to originate, service and approve project investments within pre-agreed tight investment criteria?

   Again, LCAL's view is that the CEFC should be free to develop and pursue a combination of approaches according to the needs of the market in order to best meet its investment objectives and performance requirements.

LCAL expects the way in which CEFC responds to each of these issues to differ across investment types:

1. *Early Stage Projects:* These projects are currently not investment ready at current energy, carbon and Renewable Energy Certificates (REC) prices. This would include early stage clean energy demonstration technologies (such as algae biofuels, fuel cells and 3rd generation Photo Voltaics) and large scale demonstration of low carbon energy supply chain technologies such as solar thermal plants and offshore wind);
2. *Regulatory Scheme-Dependant Projects:* These projects are investment ready, currently financially viable but are substantially exposed to regulatory uncertainty associated with technology subsidy schemes such as the renewable energy target and carbon pricing schemes. This would include scaling up low carbon energy supply chain technologies (such as onshore wind, solar PV and landfill gas) and grid infrastructure future proofing (such as grid upgrades, smart-meters and grid infrastructure to connect new clean energy generation such as wind to mainland).
3. *Cost-effective Projects:* These projects are financially viable with minimal price regulation exposure that are not being invested in due to market failures and barriers to investment. This includes energy efficiency upgrades to buildings and industry and emissions reduction projects associated with industrial process and waste management. Most energy efficiency technologies, including tri-generation and precinct based cooling projects, are currently economic investments over the asset lifetime, however in many instances these payback periods (ranging from 4 to 20 years) are longer than tolerable investor hurdle rates.

The diagram below (US DoE: 2011) is indicative of the funding intensity required at different stages of technology development and the associated level of technology risk. ARENA is oriented towards the 'Pre-Commercial Gap' . The CEFC's role in contrast is more focused on commercially available technology – directed at the Commercialisation and Market Entry component of the Pre-IPO Gap.

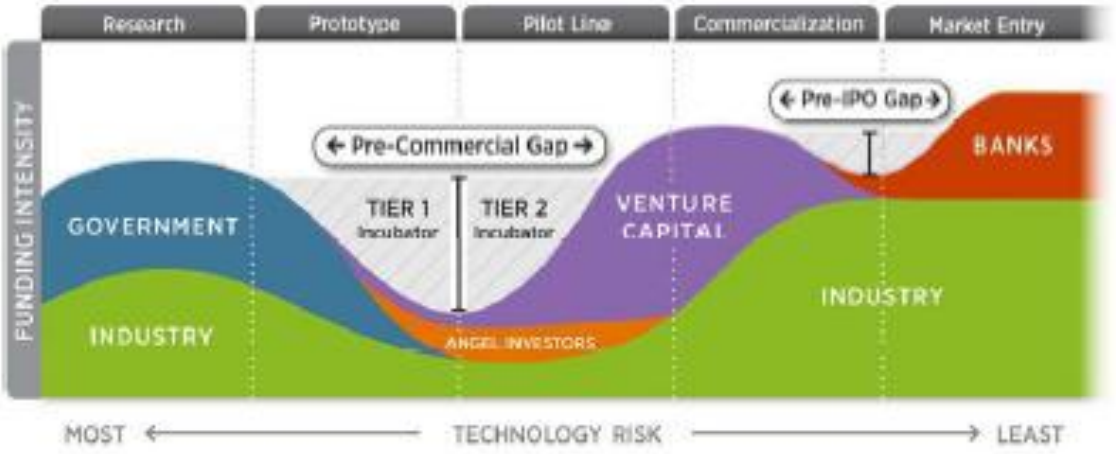


Figure 2: Funding intensity required at different stages of technology development

In this case providing the innovative financial solutions for investment in technology that will fund the clean technology future, the CEFC could have a much wider role earlier in the technology risk spectrum in assisting the finance industry in developing, piloting, proving up and commercialising financial technologies for market entry by a variety for institutions.

With the very limited capital LCAL had available to it for investment (~$75m), LCAL took an early and conscious decision that the only way to shift market behaviour would be in using its capital to assist in the development of new financial solutions (for example, Environmental Upgrade Agreements for commercial buildings) and innovation in the unique application of existing financial technologies to new asset classes (for example, operating and financial leases and hire—purchase arrangements) and in using the market power and customer reach of leading market players to market and deliver these financial products, with a view of bringing them to scale and ultimate commercial sustainability without the need for LCAL support. The strategy in LCAL's support for commercialising these financial solutions is to prove them such that they can be expanded and replicated by others.

The CEFC, with much greater capital has an excellent opportunity to facilitate investment in the same manner on a much larger scale, and on the basis of LCAL's experience is more likely to encounter success. This is because volume investors need to be engaged if any substantial and lasting change to the carbon intensity of the economy is to be realised and, at present LCAL cannot offer volume.

On the question of what principles the CEFC ought to adopt to guide its investment, in the Australian Government's policy document *Securing a Clean Energy Future: The Australian Government's Climate Change Plan* (hereafter referred to as the Clean Energy Future package) the CEFC has been described as:

- 'commercially oriented' (pvii)

- investing 'in the commercialisation and deployment of renewable energy, energy efficiency and clean technologies' (p64)
- investing 'in manufacturing businesses that provide inputs for these sectors; for example, manufacturing wind turbine blades.' (p64)
- investing 'in businesses seeking funds to get innovative clean energy proposals and technologies off the ground. These Government-backed investments will deliver the financial capital needed to transform our economy.' (p64)
- not investing 'in carbon capture and storage (CCS) technology' (p65)
- utilising 'a variety of funding tools will be used to support projects, including loans on commercial or concessional terms and equity investments' (p65).
- 'Similar to financial mechanisms established overseas to invest in clean energy and low-pollution technologies' such as the UK's Green Investment Bank (using 'equity investments, lending and risk mitigation products') and the US Department of Energy (using 'loan guarantees' [of] 'up to 80 per cent of certain loans for clean energy projects to encourage early-stage commercial use of new technologies') (p65).

This provides some broad parameters for how the CEFC could facilitate investment:

1. By adopting a commercial mode of operation
2. By adopting a suite of financial solutions rather than a single approach, informed by best practice in Australia and overseas
3. By clearly defining boundaries in what the CEFC will and will not invest in
4. By developing an investment approach that will adequately service each of the market segments identified (i.e. a) renewables, b) energy efficiency, c) other clean technology, and d) manufacturers that provide input into a), b) & c)).

These are now each considered in turn.

1. Adopting a commercial mode of operation

In LCAL's view this is vital for success: the experience of LCAL in close to 24 months of operation is that in making investment decisions to work with LCAL, business is generally more comfortable proceeding from a starting point of working with an institution operating under 'predictable' business principles and drivers, shared values, transparency, and where the institution has professional expertise and expectation of continuity in the marketplace.

It is critical therefore that the CEFC is legally structured to enable it to the greatest extent possible to be run like a business, and make investment decisions like a business. If the CEFC is to be commercially oriented and to make a positive return on investments (but not necessarily the market return on investment) it is critical that the governance framework reflect commercial reality – principally by explicitly recognising that return is directly related to risk, and that inherent in this scenario is an expectation that some investments will underperform. The CEFC governance must be robust and independent.

The Australian Government has already identified that the CEFC is to be explicitly created by statute. It is suggested that the *Corporations Act 2001* provides a good institutional framework that is

understood by both the types of investors the CEFC is likely to deal with and the type of personnel the CEFC would want to attract as Directors and Officers. Formation under the Corporations Act sends a clear message as to how the CEFC can be expected to act and run. This need not be as a company limited by shares – LCAL was formed as a Company limited by guarantee and this status provides significant advantages in, for example, exempting the company from Competitive Neutrality guidelines which would otherwise make investment decisions comparatively fraught with difficulty and restrict the company's ability to meet its 'market making' outcome.

Given the Australian Government parameters that the CEFC be created by statute, an approach to overcome these difficulties would be as a Corporations Act company with the statutory overlay of the CAC Act and such specific additional or differing parameters as the Australian Government wanted to specify in either the CAC Act, or a separate CEFC-specific legislation.

2. *Adopting a suite of financial solutions rather a single approach*

The CEFC has a large capital base and ought to have a sufficiently broad mandate and investment flexibility, to adopt a wide array of financial approaches. Given the breadth of the CEFC mandate (renewables, energy efficiency, other clean technology and manufacturing for the same – see below) this is likely to be required to address the differing and specific needs of the different sectors. This is particularly the case where the CEFC would partner with other organisations to deliver its objectives. It is also required if the CEFC aspires to do more than 'shovel money out the door' by market-making investment (this is discussed in more detail in the response to Question 4 below).

LCAL has adopted this market making approach in addressing the difficulties of accessing energy efficiency finance by establishing co-investment vehicles with major financial institutions that will provide 100% of an energy efficiency project's cost.

The innovative financing product types developed by LCAL cover broad geographical, technological and building type and spread. LCAL's Clean Energy Finance is valuable in the market because of its unique proposition of innovative customised finance solutions - being flexible and tailored to meet end-use sector needs in terms of:

- Term length: not limited to three to five years, can be up to a longer term of ten plus years
- Interest rate: competitive with commercial interest rates, but providing longer periods of fixed rates
- Repayment schedule: flexible repayments matched to energy savings profiles
- Technology scope: wide technology scope; all commercially available energy efficiency technologies are eligible
- Sector eligibility: wide building type; all non-residential buildings and industrial processes are eligible
- Finance nature: overcoming split incentives and removing the requirement for upfront capital costs, matching the profile of repayments to the energy cost savings achieved. For example, in some circumstances, the repayments can be passed onto tenants as part of lease and/or energy bill payments where they share in the energy savings, and
- Finance type: flexible finance offerings are aimed at de-risking investments and leveraging LCAL's funding. Finance types include loans (either on an equal basis - 'pari passu'- or

subordinated basis), leases, Environmental Upgrade Agreements, equity and establishment of special purpose vehicles (with potential longer term to offer preference shares or units).

For example, LCAL has brought to market a number of innovative clean energy financial vehicles now being rolled out through various partners across Australia, including:

- *Clean Energy Loans* - financing building owners, local councils and businesses through direct or co-financed loans to implement energy efficiency upgrades
- *Clean Energy Leases* – Energy efficiency leases help overcome constraints to businesses of providing up-front capital for energy efficiency equipment. *Operating* leases further offer owners and tenants the flexibility to upgrade as technology evolves and improve and remove from the lessee residual value risk attached to the assets. *Finance* leases provide the owners and tenants the surety of ultimate ownership at a pre-established price.
- *Clean Energy On-bill financing* - an energy utility provides an end to end service inclusive of identifying, installing, monitoring and guaranteeing the performance of an energy efficiency project, with repayments made by the business through their monthly utility bill. This removes the requirement for upfront capital for clean energy equipment, with repayments typically equal to, or less than, the energy cost savings achieved, and can be structured to transfer ownership of the assets to the customer.
- *Environmental Upgrade Agreements (EUAs)* – an agreement between a building owner, a finance provider and a local government which allows building owners to access finance for environmental upgrades to their buildings. Repayments are structured through a council levy on the property, with the council then forwarding payments received to the finance provider. EUAs overcome difficulties for building owners in providing upfront capital and allow for structured fixed-rate payments over longer terms (up to 10+ years) that remain with the property if ownership changes. Building owners may also be able to pass on repayment costs to tenants (if repayment of rates forms part of the tenants financial obligations within the lease) who can benefit from a more environmentally efficient workplace, reduced energy costs and, depending on terms of the lease, reduced energy costs.

3. *Clearly defining the CEFC's investment approach*

Across the total CEFC mandate, the following expectations are critical:

- That the CEFC is not competing with the existing market, but rather building it.
- That the CEFC is not competing with other government measures though enabled to compliment it.
- That the CEFC capital is additional, that is that the CEFC is supporting projects by bringing forward their investment or improving the carbon savings outcome.

For the CEFC to be able to articulate its offer clearly to the market, there must be clarity established around the CEFC investment mandate and objectives. Some aspects to this definition of the 'Investment mandate' and what might be termed the 'Investment criteria' include:

- Clear, realistic, objective and achievable overall Key Performance Indicators.

- Significant discretion left to the CEFC Board as to selection and design of its 'Investment criteria' which should include a) an appropriate investment policy, b) the investment portfolio mix, and these must follow the 'investment mandate' as defined, with criteria to meet the KPIs and objectives, which are flexible enough that they are able to be changed by the Board to meet changing market conditions and to capitalise on wisdom gained through operational experience, while still meeting the intent of the broadly defined Australian Government policy.

Within the investment mandate for the CEFC, some important parameters have already been clearly identified – it is a given that the CEFC will invest in technology development and deployment of renewables, energy efficiency, and 'other clean technology' – but these and other 'mandate issues' will need further clarity:

- Are there sectors which will be ruled in or out? Will the CEFC invest directly in the heavy energy generation and distribution end of the spectrum? At the consumption end of the spectrum, will the CEFC invest in the household sector? Will the CEFC be able to invest in or co-invest with the Commonwealth, State, Territory and Local Governments?
- Are there investment types that will be ruled out of consideration? Will the CEFC issue bonds? What kinds of guarantees can/will the CEFC provide? What are the types of equity investment that the CEFC may consider?
- What portfolio mix will the CEFC hold, with respect to technologies, industries, geographies, etc. and the impact on the diversified risk within the portfolio?
- Should an overall targeted return be defined for the CEFC or should target rates of return be prescribed for different elements or risks within the CEFC's portfolio?

Some of these mandate issues may be taken as a matter of policy choice by Government, but in making this choice it is suggested that care will need to be taken to ensure that the rules and terminology are a) appropriately aligned within Government to prevent 'siloing' of the investment program where that is undesirable, and b) reflective of commercial reality and of sufficient utility to be workable in the marketplace and c) inclusive of an amendment mechanism should issues arise.

4. Developing an investment approach that works in the market to meet objectives.

Within the defined CEFC mandate of overcoming capital market failures to promote development and commercialisation of renewables, energy efficiency, other clean technology, it is LCAL's view that development of comprehensive investment criteria ought to be left to the CEFC Board, guided by the KPIs and the objective. As outlined above, LCAL expects the investment approach for the CEFC to differ for each of a) Early-Stage Projects; b) Regulatory Scheme-Dependent Projects; and c) Cost-Effective Projects. In each of these investment types, it is important that there be investment flexibility for CEFC to define and determine its own scope as it develops the market, suggesting that the investment criteria will need to be repeatedly tested and refined as that market develops and knowledge improves.

How the CEFC invests its capital in Early Stage Projects and Regulatory Scheme-Dependant Projects would be influenced by:

- The risk appetite of the typical investors in this asset group (e.g. investors in grid connected generation assets) are sufficiently sophisticated and have the risk appetite to assume exposure to long term energy prices or energy price spreads. Investors who are energy consumers, in large part are not so sophisticated and their shareholders typically invest for exposure to different markets with a lower risk profile than the energy markets.
- The market barriers to investment for each technology type and asset type. Availability of capital to these sectors is a factor; however de-risking investment for existing potential investors to enhance the economic viability of these projects is the key issue. Offtake agreements guaranteeing revenue for renewable energy projects and equity are more likely the necessary catalytic finance tools.
- Concentration of investors – e.g. Investors in grid connected generation assets are limited by number and by investment allocation, whereas potential investors in energy efficiency equipment are essentially the whole of the Australia economy. This should influence the delivery mechanism, and whether the investment is intended to focus on the project alone or on building the market.
- The economics of the underlying project: Where it is determined that an individual project with economics above the cost of RECs on the curve, but is deemed by CEFC to have valuable demonstration and/or market creating value, the CEFC will require a very clear mandate to provide support, and have the ability to reconcile this within its overall financial sustainability obligation.

On the basis of LCAL's experience in the energy efficiency segment (i.e. focusing on Cost Effective Projects with low risk price regulation exposure) in this market LCAL expects the CEFC could:

- Achieve an objective of reducing emissions by building capital markets' capability to offer a broad range of options to access capital.
- Define industry specific objectives and return criteria for capital investment in those industries.
- Adopt a model to deliver capital to fund managers and other third parties who have existing delivery capability and business relationships with the targeted investors. This delivery capability needs to extend beyond finance delivery capability and include the ability to offer bundled finance and service offerings, such as energy performance contracts and guarantees.
- De-risk investment in the following ways:
    - Adopting a higher position on the risk curve to attract third party capital not currently available for technology types or from investors, at a risk-weighted return which supports investment.
    - Proving the business case for investors by supporting demonstration projects and pilot funding programs.
    - Bring sufficient technical expertise and commercial acumen to project investment decisions to ensure quality projects are supported. Recognition of this expertise by investors will reduce otherwise perceived risks.

In summary, the rationale for this expectation is:

- The cost effective opportunity for reducing emissions through energy efficiency and in situ Co-generation and Tri-generation is substantial (ClimateWorks estimates for Commercial buildings an investment of ~$22bn is required to achieve a target of 30 Mt CO2-e/pa in 2020 and for Industry $23bn for 44Mt CO2-e/pa in 2020). CEFC funds should be applied to build momentum to further investment by demonstrating the business case and building a market to capture and accelerate this momentum.
- Finance availability is not the sole catalyst needed. From its experience LCAL has learnt that making finance available for these projects is not necessarily the only catalyst required for investment. Whilst finance availability is an element, LCAL expects packaged solutions which include advice, installation, implementation, risk mitigation/reduction and finance, will result in increased investment.
- The finance provider needs technology expertise and understanding and knowledge of supply chain dynamics. Market barriers are many, and in large part relate to organisational decision making and investor priorities.
- There are limitations in the Australian market to provide these emission reduction solutions in a bundled package. Very few organisations have this capacity currently or at the scale required. This requires implementing a model of proving pilot projects, then supporting their rollout and subsequent take-up by other market participants once the market is proven.
- The CEFC will need to be able to adapt and develop both the finance offering and related advice and market support.
- The target investors in this technology are the Australian business community and demand is highly fragmented. LCAL recommends that the CEFC not seek to build an extensive internal capability to directly reach and transact with this group, given the costs and time associated with achieving an effective network. Rather the CEFC should leverage existing networked organisations such as existing finance providers and energy suppliers. This is the model adopted by LCAL to date.

QUESTION 2: ***Are there principles beyond financial viability that could be used to prioritise investments, such as emissions impact or demonstration effect?***

Demonstration effect, replicability, scalability, geographic spread, sectoral spread, project 'additionality' (that is, whether the project would have happened at the time it happened but for the investment), cost effectiveness of carbon abatement and other finance leveraged etc. are all valuable additional criteria that LCAL uses and finds valuable to its assessment of both projects and financial vehicle proposals. These could also be applied by the CEFC Board in its prioritisation of investments, however, these criteria should in LCAL's view remain within Board purview rather than being mandated.

A) DEMONSTRATION

The CEFC has the opportunity to increase investment in clean technologies, energy efficiency and renewable projects by prioritising investment which:

- Demonstrates to the capital markets that there is significant and growing demand for clean technology finance: the CEFC support of innovative finance solutions through the pilot stage, product definition, pipeline building and rollout stage, will demonstrate to the capital market the demand for the finance product. The objective is to encourage the 'fast followers' and open the gates for capital flow into the market.
- Demonstrate to end-customers the value of the innovative finance models and the business case for clean energy technology investment.
- Demonstrate to capital markets and end-customers that clean energy technologies are capable of commercialisation and large-scale implementation by taking early-mover risk.

B) ADDITIONALITY

The Background section to the Request for Submissions states, 'The CEFC is not intended to compete directly with the private sector in the provision of financing to …businesses,'.

Additionality and non-exclusive dealing are critical areas for CEFC to define as a means of providing guidelines for how it will operate in the marketplace and approach its investments. This will:

a. defend CEFC's position in the existing market place – the market needs to perceive CEFC as a market supporter rather than a competitor or threat to growth. Clear communication of the CEFC's role relative to the existing market is key. Tests of additionality and ideals of non-exclusive dealing should be communicated.
b. encourage market building rather than market displacements/distortion.
c. help more efficiently achieve Australian goals of emission reduction by using CEFC capital to de-risk/re-rate investments which would not have occurred or not have occurred at scale without the CEFC participation.

LCAL's solution to this question has been to define Additionality as:

- whether a project or proposal could occur without LCAL finance, or
- whether LCAL finance would bring forward a project or proposal.

In LCAL's view this is a criterion which is best established as an operating principle for the CEFC investment mandate and operationalized by the CEFC board through its investment criteria as it assesses sectoral and market conditions that apply to the particular proposal at the particular time.

C) MEASURING CARBON ABATEMENT AND THE 'PUBLIC GOOD' CREATED BY THE CEFC

An important metric for the CEFC in demonstrating its overall efficiency as a carbon abatement measure will be the way in which it is able to account for and demonstrate the public good contribution it is making to the transition to a low carbon economy and the cost of abatement it is delivering. It must be able to demonstrate the environmental return which it is generating as well as the commercial performance. Any clean energy or energy efficiency investment should generate carbon savings, either as a result of replacing high carbon sources of energy with low carbon or renewable sources, or energy savings through efficiency in terms of lower consumption and therefore usually lower energy costs.

It is this 'public good' element that the CEFC should seek to quantify (both in absolute tonnes of CO_2e abated and a $/tCO2-e which is a measure of cost-effectiveness). It is considered essential that the CEFC has undertaken calculates these outcome-based measures and is able to communicate this publicly as part of the benefit which it creates for the Australian community.

There is also an indirect (or secondary) investment that is anticipated (albeit harder to forecast or quantify) that is based on other investors reacting to the demonstration value or catalytic impact of the CEFC's activities, which stimulates further investment and results in further carbon reductions.

There are various metrics that could be considered in determining the appropriate 'public good' value to assign to an absolute tonne of CO_2e saved and cost of abatement in terms of $/tCO2e. This is consistent with the Australian Government's recently published Cost of Abatement policy document.

Low Carbon Australia Limited suggests that the CEFC consider a lifetime cost of carbon abatement method to measure the emissions impact of each proposed investment. Costs can be estimated from the point of view of the Government, the proponent, and the resource cost to society.

LCAL encourages the CEFC to consider adoption of an investor viewpoint methodology (such as LCAL's methodology) rather than the Government's resource (societal) cost of abatement methodology. The reasons are:

- It enables the CEFC to assess cost effectiveness from the investor point of view and better define what type/level of intervention is required from the CEFC.
- It enables the CEFC to recognise the value in innovative finance models. The societal cost model does not consider how projects are financed, instead making generalised assumptions about financing costs. Whereas, the LCAL method takes account of more project specifics including finance structure and costs and returns to investors (including LCAL) which can highlight the benefits and disadvantages of differing financing and investment models.

The key assumptions that need to be considered in ascertaining the forecast public good benefit and economy wide benefit are:

- The investment made by the CEFC
- The leverage achieved in the CEFC's investment portfolio(as a means of determining the total capital investment created)
- The average capital cost required to generate one tonne of carbon savings per annum
- The lifecycle / persistence of different technologies
- Lower energy costs, lower maintenance costs, etc. (in the case of energy efficiency, with third party savings from the energy efficiency measures)
- CEFC overhead costs
- The value (per tonne) to assign to carbon savings.

The benefits of the CEFC assessing investments against a cost of carbon abated test are:

- It provides a method of ranking projects which captures both carbon reduction values and project economics values.
- It provides a consistent basis for evaluating proposals across a range of differing technology types. For example, it would allow the CEFC to compare energy efficiency project with a fuel switching project based upon the fundamental objectives of carbon emission reduction and economic returns to investors.
- It provides a consistent basis for evaluating proposals with different operating lives. Alternative measures such as payback period or dollars per first year savings, do not consider the life of the equipment and therefore are more likely to favour equipment with a shorter life and a fast payback period. LCAL's cost of carbon abatement does not discriminate based on the lifetime of the saving or the payback.
- Particularly where used in combination with the additionality test, it provides a defendable justification for investing in non-renewable energy projects, which typically do not attract the same profile as renewables yet in many instances offer real and substantial emission reductions as well as cost savings for Australian businesses.
- It allows the CEFC and Government to compare investments with other policy measures with similar objectives.

Counting the emissions is not only essential in demonstrating outcomes achieved - it is also valuable in the assessment of proposals based on a $/tonne Co2e saved. Where the funding pool is limited and the financial merits of a two given projects are more or less equal, this criterion would come into its own.

CASE STUDY: Summary of Low Carbon Australia's Cost of Abatement Methodology:

LCAL has developed a methodology for use with energy efficiency retrofit projects and fuel switching carbon saving retrofit projects. The methodology estimates both the total carbon abatement and the costs of carbon abatement over the lifetime of the projects.

In summary, the approach used by LCAL to measure the cost effectiveness of carbon abatement of a project is to calculate estimates for both the lifetime net project costs/savings ($), and the lifetime total carbon abatement (tCO_2-e), and divide one by the other to arrive at a $/$tCO_2$-e cost effectiveness estimate.

The carbon abatement is estimated first. Expected savings over the first year of a project's operations are calculated by looking at likely consumption levels of electricity, gas and other fuels after a project has been completed, and subtracting it from existing (baseline) consumption levels of electricity, gas and other fuels necessary to produce the same output. This provides first year savings values for each fuel type.

The lifetime energy savings of the project are then estimated by referring to an energy savings persistence model that LCAL has developed. This persistence model and its framework have been developed in conjunction with expert engineering consultants to estimate project lifetime savings data from annual savings data, depending on the equipment/technology in question. Among other things it factors in how long equipment is expected to last and how its efficiency is expected to degrade after that, with appropriate adjustments for Australian geography and weather variance. The framework can be applied to any common technology, and has already been implemented for common commercial building equipment measures.

Performing a cost effectiveness calculation using a whole-of-project-life approach offers many advantages over metrics designed to assess only annual results, which have a pre-disposition to favour projects utilising short payback & short life technologies.

A carbon emissions intensity factor is then applied to each fuel type within each year's energy savings to express the energy savings as carbon savings, and aggregated over the life of the project. The final result is a total abatement estimate (tCO_2-e) for the life of a project.

Following the carbon savings calculation, the estimated Net Project Costs/Savings are calculated. These costs/savings can be estimated from the point of view of the investors, the economy as a whole, or the CEFC. The broad approach used is one of discounted cash flow analysis, where expected cash flows for each time period are modelled, and are discounted back to the beginning of the project to arrive at a Present Value for that series of cash flows. To calculate Net Project Costs:

- Calculate the Present Value of 'Implementation' Net Costs, in dollars;
- Calculate the Present Value of 'Business as Usual' or 'Baseline' Net Costs, in dollars;
- Take the difference between these two amounts to arrive at the Present Value of Net Project Costs.

Note that although the term 'net project cost' is used, it is expected that for most projects, savings will exceed costs due to reduced electricity or gas consumption, resulting in a negative net cost.

Net Project Costs will primarily be composed of the following items:

- + Capital Costs;
- + Interest (or opportunity costs equivalent) and Fees paid on project financing;
- - Savings in fuel costs due to reduced energy consumption / fuel switching; and
- - Savings in equipment maintenance costs

While the overall approach to measurement will be common to all projects, each project will have its own characteristics, and there is scope for adjustments to be made on a case-by-case basis as appropriate.

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

The CEFC needs to partner with organisations that have the technology expertise, finance capability and a strong understanding of the underlying market that they are investing into.

Some of the ways that the CEFC could partner with other organisations to achieve its objectives in the energy efficiency space (and outlined in further detail below):
:

- By partnering with Low Carbon Australia to deliver the energy efficiency finance
- By developing partnerships (or at least streamlining offerings) with other Federal, State and Territory entities, and
- Cultivating demand aggregators in sectors outside the energy efficiency component.

A) PARTNERING WITH LCAL

LCAL believes that it is well placed to act as a delivery vehicle for CEFC investment into clean energy technology. The benefits for the CEFC utilising LCAL as its delivery vehicle for energy efficiency finance to sectors with significant cost-effective potential and early abatement opportunity, specifically commercial, industrial and residential energy efficiency and distributed generation) are:

v. LCAL and CEFC objectives are already strongly and strategically aligned.
vi. LCAL is already established and operating in this market, presenting the CEFC with the opportunity for early delivery the energy efficiency and energy consumers sector clean technology / greenhouse gas abatement component
vii. whilst the CEFC establishes itself and undergoes strategic development in the complex and challenging renewables sector LCAL can continue to deliver. There is a strong desire on the part of business, industry and other levels of government that confusing and unnecessary duplication of government programs in the area be simplified.

Using CEFC capital to deliver finance via LCAL for investment in clean energy technology and energy efficiency technology would be directed at achieving transformation in the following sectors):

1. Commercial, Industrial and Residential : (in-situ) energy efficiency demand reduction and Greenhouse abatement projects;
2. Commercial, industrial and Residential: (in-situ) co-generation and tri-generation projects;
3. Precinct scale tri-generation, co-generation and district cooling projects at city wide levels

LCAL's analysis on the size of the untapped energy efficiency opportunity in sectors with significant cost-effective potential for early abatement, specifically commercial, industrial and residential energy efficiency and distributed generation, and its estimate of the amount of CEFC financed demonstration projects required to 'tip the balance' in shifting the market, and its estimate of the total amount of investment required, concludes that it would take investment by CEFC of some $3bn to $5bn. An investment of this size should be able to catalyse total market investment between $10bn and $20bn and achieve estimated carbon savings of 10mtCO2e to 30MtCO2e per annum, at an average lifetime cost effectiveness of ~negative$100/tCO2e.
This is summarised in Table 2 below (with further details in **Appendix B**).

Table 2: CEFC Funding to Demand Side Energy Efficiency and Distributed Generation - Potential investment required to transform energy efficiency and clean energy market[2]

Opportunity	2020 $MtCO_2$-e pa abated	Total Capex to 2020 $bn	Targeted investment to transform market		Total investment to 2020		Annual investment required		Investment by CEFC over 5 years		Term
			Low target %	High target %	Low target $bn	High target $bn	Low target $bn	High target $bn	Low target $bn	High target $bn	
Commercial EE	21	$12	10%	15%	$1.2	$1.8	$0.1	$0.2	$0.7	$1.0	5-10 years
Industrial EE	21	$12	10%	15%	$1.2	$1.8	$0.1	$0.2	$0.7	$1.0	5-10 years
Industrial process & fuel switching	17.2	$6	10%	15%	$0.6	$0.8	$0.1	$0.1	$0.3	$0.5	5-10 years
Total Energy Efficiency & GHG Abatement	59.2	$30			$3.0	$4.5	$0.3	$0.5	$1.7	$2.5	
Commercial Cogen/Trigen	8.8	$10	10%	20%	$1.0	$2.0	$0.1	$0.2	$0.6	$1.1	10-20 years
Industrial Cogen	5.8	$6	10%	20%	$0.6	$1.1	$0.1	$0.1	$0.3	$0.6	10-20 years
Total In situ Cogeneration and Trigeneration	14.6	$16			$1.6	$3.1	$0.2	$0.3	$0.9	$1.7	
Precinct Cooling & Tri-Generation	4.5	$4	15%	25%	$0.6	$1.0	$0.1	$0.1	$0.3	$0.6	20 years +
Total	**78.3 $MtCO_2$-e**	**$50 bn**			**$5.2 bn**	**$8.6 bn**	**$0.6 bn**	**$1.0 bn**	**$2.9 say $ 3bn**	**$4.8 say $5 bn**	

[2] Source: Climate Works (2011) *Low Carbon Growth Plan for Australia: Impact of the carbon price package August 2011*; CSIRO (2009) Intelligent Grid Report (December 2009); Wessex Consult (2010) *Estimation of the National Potential of District Cooling with Storage in support of the Expression of Interest to the Australian Carbon Trust*, (Report for Ergon Energy, August 2010); Kinesis Consortium (2010) *City of Sydney Decentralised Energy Master Plan - Trigeneration 2010-2030.*

Table 3: Illustrative Market analysis by technology investment stage

Market segment and Technology Grouping	Precinct level Co-Gen / Tri-Gen and District cooling	Commercial & Industrial - (In-situ) Co-Gen and Tri-Gen	Commercial & Industrial - (In-situ) Energy Efficiency	Residential - (In-situ) Energy Efficiency
Current Risk Assessment that needs to be managed at each stage of low carbon technology development curve: (1 to 5 where 5 is very high risk and 1 is low risk)				
Technology risk	2	2	2	2
Regulatory risk	4	3	1	1
Commercial risk	4	4	2	2
Company risk	4	3	3	3
Financial de-risking instrument by stage of technology development	Cornerstone Equity in Unit Trusts, Sub-debt in SPVs, Construction finance	Seed / cornerstone equity in management companies / unit trusts, loans, subordinated debt in BOOM model SPVs	Loans (sub-debt), leases, On-bill finance, EUAs	Loans (sub-debt), leases, On-bill finance, EUAs
Typical market rate(ROI)	20+%	12-20%	8-18%	*Area for further consideration*
Catalytic rate to the market	12-15%	8-12%	5-10%	
Implicit CEFC (ROI) on the investment	8-12%	5-8%	3.5-8%	
Probability of recovering investment	50%	75%	95%	
Term of investment req'd	20-40 yrs	10-20 yrs	5-10 yrs	
Investment required from CEFC (% of investment)	20 to 50%	20 to 50%	50 to 100%	
Capital cost per investment (CEFC contribution)	$10m to $100m	$1m to $20m	$50k to <$50m	
Number of investments in portfolio	3 to 5	50 to 100	Up to 250	
Investment by CEFC over 5 years ($b)	Up to $500m	Up to $2 bn	Up to $2.5 bn	
Total Capex required to achieve market potential in 2020 ($b)	Up to $4 billion	Up to $15.3 billion	Up to $30 billion	

Risk-Return Characteristics

LCAL believes that it could act as a delivery vehicle for CEFC investment into clean energy technology in sectors with significant cost-effective potential for early abatement, specifically commercial, industrial and residential energy efficiency and distributed generation). This would be directed at accelerated uptake by de-risking investment in energy efficiency and clean technology projects by underwriting certain known risks and/or changing the economics of projects.

Reflecting the investment characteristics of the target investors and technology assets, the application of CEFC finance would require:

- Provision of patient capital in the form of long-term (probably fixed rate) finance
- Mezzanine and subordinated debt and equity (e.g. preferred shares, units, etc.) to overcome existing market failures.

Innovative forms of investment in these sectors are required in order to catalyse clean energy investment at scale. The finance structures would be designed to overcome capital constraints and to complement existing and future Government support, e.g. financing the balance of costs, where a grant is provided to accelerate clean energy projects. As per the existing model being deployed by LCAL, the finance would be structured for repayments to match the energy savings of the energy end-user.

The key risks for the CEFC in promoting the finance for energy efficiency and demand side reduction projects include:

- Technology risk (stage of technology development);
- Regulatory risk (the exposure of the return to regulations);
- Commercial risk (is the underlying project commercial); and
- Company or sector risk (to what extent would the CEFC be investing in mature industries / companies)

Whether the CEFC is exposed to these risks depends on the funding model they adopt. For example, direct finance by the CEFC exposes it to credit risk of the end customer, whereas funding co-financiers transfer the credit risk to the co-financiers.

Investing in early stage clean energy technologies (i.e. fuel cells) would expose the CEFC to a higher risk that investing in later stage and commercially available technologies, (i.e. energy efficiency) as illustrated in Table 3 above.

To promote the investment of third party investors, to meet their return/risk profiles, the CEFC will have to

1. de-risk projects through the financial structures (instruments) it enters into, and
2. offer a catalytic rate to the market that enables third party investors to receive the returns they require.

<u>Commercial, Industrial and Residential sectors – In-situ energy efficiency demand reduction projects:</u>
As illustrated in Table 3 above the finance risk is predominantly credit risk, not project risk. Given the

highly fragmented nature of these sectors, CEFC finance would expect to be delivered through co-financiers. In order to achieve the catalytic rate the CEFC return would need to be in the range of 3.5% to 8%.

Commercial, Industrial and Residential sectors – In-situ Co-generation and Tri-Generation: As illustrated in Table 3 above the finance risk is combined project and credit risk. For example, build own operate models for cogeneration typically involve the sale to consumers of electricity, hot water and cold water, and expose the SPV to the difference between electricity and gas pricing. Returns of 5% to 8% may be expected.

Precinct scale tri-generation, co-generation and district cooling: As illustrated in Table 3 above the finance risk is increased – with commercial, regulatory and project risk. In addition to the exposure to electricity and gas pricing, these projects also attract off-take risk in that they are typically reliant upon surrounding buildings to contract to acquire the services and maintain those contracts over a long period of time. They also involve substantial infrastructure build with associated regulation and construction risks. Returns of 8% to 12% may be expected.

B) LCAL AS A CHANNEL TO CO-FINANCE PARTNERS FOR THE CEFC

Part of the challenge the CEFC will face – is how to service the fragmented demand for clean technology investment. Investment in securing technology uptake ultimately requires face-to-face sales with end users, and on-the-ground assessments. Building such servicing networks is itself a mammoth task, but it can be avoided by utilising the business networks, technical expertise and sales forces of others.

Fundamental to LCAL's strategy and implementation plan for its Energy Efficiency Program is delivery through Program Delivery Partners and Channel Partners. This allows LCAL to leverage the partners' private sector finance, wide reaching customer networks and relationships to achieve finance uptake and project execution as well as raise awareness.

To date, the four main drivers for Program Delivery Partners to co-finance energy efficiency projects with LCAL are:

- as a business strategy to create growth in an emerging market
- to leverage the expertise, independence and impartiality that LCAL provides
- the competitive finance (interest rates, longer fixed terms, sub-ordinated debt capabilities etc.) that LCAL may provide
- accessing the reputational benefits of the Low Carbon Australia brand.

In many cases the finance vehicles and structures being offered by LCAL's existing Program Delivery Partners are new to the Australian market, i.e. energy efficiency loans backed by performance guarantees, lease finance, On-bill financing and Environmental Upgrade Finance.

Major influences on the timeframe for delivery of these programs include:

- Size and complexity of the partner organisation

- Organisational and decision making structure and degree of buy-in from senior decision makers
- Quality of governance
- Degree of innovation and adaptability to new financial structures
- Motivation, capability and capacity of the partner organisation.

LCAL's Program Delivery Partners expect LCAL to have an active role in program design, roll-out, promotion and review/due diligence for individual projects as illustrated in Figure 3.

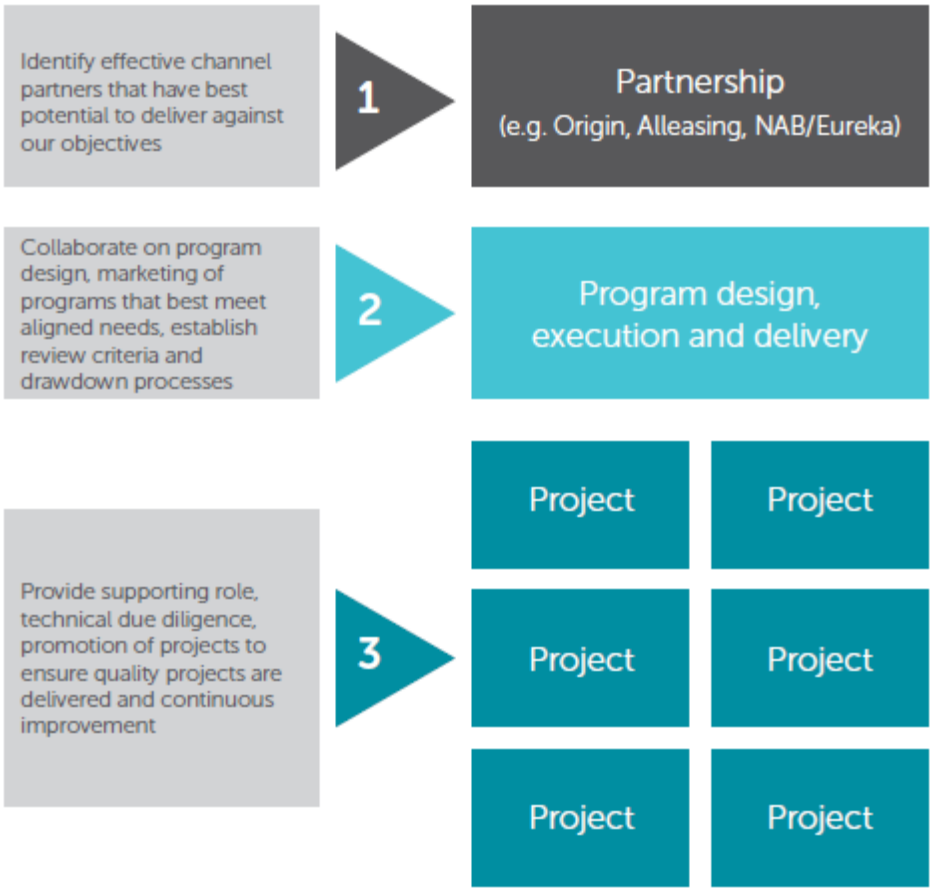


Figure 3: Channel Partner development and stages – these arrangements allow for more efficient servicing but are more complex to establish. Indicative timeframes of up to twelve months or more are not uncommon for development of a detailed program, agreement of terms, and contracts and design of program roll-out.

LCAL's engagement with Environmental Services Companies (ESCOs), engineering companies and major energy efficiency technology suppliers, uses these service providers as referrers or intermediaries in identifying projects to increase the flow of projects that are investment ready for energy efficiency finance. As product vendors, installers and project supervisors, these businesses are well placed for early identification of projects that meet LCAL's criteria and to identify energy efficiency projects which are otherwise stalled for want of finance.

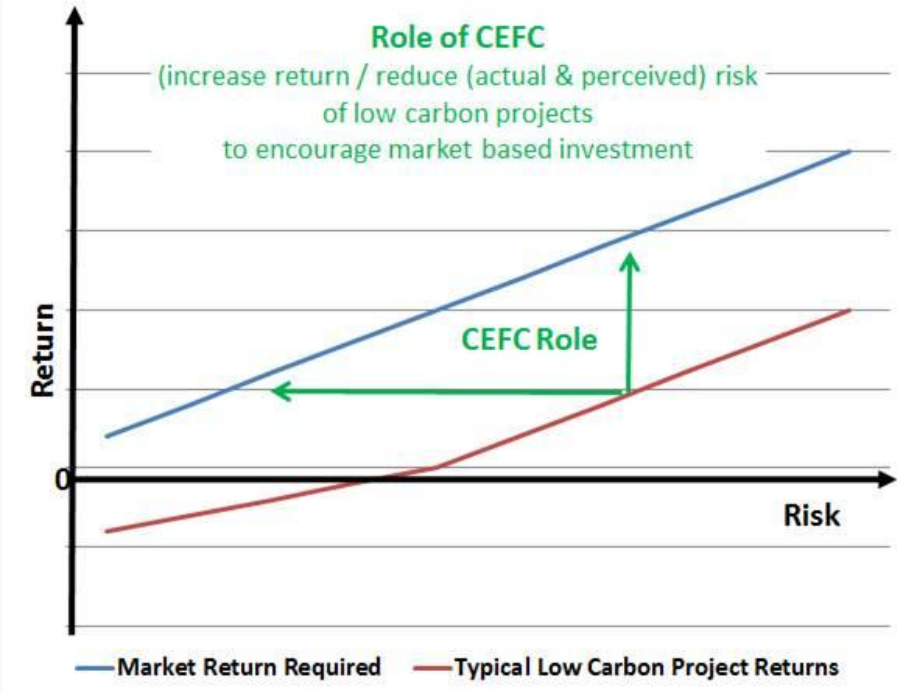
Outside of the EE space there is no obvious national aggregator of investment demand, and LCAL's observation is the CEFC will either need to construct a similar capability (to that LCAL has in energy efficiency) in regard renewables or seek aggregated demand through other means – perhaps in partnership with State or Territory governments or alternatively, the CEFC could seek to build capacity in the private sector. In any case, if the objective is to transform the economy through uptake of these technologies, to maximise chances of success the CEFC will need to at least ensure that its offerings are compatible with (rather than competing with or excluding) similarly aligned government programs, including grants programs.

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

To catalyse the flow of funds from financial institutions, the CEFC will need to change the economics of many clean energy investments as illustrated in Figure 4 below by:

- increasing the project returns,
- decreasing the perceived and real technology, regulatory and commercial risks, or
- a combination of both.

Figure 4: Risk / return profile for CEFC



The ways in which the CEFC can change the project economics to catalyse the flow of funds from financial institutions are as follows:

i. The CEFC can participate as an equity partner – by taking an equity position and reducing the level of capital required to support an investment.

ii. The CEFC can participate as a debt partner – by loaning funds to the financial institutions and reducing the level of capital required to support an investment.

iii. The CEFC can reduce risk of investments – by taking higher-risk positions, by underwriting or providing guarantees and reducing the financial institutions' level of exposure and thus attracting capital flows through shielding them from first loss positions.
iv. The CEFC can subsidise investments – by offering financial incentives to investment.
v. The CEFC can take the long position on investments – by allowing financial institutions to recoup their funds within the timeframes demanded by their business model, the CEFC can support otherwise non financeable transactions.
vi. The CEFC can demonstrate investment – by developing and proving new clean technology investment models and/or investment in new commercialised clean technology market segments. For example, successful investment structures can later be sold and returns realised – proving the concept and providing a case study.
vii. The CEFC can address market failures in investment by combining a mix of the above approaches – by systematically identifying and assessing barriers and structuring tailored responses to each barrier (or perceived barrier) the CEFC can provide solutions that have eluded financial institutions.
viii. The CEFC can achieve a commercially viable volume of clean energy transactions that can be bundled for securitisation in a manner which can attract superannuation fund investments.
ix. The CEFC can partner with organisations like LCAL which undertake technology reviews and project approvals to confirm quality projects and provide education and understanding of the technology and directing those finance partners to market experts.
x. The CEFC can capitalise on its Government backing, yet independent status to lend credibility to finance models and partners in the clean energy markets.

This 'toolkit' of approaches available to the CEFC is being adopted by LCAL already for energy efficiency investment, but as seen by the market analysis above significant work remains to be done even in in this sector.

QUESTION 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 uptake of these clean energy finance mechanisms in Australia is in its early stages and is some way off reaching the potential necessary to deliver the feasibly available carbon reductions. The simple answer is that term, costs and funds are all inhibitors – and there are numerous other sectoral-specific obstacles as well. An investment approach that does not consider the multiplicity of factors will, in LCAL's opinion, not resolve the market failure in clean technology uptake. For the sake of this holistic approach therefore, LCAL would answer this Question in combination with Questions 6 (*What non-financial factors inhibit clean energy projects?*) and 7 (*Are there special factors that inhibit energy efficiency projects?)*:

Despite the positive business case on paper, investing in energy efficiency remains a complex area of decision-making for most businesses as it involves a large array of energy saving technologies. Key areas to understand include:

1. Term: Many clean energy technologies have payback periods in excess of typical corporate funding finance terms (3 to 5 years) or internal capital allocation hurdles which require rates of return commensurate with 3 to 5 year paybacks. LCAL seeks, where possible, to offer (or support via its finance partners) a repayment term and repayment schedule which matches costs to energy cost savings – a 'pay as you save' model. This supports investments in energy efficiency, which are typically non-core investments (as discussed below).
2. Availability of funds: Availability of funds for energy efficiency projects are not primarily driven by the technology type but rather by the credit position of the building or industry corporation and the finance market environment. For example, over the past two years, the finance market has pulled back its finance offering to the small to mid-sized building owner sector in response to a tightening of credit appetite by banks and a downturn in property market values and leasing demand. Building owners in this sector struggle to access funds to upgrade equipment and reduce energy consumption and greenhouse emissions.
3. There are other priorities for capital: Capital may well be available for investment but competing investment needs can displace clean technology investment as a priority (for example, other investment prospects with better returns or the need to invest in upgrading or displacing more productive plant and equipment).
4. Demand is susceptible to general economic conditions: companies are generally risk adverse when considering investment in new capital projects that are non-core business. Companies are also reluctant to take on further liabilities or enter into new finance agreements at this time and in industries which have competitiveness concerns around the historic highs of the Australian dollar. This is particularly so in the commercial property and manufacturing sectors which have remained in the slow lane of the two speed economy.
5. Complexity and internal decision making adds to time delays. Once a business case is established for a project, the decision making process within organisations, between project initiation and draw-down takes considerable time. Often LCAL has been involved in reinforcing business case advice for key stakeholders. A successful energy efficiency investment in any large business typically requires alignment between critical decision makers across three or four main areas and often different business units within the organisation:
    - Financial officer (including Treasury, tax and CFO) with capital investment budget responsibility
    - Facilities/operations management, with responsibility for ensuring cost effective and reliable operation of the organisations assets and facilities
    - Sustainability management, with responsibility for carbon emissions and CSR
    - Decision makers with the authority to ultimately approve their organisation entering into a financial arrangement with LCAL e.g. corporate Executives or a local government General Manager, Mayor and other elected council members
    - In smaller companies the same person might have responsibility for facilities and sustainability, but invariably there is usually also a separate stakeholder from a financial perspective.

6. Transactional cost may be too high for some businesses. Where the capital return is positive but marginal, benefits may be wiped out by lost production, or be too insignificant to bother passing through internal corporate budget approval.
7. Many organisations have difficulty identifying appropriate technology solutions and suppliers / vendors. Supplier quotes and installation of equipment are central for initiation of an energy efficiency project. Experience is that companies struggle to know which suppliers to turn to, e.g. which are the best LED lights– or best energy efficiency lighting suppliers.
8. Construction requires long project lead-times which in turn requires patient capital. Installation of energy efficiency equipment involves technical specialists, project planning and construction comparable to project finance and execution timelines for large complex projects. Even with all the right drivers in place the negotiation of a well-managed project can take up to twelve months for LCAL or one of its Program Delivery Partners to reach the stage of rolling out products into the marketplace. The timelines to realise a project through the specific stages between opportunity identification, signing of a contract, project implementation and completion are each dependent on the technology used, size of investment, complexity of the project and the availability of the technology, but can extend a further twenty-four plus months beyond rollout of the financial product.
9. Availability of grant funding places a dampener on demand for loan products. More recently, regulatory uncertainty around the Clean Energy Technology Grants Programs, the carbon price and any impact that a change in government may have on the legislated Clean Energy Finance (carbon price package) has also caused companies to pause in making energy efficiency decisions.
10. In the public sector, stringent central Treasury rules can make borrowing arrangements difficult. For example, a State school may have an excellent energy efficiency opportunity but to actually borrow the funds outside of the Treasury process is prevented. To borrow the funds inside the process will often see the initiative knocked off by capital-starved Departments living hand-to-mouth that would rather spend capital funds on new build, and triage front line maintenance.
11. Immaturity of the clean technology market means there is inherent capacity constraints in terms of both skill and ability to successfully manage projects though to conclusion.

LCAL's challenging investment mandate and time-frame is designed for LCAL to be a market maker (using its public sector finance to catalyse and de-risk investments for the private sector), with energy efficiency finance as a new asset class. However, a mature clean energy finance market will take time to develop in Australia.

Experience from Europe and North America is that any new market of financing for new clean energy technology takes 3 to 5 years to develop and up to a decade to mature. The uptake of these clean energy finance mechanisms in Australia is in its early stages and is some way off reaching the potential necessary to deliver the carbon reductions feasible from this sector. While the finance mechanisms have been established to overcome well documented market failures, it will take time for the vehicles to be established, and achieve full roll-out and be considered customer-proven.

Example: Energy Efficiency in the Commercial Building Sector (including Government)

The dynamics evidenced in the commercial building market include:

- *Public Sector:* Though there is strong demand from the State and Local Government sectors, their ability to proceed with clean energy initiatives has been severely limited by a lack of available funds and stringent budget rules around their ability to finance such transactions outside of state treasury coffers.
  For this segment, despite significant demand much rational investment is *inhibited or prevented* by consolidated central budgeting rules. Large investment in this sector is unlikely without adoption of mandatory standards or working with central agencies to develop a satisfactory budget structure.
- *Larger Property Owners:* In general, Premium and A grade commercial buildings are more likely to have:
  - already taken action to install more energy efficient equipment,
  - greater capacity to self-fund such upgrade projects, and
  - are less likely to need LCAL finance.

  For this segment investment has more or less *plateaued*. These segments are unlikely to resume investment in the short term unless there is a quantum leap in technology or building standards accompanied by either a mandate or consistent tenant demand.
- *Small and Medium Property Owners:* In general, B to D grade building owners and medium and small business owners in industry are more likely to:
  - be capital constrained,
  - need Low Carbon Australia finance, and
  - offer a substantial percentage of CO_2e savings as a result of an energy efficiency upgrade.

  In this segment investment has *yet to gain traction.* However this segment requires a significant amount of education as to the benefits of energy efficiency investment.

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

See response to previous question.

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

See the answer to Question 5 above.

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

It is important that the CEFC is complementary to other government initiatives and does not operate in competition. The complex, disparate and often changing array of policy measures (regulatory, educational and subsidies) at a Federal, State and local level has a tendency of creating confusion and creates a high administrative burden for companies who need to comply with the regulatory aspects and may want to avail themselves of the various subsidies. A study commissioned by LCAL in 2010 revealed over 125 different energy efficiency policy measures alone for a company operating nationally in Australia.

A) CEFC WITH LCAL

In relation to the CEFC-LCAL interface, a detailed synopsis of the synergies between the organisations' objectives is outlined in the response to Question 3 above. The ultimate form of engagement is a matter for Government, but it could take the shape of:

- A merged organisation
- A merged organisation with LCAL living on as a separate brand for the 'delivery arm' of the CEFC
- LCAL becoming a subsidiary of the CEFC
- LCAL being a contracted service provider to the CEFC.

From LCAL's point of view, the CEFC is a solution to the Company's impending capital inflow shortfall. Without access to further investment capital, LCAL's funds are not large enough to be self-sustaining (let alone self-generating) and the business will 'wither on the vine' as initial investment returns begin to flow back in. This creates challenges for LCAL, its private sector Program Delivery Partners and investment partners and the Australian Government in maintaining the market momentum which is being created to date.

B) OTHER GOVERNMENT INITIATIVES

In relation to other Government initiatives – commentary is provided in the response to Question 3 above around possibly engaging with State and Territory Governments as demand aggregators, but additional comments are as follows:

There is a need to ensure CEFC eligibility criteria allows grants recipients to access finance (and vice versa) – In LCAL's experience, the availability of grant- based funding generally makes providing finance harder. However, given it has been chosen as a key delivery method for other aspects of the Clean Energy Future package, in LCAL's view it is a mistake to make it even more difficult to loan by prohibiting blended grant/loan finance.

Where grant based finance exists the fact a recipient then goes on to apply for CEFC finance for the balance of the funding should not in and of itself preclude the grants recipient from CEFC consideration. If both the CEFC finance component and grant component provided by another organisation are essential to a project getting up and meet all other criteria then in principle it should be eligible for CEFC funding.

Conversely, from the point of view of grant program design, as the CEFC is not granting but loaning, it should make no difference whether other components of project finance comes from a bank or the CEFC – either way the money is being loaned and repaid with interest so it ought not to be considered as double-dipping.

Conclusions for the CEFC in Developing an Investment Policy

Based on LCAL experience in 18 months of operating a CEFC-like program the following are relevant:

- Investment in this sector is not easy, which vindicates the need for the CEFC, because in its absence, the sector is under scale and capability to meet the required Government policy objectives.
- Market needs in relation to the type of clean technology required are highly industry specific and often need much further segmentation. This raises lead times, difficulties in servicing the market and increased transaction cost.
- Economic theory and market research will only take the CEFC Board so far in developing an investment policy. In reality (and absent a very high carbon price) the myriad competing choices for capital investment intrude upon straight investment decisions – it is not enough that a given clean energy investment is a good use of funds and delivers a return – it must rank amongst the *best* uses of funds and deliver an *acce*ptable return given competing demands.
- Testing the market for appetite has proven the best method for gauging what the market can take. Pilot projects with the proponents who seem most capable are the best method of probing the latter.
- Refining of the offer, and (if necessary) the investment criteria may be required in light of market testing and experience.

APPENDIX A: STRUCTURE OF THE CEFC AND RELATIONSHIP TO LCAL

Selection of the method of structuring the CEFC is a matter for the Australian Government. The following notes are provided for the benefit of understanding how LCAL can interact with the CEFC in the context of the structure chosen for the CEFC.

There appear to be three distinct ways in which the CEFC could be established by Government:

4) As a Corporations Act company, governed by the CAC Act with a CEFC specific statutory overlay (in terms of subsuming LCAL, this would be preferred as the easiest way).
5) As a statutory authority by specific legislation with a CAC Act overlay (in terms of subsuming LCAL, this would be the second preference).
6) As a prescribed statutory agency by specific legislation with an FMA Act overlay (in terms of subsuming LCAL this would not be advised).

These are essentially a matter for Government to decide, but for the purposes of examining on how LCAL could be absorbed into a CEFC the three scenarios are each examined in detail

Scenario 1: The CEFC could be established as a public company limited by guarantee

A Commonwealth company is a company registered under the *Corporations Act 2001* and which the Commonwealth 'controls'. Section 34 of the CAC Act defines the Commonwealth as controlling a company if, and only if, it: a) controls the composition of the company's board (including through a veto power); or b) has the ability to cast a majority of votes (more than one-half of the maximum number of votes) at a general meeting of the company's members; or c) holds more than one-half of the issued share capital of the company. A Commonwealth company may come into existence in one of two ways: a) where a company is registered under the Corporations Act 2001 and which the Commonwealth controls; or b) where the Commonwealth acquires control of an existing company. 'Company limited by guarantee' means a company formed on the principle of having the liability of its members limited to the respective amounts that the members undertake to contribute to the property of the company if it is wound up (*Corporations Act 2001*, section 9). These companies typically have the letters 'Ltd' after their name. 'Company limited by shares' means a company formed on the principle of having the liability of its members limited to the amount (if any) unpaid on the shares respectively held by them (Corporations Act 2001, section 9).

What does this mean?

The CEFC is created as a *Corporations Act 2001* Company with Statutory overlay (e.g. NBNCo Ltd)

- CEFC as a legal entity is created as a company limited by guarantee under the *Corporations Act 2001.*
- CEFC placed in Treasury portfolio - Treasurer is Member of the Company (another option would be to have the Finance Minister also appointed as second Member).
- General financial reporting occurs as a public company under the *Corporations Act 2001.*
- General Ministerial and Parliamentary reporting occurs under *Commonwealth Authorities and Companies Act 1997* (CAC Act).

- CEFC-specific statutory obligations (for example, prohibitions on what could or could not be invested in and any additional reporting information required) are created by a specific Act of Parliament - the Clean Energy Finance Corporation Act.
- The CEFC would thus generally be governed by the Corporations Act so as to be ASIC and market focussed to facilitate it being run like a business.

The CEFC can be structured as a not-for-profit and thus avoid the unnecessary complication of being caught by Competitive Neutrality policy; it should be able to achieve exemption from federal income tax and would account for GST like any other corporate entity. The CEFC's purpose in its Constitution can be defined along similar lines to LCAL's since this is quite broad and would not limit the operations of the CEFC. Structure as a Company means the CEFC lives, operates and moves within the corporate environment, and enjoys the benefit of truly understanding its market, as well as being a structure that other market participants can readily identify with and be comfortable negotiating and working cooperatively with. Structure also avoids 'dead-hand' *Financial Management and Accountability Act 1997* (FMA Act) and CAC Act governance reporting requirements that are inappropriate for the kind of flexible body that is required.

How LCAL can be absorbed in this scenario:

If the CEFC is structured in this way there are no complications caused by the LCAL Constitution or general governance and assets can be more readily transferred from LCAL to the CEFC without triggering adverse income and capital gains tax implications.

Absorption could occur in either of two ways:

1) LCAL remains in existence as a separate legal entity as a subsidiary company. This is allowed for under both the *Corporations Act 2001* and the *Commonwealth Authorities and Companies Act 1997* and control of LCAL is a matter of simply transferring Members of the company, adopting minor appropriate revisions to the LCAL Constitution and notifying ASIC as the company regulator. The CEFC appoints another Director to sit on the LCAL Board to ensure strategic alignment, but otherwise the LCAL Board could continue on.
2) LCAL is absorbed into CEFC and is legally indistinct. All (tangible and intangible) assets and operations of LCAL could be transferred to the CEFC (on the basis of their being similar not-for-profit entities), all liabilities of LCAL would be paid out or assumed by the CEFC and LCAL could be liquidated. The LCAL brand may be kept alive as a 'retail' investment brand for the CEFC, and may effectively continue to be run as a separate business, with retention of an Advisory Board of Directors. This would involve a degree of disruptive change and LCAL employees operating in a new legal environment. There would be higher costs associated with such a change initially, but in the longer term there should be efficiencies in removing duplicative reporting structures.

Scenario 2: The CEFC could be established as a Commonwealth Authority

Commonwealth authorities are statutory corporations. They are established in legislation as bodies corporate. A Commonwealth authority must satisfy the three criteria set out in section 7 of the CAC Act, namely: (a) that it be established by legislation for a public purpose; (b) that it be a body corporate; and (c) that it hold money on its own account. Commonwealth authorities are governed

both by their separate enabling legislation and by the CAC Act. The CAC Act imposes a single set of core reporting and auditing requirements on directors of these entities and sets out standards of conduct for officers of Commonwealth authorities that are equivalent to those applied to officers of companies by the *Corporations Act 2001*. Subsection 7(2) of the CAC Act provides that none of the following are Commonwealth authorities: Corporations Act companies; corporations registered under the Corporations (Aboriginal and Torres Strait Islander) Act 2006; and associations that are organisations within the meaning of the Fair Work (Registered Organisations) Act 2009.

What does this mean?

The CEFC is created as a statutory company (e.g. similar to EFIC)

- CEFC as a legal entity is created by a specific Act of Parliament - the Clean Energy Finance Corporation Act
- The *Corporations Act 2001* does not apply
- Both general financial reporting and Ministerial and Parliamentary reporting occur via the *Commonwealth Authorities and Companies Act 1997.*
- CEFC-specific statutory obligations (for example, prohibitions on what could or could not be invested in and any additional reporting information required) are created in the Clean Energy Finance Corporation Act.
- The CEFC would generally be governed by the authorities provisions of the *Commonwealth Authorities and Companies Act 1997* so as to be more Government and Parliament-focussed than a Company.

If the CEFC is structured in this way there may be some complications, which could be dealt with via the Clean Energy Finance Corporation Act and the legislating for and issuing of appropriate exemptions. The CEFC would need specific exemptions to avoid the complications of being caught by Competitive Neutrality policy, income tax and GST obligations, etc. The CEFC's purpose can be legislatively defined along similar lines to LCAL to facilitate transfer funds to the CEFC, including to the CEFC as its' legal successor. Exemptions from any provisions of the *Commonwealth Authorities and Companies Act 1997* that were deemed to be counter-productive would need to be secured.

How LCAL is absorbed in this scenario:

Absorption can occur in either of two ways:

1) LCAL remains in existence as a separate legal entity as a subsidiary company. This is allowed for under both the *Corporations Act 2001* and the *Commonwealth Authorities and Companies Act 1997* and control of LCAL is a matter of simply transferring Members of the company, adopting minor appropriate revisions to the LCAL Constitution and notifying ASIC as the company regulator. The CEFC appoints another Director to sit on the LCAL Board to ensure strategic alignment, but otherwise the LCAL Board continues on.
2) LCAL is absorbed into CEFC and is legally indistinct. The LCAL brand may be kept alive as a 'retail' investment brand for the CEFC, and may effectively continue to be run as a separate business, with retention of an Advisory Board of Directors. This would require specific provisions to be inserted into the Clean Energy Finance Corporation Act to allow for transfer of assets from a not-for-profit entity (LCAL) to a statutory authority without triggering adverse income and

potentially capital gains tax implications. Specific legal advice would need to be sought on how such a transfer could be effected with minimal financial impact.

Scenario 3: The CEFC could be established as a Commonwealth Prescribed Agency

An FMA Act Agency is financially autonomous. This means that the head of the Agency (termed the Chief Executive) is directly responsible to the portfolio Minister for its financial management. Relevantly, section 5 of the FMA Act provides that a 'prescribed Agency' is a FMA Act Agency. Prescribed Agencies are defined in section 5 of the FMA Act as meaning 'a body, organisation or group of persons prescribed by the regulations for the purposes of this definition.' Schedule 1 to the FMA Regulations lists all prescribed Agencies.

Statutory Agencies are established by an Act which declares them to be a Statutory Agency for the purposes of the *Public Service Act 1999* (PS Act). The Act also sets out the arrangements for the appointment and termination of the Agency Head and their specific powers, responsibilities and accountability requirements. NB note under the PS Act, Statutory Agencies may be FMA Act Agencies, CAC Act bodies, or neither.

Although rare, it is possible for an entity to be an FMA Act Agency, but not a PS Act Agency, and vice versa. It is also possible for the staff of an FMA Act Agency to be subject to the PS Act, even though it is not a PS Act Agency i.e., while the FMA Act Agency has financial autonomy, it does not have staffing autonomy in that it does not employ staff in its own right. This is the case where an FMA Act Agency is staffed through another entity that is a PS Act Agency e.g., a Department of State.

What does this mean?

The CEFC is created as a statutory entity (e.g. the Future Fund Management Agency)

- CEFC is created by a specific Act of Parliament - the Clean Energy Finance Corporation Act. However, legally it is part of the Commonwealth.
- Neither the *Corporations Act 2001* the *Commonwealth Authorities and Companies Act 1997* apply.
- Both general financial reporting and Ministerial and Parliamentary reporting occur via the *Financial Management and Accountability Act 1997.*
- The CEFC would remain subject to direct Ministerial instruction except as otherwise provided.
- The CEFC may or may not be staffed under the *Public Service Act 1999.*
- CEFC-specific statutory obligations (for example, prohibitions on what could or could not be invested in and any additional reporting information required) are created in the Clean Energy Finance Corporation Act.
- The CEFC would actually be a part of the Government and Parliament-focussed.

If the CEFC is structured in this way there are likely to be a range of issues. Firstly, unless the legislation provides otherwise the body will be subject to direct Ministerial intervention. Secondly, creation under the FMA Act triggers a range of governance and reporting obligations that are

incongruent with private sector governance. This is likely to be counterproductive to the type of investment aims that the CEFC sets out to achieve (for example balancing risk and return in undertaking investments). Thirdly, if the Public Service Act employment is established, the CEFC is unlikely to attract the financial and commercial skill set required. Fourthly, a range of exemptions from the ordinary Public Service Act and FMA Act Agencies would need to be applied in order to secure the ability of the enterprise to act commercially. The CEFC's purpose can be legislatively defined along similar lines to LCAL. Exemptions from provisions of *Financial Management and Accountability Act 1997*deemed to be counter-productive would need to be secured. Finally, as part of the Commonwealth, unless otherwise provided, the CEFC would be subject to Budget and machinery of government changes.

How LCAL is absorbed in this scenario:

Absorption can occur in either of two ways:

1) LCAL remains in existence as a separate legal entity as a subsidiary company. This is allowed for under both the *Corporations Act 2001* and the *Commonwealth Authorities and Companies Act 1997* and control of LCAL is a matter of simply transferring Members of the company, adopting minor appropriate revisions to the LCAL Constitution and notifying ASIC as the company regulator. The CEFC appoints another Director to sit on the LCAL Board to ensure strategic alignment, but otherwise the LCAL Board continues on.
2) LCAL is absorbed into CEFC and is legally indistinct. The LCAL brand may be kept alive as a 'retail' investment brand for the CEFC, and may effectively continue to be run as a separate business, with retention of an Advisory Board of Directors. This would involve greatly disruptive change and LCAL employees operating in an entirely new legal environment, and the potential loss of key staff unwilling to accept employment under the PS Act in the event that applied. This would also require specific provisions to be inserted into the Clean Energy Finance Corporation Act to allow for transfer of assets from a not-for-profit entity (LCAL) to a statutory entity without triggering adverse income and potentially capital gains tax implications. Specific legal advice would need to be sought on how such a transfer could be effected with minimal financial impact.

CONCLUSION:

The Australian Government has already identified that the CEFC is to be explicitly created by statute. It is suggested that the *Corporations Act 2001* provides a good institutional framework that is understood by both the types of investors the CEFC is likely to deal with and the type of personnel the CEFC would want to attract as Directors and Officers. Formation under the Corporations Act sends a clear message as to how the CEFC can be expected to act and run. This need not be as a company limited by shares – LCAL was formed as a Company limited by guarantee and this status provides significant advantages in, for example, exempting the company from Competitive Neutrality guidelines which would otherwise make investment decisions comparatively fraught with difficulty. If the CEFC is not incorporated under the *Corporations Act 2001,* it is likely to find it significantly harder to work with other corporate entities in delivering on its mandate since their transaction costs (e.g. legal fees) will increase due to the specific legislative issues arising in the governance and corporate framework of the CEFC and their assessment of the risk associated with

doing business with the CEFC will likely rise due to the legislative uncertainty and potential for government intervention.

APPENDIX B: MARKET POTENTIAL IN COMMERCIAL, INDUSTRIAL AND PRECINCT DISTRIBUTED GENERATION PROJECTS

1. Industrial and Commercial Sectors and Residential:

***1.1 Opportunities in Industrial, Commercial (including Government) and Residential*:** The target investee is the energy end-user (i.e. an organisation whose primary activities are not energy production). Finance products from LCAL are directed at overcoming the market failures that lead to non-investment by the target sectors. Finance would be delivered both directly and in co-operation with the existing funding and service market. The investment would follow along the lines of the product delivery models currently being developed and delivered through LCAL.

The ~60 MtCO2e cost-effective carbon savings opportunities identified in commercial and industrial sectors (Table 2 above) are profitable over the lifetime of the asset, yet the ~ $30bn capital investment (see Table 2) has not occurred. Based on LCAL experience to-date there is significant additional potential to capture energy efficiency opportunities in strata-title and high-rise residential properties, which can account for up to 10% of a city's footprint. This indicates that both price and non-price related market failures exist**.** LCAL proposes a range of finance and service products targeted at the energy end-users, whilst acknowledging and rectifying existing market failures, as described in Table 3 above.

***1.2 Typical Market failures*:** Despite the diversity across these sectors (building owners, occupiers, manufacturers, processers and mining) the market failures typically involve:

- *Capital constraints and investment priorities*: Owners are fully leveraged with little surplus cash-flow to invest in areas that are perceived as non-core to the business.
- *Complexity of decision making and high transactions costs*: Energy efficiency and clean energy technologies requires the understanding of issues and solutions, which often fall outside an organisation's primary focus. As a result transaction costs of pursuing investment can be high. Many organisations have difficulty identifying appropriate technology solutions and suppliers/vendors. Construction requires long project lead-times which yields a requirement for patient capital.
- *Scale:* Energy Efficiency and clean energy technology projects may be profitable but are usually small, and profitability is eroded by the high transaction costs.

1.3 Finance to Energy End-Users:

The majority of the finance allocated to targeting this sector would be invested through financial products in conjunction with leading market financiers and service providers. This approach could be adopted, rather than providing direct loans for energy efficiency and GHG abatement projects. This would achieve significant private capital leverage, which would be sourced through those organisation's financial reserves, established customer relationships and operational capability. This also builds the capacity of the finance and service industry to support long term sustainable investment and growth in the clean energy investment market. The relationships and funding models proposed (described in Table 3 above) consist of de-risking the energy efficiency and GHG abatement projects for co-financiers to invest through providing patient capital in the form of long-term loans, sub-ordinated debt and equity.

2. Distributed Generation (both In-situ and district Co-generation/ Tri-Generation, Precinct cooling projects):

2.1 Opportunities in Distributed Generation: The potential to save energy and reduce GHG emissions from precinct co-generation/tri-generation and district cooling is significant and was one of the major areas of focus of the PM's Energy Efficiency Taskgroup report and the CSIRO Intelligent Grid Report. As a conservative estimate, $3-5bn of capital would be required to install precinct level Co-Gen and Tri-Gen in a number of Australia's capital and regional cities by 2020 in both existing and Greenfield developments. Tri-Generation project proposals are in development in City of Sydney, City of Melbourne and other major cities.

EMISSIONS REDUCTION FROM COGENERATION AND TRI-GENERATION

A gas-powered cogeneration system substitutes the requirement for existing coal generated electricity with a highly efficient gas fired power generated process (on-site). A cogeneration system is implemented at the site of electricity consumption and in the case of LCAL's industrial and commercial modelling the system will be on the location for the industrial and building facilities.

A Cogeneration process significantly reduces the intensity of greenhouse gas emissions by introducing an efficient electricity generation process that uses a more effective fuel source and use of the total energy produced. There will be reduced distribution losses of electricity and emissions associated with the on-site generation. The utilisation of waste heat from the electricity generation process would yield a means for providing heating and steam, which would supplement and/or replace existing electricity powered heating and provide steam for industrial boilers.

Examples include:

- Abattoir cogeneration: "Unlike a traditional power plant, our plant produces multiple forms of energy from a common fuel source, capturing the waste heat for reuse. The engine exhaust heat is used to generate the abattoir's steam requirements. And the heat from the engine cooling is recovered in a 100,000-litre hot water tank to provide the abattoir's hot water requirements, replacing two old boilers." Bill Dunn, Director of DDC Energy Services[^]. The full article can be found on: Cogeneration in the abattoir

- Community aquatic centre: Cogeneration sized to provide the power demand for centre operation and heating for the pool is a low emissions cost effective solution, with typical paybacks on capital costs of 7-8 years[*]. Capital costs typically in the $100,000's and LCAL has observed a strong interest in this investment by local councils Australia wide.

- University trigeneration: Trigeneration at educational facilities can provide the electricity base load as well as heating and cooling to multiple buildings throughout the campus. A major Australian University has proposed a project to implement a 2.4 MW trigeneration system to supply the base load to their campus, the drive will be to reduce their GHG emissions by 30% by 2020/21. The goal is achievable once the system is fully in place and their energy efficiency scheme is put into use.

- Hospital cogeneration: "Commissioned June, 2009 the US-manufactured and Tasmanian Gas Networks Pty Ltd owned $1.7 million cogeneration unit is expected to save Launceston General Hospital approximately $21 million in energy costs over 15 years through the use of natural gas." Article published on the Ecogeneration article.

Tri-generation has the same benefits as co-generation with the addition that the waste heat is used to generate cooling. A trigeneration system would provide the cooling for refrigerants and water in existing chillers in buildings and industrial applications. In a building context, the generation is typically sized for the building cooling and heating base load. The heat exhaust from the generation process is passed through a heat exchanger (also known as the absorption chiller) to provide the cooling. District tri-generation and cogeneration involves construction of gas fired generators scaled at a size to deliver a specific power output (Megawatts) as well as providing buildings and industries with heat and cooling. The proposed City of Sydney tri-generation projects involve a multitude of gas fired generators (330MW total) at zoned sites to supply electricity to neighbouring buildings via connections to the electricity grid.

Water piping infrastructure will be built connecting the generation building to district buildings. Waste heat will be used to heat water, which is piped to the district buildings for heating and cooling demands. The size and scale of the projects provides increased efficiency in the savings outlined above.

Similarly such precinct level projects can take a renewable fuel source and utilise the energy of combustion towards either a cogeneration or trigeneration process. The Townsville cogeneration plant is fuelled by biogas produced through anaerobic digestion, essentially this fuel is produced through the treatment of sewerage. The gas that is supplied by the digester is then used in the 332 kW generators to provide a significant portion of the surrounding area's base load power needs. This precinct level cogeneration process will abate 700 tCO_2e per year.

LCAL suggests the CEFC should target 15% to 25% of the precinct tri-generation opportunity available, recognising that there are several market failures currently holding back investment that finance alone will not overcome.

ClimateWorks and Seed Advisory[3] in a recent analysis of the market describe these barriers in details, though in summary they can collectively be described as an inefficient connection process to the grid that is costly and time-consuming, with barriers heighted for multisite projects.

LCAL considers that a city wide demonstration project will be required before a broader take up occurs across Australia, such as the City of Sydney city wide precinct tri-generation.

2.2 District cooling with storage

District cooling with storage involves the construction of centralised cool water storage facilities and cooled water piping to deliver this cooled water to buildings. It removes the requirement for chiller equipment and air conditions at each connected building and reduces total energy consumption and associated greenhouse gases.

Ergon Energy has identified an opportunity to reduce GHG emissions by 6.3M tCO2-e/pa in 2020 by installing district cooling and storage in all Australian capital and major regional cities. Regional centres in hot climates are currently considering the benefits of district cooling projects. A project of comparative magnitude would halve the city centre electricity loads; reduce peak demand needs in cities, including Townsville and Brisbane.

LCAL has assumed a conservative take up of this technology to 2020. This stems from the fact of numerous stakeholders for each project, and the view that a city-wide demonstration project will be required before a broader take up occurs across Australia. In addition, there is evidence of

[3] ClimateWorks Australia (2011) *Unlocking Barriers to Cogeneration: Project Outcomes Report September 2011*.

displacement in some regions as a result of other precinct projects with alternative cooling approaches, such as the City of Sydney city wide precinct tri-generation project.

2.2 Market failures: These projects are largely untested in Australia, have long payback periods on investment, and returns are substantially exposed to energy price fluctuations and the relationship between gas, electricity and carbon markets over their 15 year plus terms. The nature of the assets and the need to commit and connect surrounding buildings, which are owned independently of the generation asset investor characterise these investments as akin to infrastructure.

2.3 Finance to Precinct generation/ cooling projects and infrastructure: In order to support and de-risk the investment in the infrastructure (i.e. plant and piping) it would likely be necessary to provide junior debt, equity investments or equity loss sharing and possibly off-take price or volume guarantees. Existing LCAL finance products for energy end users could be recapitalised and further enhanced to target the retrofit works for surrounding buildings to these projects.

Table B1: Finance products, characteristics and rationale to overcome market failures

Finance products and characteristics:	**Rationale**
Target - Energy End Users	
Off balance sheet finance including: - Operating leases (e.g. existing LCAL co-financiers include Alleasing and Macquarie) - Rentals - Build Own Operation Maintain models - Energy service contracts	- Overcome capital constraints - Transfer of technology risk and market pricing risk to operator (BOO & service models) - Overcomes information barriers
Asset based financing (On balance sheet): - Finance leases (e.g. Macquarie asset financing with LCAL support) - Environmental Upgrade Agreements - Loans	- Overcome capital constraints - Asset based funding is right sized for smaller projects and with lower transaction costs. - Overcome landlord / tenant split incentive issues where costs can be passed on - Longer-term and fixed or variable rate
Vendor finance delivery models which include: - On-bill financing (e.g. Origin savings guarantee product with LCAL support) - Finance delivered through ESCOs - Energy Performance Contracts with asset transfer	- Reduced complexity by presenting a complete technical (equipment and service) and finance solution. Includes simpler billing processes. - Transfer of technology risk and market pricing risk to operator (On-bill financing with guarantee) - Increased confidence in technology and outcomes.
Target - Precinct generation/ cooling projects and infrastructure	
Lower cost funding, with / without LCAL credit risk	- Provide discount to energy end user

Finance products and characteristics:	Rationale
Mezzanine funder or equity to finance SPV	- LCAL takes risk of proving demand for finance product. LCAL as patient capital
LCAL return subordinated to private investor returns	- LCAL takes risk of returns exposed to fuel and carbon price
Guarantees	- Credit enhancements, underwrite technology performance to lower risk for third party investors
Offtake agreements and insurance	- Lower risk for third party investors

Investment criteria and assumptions:

Financially sustainability: In practice, the capital would be allocated and priced on a risk adjusted basis at a rate that covers operating costs of delivery and a loss reserve pool reflecting the perceived risk. Indicative rates of return for products offered to market and received by LCAL are set out in Table 3 of this submission.

Non-financial criteria:

- **Market building:** CEFC funds could be used to make clean energy investments to:
  - Achieve sustained reductions in carbon emissions by accelerating investment
  - Attract capital (e.g. major banks) and wholesale institutional funds (e.g. superfunds) to invest in energy efficiency assets by de-risking the investment characteristics of each proposal
  - Demonstrate and support the business case for GHG investment to energy end users and the financial community
  - Develop and capitalise finance models for deployment of financiers and capital market funds for GHG investment.
- **Cost of carbon measures:** Portfolio cost of carbon tests to be applied to prioritise lower net cost of carbon projects and to maximise the GHG savings for CEFC capital allocated. Benchmark costs to be set for each asset class, with higher benchmark costs for precinct tri-generation and cooling infrastructure projects given the long term nature of the investment. The proposed cost of carbon measure and the rationale for using this measure are set out in earlier.
- **Term:** LCAL would have ability to invest up to 20 years as a reflection of the payback periods of the underlying assets. Typical investment periods are outlined in the table below.
- **Nature of buildings / industrial process:**
  - Any existing Buildings
  - Any existing Industry and industrial process
  - Greenfield industry and buildings projects where the business as usual baseline can be clearly established and CEFC funds are supporting only the energy efficiency or lower emissions specifications over and above the business as usual
- **Nature of energy efficiency and clean energy technology:**
  - Commercially available energy efficiency and GHG abatement technologies

- Co-Generation and Tri-Generation, District cooling technology
- In Situ Renewables

Table B2: LCAL clean energy finance products, typical return and term profile

End-use sector	**Market finance product needed**	**Typical rate of return to finance provider**	**Typical rate of return to CEFC/LCAL**	**Term (yrs)**
Industrial EE + GHG abatement Commercial EE+ GHG abatement	Loan, leases, EUAs, On-bill	8-18%	3.5-8%	5-10 yrs
	Funding financier	8-18%	3.5 – 8%	5-10 yrs
	Mezzanine / Equity - SPV	12-20%	5% - 8%	10 - 20 yrs
Distributed Generation (District Co-Gen, Tri-Gen, Precinct Cooling in Commercial + Residential existing and Greenfield sites)	Mezzanine / Equity, Guarantees and Insurance	20+%	8-12%	20-40 yrs

DISTRICT COOLING WITH STORAGE IN THE AUSTRALIAN CONTEXT

District cooling with storage involves the construction of centralised cool water storage facilities and cooled water piping to deliver this cooled water to buildings. It removes the requirement for chiller equipment and air conditions at each connected building and reduces total energy consumption and associated greenhouse gases.

By cooling water overnight during low electricity demand times, it also presents an opportunity for peak demand management.

Existing precinct cooling projects with storage are operating at James Cook University Townsville campus, Brisbane Airport and Southbank Institute of Technology Southbank campus. In many offshore countries such as Saudi Arabia, United States or Europe, district climate solutions (chilling or heating) are commonplace. Yet in Australia, there has been limited take up.

Source: Report for Ergon Energy, Estimation of the National Potential of District Cooling with Storage. In support of the Expression of Interest to the Australian Carbon Trust, August 2010, Wessex Consult.

Building Owner Benefits:
In addition to significant energy and maintenance cost savings for customers' currently operating air cooled equipment, building owners benefit by reduced capital costs and removal of the onus to operate and accommodate chilled water cooling plants within the building space. It also

Electricity Distributor Benefits:
Main benefits including control over large electrical load allowing load shifting, efficiency improvements in managing distribution assets during peak and low load periods and associated reductions or deferrals of capital expenditure to meet growth in demand.

Benefits to the Community:
The community benefits from greenhouse gas emissions, reductions in quantity of ozone depleting refrigerant gas and reduction in ambient noise levels.

Peak demand management as a benefit of district cooling with storage:
Across Australian electricity distribution networks, typically 10% to 15% of the infrastructure and assets are used for a very limited time. For example, of Energex's $8.8bn distribution network, about 13% of this infrastructure is used for 100 hours a year. That is $1bn of investment was required to address the peak demand totalling 4 days a year. Australia wide electricity demand increases are driving $40bn investment in distribution assets over the next 5 years.

Climate control is a major driver for demand growth. Ergon's forecasts transmission and distribution savings of $3.36bn/ year by 2020 associated with Australia wide district cooling with storage.
Sources: Report for Ergon Energy, Estimation of the National Potential of District Cooling with Storage. In support of the Expression of Interest to the Australian Carbon Trust, August 2010, Wessex Consult.

This set of investments would be targeted to accelerate uptake (transform the market / make the market) and de-risk the investment in energy efficiency and clean technology projects in industrial and commercial[4] sectors, and city-wide distributed generation and district cooling projects[5].

Reflecting the investment characteristics of the target investors and technology assets, this would require provision of *patient capital* in the form of long-term loans, mezzanine debt and equity to overcome existing market failures to catalyse clean energy investment (at scale). The finance would be designed to overcome capital constraints and to compliment other Government support, e.g. finance of the balance of costs where a grant is provided to accelerate clean energy projects that otherwise would not occur. As per the existing model being deployed by LCAL the finance would be structured for repayments to match the energy savings of the energy end-user.

APPENDIX C: LOW CARBON AUSTRALIA'S EXPERIENCE IN DEVELOPING INNOVATIVE FINANCING FOR ENERGY EFFICIENCY

Energy Efficiency Market Analysis: Opportunity and Sectoral Targeting in the Built Environment

The majority of LCAL's resources and efforts are currently focused on execution of the EEP which constitutes 84% of the Company's Australian Government funding. The experience in administration of the Energy Efficiency Program is relevant to the CEFC because both the objectives and operations are highly similar to that proposed for the CEFC (albeit at a much smaller scale):

EEP Strategic Objectives

The Australian Government funding requirements of the EEP set the following overarching requirements and delivery objectives for investment into the non-residential building sector and in industry:

- LCAL's co-investment in energy efficiency to demonstrate a pathway to overcome market failures.
- LCAL to act as a catalyst for investment in energy efficient technologies and practices for cost-effective carbon reduction for the broader market.
- LCAL to pursue its own longer term financial sustainability.
- Prove LCAL as a complementary measure to the Australian Government's climate change policy.

Under the EEP, Low Carbon Australia leverages private funds, and repayments are recycled back into an ongoing revolving loan fund. Investments are made by an independent Board under clear Investment Criteria based on the strict outcomes which the Australian Government has set for the program, focussing on business priorities and allowing for continuing investment in new projects.

Of the total $84.6m received by Low Carbon Australia as its initial loan fund under the EEP, LCAL has contractually committed $30m for investment (as of October 2011), mobilising over $100m (inclusive of LCAL funding) in new Clean Energy Finance in the market.

Low Carbon Australia's initial offerings targeted the commercial building sector. Buildings which exist today are expected to account for 80% of total building emissions in 2020.

Accelerating the implementation of energy-efficient retrofits could reduce emissions from this sector by over 30%, delivering significant positive financial returns through energy savings. The greatest potential for reductions is in the office, retail, education, community and health sectors (75% of 2020 total emissions). According to a 2010 ClimateWorks report,[6] investment of $13bn in retrofits is required to deliver least-cost emissions reductions of 16.3MtCO_2e by 2020.

The move by property investors in Australia to upgrade commercial property buildings and invest in energy efficiency is being driven by a combination of:

[6] ClimateWorks Australia (2010) *Low Carbon Growth Plan for Australia March 2010*. Clayton, Victoria: ClimateWorks Australia.

- Tenant demand - many government and large institutional tenants now require a minimum energy efficiency rating (e.g. Four Star National Australian Building Energy Rating System - 'NABERS')
- Rising energy costs
- Focus on carbon emissions
- Government regulation in the form of the *Building Energy Efficiency Disclosure Act 2010* where energy efficiency information (NABERS ratings) must be provided when owners sell or lease office space >2,000 m2.

Citi Group analysis[7] finds many of the larger Real Estate Investment Trusts (REITs) have already upgraded their property portfolios to improve their overall market attractiveness and attract long-term tenants such as government agencies. A number of the larger REITs already report a portfolio average 4.5 star rating under NABERS. Smaller REITs and private owned building trusts are (in the main) still in the process of upgrading.

The Property Council of Australia / IPD Green Property Index[8] has for the first time demonstrated that property assets with a Green Star rating and /or NABERS rating outperformed assets with no ratings over the two years to December 2010, with higher rated properties attracting better returns than those with lower ratings. The recent Australian Property Institute and Property Funds Association report[9] found a green premium in value for NABERS energy rated office buildings, with 'five star NABERS energy rating delivering a 9% green premium in value and the 3-4.5 star NABERS energy ratings delivering a 2-3% green premium in value'.

Despite this, significant segments of the existing building stock in Australia exhibit slower take up of energy saving and low carbon investments. In particular, there are three issues which are common impediments and sources of market failure:

- Split incentives between a building owner and a tenant, where the building owner is responsible for capital investment while the tenant pays the energy bills
- Sourcing for up-front capital to undertake energy savings investments
- The need for end-to-end energy savings services.

There is a plethora of Government programs and incentives, some of which have been strong market drivers for increased efficiency (e.g. NABERS) but the wealth of programs and the constant opening and closing of funding windows and grant rounds have had the effect of normalising 'grant-chasing', with little shift in the underlying market dynamics.

Low Carbon Australia has analysed research into the built property sector and the market appetite for funding, scope and variety of energy efficiency projects. This helped identify the market segments of greatest carbon abatement potential and the causes of market failure in energy

[7] ASX-Listed Office Trusts: Energy Ratings January 2011.
[8] Launched in March 2011.
[9] Newell, G; MacFarlane, J & Kok, N (2011) *Building Better Returns: A study of the financial performance of green office buildings in Australia.* Sydney: The Australian Property Institute and Property Funds Association.

efficiency in these sectors. Low Carbon Australia has developed financial products and market delivery models designed to address these identified failures, with an investment focus on:

- sectors and subsectors with significant carbon saving potential (see Figure C1 below)
- programs and projects with tangible demonstration value of individual energy efficiency projects
- where possible, market leaders
- financial sustainability for LCAL (risk-weighted return)
- delivery models that maximise market reach (market making potential) while minimising program costs and delivery / compliance risks.
- market sustainability through developing models which leverage private sector involvement and allow for future operation without reliance on LCAL and/or government sourced funds.

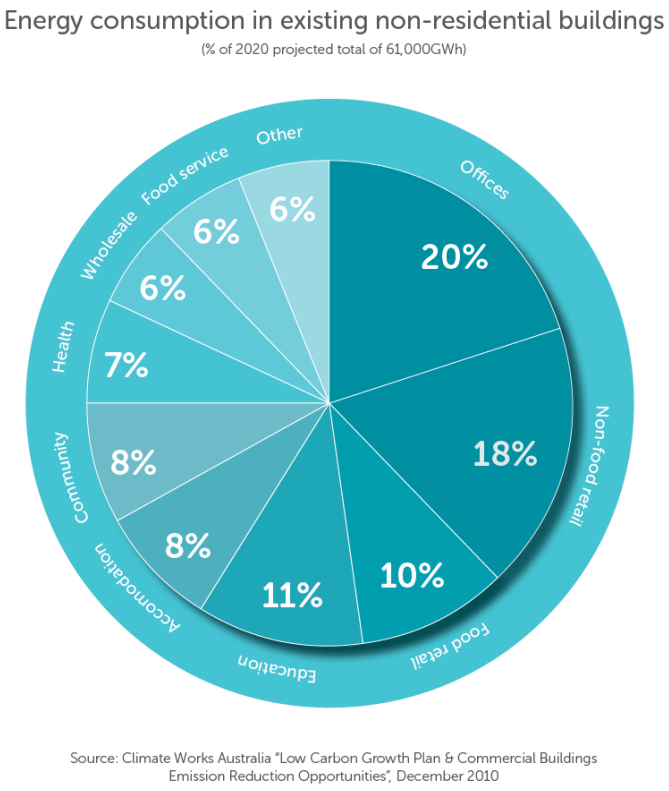


Figure C1: Energy consumption in existing non-residential buildings

LCAL's strategy is focusing on the areas which offer the greatest carbon saving potential and represent the areas where LCAL can most cost effectively deliver against its EEP objectives. However, the characteristics of these sub-sectors differ markedly in their:

- Market dynamics, including ownership structure and decision making process;
- Energy saving potential and expected financial returns from these measures; and
- Access to finance to implement energy efficiency savings.

Market Testing: Appetite for Low Carbon Australia Finance

Since beginning operations in mid-2010, Low Carbon Australia has tested the market with calls to the market for proposals, in July 2010 and September 2011.

By October 2011 Low Carbon Australia Limited has received requests for $275m worth of LCAL funding which (if all were taken up) would theoretically have represented total mobilised funds of $1,847b (comprising $275m sought from LCAL + $1,572b in non-LCAL funds), or a potential leverage rate of$6.71 for each $1 sought from LCAL.

With approx. $84.6m for its EEP, LCAL alone cannot hope to meet this demand. LCAL has thus focussed its initial investments on the projects with most market- creating value, those that are investment-ready and those which have significant demonstration impact. However, analysis of project proposals received by LCAL demonstrates the demand for LCAL based finance in the marketplace and the potential for further funding of this type to address these market failures.

Analysis of proposals thus far received by LCAL also indicates a wide sectoral spread across the built (non-residential) economy (see Figure C2 below).

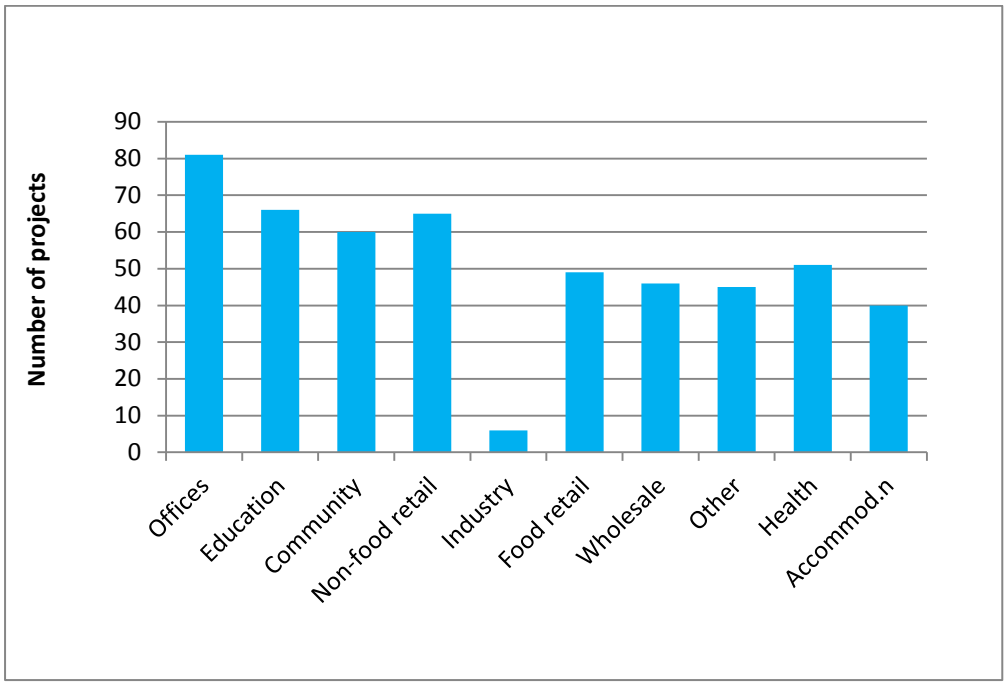


Figure C2. Sectoral spread of proposals for LCAL investment (2011).The 'Industry'classification is new area of LCAL activity.

There is also a good technology spread targeted in proposals to LCAL. Indicatively, more than half the project proposals received fall across multiple technology types (Figure C3 below).

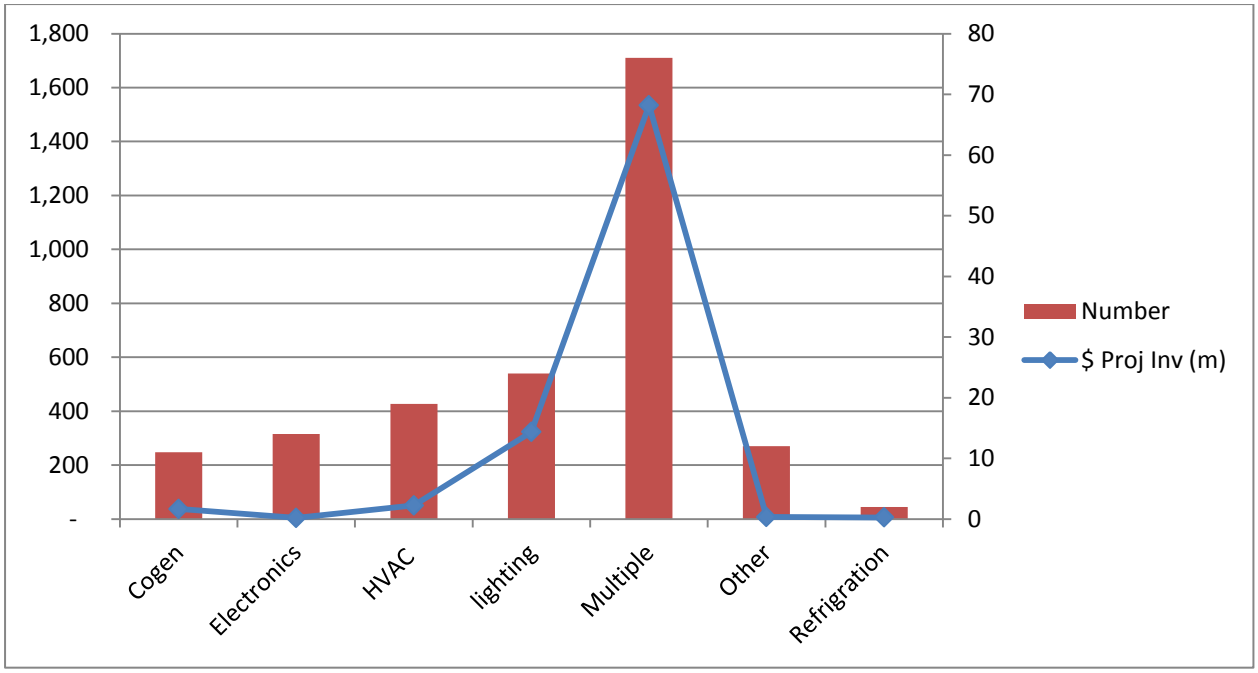


Figure C3. Technology spread of proposals for LCAL investment (2010).

The fit of technologies to sector is diverse with varying project proposals. Some energy efficient technologies (lighting) are common across sectors, while others (refrigeration) are sector-specific. Table C1 below is indicative of the type of project proposals LCAL is considering, and also demonstrates the range of project size and payback periods.

Table C1: Selection of typical de-identified projects LCAL is considering. Note payback years are exclusive of interest and are thus indicative of duration.

Sector	**Technology**	**Costs ($ '000)**	**Savings per annum ($ '000)**	**Payback Period (excluding interest)**
Telecommunications	Co-generation - datacentre	4,800	750	6.4 years
Retail	Roof Paint technology	160	30	5.3 years
Warehouses	Lighting in cold storage (Induction and LED lighting)	375	50	7.5 years
Office Building	Chiller upgrade	1,500	200	7.5 years
Food Retail	Lighting, refrigeration, air conditioning upgrades	300	100	3.0 years
Manufacturing	Compressor upgrade	200	80	2.5 years
Community	Co-generation in aquatic centre	800	200	4.0 years
Local Government	Street lighting upgrade	240	180	1.3 years