

## Submission by the Clean Energy Finance Corporation to the Environment and Communications Legislation Committee Inquiry into the Clean Energy Legislation (Carbon Tax Repeal) Bill 2013 and related bills

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## Executive Summary

**The CEFC's mission is to accelerate Australia's transformation towards a more competitive economy in a carbon constrained world, by acting as a catalyst to increase investment in emissions reduction.**

The legislative framework under which the CEFC is established and funded, together with the commercially focused capabilities and experience gives the Commonwealth a unique capability and asset.

By working with private sector co-financiers, the CEFC multiplies the total amount of funding available for investment. Through investing \$536 million of CEFC funds (including Low Carbon Australia's portfolio) and \$1.55 billion in private sector co-financing, the CEFC has facilitated over \$2.2 billion in projects, delivered 3.88 million tonnes of abatement, and achieved it at negative cost (i.e. net return or benefit to the taxpayer) of \$2.40 per tonne of abatement.

The CEFC has invested in a diverse portfolio mix across the economy, with projects comprising 56 per cent of renewables, 30 per cent in energy efficiency and 14 per cent in low emissions technologies. Projects financed include wind, solar, and bioenergy across Australia (both on grid and off grid), as well as energy efficiency and low emissions technology projects in manufacturing, buildings and local government.

The CEFC has pioneered new aggregation finance and corporate facilities which are enabling adoption of energy efficiency across a broad market sector (particularly small and mid-sized business), and providing a demonstration of the benefits to encourage others to follow.

The CEFC's role is to develop these market segments with a co-finance and/or delivery partner with a view to exiting once the market is established.

The CEFC operates transparently and accountably under its Act, Investment Mandate and obligations under the CAC Act and under a range of other laws applicable to a statutory authority. Importantly the CEFC needs to consider the additional or external benefits that its participation provides for the Australian economy.

These external benefits include improving energy productivity, contributing to technologies moving faster along the innovation chain, down the cost curve and through greater acceptance in financing markets. Externalities can also flow from improvements in technology design, supply chain depth, construction practices, operating skills, financing structures and market risk appetite.

The CEFC has demonstrated that it represents a positive cost-benefit outcome for Australian taxpayers, businesses, the economy and the environment. The CEFC is catalysing emissions reductions objectively at a much lower budget cost to many other programs, and the investment model is generating abatement which is delivering a financial return for the CEFC, for the Government, for business, for the taxpayer and the economy.

Based on estimates of the abatement challenge from the Climate Change Authority, Treasury and the former Department of Industry, Innovation, Climate Change, Science, Research, and Tertiary Education (DIICCSRTE), the 3.88 million tonnes of annual abatement the CEFC has delivered represents about 3% of the 131Mt emissions reduction required to meet the 5% below 2020 target. With more time the CEFC could play an even greater part.

Abolition of the CEFC will have a number of impacts in the market. One way of assessing the extent of possible impact of abolition on the market is to look at the strong level of demand experienced by CEFC and the extent and nature of that pipeline of potential projects.

As at 20 August 2013, the CEFC had active discussions underway with circa 37 project proponents, who were seeking CEFC finance of over \$2 billion (total project costs of over \$4.5 billion) and had received proposals at varying stages of development from over 170 project proponents seeking CEFC finance of over \$5 billion (with total project costs of an estimated value over \$14.9 billion).

In the short time since its establishment the CEFC has demonstrated its capability and its potential to assist our economy making the transition to Australia's future energy mix. Through its activities (should it continue to exist), the CEFC can play a valuable part in the developing the capabilities and capacity of a globally competitive Australian clean energy sector and in catalysing investment in new energy infrastructure and energy efficiency across the economy.

## 1. About the CEFC

**The Clean Energy Finance Corporation (CEFC) is a legislated fund dedicated to working with the private sector to invest in clean energy projects.**

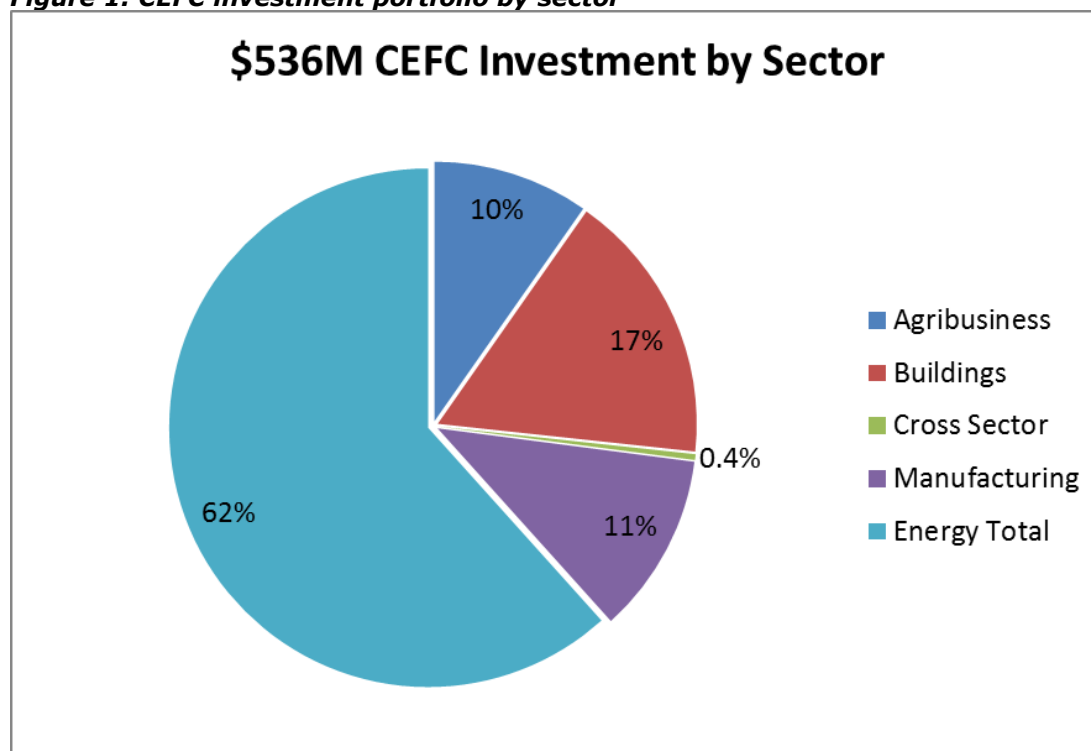
From April 2013, the staff and assets of Low Carbon Australia (a related entity formed in 2010) transferred to the CEFC.

The Corporation increases the flow of funding to the commercialisation and deployment of Australian-based renewable energy, low emissions and energy efficiency technologies ('emissions reduction projects') by mobilising public and private sector capital and skills, so preparing and positioning the Australian economy and industry for a carbon-constrained world.

By working with private sector co-financiers, the CEFC multiplies the total amount of funding available for investment. Through investing \$536 million of CEFC funds and \$1.55 billion in private sector co-financing, the CEFC has facilitated over \$2.2 billion in projects, delivered approximately 4 million tonnes of abatement, and achieved it at negative cost (i.e. net return or benefit) of \$2.40 per tonne of abatement.

The CEFC portfolio of investment is distributed across the energy, manufacturing, property, agriculture and agribusiness, education and government sectors (Figure 1 and Table below). In addition the CEFC also has a strong forward pipeline of viable investment opportunities in energy efficiency and emissions reduction.

**Figure 1: CEFC investment portfolio by sector**



**Table 1: The CEFC's investment impact to 20 August 2013 by sector**

<b>Sector</b>	<b>Generation Capacity Installed (MW)(b)</b>	<b>Annual tCO2e abated ('000)(b)</b>	<b>Average Investor (i.e. CEFC) Cost \$/tCO2e(a)(c)</b>	<b>Average Cost to Govt \$/tCO2e(a)(d)</b>
<b>Buildings(e)</b>	<b>2.61</b>	<b>275</b>	<b>- \$1.33</b>	<b>-\$1.14</b>
<b>Agribusiness</b>	<b>18.76</b>	<b>150</b>	<b>-\$12.20</b>	<b>-\$1.13</b>
<b>Manufacturing</b>	<b>2.50</b>	<b>249</b>	<b>- \$0.77</b>	<b>-\$0.07</b>
<b>Energy</b>	<b>479.80</b>	<b>3,297</b>	<b>- \$2.32</b>	<b>\$0.33</b>
<b>Cross Sector(f)</b>	<b>0</b>	<b>34</b>	<b>- \$2.03</b>	<b>-\$2.03</b>
<b>Totals(f)</b>	<b>503.67</b>	<b>3,975</b>	<b>-\$2.40</b>	<b>\$0.22</b>
<p>Notes &amp; Key:</p> <p><b>a) Negative cost indicates a positive return to investor/government</b></p> <p>b) 'Nameplate' or maximum operating output of installed generation</p> <p>c) Average Investor Cost = cost to CEFC as investor (including Government cost of capital and operational cost)</p> <p>d) Average Cost to Government = cost to government as funder (CEFC cost + Federal Grants received)</p> <p>e) Buildings includes retail, tourism, hospitality, services, property, state and federal government, local government (including street lighting) and education, hospitals etc.</p> <p>f) Includes an estimate of effect of unapplied demand aggregation financing programs</p>				

In its operation, the CEFC has invested across a broad base of technologies which will improve Australia's emission reduction options and help lower their cost.

The CEFC has added to the expertise and shared learning across the finance sector to build Australia's capacity to fund clean energy projects.

The CEFC makes its investment decisions independently, based on rigorous assessment of the commercial business case, detailed due diligence and risk assessment on all projects, ensuring only those projects likely to deliver a return on investment in both an economic and an emissions reduction sense are supported with CEFC funding.

The CEFC investment portfolio to date has been successful in creating jobs, growing Australian businesses and increasing the deployment of low carbon and renewable technologies across the nation.

The CEFC has demonstrated that it represents a positive cost-benefit outcome for Australian taxpayers, businesses, the economy and the environment. Australia has made a valuable investment in establishing the CEFC as a flexible and low cost policy tool.

Combining market know-how in both finance and energy technology, and the staff and assets of Low Carbon Australia, the CEFC has a proven capacity to mobilise private capital to achieve emissions reduction.

## 2. Scope of submission

**This submission will confine its direct comment to the Clean Energy Finance Corporation (Abolition) Bill 2013 (the Bill).**

However, we acknowledge some commentary may have relevance to the Clean Energy Legislation (Carbon Tax Repeal) Bill 2013 and associated Bills.

The submission examines:

- the record and achievements of the CEFC and Low Carbon Australia in financing Australian based emissions abatement and clean energy projects over the past three years.
- the rationale for the Bill;
- the impact of the abolition specifically with respect to the Budget and more generally to the interface of the finance and energy markets; and
- commentary about the CEFC.

The submission also focuses on the private and government sector experience within the CEFC, incorporating commercial market insight and public policy outcomes and accountability, outlining the role a body such as the CEFC can play in assisting the Government to meet its objectives under the Direct Action policy framework.

In addition to this, the CEFC has been successful in building a broader financial market appetite for investment in the sector for future sustainability without Government support necessary for the longevity of these Government initiatives. In this respect, it is important that this submission be read in conjunction with the submission the CEFC has submitted to the Australian Government's *'Emissions Reduction Fund Terms of Reference'*.

### 3. The rationale and role the Clean Energy Finance Corporation plays

#### Expert Review Panel

The design of the CEFC is built on the CEFC Expert Review, after extensive public consultation and expert input. The CEFC's investment decisions are made on a rigorous commercial basis independent of Government by a pre-eminent Board of accomplished Australians – all with a private sector background.

The CEFC operates transparently and accountably under its Act, obligations under the CAC Act and under a range of other laws applicable to Australian financial sector entities.

The CEFC was created following a process of consultation and expert consideration. A panel of experts was commissioned by the Australian Government consisting of a team of eminent business people and experts including the Chair, Jillian Broadbent AO from the Reserve Bank of Australia; Mr Ian Moore from Challenger Infrastructure Fund; and Mr David Paradise of Paradise Investment Management. Input into the review process was received from other eminent Australians such as Professor Ross Garnaut.

As part of the review process, the panel considered over 170 submissions from renewable energy companies, integrated and independent electricity retailers, infrastructure operators, financial institutions, the community and individuals – both domestically and internationally.

The Expert Review Panel final report released in March 2012 determined that there was a need for a CEFC-like mechanism and released a suite of recommendations about the structure of the CEFC that have been largely adopted.

Subsequent demand from the market, as outlined in the Project Pipeline section of this submission has proved the Panel's findings to be justified.

#### Passage of the CEFC Act 2012

The *Clean Energy Finance Corporation Act 2012* was passed by the then Australian Parliament in July 2012.

During the passage of the Bill, there were several critiques of the CEFC as a concept around its risk appetite, and the potential for failed investments and losses by the Corporation (for example, a 7% loss reserve was in fact accounted for by The Treasury).

In practice none of these have been proved valid, with the CEFC adopting a commercial approach have placed the CEFC in an operating envelope that is more conservative in its investment approach through:

- the selection of eminent Australians with commercial experience to fill the Board
- the Board's consequent selection of a similarly solid CEO and Executive
- the Investment Mandate issued by Australian Government; and
- the practice and policies of the Board.

The best demonstration of the positive impact and prudent operation of the CEFC in practice is what has been achieved after just one year since the Act was proclaimed – see Box 1 below.

**Box 1: Overview of the CEFC's Achievements– August 2012 to August 2013**

- CEFC funded projects involve over 500MW of clean electricity generation capacity installed or supported
- The CEFC has developed a total portfolio of \$536 million and through our co-finance partners have invested in projects over \$2.2 billion in value
- The CEFC is delivering abatement at negative cost (i.e. benefit) to the taxpayer of \$2.40 per tonne of CO2 abated (net of government cost of borrowing) \$2.90 of private sector investment attracted for every \$1 the CEFC invests
- The CEFC is investing across a broad range of technologies including wind, solar, energy efficiency and low emissions technologies
- The CEFC invests in projects that are demonstrating the benefits of proven technologies in the Australian market
- The CEFC has conducted active discussions with 37 proponents for \$4.5 billion in projects and initial assessment of a further 142 projects together representing 179 projects and \$14.9 billion of opportunity
- The CEFC has 39 investments in the portfolio to 20 August 2013
- The CEFC's investments will deliver an estimated 3.88 million tonnes of CO2-e abated annually
- CEFC investments assist in building Australia's clean energy supply chain capability
- The CEFC is funding projects in regional and rural Australia, supporting 21st century jobs in local communities
- Many industries are benefiting from CEFC financing, including agribusiness, property, manufacturing, utilities and local government
- Co-financing is integral to the CEFC strategy. Through matched private sector funds of \$2.90 for each \$1 of CEFC investment, the CEFC has been able to catalyse over \$1.55 billion in non-CEFC private capital investment in projects and programs to deploy renewables and to improve energy efficiency
- The 11 investments originated by the CEFC to date exceed the five-year Australian Government bond rate. The CEFC investments to 20 August 2013 carry an average yield of 7.33 per cent. The five-year bond rate across the portfolio was 3.11 per cent.

**How the CEFC works**

The CEFC operates as a sector-focused financial institution, with strong financial and energy sector skills to address deal structuring and risk issues so transactions can proceed through market based support and long-term financing.

The economy requires long-term capital, long-term commitment and focused expertise to move efficiently towards a lower carbon future. The CEFC's 2018 Portfolio Vision is shown at Appendix A, setting out the parameters of its investment approach, targets and outcomes.

To 20 August 2013, and including former assets of Low Carbon Australia, the CEFC has developed a portfolio of investments totaling over \$536 million that assists in funding projects with a value of over \$2.2 billion. Our current portfolio represents a diverse mix across the economy, with projects comprising 56 per cent of renewables, 30 per cent in energy efficiency and 14 per cent in low emissions technologies.



The CEFC's funding structure under the CEFC Act means we are able to provide longer-term fixed-rate financing solutions to match the long-term investment horizon in this sector. For example, the CEFC can provide the term flexibility required for investments like Environmental Upgrade Agreements where the term of an investment could extend, as ultimate collection responsibility resides with local councils.

The CEFC's commercial approach to investment has meant that it has built a strong risk management culture and established robust risk management and assessment procedures and the capability to manage risk prudently.

By design, the CEFC provides a number of important market 'enablers' to facilitate increased flows of investment:

1. The CEFC's focused capabilities and experience gives the Corporation a capacity which is unique. Our skills enable the CEFC to work with the market to develop opportunities and to reshape projects that otherwise may not proceed.
2. The CEFC's public ownership and purpose allows the CEFC to invest more time, effort and resources in our transactions which have public policy benefits that we value. The transactions might be small, yet still complex, such as councils, hospitals and community wind farm projects. They might be remote and involve special challenges like transmission issues or first in-kind technology that can take more than a year to reach financial close. They might involve a range of skill sets that are not easily assembled in larger financial institutions such as energy resources, internationally recognised technology and high-level engineering skills.
3. The CEFC's sector specialised team enables it to consider investment in all classes of capital together, from equity through to debt with structuring responsive to client needs.

Co-financing is integral to the CEFC's strategy and interaction in the market. Through matched private sector funds of \$2.90 for each \$1 of CEFC investment, the CEFC has been able to catalyse over \$1.55 billion in non-CEFC private capital investment in projects and programs to deploy renewables and to improve energy efficiency.

The CEFC has developed new aggregation finance and corporate facilities which has increased awareness and adoption of energy efficiency across a broad market sector. This has encouraged the development of new employment opportunities and assisted the growth of new enterprises.

The CEFC's participation in the market provides liquidity to ensure efficient pricing. Our lower cost of funds, flexible structuring and capacity to match the term of the financing to the life of the assets has allowed us to de-risk transactions so that private financiers become involved.

The CEFC has helped create a demonstrable improvement to the flow and diversification of funds into the sector – in particular attracting funds from new sources, including European and Asian institutions for the first time in this sector in Australia, working to crowd-in (not crowd-out) capital from new and existing sources.

The CEFC's participation in the market to date has been largely without concessionality, on the basis of internationally accepted terms and returns for the sector. The CEFC participation on a concessional basis is assessed case-by-case after evaluating the externalities that the project would generate and the nature of the impediments to the project otherwise proceeding without CEFC participation.

The CEFC has been able to facilitate Australian content through persuasion rather than handouts.

CEFC involvement with other co-financiers in aggregation finance for smaller scale investments in the energy efficiency field for small-to-mid-sized businesses is providing a demonstration of the benefits to encourage others to follow. The CEFC's role is to develop these market segments with a co-finance and/or delivery partner with a view to exiting once the market is established.

Financings have been progressed across the full spectrum of the market, with participants highly responsive to the CEFC's flexible, interactive and less prescriptive approach. The Australian market has an appetite to progress emissions reduction investments, but needs a catalyst to do so.

*"We were delighted to have the opportunity to work with CEFC on our first renewable investment in Australia. Throughout the whole process we found CEFC flexible and were very pleased that they brought an innovative financing solution to the table that allowed us to increase the level of Australian content in the project. We would have no hesitation in working with them again given the opportunity."*

**David Swindin, Head of Credit Markets Asia Pacific, Banco Santander**

Some of the key projects are:

- Co-financing with ANZ and EKF (the official export credit agency of Denmark) of an approximately \$280 million package for the construction and operation of a new wind farm near Taralga, NSW is enabling this major renewables project to proceed. The Taralga Wind Farm will use Australian manufactured towers made in Portland from BlueScope steel, providing a boost for the local wind engineering sector, and further develop Australian manufacturing capability and supply chain scale, creating valuable business and regional manufacturing employment.
- The \$100 million Energy Efficient Loan facility co-financed by the CEFC with Commonwealth Bank will provide funding to smaller businesses, particularly those from the manufacturing sector, to upgrade facilities and equipment to be more energy efficient and reduce energy costs, with the additional positive effect of reducing carbon emissions.
- CEFC participation in the Macarthur Wind Farm refinancing and sale by Meridian Energy demonstrated that developers of large-scale renewable energy projects in Australia could successfully complete a development-finance-exit cycle. This facilitated the developer's ongoing activities in Australia. Meridian's selection of Australia as a listing home for its IPO will deepen the market's understanding of renewable energy investments as an asset class. The CEFC's finance helped ensure efficient market pricing and encouraged other banks to participate.
- The CEFC is providing \$75 million to Energy Developments Limited (EDL) for investment in new projects generating energy from waste coal mine gas and landfill gas. Fugitive emissions from coal mines and landfill are potent greenhouse gases. Using them to generate electricity that would otherwise come from higher emissions sources creates environmental and economic efficiency benefits. EDL will also use CEFC funds for remote generation solutions involving hybrid technologies that use renewable energy.

- The CEFC and National Australia Bank are co-financing Australia's largest beef company, Australian Agricultural Company Limited (AACo), for the installation of solar photo voltaic (PV) units across 15 grid-connected sites in Queensland. The solar PV systems will enable AACo to cut current grid energy consumption and associated carbon emissions by just under 30 per cent.
- The CEFC and National Australia Bank's co-financing of an innovative waste-to-energy project at poultry business Darling Downs Fresh Eggs provides a good demonstration of small-scale projects. This project draws upon CEFC strategic alliance partner and leading biogas based renewable energy company, Quantum Power, who is working with its own strategic partner, US company RCM International to design and deliver the \$2.86 million onsite power plant for the family-owned poultry business at Pittsworth in southeast Queensland. The project will reduce the business's grid electricity usage by 60 per cent in the first year and, once demonstrated, is both replicable and scalable across Australia. The CEFC has received strong market interest for aggregation finance and delivery models for productivity enhancing projects like this one.
- The CEFC is providing up to \$60 million of senior debt finance to Moree Solar Farm for the development and construction of a 56MW solar photovoltaic power plant. The Moree Solar Farm is a large scale single-axis tracking PV solar energy project located in northern New South Wales. The CEFC's participation provides a precedent in the Australian market for financing large scale solar PV on a merchant basis, bridging the required debt funding in the immediate term to enable the sponsors to proceed to construction and provide flexibility to secure a PPA in the future. Its tracking technology will allow the facility to capture a higher volume of peak priced electricity.
- The CEFC is co-financing Sundrop Farms' 20 hectare greenhouse development near Port Augusta, South Australia, which will use solar-thermal technology to desalinate seawater to provide irrigation, and to heat and cool the greenhouses. The Sundrop Farms facility will produce over 15,000 tonnes of tomatoes a year for metropolitan markets across Australia. The project shows how new technology can be applied to transform the Australian economy and create new industries in regional areas. Once implemented, this project will be a demonstration of sustainable horticulture practices at scale. It addresses the challenges of food security, water and energy availability.
- After 10 years of development, the CEFC provided finance to enable the final stage of the Portland Wind Energy Project to start construction. This is a world-class wind site and the project involves significant local industry participation. It has strong community support, all of which make this a hallmark project, demonstrating the CEFC's catalytic role.

These examples, and further case studies are available at Appendix C to this submission.

### **Achieving Lowest Cost Abatement**

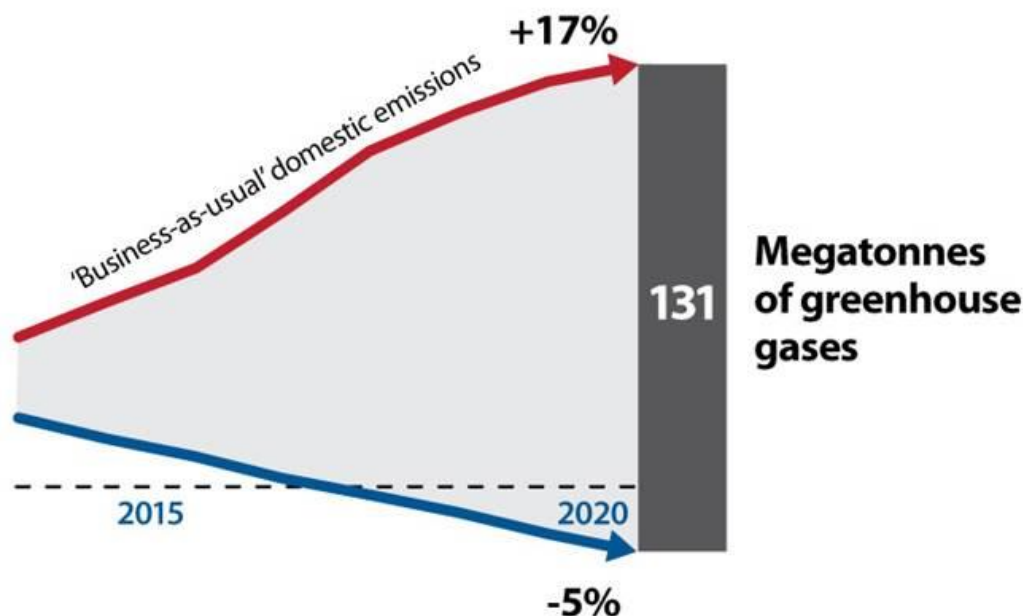
The CEFC is achieving abatement efficiently and at low cost emissions reductions at a much lower budget cost to many other programs, and the investment model is generating abatement which is delivering a financial return for the CEFC, for the Government, for business, for the taxpayer and the economy.

The CEFC has achieved annual abatement of 3.88 million tonnes CO<sub>2</sub>e. Importantly, the CEFC has delivered this abatement at a positive return to taxpayers. The CEFC has

achieved cost of abatement at negative \$2.40/tonne – that is, inclusive of government borrowing costs, the CEFC actually returns money while abating carbon.

Based on estimates of the abatement challenge from the Climate Change Authority, Treasury and the former Department of Industry, Innovation, Climate Change, Science, Research, and Tertiary Education (DIICCSRTE), this 3.88 million tonnes represents about 3% of the 131Mt emissions reduction required to meet the 5% below 2020 target (see Figure 2 below).

**Figure 2: The Emissions Reduction Target<sup>1</sup>**



The cost-benefit of the CEFC investment model compares most favourably with many other programs, in terms of its cost to government of emissions abatement. The CEFC's portfolio of emissions reduction investments returns money to government net of operating expenses and government cost of capital.

The CEFC invests for positive return. We take a commercial approach to our investments and assess opportunities on a case-by-case basis, seeking projects which will repay capital and generate a positive return such that our overall portfolio income covers our operating costs and delivers a minimum return of the five-year bond rate.

All the investments undertaken by the CEFC so far exceed the five-year Australian Government bond rate. The CEFC investments to 20 August 2013 carry an average yield of 7.33 per cent. The five-year bond rate across the portfolio was 3.11 per cent.

In this regard, the CEFC model has demonstrated its capacity to deliver low cost abatement which is a positive for the economy.

Some examples of CEFC portfolio investments are outlined in Boxes 2, 3 and 4 below.

<sup>1</sup> Department of the Environment (2013) *Emissions Reduction Fund: Energy efficiency stakeholder meeting - 8 November 2013* (citing Climate Change Authority, Treasury and DIICCSRTE, 2013).

**Box 2: Abatement impact – Energy Developments Limited (EDL)**

A deal between the CEFC and EDL will create abatement of an estimated 500,000 tonnes of CO<sub>2</sub>-equivalent gas by targeting reductions in waste gas from coal mines.

Waste coal mine gas is 21 times more damaging to the environment than carbon dioxide and poses a major safety hazard in underground mines.

Similarly, landfill gas has a typical global warming potential many times that of carbon dioxide.

The CEFC's \$75 million to EDL enables development of a significant pipeline of new projects including generating energy from waste coal mine gas and landfill gas, and remote hybrid renewables projects.

The first project to be financed is EDL's expansion of its Moranbah North power station which will increase its low emissions energy generation capacity from 45 to 63 megawatts and increase its carbon abatement by 40 per cent.

**Box 3: Abatement impact - Moree Solar Farm**

The CEFC-backed Moree Solar Farm will abate more than 95,000 tonnes CO<sub>2</sub>e annually.

The 350 hectare, 56 MW Moree Solar Farm will use single-axis tracking technology that allows its 250,000 solar photovoltaic (PV) panels to tilt to face the sun as the earth rotates. This technology has the potential to produce 30 per cent more energy than a farm using fixed position panels and to capture a higher volume of peak priced electricity.

The project is sponsored by global solar company Fotowatio Renewable Ventures (FRV) and global clean energy solutions provider Pacific Hydro.

The CEFC is providing \$60 million in senior debt finance and its participation in this transaction provides a precedent in the Australian market for financing large-scale solar PV on a merchant basis.

**Box 4: Abatement impact – Australian Paper**

Low Carbon Australia financed \$9.9 million towards Australian Paper's \$90 million deinking recycled paper plant at Maryvale Mill in the Latrobe Valley, Victoria.

The plant is expected to commence operations next year and will reduce Australian Paper's carbon emissions by up to 270,000 tonnes annually.

By increasing its range of recycled content papers and using more recycled fibre, Australian Paper expects to reduce carbon emissions by 6.75 million tonnes over the lifetime of the plant.

The plant is expected to divert up to 80,000 tonnes of waste paper from Australian landfill or export each year and will more than triple the company's use of premium recycled fibre.

This loan has been integrated into the CEFC portfolio.

## Positive Impacts

The CEFC is catalysing emissions reductions, and the investment model is generating positive financial returns for the CEFC, for the Government, for business, for the taxpayer and the economy, while at the same time generating positive externalities and significant potential to benefit enterprises and communities, including those in regional Australia.

Aspects of the positive impacts arising from the CEFC include:

- Positive external impacts that result from technologies moving faster along the innovation chain, down the cost curve and through greater acceptance in financing markets. They also flow from improvements in technology design, supply chain depth, construction practices, operating skills, financing structures and market risk appetite
- Expanding the number of renewable and low carbon technologies deployed in Australia and developing additional new technologies increases future energy optionality. The CEFC de-risks such projects which helps 'prove-up' technologies new to the Australian market, supporting the completion of 'first wave' projects which employ a new or emerging technology, which in turn lowers the cost for subsequent similar projects
- Leveraging and catalysing private sector funds into successful emissions reducing investment, creates advances in technology, industry expertise and improving practices and skills, allowing more transactions to be performed
- Expanding the investor base to encourage the participation in renewable and low carbon energy investment across all investor classes (such as retail investors and superannuation funds) broadens the knowledge base of the sector and reduces the cost of capital that the sector faces
- Building and maintaining local market capacity in terms of technological know-how, engineering, manufacturing capability or localised supply chains creates jobs for Australians and will positively impact domestic GDP; and
- The CEFC applies its sector expertise and experience in working with proponents of innovative projects, helping create a sector-based 'can-do' environment which will help promote further innovation.

*"The Taralga wind farm project's decision to use Australian engineered and built towers is a major boost for the Australian wind engineering sector. This project comes at a critical juncture for the development of the Australian wind tower industry, helping it to maintain competitiveness and assisting its position for potential for growth in the coming years."*

**Stephen Garner, General Manager, Keppel Prince Engineering**

Consistent with our global counterparts in the USA, UK, Germany, Brazil and China, the CEFC, too, has shown itself to be an effective and low cost emissions abatement tool for Government.

Australia has made a valuable investment in establishing the CEFC as a flexible and low cost policy tool. Combining finance and energy technology, market know-how, and the

staff and assets of Low Carbon Australia, the CEFC has demonstrated a capacity to mobilise private capital to achieve emissions reduction.

### **The CEFC is addressing market barriers**

Overwhelmingly, the CEFC is required to address market barriers and facilitate private sector financial flows to the clean energy and energy efficiency sectors. The reason why the CEFC is needed as an institution is typical market failure:

- *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. Availability of funds for energy efficiency projects is 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, in recent 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. 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). Therefore projects may meet internal investment hurdles but still not be implemented.
- *Complexity of decision making and high transactions costs:* Energy efficiency and clean energy technologies requires understanding the issues and solutions which are 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 requires patient capital.
- *Scale:* Energy efficiency and clean energy projects may be profitable but are largely small, which is exacerbated by the high transaction costs.
- *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.
- *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.
- *Complexity and internal decision making:* Once a business case is established for a project, the decision making process within organisations, between project initiation and financial close (i.e. obtaining funds for project implementation) takes considerable time. 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. These can include:
  - The financial officer (including Treasury, tax and CFO) with capital investment budget responsibility

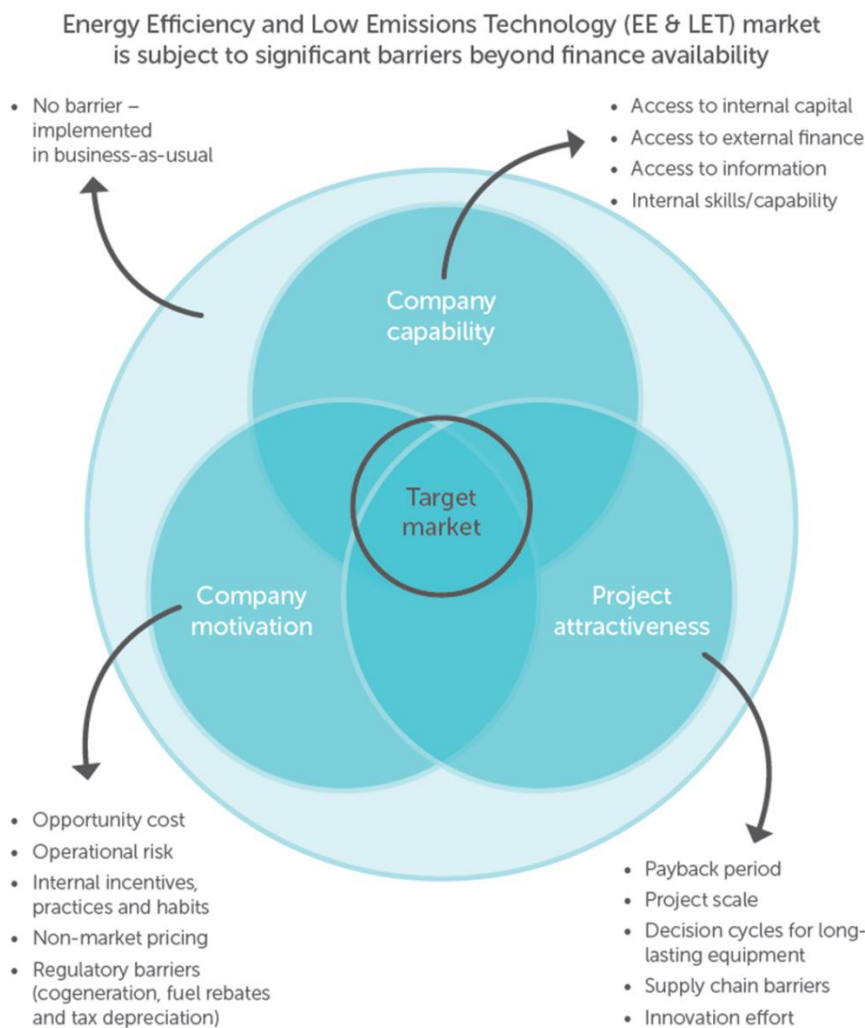


- The facilities/operations management, with responsibility for ensuring cost effective and reliable operation of the organisation's assets and facilities
  - The sustainability management, with responsibility for carbon emissions and CSR
  - The decision makers with the authority to ultimately approve their organisation entering into a financial arrangement e.g. corporate executives
  - 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.
- *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.
- *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.
- *Construction requires long project lead-times which in turn require 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 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 financial close.
- *Scale and depth of the clean technology sector:* A still developing market means there are inherent capacity constraints in terms of both skill and ability to successfully manage projects through to conclusion.

In the area of energy efficiency, access to upfront finance, access to suitable information about available technologies, global economic pressures and uncertainty surrounding government policy direction have been shown to be very real impediments to achievement of the energy productivity and costs savings that investment in energy efficiency would deliver, as well as being the most cost-effective path towards a low carbon economy (Figure 3 below illustrates).



**Figure 3: Typical non-financial market barriers**



The CEFC is building on energy efficiency programs established by Low Carbon Australia, to improve access to finance so that organisations in all sectors can take advantage of the energy productivity gains and cost reductions available through implementing more efficient and cleaner technologies.

There has been strong and diverse interest in financing for energy efficiency from sectors across the economy including manufacturing and industry, commercial building, government, agriculture, mining, retail and utilities.

Financing programs have been designed to cater for a broad spectrum of business needs, include leasing finance, on-bill finance, and finance for commercial property retrofits, finance that is tied to technology installations carried out by accredited vendors and individually tailored direct loans. The CEFC is also working with a range of co-financiers and through strategic alliances to catalyse investment and help smaller manufacturers improve their energy productivity through improved access to direct loans, on-bill finance and equipment leasing arrangements – see Box 5 below for examples.

### **Box 5: Market Barriers – small to mid-sized project finance**

The CEFC is partnering with Commonwealth Bank to provide finance to the \$100 million Energy Efficient Loan program aimed at manufacturers and other businesses upgrading their equipment and processes. Loans are available through Commonwealth Bank for upgrades including but not limited to lighting, power factor correction, variable speed drives, building management systems and metering, boiler upgrades, heating ventilation and air-conditioning (HVAC) upgrades, cogeneration or trigeneration installation and small-scale solar PV.

Origin's On-bill finance, originally developed with Low Carbon Australia, now integrated into CEFC, helped Sydney manufacturer Joyce Foam Products reduce its lighting bills by more than 50 per cent through a \$95,000 lighting upgrade to its 40-year-old foam manufacturing plant at Moorebank in Sydney's west and helped Boral Ltd to cut the energy costs of a major shared service facility by more than one quarter. The \$600,000 lighting upgrade to its Greystanes House at Prospect in western Sydney was financed through Origin's on-bill finance.

While most CEFC funds are being deployed in conjunction with co-financiers from the private sector, on occasion there may be a call for CEFC finance without one, for example:

- Loaning to governments, including local governments or government entities via their Treasury
- Policy risk, for example, financing investments threatened by abolition of the RET.

The range of investments undertaken by the CEFC is building capacity in the industry and delivering a positive impact across a broad range of technologies and a wide range of industries from utilities to government to retail. Regional projects being funded by the CEFC build new businesses and capability across regional centres in Australia. There are several ways in which the CEFC builds industry capacity:

- The CEFC attracts new finance to the Australian market for investment in emissions reduction – the CEFC is working to help improve the flow and diversification of funds into the sector, in particular from new sources, including local and international finance, superannuation funds and national funding institutions
- The CEFC can assist project proponents as an arranger, helping to develop the business case and introduce the proponents to other financiers to seek transaction close
- The CEFC can build capacity within the finance sector by participating in transactions to de-risk the investment (for example by familiarising the financier with new asset types or through reducing their size of exposure)
- The CEFC works with the finance sector to develop and deliver new financial products to the market, specifically tailored to the needs, attributes and emerging delivery models for new technologies (e.g. distributed generation) and energy efficiency – in turn enabling small and midsized businesses to access finance
- The CEFC works with industry peak groups to promote opportunities in reducing energy costs; and
- Large scale projects are required to develop Australian Industry Participation Plans (AIPPs), which help to open up supply opportunities to Australian suppliers of goods and services.

*"The installation of a 229 kW cogeneration system at the Oasis Aquatic Centre has been a very successful project for Wagga Wagga City Council in partnership with CEEP and the Clean Energy Finance Corporation. The commissioned plant is now in operation and is producing a significant reduction in energy costs while also providing environmental benefits through the reduction in carbon emissions"*

**Ben Creighton, Manager of Oasis Aquatic Centre Wagga Wagga**

In addition, the CEFC is developing a number of innovative approaches to scale up and deepen the Australian clean energy and energy efficiency market, including:

- Investing in community renewable projects
- Creating a green residential mortgage product
- Expanding EUA loan offerings
- Working with manufacturers and supply chains to facilitate jobs growth in the low carbon economy
- Developing a listed ungeared vehicle for pension funds and retail investors to benefit from stable cash flows generated by the renewables sector
- Supporting remote generators to reduce dependence on diesel generators
- Encouraging demand management and augmentation activities to reduce transmission expenditure
- Developing financing options for rooftop residential and commercial solar
- Further supporting the expansion of utility scale solar where feasible
- Expanding co-finance vehicles to target smaller to mid-sized projects for improved energy efficiency and small scale emissions reduction.

The CEFC is a highly effective monetary policy tool. It increases the availability of finance to the Clean Energy sectors and reduces the cost of that finance. This approach to encouraging targeted growth is used successfully by many international governments.

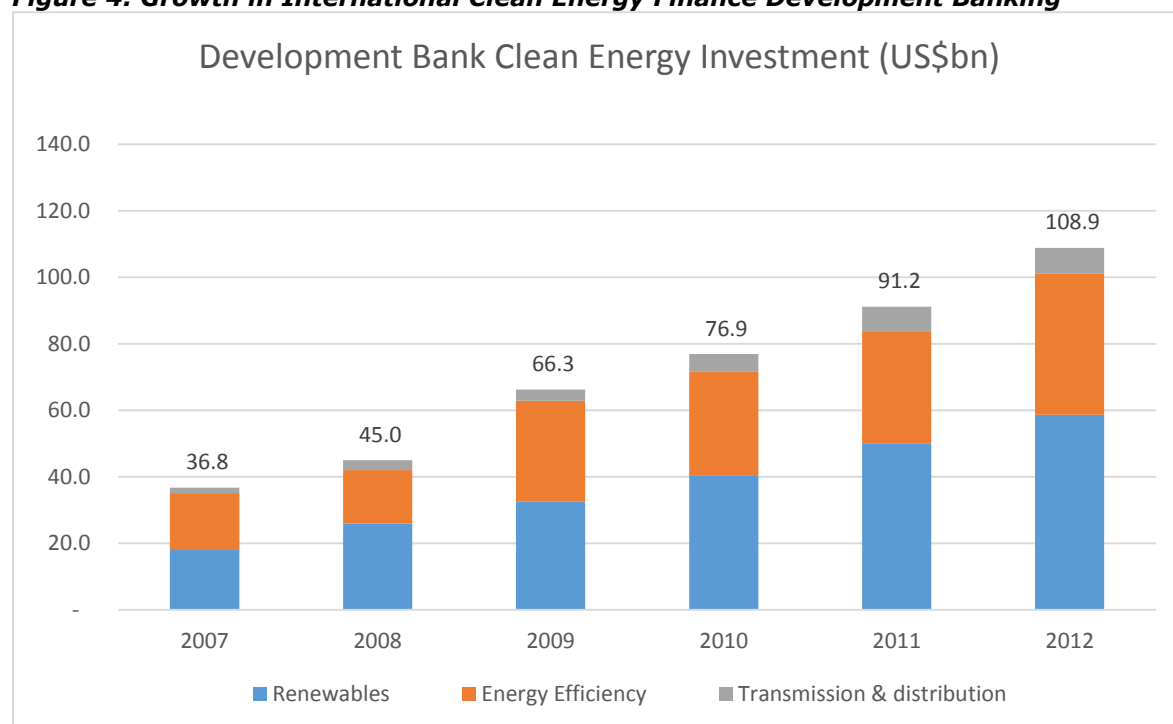
### **International Comparisons**

The financing model of the CEFC has been recognised as a valuable tool across the world. Government organisations similar to the CEFC operate in the United States of America, the United Kingdom, Europe, Asia, Latin America and the Middle East.

These financing bodies successfully broaden the base of their domestic clean energy industries. The CEFC can leverage on their experience and seek to capture similar benefits for Australia.

Multilateral and national development banks have been increasingly important contributors to renewable energy asset finance. Bloomberg New Energy Finance estimates suggest that these institutions provided US\$59 billion of finance to renewable energy in 2012 and US\$109 billion into clean energy (Figure 4 below refers - see also Appendix B for more details of CEFC's international peers).

**Figure 4: Growth in International Clean Energy Finance Development Banking<sup>2</sup>**



<sup>2</sup> Bloomberg New Energy Finance.

## 4. The Clean Energy Finance Corporation (Abolition) Bill 2013

During his second reading speech on the CEFC Abolition Bill delivered on 13 November 2013, the Treasurer, the Hon Joe Hockey MP confirmed that this Bill delivered on the Coalition's 2013 Federal election promise made on 5 August 2013 to repeal the *Clean Energy Finance Corporation Act 2012* and abolish the Corporation if elected.

This reflected the then Coalition Opposition's previous policy statements on the CEFC articulated in the media and in issued media releases throughout the first half of 2013, including calls on the Board of the CEFC to cease its investment activities entering into contracts or releasing funds.

### **The CEFC's Responsibilities under the CEFC Act**

The functions of the CEFC are set out in the CEFC Act and it is directed to perform its functions via the Investment Mandate. The CEFC is obliged to carry out its statutory purpose and functions and continue to act responsibly and commercially until such time as the CEFC Act is repealed by the Parliament. As a Commonwealth authority, the CEFC will serve the Government of the day for as long as the authority remains in existence.

The CEFC acts through its Board, the CEO and its staff - all of whom are paid out of public monies to carry out these CEFC functions.

Any requests to suspend investment functions do not override the responsibility of the CEFC and its duty to act in the best interests of the CEFC and keep exercising its statutory functions according to law until such time as the law is changed.

The way that the CEFC and its officers proceed to carry out their functions under the CEFC Act, as a result of legislation in the Parliament to abolish the CEFC must be determined independently by the CEFC. It is for the CEFC to decide for itself the most appropriate action to take in exercising its functions in light of the proposed abolition of the Corporation.

However, the proposed abolition of the CEFC is a relevant consideration in deciding how the CEFC's investment function is performed. The exercise of the investment function by the Board involves, amongst other things, a decision as to the CEFC's ability to meet its contractual obligations in connection with any investment, including in respect of the CEFC's continued existence and ability to access funding and the possible consequences of the proposed abolition of the CEFC on investments that the CEFC may enter into.

The CEFC may take a number of considerations into account in exercising its investment function including the level of uncertainty arising from the proposed abolition, whether the proposed abolition could preclude the CEFC from meeting any of its contractual obligations and what steps the CEFC takes to mitigate this risk. After making these assessments, the CEFC continues to perform its investment function and in so doing, is keeping counterparties and potential counterparties fully informed of the circumstances surrounding the CEFC.

## 5. Impact of Abolition of the CEFC

In the event that the CEFC Abolition Bill is passed by both houses of Parliament, the Board and Management of the CEFC will work ensure a smooth and professional transition.

The CEFC's existing assets and liabilities would be transferred to the Treasury Department. In introducing the Bill, the Government stated that the Commonwealth will ensure an orderly transition of the CEFC's investments and minimal disruption to the clean energy market so business can continue as usual.

It is the CEFC's strong view that a disorderly shutdown of the Corporation is in no-one's interests and in the eventuality that the Bill is passed, the CEFC is committed to working professionally to transition the loan book across to the Commonwealth.

The Australian Government has also committed (via the Explanatory Memorandum) to 'honour all payments that are necessary as part of meeting our contractual obligations to committed investments. These obligations will be met from the CEFC's existing funding, which will be transferred to a new CEFC Transitional Special Account.'

In relation to loan agreements, the Bill sets up a Transitional Special Account to enable this to happen. The Explanatory Memorandum to the Bill states at 1.25: 'In assuming the assets and liabilities of the CEFC, the Commonwealth will establish appropriate arrangements so that the requisite resources and governance to effectively and efficiently manage those investments are in place.'

This is intended to give anyone dealing with the CEFC in the meantime a level of assurance that the Commonwealth intends to honour obligations protected by contract with the CEFC. The Corporation is ensuring in its dealings with project proponents that they are aware of the policy risk environment.

### Loss of Staff Expertise

As for staff, the Bill makes no provision for an on-going role so, unless the Government makes an alternate arrangement at 28 days after passage, they will be terminated if not prior.

The expertise and professional capability of the CEFC staff represents a unique high-performing asset within the CEFC. The loss of this adaptive and committed group of skilled professionals from the public sector will be significant and regrettable.

### Impact on the Budget bottom line

It has been claimed that the abolition of the CEFC will generate a saving over the forward estimates.

The Explanatory Memorandum to the Abolition Bill states at p3-4:

**Financial impact:**

*Abolishing the CEFC has the following fiscal balance and underlying cash balance implications over the forward estimates (\$millions):*

	2013-14	2014-15	2015-16	2016-17	Total 2013-14 to 2016-17
Underlying Cash Balance	\$9.6m	-\$5.2m	-\$27.2m	-\$59.4m	-\$82.1m
Fiscal Balance	\$177.4m	\$276.9m	\$191.4m	\$60.3m	\$706.1m

*These estimates do not make any allowance for the costs of shutting down the CEFC, such as employee redundancies and contract termination costs, nor do they make any allowance for the lower public debt interest costs of ceasing further CEFC investment. The overall impact on the underlying cash balance is negative, reflecting that no further CEFC investments will be made and therefore interest inflows will be lower.*

There are two important stories behind the numbers – (1) the concessionality charge and (2) the interest revenue the CEFC generates vs. cost of funds.

On the concessionality charge, the savings as presented in the Explanatory Memorandum to the CEFC Abolition Bill do not tell the full story. The Fiscal Balance only reflects a saving in the forward estimates period if the CEFC undertakes no further investments due to the way in which the ~\$300 million pa non-cash charge allowed for concessionality impacts on the Fiscal Balance.

It is important to note that this non-cash charge would reverse over future periods and therefore if the out-years were displayed you would see the more accurate reflection of the policy is actually a **cost** to the Fiscal Balance (note: much of the unwind of the costs is outside the forward estimates period). This is illustrated at Table 2 below.

**Table 2: CEFC abolition - Concessionality impact**

	2013-14	2014-15	2015-16	2016-17	Total 2013-14 to 2016-17
Fiscal Balance	\$177.4m	\$276.9m	\$191.4m	\$60.3m	\$706.1m
Add back net Concessionality (non-cash) charge	\$167.3m	\$285.0m	\$256.2m	\$208.5m	\$917.0m
Fiscal Balance before concessionality	\$10.1m	- \$8.1m	- \$64.8m	- \$148.2m	- \$210.9m

Once at scale, the annual unwind of the concessionality charge is expected to approximate the annual new concessionality charge and therefore has no net impact on either Fiscal Balance or Underlying Cash Balance.

Secondly, on the interest generated vs. cost to government question, the accounting for entities like the CEFC are complex, so we have tried to illustrate below in both tabular and chart format the earnings that would be foregone and the reduction in Fiscal Balance and Underlying Cash Balance that the Commonwealth budget would suffer on an annual basis once the CEFC reached even a \$5bn Portfolio (out of the \$10 billion allowed in the CEFC Act).

The figures cited in the Explanatory Memorandum to the Abolition Bill only include financial impact over the forward estimates period from abolition of the CEFC. However,

this does not capture the full financial impact of abolishing the CEFC as it only addresses the initial years during which the CEFC is building up its base of investment.

To allow the Committee to better understand the financial impact of abolition, below is an illustration of the annual impact of abolishing the CEFC that should be expected once the CEFC reaches a conservative investment base of \$5 billion invested in energy efficiency, low emissions technologies and renewables (in other words, half of the CEFC Act's appropriations).

There are 3 scenarios shown below with varying assumptions around income yields achieved by the CEFC and costs incurred by the Australian Office of Financial Management's (AOFM) to fund the CEFC \$5 billion portfolio. For the purposes of this illustration, we have estimated the AOFM cost as the average of the 5 year government bond rate (consistent with the Benchmark Rate included in our own investment Mandate).

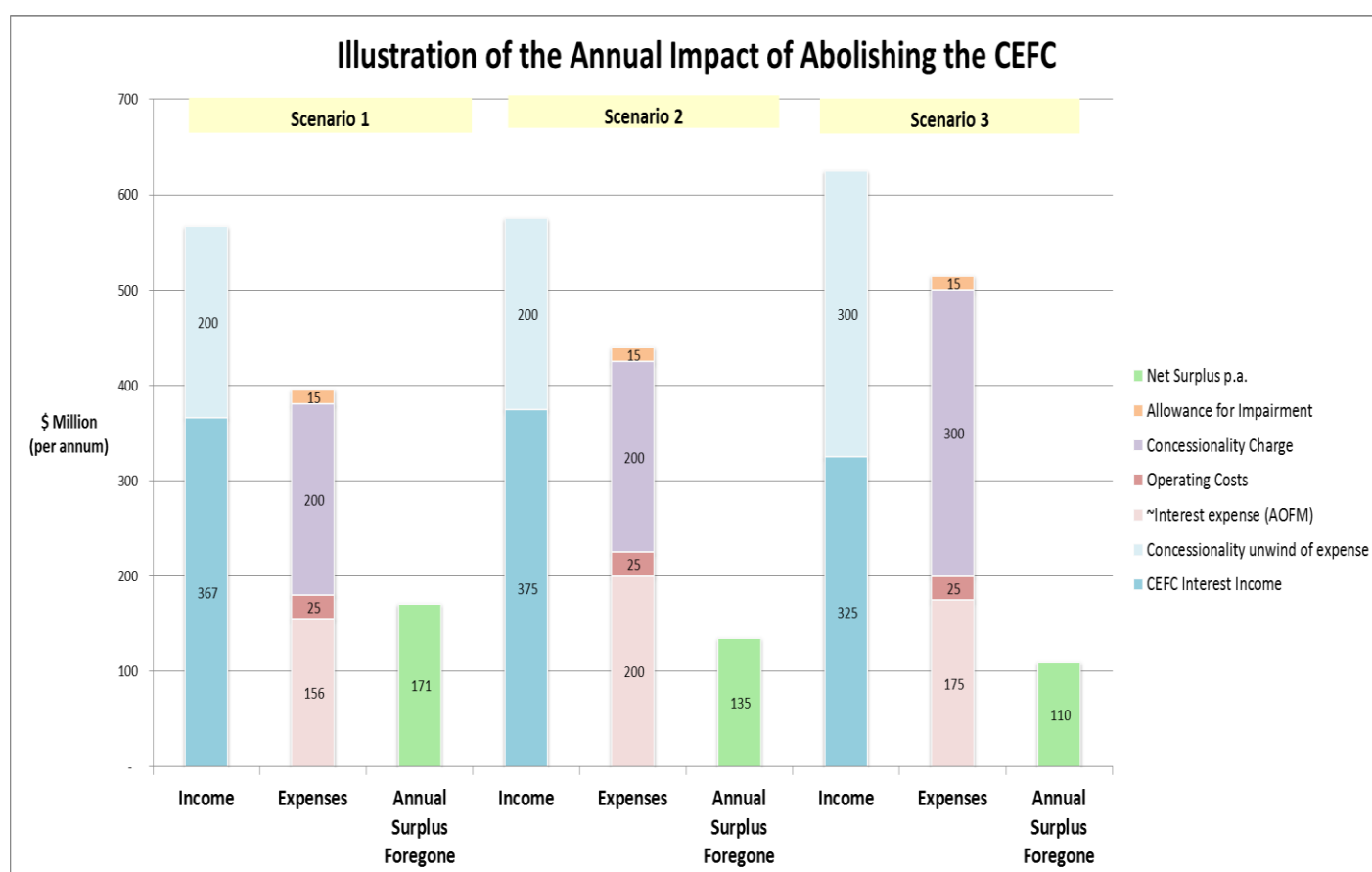
The table illustrates that on an investment base of \$5 billion the Government's annual Fiscal Balance will be worse off by between \$125 million and \$186 million pa and the Underlying Cash balance would be worse off by between \$110 million and \$171 million pa based on the assumed yields and AOFM cost of funding the CEFC.

**Table 3: Modelling the full impact of CEFC abolition on the Budget**

(\$million)														
				Annual Income			Annual Expenses					Net Annual Impact		
Scenario	Invested Principle	Average CEFC Yield Rate	Average 5 year LTGBR	CEFC Interest Income	Concessionality unwind of expense	Total Income	~Interest expense (AOFM)	Operating Costs	Concessionality Charge	Allowance for Impairment	Total Expenses	Net Surplus p.a.	Fiscal Balance	Underlying Cash Balance
Scenario 1	\$5,000	7.33%	3.11%	\$367	\$200	\$567	-\$156	-\$25	-\$200	-\$15	-\$396	\$171	\$186	\$171
Scenario 2	\$5,000	7.50%	4.00%	\$375	\$200	\$575	-\$200	-\$25	-\$200	-\$15	-\$440	\$135	\$150	\$135
Scenario 3	\$5,000	6.50%	3.50%	\$325	\$300	\$625	-\$175	-\$25	-\$300	-\$15	-\$515	\$110	\$125	\$110



**Figure 4: Diagram Modelling the full impact of CEFC abolition on the Budget**



The CEFC is very confident that this outcome will be realised.

The facts are that closing the CEFC will not save money, but come at budgetary cost and end a vital public policy tool that will provide long term benefits across the economy.

### Impact on the market and CEFC project pipeline

The CEFC has achieved a great deal in the short time it has been operational. For some of the projects the CEFC represented a cornerstone investor, enabling the recipient to get going raising market finance.

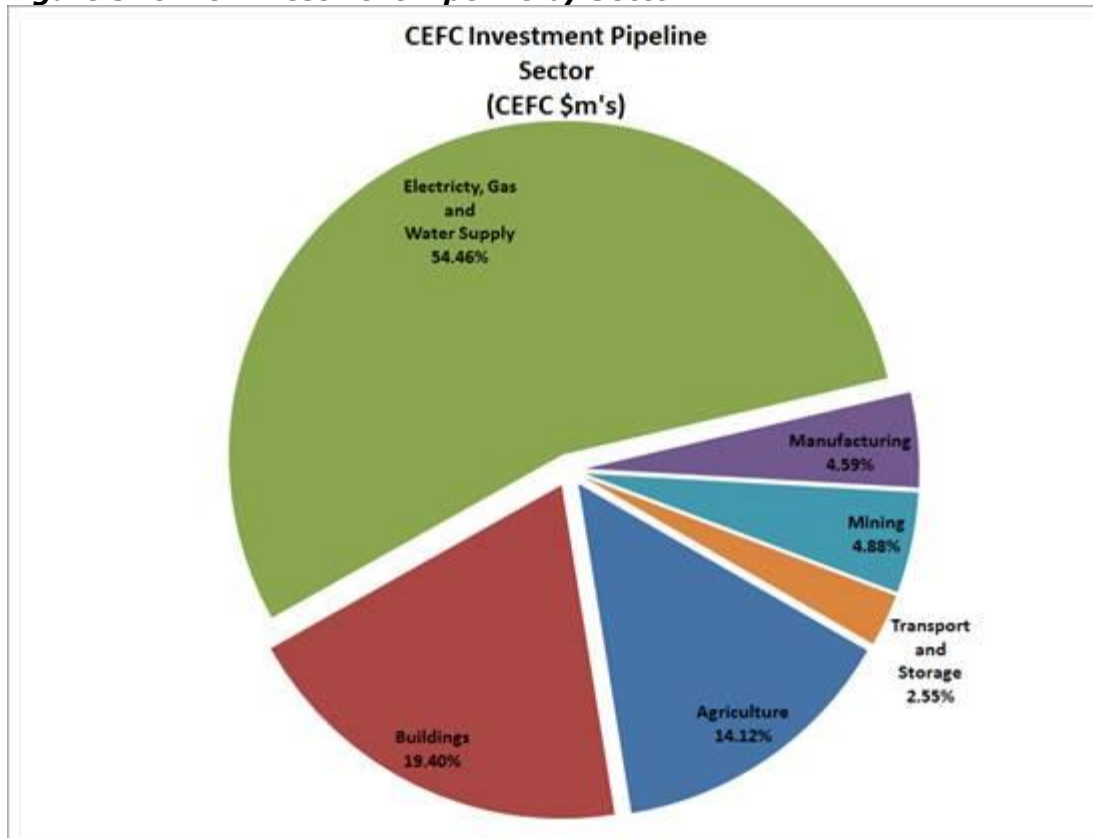
For others, the CEFC played a role in financing the construction phase, taking longer term, or taking a security position that enabled a gap in the market to be closed.

In addition, some of the foreign banks represented in larger syndicate-financed transactions would not have participated without the CEFC's government-owned imprimatur. The absence of the CEFC in the market could make it less attractive to some foreign institutions that may otherwise be prepared to invest in the sector.

Another way of assessing the possible impact on the market is to look at the level of demand experienced by the CEFC and the extent and nature of its pipeline of potential projects. As at 20 August 2013, the CEFC had active discussions underway with circa 37 project proponents, who were seeking CEFC finance of over \$2 billion (total project costs of over \$4.5 billion) and had received proposals at varying stages of development from over 170 project proponents seeking CEFC finance of over \$5 billion (with total project costs of an estimated value over \$14.9 billion):

- Over \$2 billion for utility scale renewable energy generation
- Almost \$2 billion for energy efficiency in buildings, manufacturing and other commercial sectors
- \$700 million for solar PV projects and aggregation funding; and
- \$268m for the mining sector.

**Figure 5: CEFC Investment Pipeline by Sector**



While not all of these projects would move to completion with CEFC funding, it is indicative of the strength and breadth of demand. Given that within only one year, the CEFC has been able to mobilise \$2.2 billion of total investment from its own \$536 million commitment, then it is possible to conclude that in the absence of the CEFC, significant opportunity to achieve emissions reductions in order to achieve the 2020 target from these sorts of projects will be lost.

This will have a significant negative impact on the clean energy sector as a result. This is not possible to readily quantify. Some worthy projects may eventually succeed in securing finance, possibly after delay, and possibly at higher cost than achievable in a deeper contested market with greater liquidity. Some worthy projects will not, and they will be lost to the economy.

Given the time frames of such projects (design, permitting, construction and commissioning) to be able to deliver effective emissions reductions, if there are significant delays and uncertainties in financing due to the abolition of the CEFC, this is further likely to impact on achievement of the 2020 abatement task and the RET.

### **Economic Impact on the Energy Sector**

More broadly, Australia has reached a cross roads in the further development of a reliable system of energy supply in a sparsely populated country the size of a continent.

What market participants and credible commentators understand about Australia's energy needs is that the underlying fundamentals of the energy market have changed.

Australia cannot simply return to a time when meeting rising energy needs was simply addressed by a central-planning model of commissioning monopoly state-owned generators to build new coal fired power plants to match demand:

- A good portion of the electricity sector has now been privatised or exposed to competition
- More efficient renewable and other distributed generation technologies are now available and this trend is only going to increase - there is enough installed or commissioned renewables generation running at zero fuel cost to already have fundamentally altered the market
- Similarly, disruptive change in energy efficiency technology, demand management, and storage coupled with rising costs have created a change in consumption patterns by energy consumers at both the household and heavy industrial level
- As is widely debated, linkage of Australia into the international gas market is likely to further drive up energy costs
- Regulatory uncertainty in the energy market in Australia is probably now the central cause of risk aversion to finance of all forms of significant scale energy generation.

There are a number of energy choices for Australia to make in the very near future and the choices made now are likely to affect the energy mix for the next twenty years and beyond.

Until recently there was an assumption in the market of broad cross-party support in just two areas of energy policy – a) maintenance of the RET to at least the current level and b) an unequivocal emissions reduction target of at least 5% below 2000 levels by 2020. However, even this minimum of consensus is now under some question.

We are a small, high cost country that cannot afford the luxury of an inefficient transition. Fluctuation in policy settings adds cost because they add risk. This is in addition to the ordinary risk levels that are inherent in the sector.

The CEFC has a unique financing role and ability to take a long term risk position and providing depth and diversity in the financing of infrastructure as Australia implements its energy choices. The CEFC plays a supportive role in the finance market into investment into any energy technology (bar nuclear or carbon capture and storage), that is, it lowers the carbon intensity of the current energy mix.

The CEFC model has demonstrated the capability and capacity to play this role responsibly and cost effectively.

The CEFC has received proposals for finance from all sectors of the economy as they grapple with the challenges this fundamental structural change is bringing. They need access to finance so they can select the path that they determine. These paths are not yet well trodden and the CEFC can play the role of catalyst and convener to work with traditional financiers to ensure that these financing needs are met on terms which help maintain competitiveness. The CEFC has a critical role to ensure the private sector borrowers have access to the type and quantum of finance needed to make this highly challenging period of transition while achieving lowest cost emissions reduction.

The CEFC is playing a critical role in trying to assist companies to adapt to a higher energy cost future and manage through the current transition. Australia has a

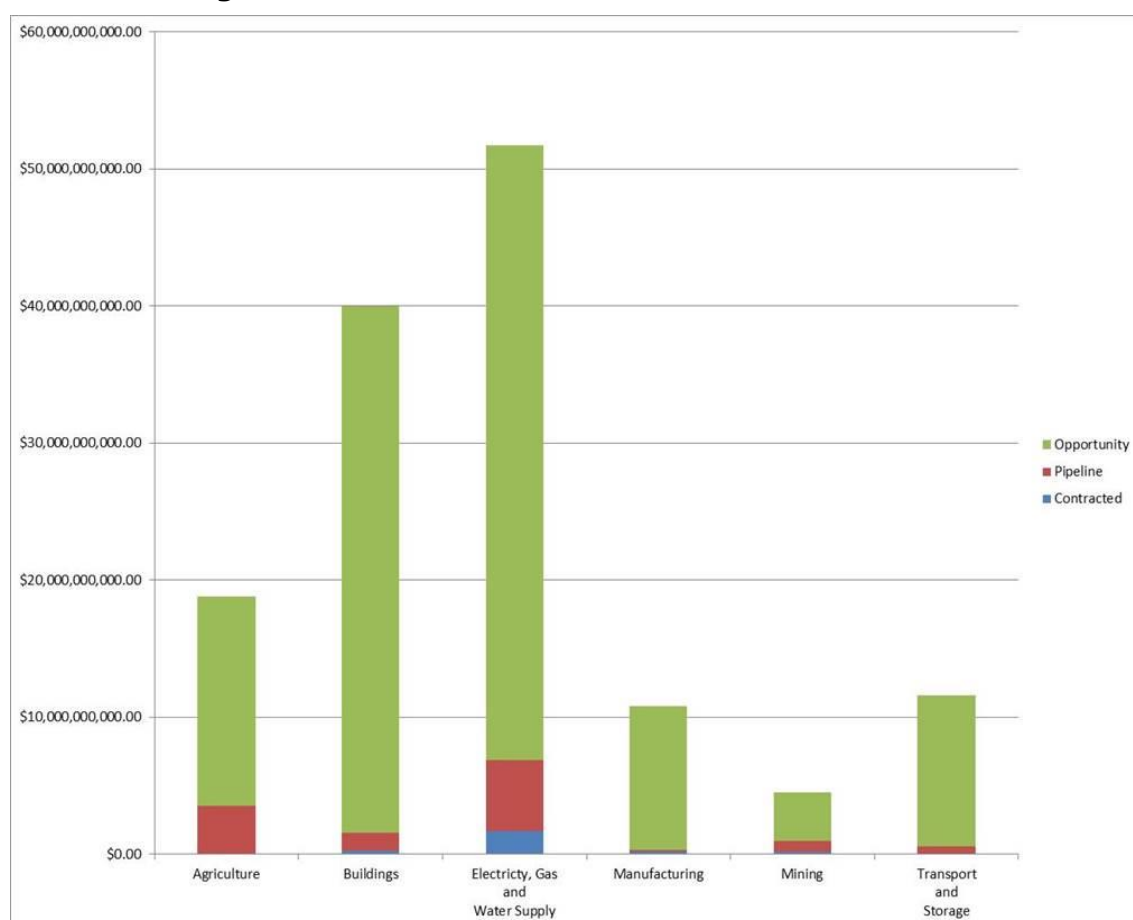
demonstrable strategic advantage in non-fossil fuel energy resources that will be an asset to energy intensive industry.

### Delivery of Abatement under Direct Action

The CEFC has also undertaken analysis of what its continued activity could contribute to achievement of the 2020 abatement target under Direct Action. Based on the existing CEFC portfolio mix, if the CEFC invested \$10 billion over the next 4 to 5 years in a like portfolio mix of projects (to its current portfolio), this could theoretically achieve 64 Mt CO<sub>2</sub>e of emissions reductions in the year 2020, which represents about half of the total required to meet the 2020 abatement target. In reality, we could expect to see some levelling off, but even by being conservative and applying a heavy discount to this assumption the contribution the CEFC could make is still substantial and this abatement could be achieved at a positive return to the taxpayer (i.e. lowest cost of emissions reductions even net of Government borrowing costs and operational costs).

Figure 6 below plots currently identified CEFC pipeline opportunity against estimates required to achieve the 2020 target (in the diagram the green is what is said to be required, the red is what the CEFC has already identified and the blue is what the CEFC has already contracted).

**Figure 6: CEFC Investment Portfolio and Current Investment Pipeline against Total Identified Investment Opportunity Required to achieve 2020 Emissions Reduction Target**



## 6. Commentary on the CEFC

Public commentary on the CEFC has seen a range of claims put forward about the Corporation which warrant clarification and correction for the public record.

### **Crowding out the market and demand for the CEFC**

It has been claimed that the CEFC's presence in the market has resulted in the crowding out of other commercial entities. This is not borne out by the facts, and again, the Government has issued an explicit direction to avoid these impacts via the Investment Mandate.<sup>3</sup>

The CEFC has achieved private sector leverage of \$2.90 for every \$1 the CEFC has invested. As such, we are demonstrably crowding in – not crowding out – market finance.

The resounding positive response to date from the market, demonstrates the role of the CEFC. There is also further need – the 2012-13 CEFC Annual Report highlights that active discussions were underway with circa 37 project proponents, who were seeking CEFC finance of over \$2 billion (total project costs of over \$4.5 billion). Further, as at 20 August 2013, the CEFC had received proposals from over 170 project proponents seeking CEFC finance of over \$5 billion (with total project costs of over \$14.9 billion). It is clear that demand for the CEFC from the market remains extremely high.

Almost every investment of the Corporation has included co-financiers that encompass many of Australia's major financial commercial entities.

*"I want to thank you personally and the CEFC team more broadly for making this deal real. Your pivotal role has been the difference. The equity community has been highly impressed (and in fact has been mobilised) by CEFC's involvement as a debt provider. We would not be here without you, and our commitment to CEFC is absolute."*

**Philipp Saumweber, Sundrop CEO**

### **Risk**

Claims have been made that the CEFC invests taxpayer's money in 'high risk' ventures. This criticism was articulated in the Treasurer's Second Reading Speech for the CEFC Abolition Bill on 13 November 2013, which spoke of the CEFC investing in 'high risk ventures'.

In fact the Australian Government has specifically directed the Corporation that:

*In targeting the benchmark return and operating with a commercial approach, the Corporation will seek to develop a portfolio across the spectrum of clean energy technologies that in aggregate must have an acceptable but not excessive level of risk relative to the sector.<sup>4</sup>*

Nor is the 'high risk' argument borne out by the experience. The CEFC portfolio demonstrates that the organisation has engaged in relatively low risk loan-based

<sup>3</sup> Clean Energy Finance Corporation Investment Mandate Direction 2013, items 5 & 10.

<sup>4</sup> Clean Energy Finance Corporation Investment Mandate Direction 2013, item 6.

transactions and has no loans in default, and further none of Low Carbon Australia's loans are in default after three years of operation.

The CEFC's portfolio reflects the fact that we are a specialised, sector-focused institution. Most of the investments within the CEFC's portfolio are project finance loans in favour of the Australian energy sector. On a weighted average basis, by \$ invested, CEFC's contracted investment portfolio of \$536m as at 20 August 2013 has an overall SCR of BB. The portfolio exhibits a credit profile which matches those of banks active in providing such facilities.

In most transactions we have the same security position as traditional banks and would suffer the same loss should a project default.

There is a gap in the marketplace being filled by the CEFC, which as a sector specialised lender, is prepared to take the time to understand the technology and technology risks, which private sector banks may not have the capacity to undertake.

The CEFC has put in place rigorous procedures around risk assessment and risk management. The Corporation prices risk in its investments and looks to securitise loans, and is prepared to innovate to achieve the right security. As set out in our published Investment Policies, to effectively and prudently manage our investments, the CEFC has the following governance arrangements in place:

- A well-developed investment portfolio strategy, covering diversification requirements, clear definitions around key target markets and supporting procedures
- An intensive, reiterative and multiphase assessment and approval process for individual investments, based on standardised templates and risk assessment processes
- An experienced Executive and portfolio management team which monitors individual investments, analyses performance and investment reporting against portfolio benchmarks and guidelines and provides regular periodic reporting to the Executive Investment Committee and the Board
- An effective and timely escalation and remedial process for underperforming investments; and
- Highly experienced, engaged staff involved in multiple levels.

As noted above, the Board of the CEFC reserves the decision making power on all investments and is comprised of eminent persons of substance and with many years of investment and energy sector experience as is required as qualification to be appointed as a board member under the CEFC Act.

But further, the Corporation has been directed by the Investment Mandate that:  
*The intention of the Corporation is to apply commercial rigour when making its investment decisions.*<sup>5</sup>

The CEFC published its portfolio targets and strategic approach to investing and risk management before we set out to go about making investments.

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<sup>5</sup> Clean Energy Finance Corporation Investment Mandate Direction 2013, item 5.

All investments undergo a rigorous screening, assessment and prioritisation. Only a small proportion of projects eventually make it successfully through to Board approval and contractual close.

In summary, the risk management framework underpinning all CEFC investments is built with the same rigour and experience staff that have operated credit and risk areas in traditional banks.

### **“A Green Hedge Fund”?**

There have been claims that the CEFC is a “giant green hedge fund”.<sup>6</sup>

This is not borne out by the facts. The CEFC is not a hedge fund in any way, shape or form. The CEFC has \$536 million invested of which:

- \$0 is invested in hedging
- \$0 is invested in derivatives; and
- \$0 is invested in guarantees.

So while it has the ability to do so under its legislation, the CEFC has not engaged in any hedging, derivatives or guarantees.)<sup>7</sup>.

### **Concessionality and Commerciality**

Claims have also been made that the CEFC’s ability to offer concessionality is at odds with the Corporation’s commercial focus.

This appears to be based on an erroneous assumption that the private sector does not offer concessions.

Put simply, concessions are a ‘discount’ off the regular market price. There are many examples in the private sector of concessionality – a discount off the marked price, bonuses, set-offs, waiving of fees, waiver of commissions, bundling, interest or rent free periods, options and so on.

These ‘discounts’ are offered in the market by the private sector because there are externalities to the transaction that are deemed desirable – for example, achieving volume, achieving personal targets, increasing market share, retaining business or undercutting competitors.

The CEFC also has motivators to offer concessionality, but these will differ from the private sector because we are a public purpose institution - for example we may offer a discount to achieve public good externalities such as:

- Technology Expansion and Development
- Dispersion and Take-up
- Demonstration effect

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<sup>6</sup> The Hon Greg Hunt MP, Minister for the Environment, interview on 9 September 2013 on Radio 2GB

<sup>7</sup> *Clean Energy Finance Corporation Investment Mandate Direction 2013*, item 8.

- Financial Leverage
- Expansion of Investor Base
- Market Capacity and Sector Skills
- Emissions reduction

The CEFC has built the consideration of positive externalities into the investment process through its investment policies. Concessionality may be warranted when the cost of the benefit the recipient receives is exceeded by the benefit the positive externalities create.

Theoretically, concessional loans may be:

- commercial (where the lender earns a positive return on investment after considering all costs), or
- non-economic (in other words the loan costs more than the interest collected).

When offering concessions, the CEFC focuses on loans that are commercial as the Corporation is required to earn at least the Portfolio Benchmark Rate as directed by the Investment Mandate - which itself states:

*It is expected that the Corporation will apply commercial rigour when making its investment decisions, focussing on projects and technologies at the later stages of development. By adopting a commercial approach, it is expected that the Corporation will invest responsibly and manage risk so it is financially self-sufficient and achieves a benchmark rate of return. In achieving this aim the Government has the expectation that the Board will take a long-term outlook when setting the investment strategy for the Corporation.<sup>8</sup>*

A loan can still be commercial while being concessional provided the concession is not so great as to cause the income to be less than the costs.

### **“The CEFC does not generate any renewable energy”?**

It has been claimed that the CEFC delivers no “additional renewable energy”<sup>9</sup> and that: *Before the Clean Energy Finance Corporation there was a 20 per cent renewable energy target (RET). After \$10 billion of Clean Energy Finance Corporation funding there is still a renewable energy target of 20 per cent. In other words, we spend \$10 billion on projects using borrowed money and we get no additional renewable energy.*

The CEFC has invested in projects responsible for 500MW of installed new generation capacity (some of which is not supported by the RET). Importantly, this figure does not include any refinancing – so this figure is genuinely *additional* generation capacity.

Even where the RET does support a project, CEFC investment has been needed to finance construction and installation.

Two examples of CEFC renewables investments which are not RET-supported are:

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<sup>8</sup> *Clean Energy Finance Corporation Investment Mandate Direction 2013*, item 5.

<sup>9</sup> The Hon Greg Hunt MP, then Shadow Minister for the Environment in a speech to the Parliament on 17 June 2013.



1. CEFC investment in the Sundrop Farms project in Port Augusta (SA), which represents an innovative application of solar thermal technology to provide irrigation from desalinated seawater, and heating and cooling for a 20 hectare greenhouse complex. This unique application of proven technology demonstrates how CEFC investments can help drive innovation across the economy. Sundrop Farms is providing leading-edge sustainable food production for semi-arid regions, and demonstrates the potential to create new industries in regional areas. The project will also extend Australia's leading agricultural technological know-how and skills, and demonstrate its potential to help meet the challenge of increasing global food production.
2. The CEFC has co-financed solar PV installations by Australian Agricultural Company Limited (AACo) across a number of its regional and remote facilities. This highlights the potential for businesses across the country to reduce costs and increase competitiveness through greater use of solar PV and other renewable energy sources.

An example of a CEFC investment that is not RET supported is the Novapower gas-fired peaking energy generation installed at Traralgon, Victoria. While not renewable, this project is providing a cleaner form of electricity directly to the Traralgon network during peak demand periods.

The high-efficiency gas-fired engines can produce up to 10MW of electricity at lower emissions intensity than comparable peaking generators or traditional coal-fired power generation.

The project has deferred the need for an otherwise costly upgrade to the distribution network for several years and provides greater reliability of power supply for residents and business.

The pilot project has the potential to be replicated where localised power security is needed across Australia's eastern seaboard.

## 7. Conclusion

In summary, the CEFC is working with industry to explain how they can achieve efficiency gains and lower their exposure to future energy prices. We are just getting underway. Companies are just starting to understand that they can produce and consume energy onsite at a cost that is significantly cheaper than grid based solutions. Innovation in our economy is starting. We are seeing manufacturers seek out their own supply of energy and turn what was previously waste into fuel. Australia could be a global innovator as all economies will face this transaction.

Given our natural abundance of renewable resources we could move faster towards the future than other developed countries. A confident economy could grasp this opportunity and in doing so reap the benefits that new industries could provide.

The CEFC is a vital partner of innovation. Given assets in this sector are capital intensive and have a long life it is critical that capital support follow with technological innovation. No market will be found for innovation in the energy sector unless it both works and can be financed, and establishing a financial track record is critical.

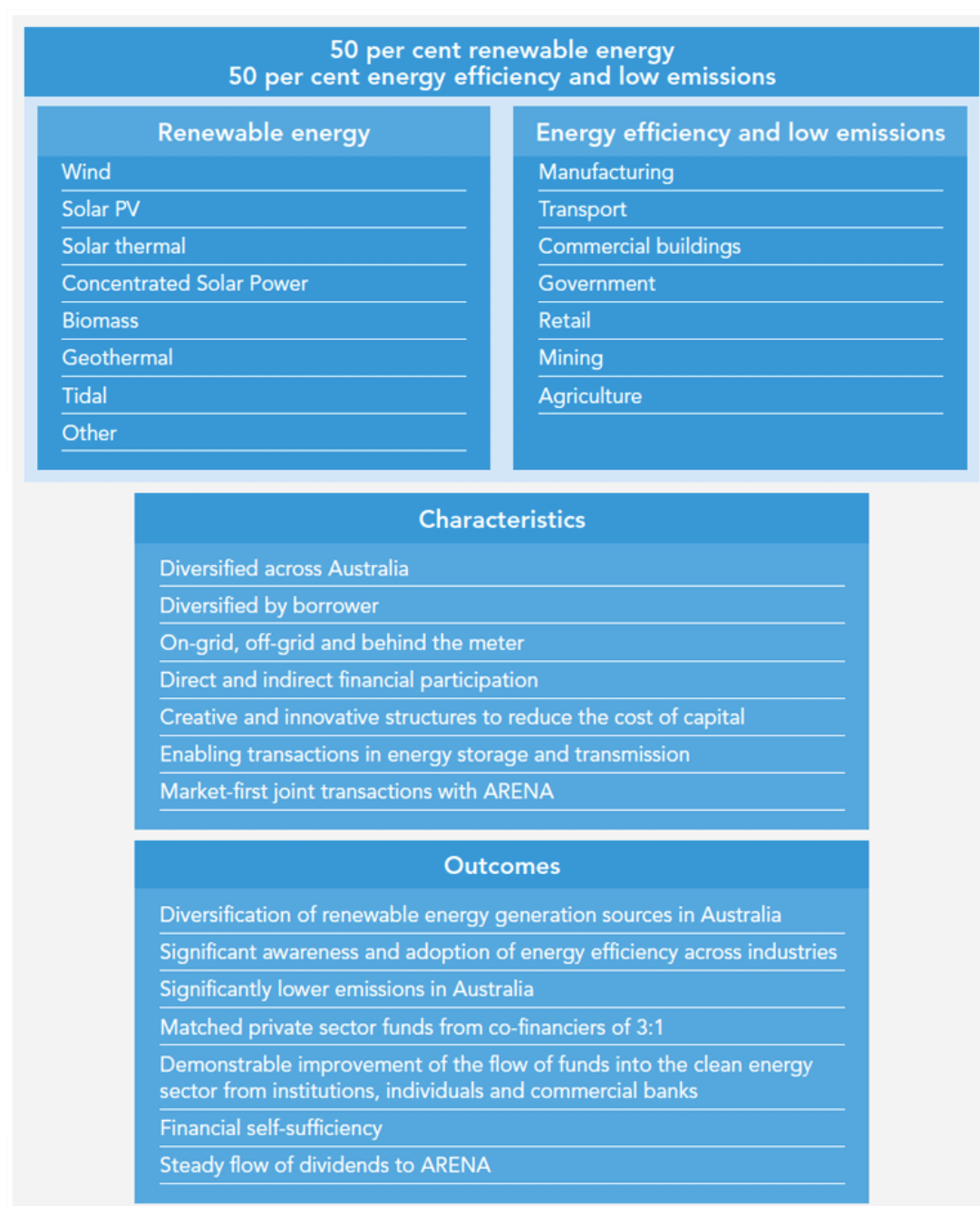
In any case, the absence of the CEFC will undoubtedly mean a lot fewer deals get done in the sector and that Australia returns to the slower pace of clean energy technology investment that it was before, sweating the life out of 60 and 70 year old higher carbon and less efficient energy assets.

**[END OF SUBMISSION]**

## Appendix A: The CEFC's 2018 Portfolio Vision

The Board has established the CEFC's Portfolio Vision 2018, which sets out Portfolio targets, parameters and outcomes criteria as shown in the diagram below:

Fig (1). The CEFC's 2018 Portfolio Vision



- The 50 per cent renewable energy portion of the portfolio will include investments in wind, solar PV, thermal and CSP, biomass, geothermal, tidal and other renewable energy. This will include both on-grid and off-grid, will include creative and innovative structures to reduce the cost of capital and will

enable transactions in energy storage and transmission

- The 50 per cent low emissions and energy efficiency portion of the portfolio will be balanced between low emissions and energy efficiency transactions and consist of investments in manufacturing inputs, transport, government, private and other sectors; and
- The total portfolio will be diversified across Australia and by borrower and include both direct and indirect financial participation.

## PORTFOLIO DIVERSIFICATION STRATEGY

The CEFC will reduce the systemic risk posed by large concentrated exposures in any single investment, technology, industry, counterparty or geography.

### Portfolio Limits

*Fig (2). Portfolio limits, established by the Corporation's key investment documents as illustrated in Fig (1).*

Measure	Limit
Renewable energy requirement	From 1 July 2018, no less than 50%
Guarantees	5% maximum limit
Concessional loans	\$300 million annual NPV Limit each year
Equity investments	Must be a minority, non-controlling stake
Derivatives	Only to: i) protect the value of investments, ii) achieve indirect exposure to financial assets; or iii) for transactional efficiency

## PORTFOLIO DIVERSIFICATION GUIDELINES

*Fig (3). Portfolio diversification guidelines, established by the CEFC's investment policies.*

Measure	Guideline
Preferred minimum CEFC investment size – renewable energy	\$20 million*
Maximum individual transaction size	\$200 million or 10% of the amount credited to the CEFC Special Account
Concentration of technology, industry or geography	No more than 30%
Technology maturity	Later stage development that is cash generative and able to service debt
Security type	Debt target 80%

\*The preferred minimum CEFC investment size of \$20 million is considered appropriate for renewable energy technology investments. In order to address smaller transactions and the SME market, the CEFC preference is to establish pooled financing and partnership strategies which leverage the larger market reach of financial intermediaries such as fund managers and commercial banks.

### **Permitted Investment Instruments**

The CEFC has the capability to invest directly or indirectly and across the capital structure in publicly traded or privately held instruments such as:

- Senior debt
- Subordinated debt
- Preferred equity / convertible debt
- Common equity
- Interests in pooled investment schemes, trusts and partnerships; and
- Net profits interests, royalty interests, entitlements to volumetric production payments.

### **Outcomes**

The 2018 Portfolio Vision will achieve the following:

- Diversification of renewable energy generation sources in Australia
- Significant awareness and adoption of energy efficiency across industries
- Significantly lower emissions in Australia
- Matched private sector funds from co-financiers of 3:1
- Demonstrable improvement of the flow of funds into the renewable and low carbon energy sector from institutions, individuals and commercial banks
- Financial self-sufficiency; and
- Steady flow of dividends to ARENA.

## Appendix B: International examples of development bank models similar to the CEFC

### United Kingdom

The United Kingdom's Green Investment Bank has an initial commitment of £3 billion. The Green Investment Bank began operations in April 2012 with the explicit objective: "to accelerate the UK's transition to a green economy and to create an enduring Institution, operating independently of Government."

The Green Investment Bank's purpose is to help the UK Government to achieve its sustainability targets in a cost effective way, and therefore they never undertake activities which are in conflict with Government policy objectives. The Green Investment Bank invests in UK projects which are both green and commercial, where their capital is "additional" to available private sector finance.

The Green Investment Bank's mandate from Government is to deploy at least 80% of the capital in the following priority sectors.

- [offshore wind](#)
- [waste recycling and energy from waste](#)
- [non-domestic energy efficiency](#), and
- support for the Government's [Green Deal](#).

### European Union

The European Investment Bank is the only bank owned by and representing the interests of the European Union Member States and they work closely with other EU institutions to implement EU policy. The promotion of sustainable, competitive and secure sources of energy is a key EU policy objective. This includes focussing on sustainability through investment in renewable energy sources to reduce greenhouse gas emissions and dependence on finite energy resources.

The European Investment Bank primarily backs energy projects through loans, but also offer structured financing options. The European Investment Bank was the largest provider of finance to renewable energy assets in 2011, with over US\$4.8 billion provided.

### Germany

KfW, Germany's main development agency is a significant financier of green energy. KfW generally does not lend directly, rather it provides commercial banks with liquidity at low rates and long maturities.

Commercial banks conduct due diligence and once approved, the bank on-lends the KfW funds. KfW provides funding to 80 per cent of Germany's newly installed wind energy and 40 per cent of solar panels installed in 2010.

In 2012, KfW Development Bank lent a total of 4.9 billion euros - 2.75 billion euros or 57 per cent of this was committed for environmental and climate change relevant projects. Of these commitments, 1.5 billion euros (52 per cent) were related to climate change mitigation and 25 per cent of the commitments (about 700 million euros) to climate change adaptation. In addition KfW Development Bank promoted environmental projects with 650 million euros. Renewable energy and energy efficiency projects, for their part,

accounted for 26 per cent of the volume of the overall new commitments of KfW Development Bank in 2011.

It is expected that KfW will commit over €100 billion for investments in the energy sector over the next five years.

## **United States of America**

The United States Department of Energy has issued loans and guaranteed loans to encourage early stage commercial use of new or significantly improved technology in energy projects, through the Loan Program Office (LPO).

The mission of LPO is to accelerate the US domestic commercial deployment of innovative and advanced clean energy technologies at a scale sufficient to contribute meaningfully to the achievement of US national clean energy objectives—including job creation; reducing dependency on foreign oil; improving our environmental legacy; and enhancing American competitiveness in the global economy of the 21st century.

LPO executes this mission by guaranteeing loans to eligible clean energy projects (i.e., agreeing to repay the borrower's debt obligation in the event of a default), and by providing direct loans to eligible manufacturers of advanced technology vehicles and components.

Across the programs administered by the LPO, around 35 projects received loans and loan guarantees worth around US\$35 billion between September 2009 and September 2011 (when one part of the program expired). An audit completed in February 2012 concluded that the vast majority of the loans are expected to perform well.

### ***New York Green Bank***

In January 2013, Governor Cuomo called for the establishment of a \$1 billion New York Green Bank to mobilize private sector capital to finance the transition to a more cost-effective, resilient, and clean energy system. The Green Bank will accelerate the deployment of clean energy through a variety of financing tools targeted at alleviating financial market barriers and harnessing capital markets.

### ***California Clean Energy Fund (CalCEF)***

CalCEF works to promote the transition to a clean energy economy by creating institutions and investment vehicles that grow markets for clean energy technologies. CalCEF is a non-profit umbrella organization that pursues state-wide and national agendas via:

CalCEF Innovations, which leads CalCEF's analysis and product development; and the California Clean Energy Fund, which executes and scales the CalCEF investment strategy via a fund-of-funds model, partnering with leading investment managers

### ***Clean Energy Finance and Investment Authority (CEFIA), Connecticut***

The Clean Energy Finance and Investment Authority (CEFIA), the successor organization to the Connecticut Clean Energy Fund (CCEF), was created by the Connecticut Legislature as a part of Public Act 11-80, An Act Concerning the Establishment of the Department of Energy and Environmental Protection and Planning for Connecticut's Energy Future. CEFIA invests its resources in an array of enterprises, initiatives and projects aimed to attract and deploy capital to finance the clean energy goals of Connecticut, develop and implement strategies that lower the cost of clean energy to make it more accessible and affordable to consumers and reduce reliance on grants, rebates and other subsidies and move toward innovative low-cost financing of clean

energy deployment.

## **China**

China provides funds to clean energy through its development banks. The China Development Bank provides medium- to long-term financing facilities that assist in the development of a robust economy. It aligns its business focus with national economic strategy and allocates resources to break through bottlenecks in China's economic and social development. China was second only to Europe in investment in renewable energy in 2011.

The China Development Bank allocated US\$30 billion in credit to the top five solar manufacturers in China, enabling solar producers to expand significantly. By 2010, six of the top ten solar photovoltaic manufacturers were in China, up from two out of the top ten in 2006. In addition, China's renewable energy laws provide incentives to renewable energy projects and drive substantial investment in wind power, which grew 100 per cent each year between 2005 and 2009.

## **Japan**

UNEP Finance Initiative, (UNEP FI) is a unique public-private partnership between the United Nations and the Finance Sector. Its mission is to identify, promote and realize the adoption of best environmental and sustainability practice at all levels of financial institution operations. Since its launch, FI has been addressing a variety of environmental issues together with its members. As new developments emerge, more participation and activities from Japanese financial institutions will be expected.

## **Korea - Green Climate Fund (GCF)**

The Green Climate Fund (GCF) is a fund within the framework of the UNFCCC founded as a mechanism to transfer money from the developed to the developing world, in order to assist the developing countries in [adaptation](#) and [mitigation](#) practices to counter [climate change](#). The GCF is based in the new [Songdo](#) district of Incheon, South Korea. It is governed by a Board of 24 members and initially supported by an Interim Secretariat.

- 3.** The Green Climate Fund will support projects, programmes, policies and other activities in developing country Parties using thematic funding windows. It is intended to be the centrepiece of efforts to raise [Climate Finance](#) of \$100 billion a year by 2020. Only a fraction of this sum had been pledged as of July 2013, mostly to cover start-up costs.



## Appendix C: CEFC Case Studies

### CEFC investment case studies - Renewables



#### **New wind farm supports Australian manufacturing, resources and skills**

A new wind farm with the capacity to generate enough wind power for about 45,000 homes is being built near Taralga, NSW.

The project will use Australian manufactured towers made in Portland from BlueScope steel.

It will be a boost for the local wind engineering sector, and further develop Australian manufacturing capability and supply chain scale, and create valuable business and regional manufacturing employment.

The Taralga Wind Farm is CEFC's first large-scale investment that will expand Australia's renewable energy capacity, and avoid carbon emissions by approximately 250,000 tonnes a year.

CEFC is providing \$37.5 million for the construction and operation of the wind farm as part of an approximately \$280 million package along with ANZ and EKF (the official export credit agency of Denmark).



#### **Wind farm refinancing supports future large-scale renewable energy projects**

The Macarthur Wind Farm in Victoria, the largest in the southern hemisphere, is being refinanced. The Victorian wind farm uses large Vestas turbines for the first time in Australia.

This refinancing demonstrates that developers of large-scale renewable energy projects in Australia can successfully complete a development-finance-exit cycle and facilitates Meridian's ongoing activities in Australia.

Macarthur Wind Farm has capacity to generate energy to power about 220,000 homes and avoid Australian carbon emissions by approximately 1.7 million tonnes a year.

CEFC provided \$50 million as part of a debt package of \$529 million to refinance a 50% stake in the \$1 billion Macarthur Wind Farm. Other syndicate members were ANZ, NAB, ING, Shinsei, ICBC and EKF. CEFC's additional finance helped ensure efficient market pricing and encouraged other banks to participate.



### Victoria's Portland wind farm expands

Pacific Hydro will bring the fourth stage of the Portland Wind Energy Project in south-west Victoria to market, expanding its generation capacity and developing a retail business for renewable energy.

Stages two, three and four of Portland Wind Energy Project combined are expected to produce more than 500 gigawatt hours annually. That is enough electricity to power just over 100,000 Victorian homes each year, and equal to more than five per cent of Victoria's residential electricity demand. It will avoid carbon emissions of around 590,000 tonnes per annum.

The electricity will be sold to Pacific Hydro's retailing business to on-sell the output to the market. This will demonstrate the potential for a viable integrated wind energy business in Australia.

Pacific Hydro plans to source towers from Australian manufacturers and local construction companies will deliver electrical and civil works. REpower will supply and install turbines. The construction phase is expected to create around 400 jobs that Pacific Hydro plans to mainly source locally. Once operational, about 10 people will be required to manage and maintain stages two, three and four.

CEFC is lending \$70 million in debt financing, alongside a \$158 million consortium of domestic and international banks, towards the \$361 million project. The financing is for construction of stage four and refinancing of stages two and three.



### Moree Solar Farm demonstrates future for large-scale solar projects

A large-scale solar PV plant to be constructed near Moree in northern New South Wales will generate enough power for about 15,000 homes and abate more than 95,000 tonnes of carbon emissions.

The 350 hectare, 56 MW Moree Solar Farm will use single-axis tracking technology that allows its 250,000 solar photovoltaic (PV) panels to tilt to face the sun as the earth rotates. This technology has the potential to produce 30 per cent more energy than a farm using fixed position panels and to capture a higher volume of peak priced electricity.

The project is sponsored by global solar company Fotowatio Renewable Ventures (FRV) and global clean energy solutions provider Pacific Hydro.

The CEFC is providing \$60 million in senior debt finance and its participation in this transaction provides a precedent in the Australian market for financing large-scale solar PV on a merchant basis



### **Chicken manure and organic waste provide power and heat**

Darling Downs Fresh Eggs will use the chicken manure and other organic waste from its egg production business to generate power and save more than \$250,000 a year.

Quantum Power and RCM International are designing and installing an anaerobic digester and generators for Darling Downs Fresh Eggs. The power plant will help Darling Downs Fresh Eggs to reduce its grid electricity usage by 60 per cent in the first year and provide 100 per cent of the company's energy in non-peak periods.

Heat from the biogas generator will be captured and used to warm chicken rearing sheds and heat the water for the grading floor.

The facility will also reduce Darling Downs Fresh Eggs' carbon emissions by up to 1,000 tonnes a year and its methane emissions by over 6,000 tonnes of CO<sub>2</sub>e a year.

CEFC is providing finance of \$950,000 (originally through Low Carbon Australia, now integrated into the CEFC) for the \$2.86 million project. National Australia Bank is financing nearly half the project cost, with the rest coming from an Australian Government grant of \$333,823 through the Clean Technology Food and Foundries Investment Program and from a capital investment by Darling Downs Fresh Eggs.



### **Tomato farm a solar innovator**

Sundrop Farms is building a 20 hectare greenhouse facility in Port Augusta, South Australia which will use a renewable power supply and a sustainable water source to produce over 15,000 tonnes of tomatoes a year.

Solar thermal technology will be used to generate power that is then used to desalinate seawater for irrigation, and for heating and cooling the greenhouses. The system is ideally suited for agricultural production in much of Australia which is semi-arid, and demonstrates the potential for meeting global food production challenges sustainably and profitably using renewable technologies.

The project will provide a major boost to the Port Augusta economy and will have wider benefits for both businesses and sustainable agriculture research in Australia. When fully operational, Sundrop Farms will employ about 200 people and there are substantial opportunities for local and State-based businesses during the construction phase.

CEFC financing of approximately one quarter of the project cost helped catalyse finance for the innovative project.



### **Renderer's plant upgrade maximises biogas resources**

Australia's largest renderer, A J Bush & Sons, is adding four purpose-built biogas engines which will maximise the use of onsite biogas resources and avoiding 23,000 tonnes of CO<sub>2</sub>-e direct emissions.

The upgrade is expected to reduce A J Bush's grid electricity consumption and the associated carbon emissions by 35 per cent. Local air quality and amenity will also be improved as the additional anaerobic digesters will be covered.

Quantum Power will build, own and manage the equipment, which enables the rendering company to benefit from recycling its operational waste without having to operate and maintain generators itself.

CEFC finance to Quantum Power for half of the \$1.2 million project cost was developed by Low Carbon Australia, now integrated into the CEFC.



### **JBS Australia captures biogas and cuts grid energy use**

JBS Australia, the country's largest meat processor and exporter, will capture and use biogas in its existing natural-gas fired boiler plant of its Dinmore, Queensland facility to reduce dependence on grid-connected natural gas by over 48 per cent.

The project will cut the facility's greenhouse gas emissions by the equivalent of 44,000 tonnes of carbon dioxide per annum.

JBS Australia employs about 2,000 staff at its Dinmore processing facility where it is installing new pre-treatment equipment and covered anaerobic lagoons to capture the biogas generated at the site.

This biogas will be used in the company's existing natural-gas fired boiler plant that produces steam and hot water to meet the site's demand for sanitary cleaning and sterilisation. Capturing the available biogas generated from its operations also helps the company meet its waste management requirements.

The company owns five feedlots and 10 meat processing facilities across five Australian states. This project is the first of its kind in the Australian red meat processing industry and demonstrates the potential benefits of the technology for other meat processing facilities.

The \$8.8 million project was co-financed by Low Carbon Australia, now the CEFC, and an Australian Government Clean Technology Food and Foundries Program grant.



### **Solar energy reduces beef producer's costs and grid energy consumption**

Australian Agricultural Company (AACo) is installing solar photo voltaic (PV) units at 15 sites across Queensland and reducing its grid energy consumption and associated carbon emissions by around 30 per cent.

Solar PV panels are now installed on over one million Australian homes and this project demonstrates their potential in agriculture and other sectors.

AACo says the solar program will help them protect and enhance their production system resources, and thereby help secure their long-term future. The savings from the project and new revenue streams it generates will cover the capital and financing costs, keeping capital available for other business developments.

CEFC (originally through Low Carbon Australia) is providing a \$500,000 loan facility for the project, with NAB financing the balance of the \$990,000 project cost.



### **Richgro uses biogas to power its business**

Major Australian garden products supplier, Richgro is harnessing ground-breaking waste-to-energy technology to meet all its power needs by recycling organic waste.

Richgro, has been servicing Australian gardeners since 1916 and is one of the top five garden products suppliers in Australia.

A \$3.3 million anaerobic digestion plant with a capacity of up to 2 megawatts is being built to produce enough power for Richgro's operations at Jandakot in Western Australia.

That includes powering equipment and Richgro's onsite vehicle fleet. The by-product from the plant can be used as a raw material in Richgro's garden products.

The plant has the capacity to process more than 35,000 tonnes a year of commercial and industrial organic waste, diverting it from landfill. Over a 20 year life the project is expected to save 142,722 tonnes of CO<sub>2</sub>-e.

Low Carbon Australia, now the CEFC, provided finance for the project, which also received an Australian Government Clean Technology Investment Program grant.



## CEFC investment case studies - Low Emissions



### Fugitive gases generate low emissions power

Energy Developments Limited (EDL) is expanding its 45 megawatt Moranbah North power station that generates power from waste coal mine gas. These gases are 21 times more damaging to the environment than carbon dioxide and the expansion will reduce greenhouse gas emissions of about 500,000 tonnes of CO<sub>2</sub>-e per annum.

The power station's capacity to generate low emissions energy is being increased from 45 to 63 megawatts, increasing its abatement of CO<sub>2</sub>-e by 40 per cent.

The expansion of Moranbah North power station is the first project to be funded using CEFC's senior secured corporate loan to EDL of \$75 million. The CEFC facility will be used for other projects that capture landfill gas, waste coal mine gas or mine vent air methane and use these gases to generate electricity, as well as for remote hybrid renewables projects.



### Efficient gas solution to network upgrade

An \$11 million pilot energy generation project at Traralgon in Victoria is demonstrating the potential for power security across Australia's eastern seaboard.

NovaPower's high-efficiency Caterpillar® gas-fired engines provide a cleaner form of electricity directly to the Traralgon network during peak demand periods.

The generators can produce up to 10 MW of electricity at lower emissions intensity than comparable peaking generators or traditional coal-fired power generation.

As a result of the project, the need for an otherwise costly upgrade to the distribution network has been deferred for several years at least. The project delivers greater reliability of power supply for residents and businesses. NovaPower has plans to roll out the technology in areas of high electricity demand across several states using its Traralgon model as the benchmark.

The project was co-financed by ANZ and Low Carbon Australia, now the CEFC.

## CEFC investment case studies - Energy Efficiency

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### Energy efficiency gains for wine labeler

Three new energy efficient presses at Labelmakers operate at twice the speed, using half the energy of the company's old presses, while allowing a broader range of higher-quality printed products to be manufactured.

The company provides label printing services for some of the nation's best known brands including Coca-Cola, The Daily Juice Company, Milo, Edgell, Vegemite, Nescafe, Penfolds, Heineken, Mortein and Dettol as well as printing labels for its own wine division.

The South Australian presses manufacture high quality wine labels for domestic and export markets while the Victorian press covers printing requirements for a broad range of companies.

The \$5.3 million upgrade to the presses, financed by Commonwealth Bank of Australia and Low Carbon Australia, now the CEFC, also received a grant for one third of the cost through the Australian Government's Clean Technology Investment Program.

The new presses reduce carbon emissions onsite by 14 per cent and energy costs by 14 per cent. They improve productivity and capability and contribute operational savings of over \$4.3 million through use of cheaper solvent based inks and reduced paper wastage.



### Leading pork exporter saves on energy

An industrial refrigeration upgrade is helping Australia's largest pork producer and leading exporter Rivalea save around 10 per cent on its annual energy costs.

The \$850,000 installation of smart controls and drives and heat recovery devices has improved the efficiency of the Corowa NSW abattoir's two-stage ammonia refrigeration plant, saving 10 per cent in total energy consumption, including gas and electricity.

The upgrade was financed by Low Carbon Australia, now the CEFC, enabling Rivalea to access a grant for one third of the project cost through the Australian Government's Clean Technology Food and Foundries Investment Program (CTIP). Rivalea also received support from Energy Saver, run by the NSW Office of Environment and Heritage.

The improvements to Rivalea's refrigeration created ongoing energy cost savings, directly benefiting the business's bottom line.

The CEFC's strategic alliance partners MINUS40 were the project's refrigeration consultants. On current electricity prices, energy cost savings are over \$195,000 a year.

Rivalea's specialised abattoirs, boning and packaging facilities at Corowa in NSW are integrated into its production and distribution systems to supply major retailers throughout Australia, Asia and other parts of the world. In Australia, supermarkets, butchers and restaurants stock Rivalea brands including Murray Valley Pork, Family Chef and High Country Pork.



### **Plant cuts emissions, creates jobs**

Australian Paper's new recycling plant, expected to commence operations in 2014, will help it increase its competitiveness domestically and reduce its carbon emissions by up to 270,000 tonnes annually.

The \$90 million de-inking recycled paper plant is being constructed at Australian Paper's Maryvale Mill in the Latrobe Valley, Victoria. The project will contribute around \$110 million to the economy and support more than 960 full-time equivalent jobs during construction.

Once complete, it will support 246 full-time equivalent jobs, including flow-on effects. The plant will help Australian Paper deliver sustainable, certified, recycled paper products to meet growing consumer demand. By increasing its range of recycled content papers and using more recycled fibre, Australian Paper expects to reduce carbon emissions by 6.75 million tonnes over the lifetime of the plant.

The plant is expected to divert up to 80,000 tonnes of waste paper from Australian landfill or export each year and will more than triple the company's use of premium recycled fibre.

Low Carbon Australia, now the CEFC, provided finance of \$9.9 million towards the project, which also received an Australian Government grant of \$9.5 million and support from the Victorian Government.



### **Coolstores reduce energy costs**

Family owned and operated business Radevski Coolstores, a major Goulburn Valley supplier of apples and pears to Coles supermarkets, reduced its refrigeration energy use and carbon emissions by about one quarter through a \$1.15 million refrigeration upgrade of its cool rooms.

Radevski Coolstores has grown from one orchard in 1959 to its present 450 acres of apple and pear orchards in Goulburn Valley's Shepparton East district. Its turnover is around 20,000 bins of fruit per year.

Increasing energy and refrigerant prices significantly increased the business's operating costs, but a new ammonia-based refrigeration system servicing its 16 cool rooms reduces those costs by over \$140,000 takes advantage of improvements in refrigerator design to reduce carbon emissions by 24 per cent.

Financed through Low Carbon Australia, now the CEFC, and the Commonwealth Bank, the upgrade was carried out by CEFC strategic alliance partners and refrigeration specialists MINUS40.





### **EUA provides low carbon energy**

A two-megawatt trigeneration plant will be used to provide low-carbon thermal energy, heating and cooling for a major new residential and commercial development in Sydney.

The precinct will occupy 5.8 hectares and include 14 new buildings with 3,000 apartments, 900 student accommodation units, 50,000 square metres of commercial office space and 25,000 square metres of retail space.

A \$26.5 million Environmental Upgrade Agreement (EUA) involving Low Carbon Australia, now the CEFC, is being used to finance the installation of the highly-efficient, gas-powered trigeneration plant.

The plant will reduce greenhouse gas emissions by 190,000 tonnes over its 25-year design life. Additional emission reductions of 76 tonnes will be saved by using absorption chillers instead of electric chillers which use refrigerants that leak.



### **Building transformed by upgrade**

The \$1.6 million upgrade of the Limestone Street Centre at Ipswich in Queensland has transformed a dysfunctional bulky goods retail centre into a high performing office building.

Low Carbon Australia, now the CEFC, financed replacement of air conditioning and building management systems which has reduced the building's energy usage by more than 50 per cent, saving around \$220,000 a year in costs. The upgrade has transformed the building from a 0-star NABERS rating to targeting 4 stars.

The Limestone Street Centre has 7,000 square metres of office and retail space and has attracted key government agencies as tenants.

Justin Goddard, Managing Director of Trident Corporation, the building's owner, says the upgrade has improved the building's value. It uses significantly less energy than before, which has made it more attractive to tenants and has underpinned its long-term value.



### **Council saves on street lighting costs**

Warrnambool City Council is replacing 2,200 lights in residential streets over a couple of years to make savings of nearly 70 per cent on lighting energy costs.

Warrnambool City Council has a population of almost 34,000 and is located just over 260 kilometres south-west of Melbourne.

While Warrnambool's street lighting is owned and operated by Powercor, the council pays for maintenance and operation.

The new globes reduce energy usage by up to 68 per cent, saving the council about \$100,000 a year based on current electricity prices.

The streetlight upgrade is part of a major energy efficient street lighting project producing significant energy and cost savings for six Victorian councils.

Low Carbon Australia, now the CEFC, provided finance for just over 50 per cent of the Warrnambool City Council's \$872,500 commitment to the larger \$3 million Great South Coast Street Smart Lighting project, which involves Warrnambool, Shires of Colac Otway, Corangamite, Moyne, Southern Grampians and Glenelg. The council received a grant from the Australian Government's Community Energy Efficiency Program (CEEP) to cover the remainder of its project cost.

Street lighting is the single largest source of energy costs and greenhouse gas emissions from the local government sector and it typically accounts for 30 to 60 per cent of emissions.



### **Adelaide lighting upgrade using on-bill finance**

Global engineering and environmental professional services company URS Australia Pty Ltd has cut its lighting bills by more than 40 per cent by installing more efficient lighting and occupancy sensors at its Adelaide office.

The new \$30,000 lighting system involves upgrades to existing down lights in the entry foyer with new LED fittings and the installation of occupancy sensors throughout the open plan office areas to reduce lighting when it isn't needed.

URS Adelaide used on-bill finance through Origin and Low Carbon Australia, now the CEFC, to cover the cost of the upgrade, which is helping reduce carbon emissions from URS Adelaide's total electricity consumption by around 7 per cent.

The Adelaide office is part of a global network of 57,000 URS personnel in nearly 50 countries, with 10 offices and more than 1,000 staff servicing our clients in Australia.



### Hospitals save on car park lighting

A \$520,000 lighting upgrade to three car parks at two Sydney hospitals is reducing carbon emissions and lighting energy costs by 30 per cent per year.

Metro Parking, which operates St George Hospital's Belgrave Street and Gray Street car parks and the Sydney Eye Hospital's car park on behalf of owner International Parking Group (IPG), upgraded all three with more efficient lighting.

Lighting is something drivers take for granted in car parks, but it is vital to their safe operation. The upgrades ensure lighting is effective while operating costs are reduced.

The new lights consume less power and won't need as much maintenance resulting in further savings estimated at \$50,000 per annum.

All up, 1,141 bays at the St George Hospital car parks and 390 bays at the Sydney Eye Hospital car park benefit from the upgrade.



### Street lighting savings for council

Victoria's Baw Shire Council will save more than \$160,000 a year by replacing its mercury vapour street lights with the most energy efficient lights. It will also cut its overall carbon emissions by 18 per cent.

Street lights are a major cost for Australian councils and are responsible for an estimated 30 to 60 per cent of council carbon emissions. While councils do not own the lights, they are responsible for their maintenance and energy usage costs.

Baw Baw Council said that if it did not upgrade the old lights it would have cost them about \$450,000 by 2020. By changing to more energy efficient lights it will save ratepayers' money and reduce their impact on the environment for years to come.

CEFC is providing finance for \$550,000 of the project cost and Baw Baw Shire Council will receive a grant from the Australian Government's Community Energy Efficiency Program (CEEP) for \$489,546.



### **Ice cream maker saves on energy costs**

An \$895,000 upgrade to the refrigeration of iconic South Australian ice cream manufacturer Golden North is enabling it to expand its business reach into South-East Asian markets.

Golden North's manufacturing base at Laura, north of Adelaide, has around 50 staff and produces about 8.5 million litres of ice cream annually.

The upgrade increases the refrigeration system's compressor plant capacity by more than 40 per cent, while the use of variable speed drivers, pressure controls and energy monitors helps reduce refrigeration carbon emissions by just under half.

The refrigeration upgrade halves the time it takes to harden ice cream and allows Golden North to increase production, creating more local jobs. The improvements also help Golden North maximise its potential within existing power constraints.

Low Carbon Australia, now the CEFC, provided finance to support a grant for 50 per cent of the cost from the Australian Government's Clean Technology Food and Foundries Investment Program. Food SA provided funding towards preparing a business case and grant application.



### **Manufacturer halves lighting costs**

Joyce Foam Products reduces its lighting bills by more than 50 per cent through a \$95,000 lighting upgrade to its manufacturing plant at Moorebank in Sydney's west.

The company has been producing foam for consumer and industrial use for more than 50 years.

Joyce Foam, which is committed to creating environmentally friendly products, used on-bill finance through Origin and Low Carbon Australia, now the CEFC, to cover the upfront costs of the project.

Induction lamps replaced old lighting systems at the 40-year-old 13,000 square metre manufacturing plant. The equipment used was eligible for NSW Energy Savings Certificates.



### Council street lighting upgrade

About 1,000 street lights throughout Richmond Valley Shire have been replaced with more energy efficient lamps, reducing lighting energy costs by about one third.

The \$286,000 street lighting upgrade also reduces carbon emissions by about 435 tonnes per year.

While the street lights are owned and maintained by Essential Energy, the council pays for their operation and maintenance.

Public lighting is the single largest source of local governments' greenhouse gas emissions, typically accounting for 30 to 60 per cent of emissions.

By working with Essential Energy, using finance from Low Carbon Australia, now the CEFC, the council has tackled one of its major costs head on.



### Council lighting upgrade

A lighting upgrade for the civic centre in Kingston, Tasmania, has cut the building's lighting energy costs by 75 per cent.

The Kingborough Council replaced the building's fluorescent lighting system with more energy efficient LED tube lighting to make energy savings of more than \$11,000 a year.

The council covered the \$45,000 upfront cost with finance from Low Carbon Australia, now the CEFC.

The 20-year life expectancy of LED lighting compared with four years for the old fluorescents means that the council is also saving on its maintenance costs.



### **Energy costs reduced for council buildings**

Carbon emissions at four Wagga Wagga City Council buildings are dropping by about a quarter following implementation of a range of energy efficiency improvements.

The projects worth \$230,000 reduced energy consumption across the civic centre, civic theatre and airport by about eight per cent, through new upgraded lighting, power factor correction units, variable speed drives and voltage reduction units.

Finance through Low Carbon Australia, now the CEFC, was structured so energy savings of over \$60,000 a year were greater than repayments from day one.

Low Carbon Australia, now the CEFC also provided financing for an upgrade of the Oasis Regional Aquatic Centre, installing a cogeneration system to halve the centre's annual energy costs. The council secured a \$375,000 grant through the Australian Government's Community Energy Efficiency Program (CEEP) for the remaining cost of this \$780,000 project.

Annual cost savings for the aquatic centre are at least \$320,000 based on current energy prices.



### **Brisbane office block's five-star transformation**

A seven-storey 1980s Brisbane office block has achieved a 5-star NABERS Energy Base Building Rating following \$1.23 million in energy efficiency improvements.

The 247 Adelaide Street building's 0 to 5 star transformation has achieved a reduction in base building electricity use of nearly 50 per cent.

The improvements involved installing new high efficiency air cooled chillers, new pumps and variable speed drives, a new mechanical switchboard, solar thermal heating, ventilation and air conditioning (HVAC) units and LED lighting.

With 3,000 square metres net lettable area, the building is used for office and retail purposes in the heart of Brisbane. Low Carbon Australia, now integrated into the CEFC, provided around \$700,000 in finance for the upgrade with the remaining amount sourced through the Australian Government's Green Building Fund.

The upgrade also enabled the building owners to benefit from incentives offered by energy supplier Energex for reducing peak demand.





### **Brisbane commercial building upgrade**

An 11-storey commercial office building at O'Connell's OBM House at 26 Wharf Street, Brisbane, reduced its energy consumption by over 40 per cent following an energy efficiency upgrade.

The \$585,000 upgrade involved improvements to the building management system, chiller and mechanical plant, and an upgrade of base building lighting, metering and controls.

It took the building's NABERS rating from 0 stars to a targeted 4+ stars and resulted in annual cost savings of around \$54,000.

The building's owners sourced upfront capital for the work from Low Carbon Australia, now the CEFC. The finance was paid back in full after the building was sold in 2012.

The upgrade with energy efficient technology delivered immediate savings, improved tenant amenity and appeal and helped drive up the value of the property in a highly competitive market.



### **Hotel complex EUA upgrade**

A \$1.3 million energy efficiency upgrade to the multi-use 1960s high-rise CQ building at 123 Queen Street, Melbourne, is delivering energy cost savings greater than 50 per cent.

The CQ complex improvements were financed by an Environmental Upgrade Agreement involving National Australia Bank, Eureka Funds Management and Low Carbon Australia, now the CEFC.

A tri-generation system to generate electricity, heating and cooling, as well as occupancy sensors and double glazing reduces the building's carbon emissions by an estimated 27 per cent, which at current electricity prices is creating savings of about \$180,000 a year.

Other upgrade benefits include an improvement to the overall value of the building, improved attractiveness for tenants and an improvement in its NABERS rating from 2.5 to targeting 4.



### **EUA upgrade for Sydney CBD building**

An office and commercial retail building in Sydney expects to cut its grid electricity usage by over 50 per cent and natural gas usage by four per cent through a \$2 million retrofit using Environmental Upgrade Agreement finance.

The building upgrade involves new lighting and building metering, improved heating and cooling, and an upgrade of elevators and hydraulic services.

Engineering consultants Dalkia will carry out the project.

The project is being realised through Environmental Upgrade Agreement financing between the City of Sydney and NAB under The Australian Environmental Upgrade Fund (TAEUF) established with Low Carbon Australia (now integrated into the CEFC) and administered by Eureka Funds Management.



### **Melbourne EUA upgrade for lifts, chiller**

A 19-level 1970s commercial building in Melbourne is undergoing a \$7 million environmental upgrade that is expected to more than halve energy use and carbon emissions.

The 501 Swanston Street project includes new energy efficient regenerative braking elevators, a full upgrade of the plant room, chillers and boilers, and solar film for the windows to lessen the load on air conditioning. The upgrade is underway and expected to be completed by June 2014.

Carbon emissions are expected to drop by just over 600 tonnes a year and the upgrade is expected to create additional savings of more than \$80,000 a year in utility costs.

The project is using an Environmental Upgrade Agreement involving the City of Melbourne and finance from National Australia Bank under The Australian Environmental Upgrade Fund (TAEUF) established with Low Carbon Australia (now integrated into the CEFC) and administered by Eureka Funds Management.





### Council offices upgrade

Three buildings belonging to Victoria's Central Goldfields Shire Council have been upgraded and are saving more than \$22,000 a year on electricity bills, while reducing carbon emissions by about 15 per cent.

Lighting was upgraded at the council office. The Maryborough Resource Centre also had a lighting upgrade, HVAC upgrades and solar photovoltaic panels installed. At Maryborough Leisure Centre existing appliances, lighting and insulation were improved.

Low Carbon Australia, now the CEFC, provided upfront finance for the \$164,000 upgrade project, which enabled the council to undertake the work sooner.



### Council cuts energy bills

The Tumut Shire Council administration building's grid electricity consumption has been halved through the introduction of energy efficient lighting, an upgraded air conditioning system and solar photovoltaic panels.

Tumut Shire Council in the Snowy Mountains, about 400 kilometres south-west of Sydney upgraded its administration building which provides services for Tumut and other surrounding towns of Gilmore, Adelong, Grahamstown, Gocup, Brungle, Talbingo, Wondalga, Batlow and Cabramurra.

The council occupies just under half the building and leases the remainder to the Rural Fire Service, NSW Forestry and Corrective Services. The building also contains meeting rooms that have been refurbished for use as an operation centre in the case of natural disasters such as flooding or bush fires.

Using finance from Low Carbon Australia, now the CEFC, to cover the upfront cost, the council replaced an air conditioning system that was about 40 years old and upgraded existing lighting with more efficient T5 fluorescents to further reduce energy use. An energy audit performed on the building before work was carried out, was conducted through NSW government's Office of Environment and Heritage Energy Saver program.

The upgraded building's carbon emissions have been reduced by about 250 tonnes a year and all building tenants benefit from the improvements.



### **Lighting upgrade saves through on-bill finance**

Australia's largest building and construction materials supplier, Boral Ltd has cut the energy costs of a major shared service facility by more than one quarter, through a lighting upgrade using on-bill finance through Origin.

Boral's Greystanes House site at Prospect in western Sydney is a major shared service facility. By replacing old fluorescents with newer technology including motion sensors and upgrading car park lighting, Boral reduced the energy use of the facility by one quarter and carbon emissions by about 830 tonnes a year.

The \$417,000 project accessed on-bill finance through Origin and Low Carbon Australia, now the CEFC.

Previously over-lit areas were altered so that they are served more efficiently and the new automated system means lighting operates at the most efficient levels at all times.

The lighting upgrade was part of a larger refurbishment of the facility which was built in 2002 in the grounds of the 330-hectare Greystanes Estate.

Boral has more than 14,500 employees working across more than 650 operating sites. The company produces and distributes a broad range of construction materials, including quarry products, cement, fly ash, pre-mix concrete and asphalt and building products.



### **Melbourne office EUA upgrade**

A 15-storey 1970s office block at 470 Collins Street in Melbourne has cut its energy costs by up to 30 per cent through an upgrade.

The \$720,000 upgrade involved installing a new cooling tower, two new efficient condensing systems, a new building management system and energy efficient lighting.

The upfront project cost was covered by finance through an Environmental Upgrade Agreement involving National Australia Bank, Eureka Funds Management and Low Carbon Australia, now the CEFC.



### **Cogeneration delivers leisure centre energy savings**

Cardinia Life, the premier health and recreation facility in Pakenham, south-east of Melbourne, is benefiting from a range of energy efficiency measures undertaken as part of a \$740,000 upgrade that saves about \$75,000 a year on its energy use.

The council undertook the upgrade using finance from Low Carbon Australia, now the CEFC, and a grant from the Australian Government through the Community Energy Efficiency Program (CEEP).

Energy efficient lighting and air-conditioning, a heat pump and a microturbine cogeneration unit all contribute to the centre's energy savings.

By reducing the operational cost of the facility, the council reduces the centre's cost to ratepayers while significantly reducing the centre's carbon emissions.



### **Building improvements save aquatic centre costs**

Upgrades to the local aquatic centre and council administration centre at Forster in NSW are helping Great Lakes Council save about 12 per cent or \$30,000 a year based on current electricity prices.

The council's upgrade program involved more than 20 individual activities, focusing on lighting, water heating and insulation.

The council sourced finance for the project from Low Carbon Australia, now the CEFC.

The aquatic centre and administration building were the two highest energy use buildings the council owned so it made good sense to improve their energy efficiency.



### League Club saves on energy

The Gold Coast's Burleigh Bears Rugby League Football Club is reducing its lighting bills by 65 per cent through energy efficient equipment.

The club used Energy Smart Finance, an initiative of FlexiGroup and Low Carbon Australia, now the CEFC, to cover the upfront costs of the \$40,000 installation carried out by Energy Smart Finance vendors Carbon & Energy Reductions (C&ER) Pty Ltd.

Repayments were more than covered by the savings in energy costs gained through using high performance LED and T5 fluorescent lighting. The products installed have a life of around 10 to 15 years and warranty periods of between three and five years are offered.

Club patrons have benefited from high performance lighting in dining, conference and other facilities and the club is also making savings on maintenance thanks to the new equipment.



### Stadium lighting upgrade

The Central Coast Youth Club (CCYC) at Niagara Park on Gosford's northern outskirts has reduced its court energy use by over 60 per cent, through a \$50,000 lighting upgrade.

Global Sustainability Initiatives (GSI) installed Australian designed and manufactured, multi lamp high technology reflector lighting at the stadium's basketball courts, stadium entrance and trampoline area.

As well as cutting the club's total energy bill by about a third, the upgrade has reduced carbon emissions by about 70 tonnes a year and improved lighting levels.

The CCYC used on-bill finance offered by Low Carbon Australia, now the CEFC, and Origin to cover the upfront cost of the project. The repayments, made through the club's regular energy bill, were structured so that the savings exceeded the costs, making the project cash flow positive from day one.

CCYC is home to the Basketball NSW Member Association Central Coast Waves and Power Basketball. It also hosts about 25 different internal clubs at its complex and can cater for sports as varied as badminton and gymnastics.



### **Heritage building upgrade saves energy**

An upgrade to Castlemaine School of Mines, a heritage-listed building in the Victorian gold-mining town of Castlemaine, is reducing the building's energy use by about 40 per cent.

Lighting improvements costing about \$100,000 were financed by Low Carbon Australia, now the CEFC, and complement other work to improve the building's sustainability which includes improved ventilation and central ducted air-conditioning, a refurbished hydronic heating system, ceiling insulation, sunscreens to control solar heat gain, installation of skylights and systems to allow rainwater harvesting.

Mount Alexander Shire Council is saving about 40 per cent on the building's energy bills and reduces its emissions by about 65 tonnes a year as a result of the lighting upgrade.

The refurbished building enables Mount Alexander Shire Council to situate its staff in the centre of Castlemaine and provide a one-stop-shop customer service for residents.

The School of Mines is one of several heritage buildings on Castlemaine's Lyttleton Street, sitting alongside the Town Hall, Post Office and former Imperial Hotel. The town has a proud heritage dating back to the gold rush, and the work to transform the School of Mines building is designed to protect the past while leading the way towards a more sustainable future.



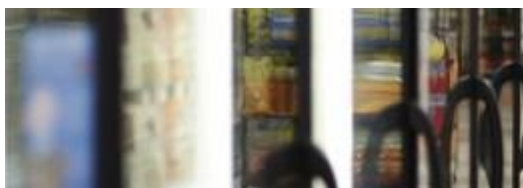
### **Parramatta office EUA upgrade**

A high-rise office building tenanted by the NSW State Property Authority in Parramatta NSW is benefiting from savings of about 70 per cent on its lighting bills following an upgrade.

The 10 Valentine Street property underwent a lighting upgrade to the 15,200 square metres of tenancy areas which replaced old lights with e1 lighting and LED lighting.

The upfront project cost was covered by an Environmental Upgrade Agreement involving the Parramatta City Council, National Australia Bank, Eureka Funds Management and Low Carbon Australia, now the CEFC.

The collective operating savings gained through maintenance and reduced electricity use is effectively shared between the building owner and the tenant.



### Frozen food savings

Crafty Chef, one of Australia's leading producers of high quality frozen prepared meals and finger-foods, has cut its annual energy consumption by 55 per cent through the installation of a \$1.2 million environmentally friendly refrigerator system.

The family firm, in western Sydney, is able to expand production and reduce costs while cutting its carbon emissions through the use of the state-of-the-art industrial spiral freezer system.

Using current energy prices the equipment is providing annual savings of \$65,000.

The upgrade allows Crafty Chef to control its refrigeration costs and continue to profitably grow its business supplying meals like cottage pies, chicken risotto, curry puffs and samosas, sold in supermarkets nationwide under The Good Meal Company, Bella's Kitchen and Simply Special brands.

Finance from Low Carbon Australia, now the CEFC, helped Crafty Chef meet the upfront cost of the project and supported the business to secure 50 per cent of the cost through the Australian Government's Clean Technology Program.



### Brisbane store lighting upgrade

IGA Milton, in Brisbane's inner west, has undergone a \$28,000 lighting upgrade that is reducing its annual electricity bill by more than 22 per cent.

The store upgraded its lighting, replacing old fluorescent lights with LED lighting in a project that was cash-flow positive for IGA from day one.

The lighting upgrade also results in reduced carbon emissions of more than 105 tonnes a year.

The store accessed the upfront of the project through Origin and Low Carbon Australia, now the CEFC. It used on-bill finance to make payments through its regular energy bills.





### Beef exporter cuts energy costs

A \$240,000 upgrade to Kilcoy Pastoral Company's air compressor system is helping the company make related energy savings of more than 40 per cent.

The upgrade not only substantially boosts performance of the air compressor system but also improves equipment life span and eliminates production down time. Maintenance costs are reduced by 30 per cent and carbon emissions by about 700,000 kilograms annually.

The leading Australian beef exporter and a major regional employer, Kilcoy Pastoral Company undertook the upgrade as part of a continuing series of improvements aimed at delivering world-class operations.

Kilcoy Pastoral Company accessed upfront finance through Origin and Low Carbon Australia, now the CEFC. It used on-bill finance to make payments through its regular energy bills.

The South-East Queensland company employs more than 750 people and processes more than 800 cattle a day, exporting premium beef to more than 20 countries worldwide.



### Retail lighting savings

IGA X-Press Runcorn, in Brisbane's South, is saving over 30 per cent on its annual lighting energy use following a \$6,000 upgrade to its lighting.

The store, its refrigeration display cases, and office and storage areas were all fitted with energy efficient lights that provide a warmer look than the old starker white fluorescent lighting. The new lights are under warrantee for five years.

Using on-bill finance through Origin and Low Carbon Australia, now the CEFC, repayments made through regular energy bills, were structured to be cash-flow positive from day one. IGA Runcorn has saved on its energy bills from day one. With rising energy prices, these savings will increase over time.

The Clean Energy Finance Corporation (CEFC) has been established by the Australian Government to mobilise capital investment in renewable energy, low-emissions technology and energy efficiency in Australia.

The CEFC's flexible mandate and commercial approach provide an opportunity to achieve genuine market-based change by helping overcome the financial barriers that have previously prevented clean energy investment at scale.

Learn more at [www.cleanenergyfinancecorp.com.au](http://www.cleanenergyfinancecorp.com.au)

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