CEFC
CLEAN ENERGY FINANCE CORPORATION

Submission by the Clean Energy Finance Corporation to the Australian Government's '*Emissions Reduction Fund Terms of Reference*'

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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.

This submission builds on the experience of CEFC and Low Carbon Australia in financing Australian based emissions abatement over the past three years, and the private and government sector experience within the CEFC, incorporating commercial market insight and public policy outcomes and accountability.

The Corporation leverages an increased flow of funds for 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, thus preparing and positioning the Australian economy and industry for a carbon-constrained world. To service SMEs, development of financial aggregation vehicles with private sector co-financiers has been critical.

By working with private sector co-financiers, the CEFC leverages the total amount of funding available. In pursuing this strategy, through investment of $536 million of its own funds and $1.55 billion in private sector co-financing the CEFC has facilitated 4 million tonnes of abatement, achieved at negative cost (i.e. net benefit) of $2.40 per tonne of abatement.

In its operation, the CEFC has enhanced the expertise and shared learning across the sector to build Australia's capacity to fund clean energy projects. The CEFC makes its investment decisions independently, based on rigorous commercial assessments and undertakes high level due diligence and risk assessments on all projects, ensuring that 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 Direct Action Scheme is assumed to have both mandatory and voluntary action elements. The submission focuses predominantly on those areas expected to be the key areas of focus of the Emissions Reduction Fund (ERF) in which the CEFC and Low Carbon Australia have had the greatest engagement, namely voluntary action catalysed by availability of cost-effective financial incentives. This submission focuses on:

- the role voluntary activities might play in the ERF
- the size of the opportunity, the existing policies that could be successfully leveraged to address market mechanisms; and
- the barriers (both financial and non-financial) at play which can prevent additional to business-as-usual activity occurring.

Commentary regarding compliance is limited, primarily to where links, and therefore dependencies, are likely to exist between the compliance and voluntary elements of the proposed Direct Action Scheme.

The CEFC remains ready to share its particular learning through the process of development of the Direct Action Scheme and to help facilitate its effectiveness.

2. The Direct Action Scheme

Structure of the Emissions Reduction Fund

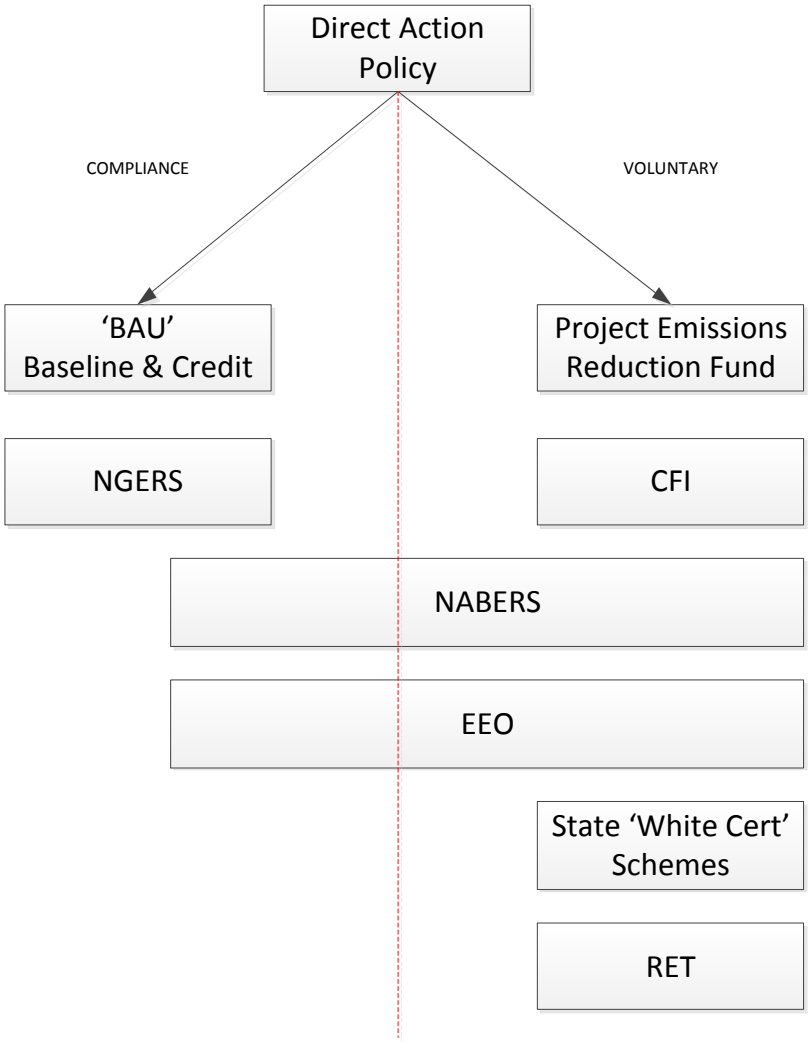
Implicit in the Terms of Reference is that the following existing elements of carbon policy will be integrated as components in the broader Direct Action Scheme (with some elements such as CFI and NGERs being augmented and/or up-scaled):

- the National Greenhouse and Energy Reporting scheme (NGERs)
- the Carbon Farming Initiative (CFI)
- the Energy Efficiency Opportunities (EEO) program; and
- the Renewable Energy Target (RET)

Our assumption is that:

- the NGERs scheme, with augmentation, could form the basis of managing facility emissions generated from business as usual (BAU) activity (the 'compliance' element of the ERF), whilst simultaneously
- a suite of methodologies (both existing and to be developed) will be used to facilitate 'additional' emissions reductions that would not otherwise occur without ERF incentives (the 'voluntary' element).

Given these assumptions, one way the ERF could fit into the existing policy context (provided by the RET, NGERs and EEO) is depicted below:



On this basis, a key consideration is the nature of the links between the NGERs, EEO and ERF components.

The ERF can fund a broader set of opportunities than just entities liable to report under NGERs, and the NGERs scheme covers a historical set of activities as opposed to the future opportunities identified by the EEO program.

Linkages between the three might include:

- all NGERs entities could be eligible for funding of voluntary action under the ERF, depending on whether the proposed project is additional
- EEO opportunities could be eligible for funding under the ERF depending on whether the proposed project is above a threshold (such as payback) which suggests the project would not succeed under business as usual circumstances; and
- the ERF could consider emissions abating projects that are not related to either the EEO or NGERs companies.

Abatement Activities

The following project types are assumed to be eligible for ERF funding subject to each project's evidence that it is additional to business-as-usual activity:

- Energy Efficiency and demand side abatement (such as embedded generation)
- Fuel switching to lower carbon energy sources
- Contracts for closure that avoid leakage
- Kyoto offset projects (including reforestation, livestock emissions reduction and waste treatment); and
- Non-Kyoto soil carbon projects.

TABLE: Summary of how the compliance and voluntary action components might work together, and how they are differentiated

	Baseline Scheme (NGERs)	**Activity/Project Fund**
Participation	• Mandatory	• Voluntary
Target entity & sources	• Facility based	• Project based
Mechanism	• Buy ACCUs if exceed baseline, potentially sell abatement below baseline	• Reverse auction for lowest cost additional abatement
Reference Methodologies	• NGERs • Original NSW Greenhouse Gas Abatement Scheme	• CFI • LCAL/CEFC carbon methodology ($/tCO2 focus) • White Certificate Schemes – Deemed Savings, NABERS, Impact Assessment based etc. • Greenhouse Friendly • CDM • Original NSW Greenhouse Gas Abatement Scheme
Abatement activities	• Investment in core business activities with abatement a secondary benefit • Generic energy related management strategies and policies	• Reforestation and avoided deforestation • Livestock emissions and waste disposal • Industrial gas (HFC23, N2O) abatement projects, for example in the refrigeration

	• EEO measures that would be implemented as BAU	industry • Capital Expenditure for energy efficiency and eligible renewable energy measures • Contracts for closure that void leakage • EEO measures that do not meet payback hurdle rates
Issues	• How to adapt NGERs to equitably recognise growth, change in product mix, existing energy efficiency performance - perhaps focussing on emissions intensity i.e. tCO2/tonne production • Should baselines be Industry/Sector based or specific to each facility/corporate?	• How to ensure additionality (i.e. projects are exceed 'business-as-usual') whilst maintaining efficiency and not imposing undue time and costs • Cost impediments • Level of on-going monitoring and verification to prove abatement. This will be a balance between precise accuracy and cost (options include reliance on engineering estimates, sample audit of performance, or requiring recipients to undertake (and pay for) full monitoring and verification as part of eligibility/contract)

NGERs and a Baseline Scheme

The Government is proposing that a system of baseline measurement and compliance could be the way by which Australia moves at a macro level towards its abatement target, by targeting the largest users (those required to report under NGERs) and ensuring their emissions profile, as a collective, is heading in the right direction.

In this manner a baseline would be set, at facility, sector or industry level, and then an entity's emissions would be tracked against this baseline. If set at a sector or industry level, the baseline would essentially reflect an average or median of the collective entities' performance and mean approximately half the entities would, by proceeding with 'business as usual', exceed the baseline while the other half would contribute less than the baseline emissions.

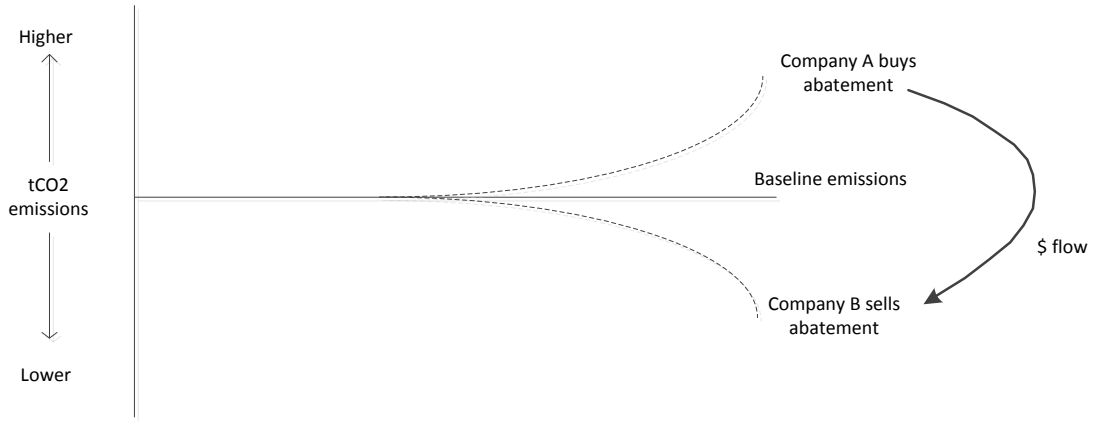
When comparing an entity's emissions against a baseline, normalisation for factors such as growth, change in product mix and sector specific economic challenges should be considered. Therefore, whilst absolute reduction in carbon emissions is required for Australia to meet its 2020 target, the choice of a baseline scheme indicates a view that an emissions intensity baseline would prove more equitable for the entities it is applied to. It is for this reason that abatement should be calculated with reference to unit of output e.g. tCO2/tonne of product and consideration also given to 'smoothing' mechanisms (such as rolling averages) when establishing baselines.

An international example of this approach working in practice can be found in the UK and its Carbon Reduction Commitment policy. It is applicable to large, non-energy intensive companies not otherwise captured by the EU ETS such as public sector and commercial organisations.

Effectively NGERs–reporting entities would be measured according to their comparative emissions intensity. The highest emitters, by intensity, would pay a penalty by warrant

of being required to buy abatement to hit their baseline target, and the lowest emitters would have opportunity to sell their abatement.

A diagram of the scheme is set out below.



Such an approach incentivises a 'race to the bottom' (where the 'bottom' is the lowest emissions intensity).

A degree of tolerance is factored into the system to ensure that companies that only minimally exceed their emissions output above baseline are not unduly punished. For example, flexibility could be built into the system so companies are not penalised when emissions output is exceeded by less than a 2 or 3% variance. Conversely, companies that decrease their emissions output by less than this variance would not be able to sell abatement for doing so.

Many factors at play may cause a company to exceed their BAU emissions output or decreased their output such as the changing nature of that company's structure, their product output/mix, previous energy efficiency programs kicking in, economic fluctuation, among others. As such, it is not always about a deliberate failure to follow agreed emission reduction procedures that results in a company exceeding the baseline.

Detailed consideration of methodology by which baselines and the covered entities emissions are reported would be required, but the NGERs system already in place would be a logical scheme to build from. Oversight responsibility for assessing whether a company is meeting its agreed BAU emissions output will need a robust mechanism for assessing/auditing whether a company is meeting its agreed BAU emissions and a means to factor in the forces impacting achievement.

For the purposes of discussion, it is assumed that:

- the NGERs program would be a starting point mechanism by which to monitor BAU activity; and
- the ERF would be used more selectively to incentivise low-cost high-abatement projects that should be catalysed in addition to the baseline activity above.

3. Design of the Emissions Reduction Fund (ERF)

Purpose of the ERF

The Australian Government's stated objective for the Emission Reduction Fund has been stated to be to'*…efficiently and effectively source low cost emissions reductions that will contribute towards our 2020 target*.'[1]

Some of our comments are directed towards the non-explicit outcomes of the Direct Action Program which the Government may want to influence through the design of the ERF. These positive externalities are necessary and will have an amplifying cumulative impact on lowering carbon emissions more cost-effectively and achieving a more competitive economy in a carbon constrained world. These cost-lowering externalities include making technologies move faster along the innovation chain and down the cost curve and through improvements in technology design, supply chain depth, construction practices, operating skills, financing structures and market risk appetite. Such positive externalities include:

- **Technology Expansion and Development** – Increasing future energy optionality by expanding available technologies. Improving acceptance of a new concept or approach in financing markets by supporting the completion of 'first wave' projects employing a new or emerging technology and lowering the cost for subsequent projects
- **Dispersion and Take-up** – Assisting in broadening the acceptance and timely take-up of an abatement technology or energy efficiency measure by sharing the learning across all sectors of the economy
- **Demonstration and sharing learning** – Investment in projects which establish successful precedents and pave the way for the rollout of similar facilities
- **Financial Leverage** - Leveraging and catalysing private sector funds into abatement activities;
- **Expansion and Diversity of Investor Base** - Extending participation in abatement investment across all investor classes
- **Market Capacity and Sector Skills** – Building and maintaining local market capacity in terms of technological know-how, engineering, manufacturing capability or localised supply chains; and
- **Emissions Reduction** – Progressing Australia's reduction in emissions.

Key Issues in Design of the ERF

The major design aspects which will need to be considered in conjunction are:

A. ***Cost*** - the scheme is seeking lowest cost emissions, so not just absolute tonnage but the cost per tonne is determinative. Costs might need to be considered as all consumers would know it is not often the best determinant of quality.
B. ***Emissions Reduction*** - the scheme is being set up for abatement, so there must be measurable carbon savings, which implies:
    i) a baseline measurement, and
    ii) either
        i. an imputed saving determined by an agreed methodology, or
        ii. an actual saving as determined by measurement and verification following an approved methodology.
C. ***Timing of Emissions Reduction*** – the scheme is targeted to meet a 2020 national target deadline (7 years away), making timing of *when* the funded emissions savings are delivered and *for how long* both important factors.

[1] *Emission Reduction Fund Terms of Reference* Australian Government October 2013

D. ***Additionality*** – the scheme is based on ensuring that available funds are used to incentivise the lowest cost abatement activity that would not otherwise occur in the absence of the ERF else payments would look like subsidies

E. ***Efficiency and Effectiveness*** –The ERF design should be efficient (i.e. delivery at low cost) and effective (i.e. actually achieve the intended result). Issues to be resolved include:

   i) Minimising administrative expense of the ERF to government and/or for complying entities; and

   ii) Whether the ERF will be used to fund business as usual activity (e.g. closure of facilities that may have occurred for external reasons in any event).

F. ***Potential Risks and Governance Arrangements***

The experience of the CEFC (and before it, of Low Carbon Australia) is that it is critical that these issues are all addressed effectively for successful achievement of abatement under the scheme.

Based on this experience the following comments are offered on each aspect:

A. Cost

A central issue for the Green Paper is defining 'lowest cost' with respect to whoever is paying – the investor, the Australian Government or the economy as a whole?

We assume the terms of reference apply the term 'lowest cost' to mean 'lowest cost to Government'. The ERF is a capped fund, and the lower the per-tonne cost of carbon abatement, the more abatement can be purchased within the limits of the fund.

It will be critical to determine whether the concept of 'cost' should take into account emissions savings of a project beyond 2020 or beyond the life of the terms of the ERF purchase contract. Without taking into account the lifetime carbon savings of a project, a costing will skew towards short-term emissions reduction that may not be the most efficient means of abatement (or indeed, offer any long-term abatement benefit).

Exclusive focus on short-term targets may also lead to unintended perverse incentives resulting in a rapid rebound of emissions growth as soon as the Scheme ends (e.g. payment made for low cost abatement from closure of an emitting facility, where the output of that facility is replaced with a higher emissions-intensive facility after 2020).

Risk management and sectoral spread are also key issues. It is theoretically feasible to achieve a low cost of emissions abatement by directing all of the funding into the one technology on the basis of costs alone.

However, this needs to be considered against the risks of flooding a small industry sub-sector with funds and providers. This could prove counter-productive and likely to promote a 'bubble' micro-economy with attendant risks (as experienced with some high profile schemes in the past). Banding and sectoral targeting of various proportions of funds within the ERF's yearly budget to several sectors with identified abatement potential would facilitate a diversified portfolio-type approach and help mitigate concentration risks. A strategy involving mitigation of concentration risk is likely to ultimately lead to a lower cost of abatement in practice.

Various types of payment structures should be considered

To ensure projects and proponents can finance abatement project various support mechanisms should be considered. Whilst we understand that it is proposed that a forward contract to purchase by the ERF might be possible, it would be inefficient to have the private sector lending at a high margin against a government receivable.

Doing so would transfer part of the proceeds of the scheme to the private banking market for taking government credit risk.

Contracts and payment structures as a risk mitigant

Although a 'make-good' requirement, requiring the project developer to deliver alternative abatement if their own project under-delivered, may be attractive in prospect for the Government, with no liquid market from which to source replacement abatement, this requirement may significantly increase the overall auction price or result in a project becoming un-bankable. In addition, the value of a promise to supply alternative abatement only provides true certainty for Government in circumstances where the promisor is a creditworthy organisation with strong financial backing.

Accordingly, alternative contractual risk mitigation strategies, such as:

- Allowing project proponents to choose between participating in two separate auction streams – one where delivery is 'guaranteed', so that there is a requirement to replace abatement or pay damages for non-delivery, and the second where delivery is 'non-guaranteed', so there are limited contractual consequences for non-delivery. As the Government bears ordinary project delivery risk (e.g. weather events, technology risk etc.) in the second case, the auction price should invariably be lower in this category.

- Requiring early termination rights for significant project delays or underperformance (analagous to termination rights for project finance loans not drawn in the availability period or where financial covenants don't hit a pre-agreed hurdle); or

- Allowing projects to choose to bid on the basis of flexible payment structures to incentivise success in delivering emissions reductions in accordance with a delivery schedule on a dollar per tonne of CO2-e abated. For example, projects that meet all expected emissions reduction targets by a pre-agreed deadline would get the full agreed payment as determined by the auction process.

A balance will need to be struck between the need for certainty of delivery across the ERF portfolio with the risk that early termination rights and flexible payment structures can create substantial revenue uncertainty from a project owner's perspective, and will make otherwise feasible and attractive projects unbankable.

There are many reasons beyond the control of a project owner that an emission reduction project may not proceed on time and generate the expected volume of CERs. For example, tracking a CDM portfolio of agricultural methane avoidance projects implemented by Energy Initiative Japan Inc. on the UN website (and in which an Australian bank is listed as a project participant), it is clear that projects implemented by the same sponsor and with the same technology type can vary substantially in their performance.[2] Similarly, CEFC has been able to work with proponents of projects in the agricultural methane capture and use for energy to add to the sector learnings and improve performance of some projects for the benefit of those projects and for subsequent adopters.

Such variation in performance could have resulted from a number of factors, including seasonal demand for the underlying agricultural product (in the instance cited above this was Chinese rice wine), weather events, availability of the UN auditing teams etc. If a CER purchaser had procured offsets from the entire portfolio, they would have spread delivery risk across a portfolio, thereby mitigating delivery risk from one specific project

[2] As an example of two such projects, see http://cdm.unfccc.int/Projects/DB/JCI1286519863.68/view and http://cdm.unfccc.int/Projects/DB/JCI1244451177.92/view

(as is the Government's position as purchaser of abatement from a range of projects) and would have received an acceptable overall volume. However, to penalise one particular project for underdelivery by requiring replacement credits or damages (regardless of the reason for underdelivery) would have created a significant financing risk for the projects and could have resulted in them not occurring at all. Even if a make-good provision was achieved in the contract, it is questionable how much financial resourcing the individual small breweries would have had to support this guarantee. For this reason, offtake contracts in the CDM have tended to be 'non-firm' contracts for non-guaranteed delivery, with damages only payable where non-delivery results from the project owner's fraud, gross negligence or wilful default.

Projects have different externalities that should be considered

A further issue is whether qualitative criteria will be used to differentiate between two near-identically priced offers. For example, Offer A may abate at $7.00 per tonne but contain no positive externalities to the transaction while Offer B may abate at $7.01 per tonne and create 200 jobs in a regional community. Would Offer A automatically be assumed to trump Offer B in such circumstances?

Considering positive externalities is necessary and will have an amplifying cumulative impact on lowering Australia's carbon emissions more cost-effectively and achieving a more competitive economy in a carbon constrained world. These cost-lowering externalities include making technologies move faster along the innovation chain and down the cost curve and through improvements in technology design, supply chain depth, construction practices, operating skills, financing structures and market risk appetite. The ERF projects will play an important demonstration role in broadening and increasing take-up of advantageous abatement technologies or energy efficiency measure by sharing the learnings and paving the way for the rollout of similar facilities across all sectors of the economy.

At the same time, the nature of the abatement activity will need to be considered to avoid consequences that create unintended environmental risks. An example could be the plantation of monocultures that sterilise the rather than enhance the resilience of these ecosystems. Projects might utilise significant water or produce other problematic environmental issues.

Cost Reduction through Upfront Crediting

The cost of payments to individual projects, and therefore the overall scheme, may be reduced if provision is made for upfront credit payment to be repaid when projects are operational.

A barrier to many projects is upfront capital. If a project is being developed to provide return, upon completion it may well generate capital return, but in the interim upfront capital is typically required to cover project development, construction and installation. Many traditional financiers are happy to finance against something on the project that can be securitised (e.g. land or capital equipment) for which there is some prospect of recovery of loaned funds, but can be less willing to fund against those costs where there is not (e.g. sunk labour costs).

Such projects, if allowed under the scheme, may make very competitive offers as they may only require the funds (or at least a portion of them) during the construction and commissioning phase. This could be in the form of a grant, a low interest loan or finance for the duration necessary to realise the project outcomes. This could be critical in achieving involvement of small scale projects, SMEs and for longer term projects. A loans structure would lend itself to successful aggregation for such projects.

Under this scenario a successful auction participant would receive upfront project funding from the ERF and would be obliged to perform the project, achieve the promised abatement, and return the funds to the government within the abatement project timeframe (e.g. 4 years). This may be attractive to participants in near-commercial contexts where the cost of repaying the Government at year 4 is less in terms of rates than the finance sector can offer.

The table below explains potential scenarios:

- The first scenario is where the project proponent borrows from a financier to implement their project.
- The second scenario involves ERF payments being made upfront by Government. There is additional cost to Government, but the overall project is delivered at a lower cost to society.
- The last scenario presents an option where the proponent has offered the government $150,000 for the funding over 4 years. This provides for negative cost abatement to Government. An example of where the proponent might be willing to pay the Government for the up-front funds *and* deliver negative cost of abatement (to Government) is where the cost is:
    - Greater than government cost of funds; and
    - Less than costs of bank finance; and/or
    - It allows the bidder to exceed a hard bank Loan-to-valuation ratio that would otherwise be insufficient to allow construction to proceed.

In this final scenario the Government (and thereby the taxpayer) would actually make a profit from the project (rather than granting money), whilst achieving the same amount of abatement.

Scenario	**Finance amount extended**	**Repayments**	**Cost of funds to Borrower**	**Cost of Funds to Government (assume 3%)**
Proponent borrows from bank	$1,000,000 @ 8% over 4 years + 1% fees ($1,000)	$1,172,992.09 with capitalised fees and interest	$172,992 over four years	$0
Proponent bids for ERF prepayment	$1,000,000 over 4 years	$0	$0	$1,062,448 including borrowing costs
Proponent offers at negative cost for prepayment from ERF	$1,000,000 over 4 years	$1,150,000 (proponent has offered at negative cost per tonne)	$150,000	Negative $87,552 (i.e. return to Government) including borrowing costs

Example Case Study: Manufacturing Sector

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 to enable a $895,000 upgrade to the refrigeration of iconic South Australian ice cream manufacturer Golden North.

Using CEFC's carbon abatement methodology the project is estimated to deliver more than 17,000 tCO2 lifetime abatement by upgrading 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 also 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.

The cost to Government of catalysing this project (through the CTFFIP program) is estimated to be $26/tCO2 based on the grant size and the lifetime abatement. This project could therefore potentially prove competitive in a reverse auction for abatement under the ERF. However since Golden North had a funding gap, without the availability of finance from CEFC the project would not likely have occurred and a cost effective abatement opportunity be lost.

B. Emissions Reduction

Emissions Factors

It is assumed the ERF will be available for all GHGs as defined in Kyoto Protocol and not be exclusive to carbon dioxide, but calculation and verification of reductions post-implementation of an ERF project have not been addressed.

For project-based assessment of energy efficiency projects, emissions factors will need to be employed to convert from MWh to tCO2e. While current and future grid intensities may be available, unless a national or grid average is used, adoption of these will, for example, naturally lead to projects in Victoria being considered significantly more attractive relative to those in Tasmania, since the emissions associated with the same MWh saving are so much higher. This is because Tasmania's existing hydro-based power grid is already relatively low-emitting vis a vis Victoria's brown coal generation mix.

For projects based entirely off-grid (e.g. remote site, waste coal gas) reductions should be measured from the baseline activity (e.g. diesel engine, existing waste gas emission).

Measurement & Verification

Just as a rolling average for calculation of the baseline emissions intensity is necessary to deal with impacts of external influences causing fluctuation in the baseline, this also needs to be built into the post-implementation measurement.

There are three basic ways a post-implementation calculation of emissions intensity variance from baseline could be conducted. These are employed to varying degrees in other emissions abatement schemes (e.g. CTIP, Greenhouse Friendly, NSW GGAS, CDM) and Australian state white certificate schemes such as NSW's ESS and Victoria's VEET:

a) There could be actual on-site measurement and verification pre- and post-implementation of exact reductions achieved by a specific project: This is generally the approach taken by CTIP, Greenhouse Friendly and CDM;
b) The variance could be imputed by a methodology employing engineering judgement with reference to the known characteristics of the equipment/activity

being implemented: This is the approach taken with some methodologies in white certificate schemes; or

c) A combination of a) and b) could be performed.

Approach	Advantages	Disadvantages/Risk
A	Increased accuracy	Increased cost for no additional abatement
B	Decreased costs, increased ability to deliver smaller projects	Potential risk to accuracy of reported abatement

The design of the scheme will need to strike a balance between transactional efficiency to facilitate projects and philosophical environmental integrity:

- In some circumstances it may be appropriate to 'deem' certain activities to be additional and to generate fixed amounts of abatement. For example, the small scale RECs scheme, NSW Energy Savings Scheme and its predecessor the Greenhouse Gas Abatement Scheme, all provide a certain number of certificates for certain activities, without the project developers needing to prove additionality specific to their project or to retrospectively measure the abatement other than just to prove the project activity was undertaken.
- On the other hand, the CDM generally requires a project-specific baseline and project-specific monitoring and verification, which can be prohibitively expensive for small projects.
- The 'deeming' approach minimises administration effort and transaction costs by having one transaction touch point but risks not being philosophically consistent with achieving maximum overall abatement if estimated lifetime savings are too conservatively curtailed. For example NSW ESS currently limits lifetime savings for all technologies to a 5 year life with very conservative performance deterioration during this period, regardless of the technology involved. This weakness has been recognised by NSW and improvements are suggested (including adoption of Low Carbon Australia's Persistence Factor methodology) as part of its current ESS rule consultation).

On balance, and bearing in mind the need for the scheme to be 'efficient and effective', the best result from a risk management and cost-of-administration perspective is likely to be provided by a combination of the above applied on case-by-case basis following agreed frameworks that suggest optimum approach based on the nature of the projects involved and the level of confidence required by the ERF.

Advantage of Adaptation of Existing Methodologies

The advantage of using existing methodologies rather than creating new ones are obvious:

- The 'wheel does not be re-invented' – this produces savings in time and administrative cost to Government; and
- Industry is often already familiar with existing methodologies (e.g. CDM, state-based energy efficiency methodologies, NABERS etc) this produces savings in time, administrative and compliance cost to industry.

The question has been raised as to how to reconcile the desirability of using the existing NSW and VIC energy efficiency scheme methodologies with discordance between the two schemes' methodologies and ensuring the ERF does not displace that which is already being done.

In CEFC/LCAL experience these two schemes are providing important incentive for market diffusion of energy efficient technologies, particularly for smaller and mid-sized business. As the ERF moves towards a genuinely national energy efficiency scheme it will be important that this is achieved in a way which is additional to offer each of those schemes and that it does not cause market disruption in Victoria and NSW (including the risk of a lengthy hiatus in activities under those schemes pending introduction of the ERF). Particular attention will need to be given around:

- harmonisation of their methodologies
- maintenance of existing levels of support for these the NSW and Vic schemes; and
- availability of the methodology to the other states and territories.

Developing an approach to reconciling the differences in methodologies between CDM methodologies and also methodologies from the NSW and Victorian energy efficiency schemes, will be required, including for example the fact that the calculation for 'additionality' under those schemes is substantially different, making a 'like-for-like' project analysis difficult– see further discussion of additionality below.

C. Timing of Emissions Reduction

To meet the 2020 target, the scheme must be designed addressing timing and delivery risk to successfully achieve sufficient emissions abatement in a short time:

- firstly, funding for abatement projects, and contracts for project finance, can have quite long gestation periods before a contract is actually inked – especially since the nature of the ERF's 'additionality' requirement means new projects being considered will, by necessity, not be too far advanced;
- secondly, the nature of construction/implementation periods for large projects, typically taking 6-12 months as a minimum and being dependent on many variables (such as weather, licenses and approvals, shipping of equipment, availability of requisite skilled labour etc.) and consequently the implementation timeline can itself become quite long or blow out on occasions; and
- thirdly, someone has to finance the upfront capital costs of any project through the construction/implementation phase. The financier carries risk which is not alleviated by revenue streams which are only accessible post-implementation.

At the same time, the Scheme needs to be framed to ensure that it takes into account the longevity of the abatement process and the contribution to long term cost effective abatement through broader based adoption and the significant post-2020 abatement achievable through long term projects.

Many Kyoto Protocol governments and private sector players offer relevant experience in respect of means of addressing timing and delivery risks. For example, public information about success rates of the CDM demonstrate that many buyers (particularly early movers) actually received offset volumes that were substantially smaller or later than they had contracted to purchase.

As of 2011 (the year before the global slump in carbon prices made many CDM projects unfeasible), only 31% of the expected 1.8 billion Certified Emission Reductions were issued on time in accordance with the initial project proposals. 30% will never be issued as the projects were abandoned or rejected, and the remaining 39% were issued substantially late. Out of 100 projects submitting a project to the UN (which have already been pre-screened by an accredited auditor), only 52 ever issue CERs.[3]

[3] Cormier and Belassen, *Energy Policy* "The Risks of CDM Projects: How did only 30% of expected credits come through?"

The period between submitting a project to the UN and receiving final approval averages just over 300 days.[4] Adding to that a construction/implementation period and a monitoring period, it would be common for projects to issue their first CER more than three years after they submit to the UN, and often more than four years after the initial project concept is developed.

In order to achieve significant abatement within the targeted four year Direct Action eligibility period, this type of timeline needs to be condensed with effective pre-screening of projects (including for financial feasibility i.e. bankability) to maximise their chances of success.

Unlike the CDM, the Government will be the sole buyer in the market, and is thus able to select and carefully screen for strong projects without being under the pressure of competition from other buyers.

However this still does not alleviate the timing pressures and risks surrounding project delivery.

The Government intends to rely largely on the private sector to fund the projects participating in the ERF auctions. In CEFC's experience, under this approach there is likely to be a significant funding gap particularly for early first mover projects. It would be a poor outcome for the Government if projects which were awarded funding under the ERF hadn't properly assessed their finance prospects or costs and weren't able to achieve financing. This has been a common problem in a range of sectors expecting to participate and bid into the ERF in which CEFC and Low Carbon Australia have had direct experience.

As mentioned above whilst the project lender might be willing to take new risks, it is the CEFC/LCAL experience that without a catalysing agent, the banking market is highly reluctant to approve new structures. We are now a number of years into the potential for banks to participate in low risk Environmental Upgrade Agreement (EUA) transactions and still we have major banks withdrawing from the market as the new product approval process is complex and the individual transaction sizes small in banking terms.

The scheme will need to be structured to avoid the experience as recorded by the 2011 study by the Grattan Institute[5] and the 2009-2010 Audits of the Australian National Audits Office analysing a number of Climate Change Programs.

These analyses point to the need for robust design of the scheme to ensure that it builds in effective project risk assessment with respect to:

- sponsor/proponent quality (credit risk)
- technology risk
- implementation and operation risk (including debt and equity financing prospects);
- inputs to the financial model and the financial outcome in a number of sensitivities (e.g. delayed implementation, increased costs, movements in relevant markets, foreign exchange risks etc.)
- an independent assessment of cost per tonne of abatement.

[4] UNEP Risoe Centre's CDM Pipeline updated October 2013

[5] Daley, J; Edis, T & Reichl, J (2011), *Learning the hard way: Australian policies to reduce carbon emissions*. Melbourne: Grattan Institute.

As mentioned above, one way of viewing the Government's risk position under the ERF model is as a purchaser of offset credits when payment is made on delivery. A number of Australian companies have experience in purchasing offset credits under other schemes such as the CDM and CFI, and the scheme designers should leverage off this experience.

Although in this model the Government would not put money out the door until the abatement is successfully verified i.e. until the project is fully operational, the fund will need to know that its notional allocation of the $300m between projects has a good chance of achieving the promised abatement. If it does not, the Government won't spend the money, but will bear the international liability and may be exposed to purchasing international credits at higher future prices. Least cost abatement for the short-term doesn't necessarily equate to best value for money when all relevant aspects are evaluated, particularly in the face of being able to achieve significant increased or lower cost abatement over the longer term.

Feasibility Assessment and Contractual Risk Management

A consideration that often helps financiers in their assessment of project feasibility is whether the proponent must also have 'skin in the game' and an interest in achieving the designed outcome – this can be achieved as a prerequisite qualification. 'Skin in the game' can include expended equity, guarantees or loans from financiers that indicate that the proponent is under a financial pressure to deliver the abatement outcome – thus bringing market forces to work in alignment with the Government's aims.

Project commitment could further be encouraged by structuring the ERF payment as a genuine forward contract with contractual or statutory repercussions for breach in failure to deliver. The amount of weight that the Government could attach to a contractual remedy (e.g. a requirement for the ERF participant to deliver alternative abatement if their project does not succeed) will depend on a range of factors, including:

- the creditworthiness of the participant;
- the liquidity of the market in alternative abatement (i.e. if it is just Australia-based, in which case the market will be very illiquid, or if it includes credits under offshore schemes such as the CDM); and
- the nature of the project and reliability of the timing of abatement delivery

It will be important for the Government to understand how private sector financiers (from whom the project developers bidding into the ERF auctions will be seeking funds) will view the risks of a forward contract that may impose additional unknown costs in the event of under-delivery (as well as a loss of expected revenues). In CEFC's experience, experienced financiers will tend to manage this risk by requiring the project to make highly conservative assumptions on expected emission reductions, to impose a substantial 'buffer' in the auction offer price, and potentially to mitigate secondary exposure to the carbon market by purchasing derivatives. All of these risk management strategies could drive up the cost to the project, and ultimately reduce the number of projects able to bid and/or increase the auction bid price for bidding projects.

In this respect, it is also preferable that early notice of failure is encouraged and that companies are not unduly penalised when they proactively inform the Government of the likelihood that targets may not be reached. This has the added benefit that it allows the holder of the ERF contract for funds to surrender its contract in cases where it is clear it

will comprehensively fail to reach its target and this will free up the Government to recycle the allocated funds elsewhere in a subsequent auction.

Finally, another timing question worth considering in the green paper process is whether the emissions savings are monitored in an ongoing sense or estimated using a 'diminishing returns' methodology.

D. Additionality

Windfall profits and additionality

It is assumed that the ERF is not intended to fund business as usual (BAU) activity - i.e. that use of taxpayer's funds for a project that would have happened anyway is not an efficient and effective use of funding.

An example of the risk of funding business as usual activity is a submission to claim ERF funds for a manufacturing plant that was already going to be shut down. In such a case the closure of activity may technically attract eligibility under the ERF, but the Government and the taxpayer would receive no additional benefit for the dollars granted (i.e. in this example those closing the plant would receive a windfall gain).

To achieve its goal of least cost abatement the fund should aim to provide a contract purchase (incentive) price just sufficient to meet the gap to make a project financially feasible. However, working out an appropriate incentive level (i.e. the likely abatement offer price) requires project-specific analysis, taking into account risks to equity and debt providers. If a strict financial additionality approach is applied, there is a conceptual difficulty in rewarding only those projects that can prove they are financially infeasible without future ERF carbon funding, while those projects are at the same time trying to attract reliable debt and equity financing on the basis of proven prospects and revenues.

The assessment and due diligence process needs to be able to distinguish BAU activity from legitimate additional activity. An effective mechanism for managing this might be through an 'additionality' test, that is:

- That ERF funds only be made available for activity that is for new or additional to BAU activity; or
- That the activity being funded will be performed to a significantly greater scale or extent then what would have otherwise occurred; or
- That the activity would have been conducted earlier or brought forward to a significant extent than would otherwise have occurred.

Whilst other schemes implementing additionality (e.g. the CDM) have tended to focus on a general project-specific 'financial additionality' test, there are many reasons that projects which are financially attractive on their face do not achieve finance, so the additionality test for ERM eligibility should be broad enough to encompass other legitimate barriers to project implementation.

E. Efficiency and Effectiveness

In addition to the matters discussed above, the following are offered in the promotion of a scheme that is efficient and effective:

Prospective vs. retrospective payments:

The proposal that ERF claimants will be paid in arrears rather than in advance creates a number of implementation challenges for project proponents. The conceptual difficulty with payment in arrears to support projects that can only proceed with ERF funding is that it in effect defeats the ordinary purpose of grant-making:

- From a project proponent's point of view, grant funds are usually deployable as a kind of protected equity
- Instead of securing a project, payment in arrears inserts an element of risk that may be unacceptable to proponents and particularly their financiers (i.e. policy risk, changed market conditions, liability for under-delivery)
- Those who have spare, available capital to fund such a project will be eligible to receive the grant. Outside of energy utilities, the sectors with some of the biggest carbon saving opportunities – SMEs generally, manufacturing, buildings, mining, agribusiness – have just been through several years of tough trading conditions and are unlikely to be in a position to bear costs up-front (that is, those who may least need the grant may be the most eligible to receive it); and
- Those who have no access to free upfront capital will either have to:
    - load up on commercially priced debt to cover the implementation phase and bridge the period between awarding and payment of the grant (if they can find a bank that will lend to them at all, which may be extremely difficult given CEFC's observance of the financial sector's relatively recent entry into lending in these types of projects coupled with the risks identified above); or
    - leave an otherwise meritorious project unimplemented for want of capital (i.e. the parties that most need the grants won't get them).

While prescriptive definitions are critical for administrative efficiency and clarity, overly rigid specifications or methodologies can inhibit overall efficiencies being realised through the Scheme. Sectors identified as providing major reductions opportunities may not be sufficiently motivated or competitive under the ERF. Property has been identified as a major cost-effective energy efficiency opportunity for abatement.

CEFC experience (refer the real life example below) indicates that due to the capital intensive nature of property retrofits and long payback periods, significant incentives are required to shift behaviour. The most recent example is the Green Building Fund.

Example Case Study: Property Sector

A $500k Federal grant (Green Building Fund) was awarded to a building owner to facilitate a CBD lower grade property refurbishment. CEFC/LCAL provided $700k finance to complement the grant and finance the remaining amount required to enable the project to happen.

The business-as-usual scenario would have likely been a continued 0 star NABERS performance since the significant upfront investment cost and lengthy payback (typically 7+ years for deep building retrofits) meant the decision to invest in an energy efficiency upgrade would not be made.

The combination of grant (to reduce the payback) and finance (to bridge remaining up-front funding gap) was ultimately required to make the project commercially viable enough for the deep retrofit to happen.

The successfully implemented project resulted in a 35 year old building improving its NABERS rating from 0 to 5 Stars – an outstanding outcome. It is estimated to abate more than 5,500tCO2 over its lifetime.

The project was economically viable, and delivered a net societal benefit, due to the electricity cost savings that were ultimately larger than the grant costs to Government. When the Government grant cost of $500k is recognised as saving 5,500tCO2 over the project's lifetime this equates to a cost of $90/tCO2.

For a similar project to the one above to by enabled by the ERF fund (assuming it focuses solely on carbon abatement outcome and does not recognise wider cost benefits) then an incentive greater than $90/tCO2 is likely to be required to compensate for the lack of up-front funding. The reality is that a deep retrofit building upgrade such as the one described above would not prove competitive at an abatement auction and the opportunity would remain unimplemented.

We understand that it is proposed that the ERF be structured as a forward contract (*after the necessary technical and financial due diligence has been completed)* guaranteeing payment to proponents once abatement is delivered. In the absence of the Government providing upfront finance to support the project (which, per the analysis above, could result in a profit to Government and an overall funding efficiency), structuring as a contract gives the proponent the best chance of gaining non-grant finance (for example a private sector loan, or equity capital raising) since the ERF incentive is more 'bankable' and hence will give the ERF more chance of gaining private sector leverage (that means a cheaper cost to Government per tonne and more ERF funds to go around).

Aggregation

Aggregation will be critical to the ERF, as many of the most cost effective efficiency abatement projects are of small scale where the transaction costs of direct involvement in the scheme are prohibitive. Aggregation should be possible:

- Within businesses,
- By financiers, and
- By technology installers/providers.

The CTIP program, with over 440 grants awarded, had a median total project value of under $400K, despite having no cap on project size. A project of this size could not bear significant application and compliance costs associated with a scheme. Raising small individual loans of this nature from the private sector is unlikely to occur.

Project Screening and Evaluation

CEFC's experience in funding emissions reduction through loan-based finance is that there are no shortage of applicants or projects but:

i. a proportion of proposals received are from applicants who, in the view of financiers, are not capable of delivering the proposed projects

ii. a proportion of projects conceived are themselves non-credible (e.g. due to technical risk);
iii. a proportion of projects received are potentially bankable but are missing key components (insufficient equity or co-finance); and
iv. only a small proportion of proposals (maybe 10%) are mature enough to be readily funded.

During the 12 months that CEFC has been inviting proposals it has received a wide range of proposals that have all required evaluation for their relevant merits. In summary:

- Over 300 enquiries for projects valued at $25 billion
- Initial assessments of nearly 200 transactions
- Detailed investment assessments undertaken of over 50 projects ; and
- 11 investment transactions completed committing over $480m CEFC funding

Such high interest in Government finance programs is only likely to increase for programs where direct funds that don't require repayment are offered, such as the ERF. This is supported by the CTIP program, which announced over 440 grants in approximately 18 months of operation.

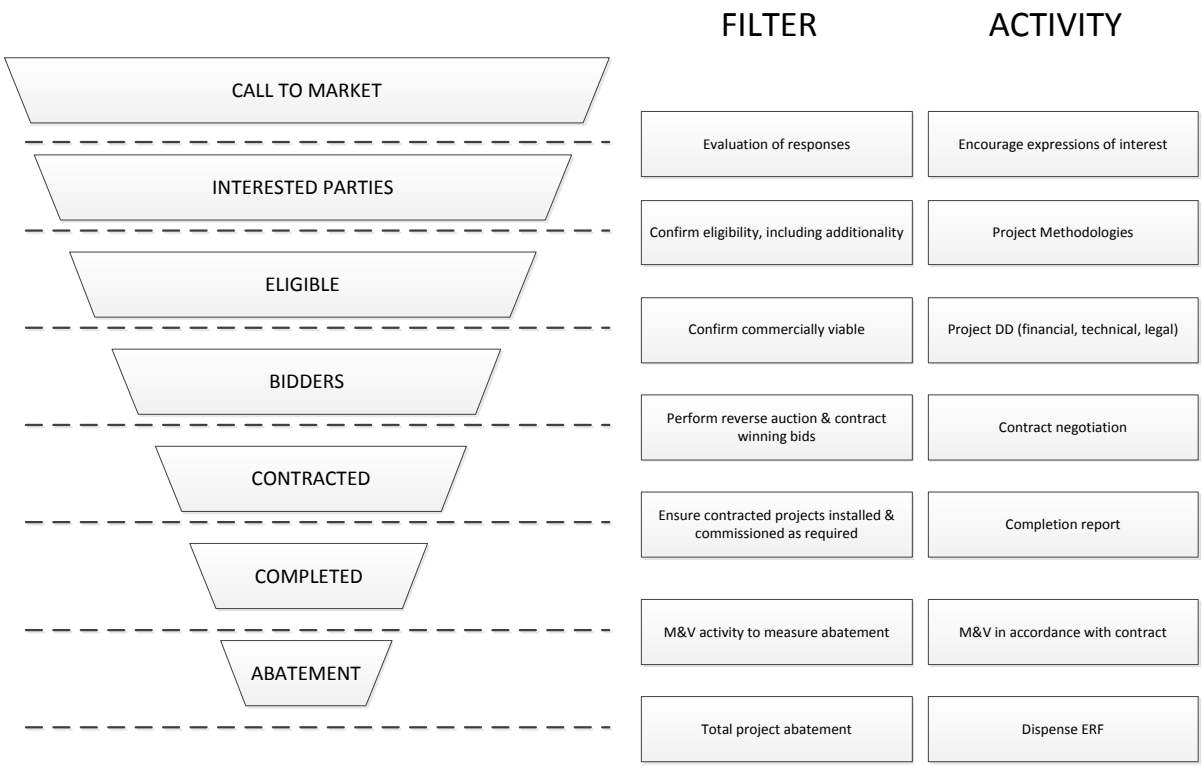
The ERF is likely to receive high levels of interest with risks that are more similar to a finance program, creating a significant project assessment resource requirement.

Our experience suggests that, with enough time, the opportunities will self-select to an extent and either mature to 'investible' stage (sometimes with the assistance of a 'patient' financier such as CEFC/LCAL) or lose momentum and fall away as opportunities.

Faced with this variable quality of opportunities, and the recognition that an immature proposal today may become a worthy proposal tomorrow, a 'gateway' process equivalent to a sales pipeline may be an appropriate model. In this, proponents' progress through stages as they meet each threshold requirement, and resulting in eligible offers for the ERF auction having each satisfied a stringent pre-screening process and being assessed as credible and financially feasible.

This aids in resource allocation to prioritise evaluations according to the likelihood of eventual contract fulfilment and successful abatement necessary to hit the 2020 target.

The diagram below illustrates progressive stages, gateways (each stage acts as a filter relying on specific activities being undertaken) and activities.



Right-sizing the Incentive under the ERF

As discussed above, many of the businesses where the efficiency gains could be greatest through upgrading old facilities do not have access to up-front capital. They are often mid-size businesses that might be asset rich but cash poor

Payment in arrears means for many there needs to be a source of project finance. This is likely to be expensive and result in a significant transfer of the ERF monies as returns to private banks

Financial institutions may have only limited interest in providing finance are reluctant to participate in taxpayer-subsidised green schemes because the policy keeps chopping and changing (dealing with Government is often deemed too risky where a long term loan commitment is required).

To mitigate this risk, if the Government itself will not provide advance funding, it will be critical to work with the finance sector to ensure suitable project financing is available in the marketplace to meet project proponent needs during the construction phase of a project which can be paid out on measurement, verification and successful release of ERF funds.

Implementation and Delivery Risk

Delivery risk is an inherent risk for any project funding program:

- Technical and financial diligence on the project proposals and reputational and capability diligence performed on the proponents and installation/construction team will mitigate delivery risk and channel resources and funding to credible projects and credible proponents.
- Delivery risk can also be mitigated by proponents having 'skin in the game' and aligned interest in achieving the designed outcome – this can be achieved as a

prerequisite qualification or by only paying from the ERF in retrospect. It could further be encouraged by structuring the ERF payment as a contract with contractual ramifications or make good for breach in failure to deliver in certain circumstances. Careful consideration will need to be given to make-good conditions for underperformance beyond the control of a project developer, as this could affect the ability for that project to obtain finance, or increase their auction offer price.

- The Commonwealth must establish safety standards that are to be agreed to in construction/installation of projects from which ERF will procure abatement and fund a mechanism for conducting audit of the same.
- A measurement and verification process to ensure the emissions reduction is actually achieved could be done either directly by the Commonwealth or by accrediting certifiers and periodically auditing them (e.g. as per the CFI and CDM processes).

Measuring Abatement

An important metric in demonstrating a project based program's overall efficiency as a carbon abatement measure is the way in which it is able to account for and demonstrate the public good contribution it is making in terms of the emissions abatement it is delivering project. It is critical to demonstrate the environmental return which it is generating in addition to the commercial performance. Any clean energy or energy efficiency investment should generate carbon savings, either as a result of replacing high carbon sources of energy with low carbon or renewable sources, or energy savings through efficiency in terms of lower consumption and therefore usually lower energy costs.

This can be quantified (both in absolute tonnes of CO_2e abated and a $/tCO2-e which is a measure of cost-effectiveness). It is essential that these outcome-based measures are quantified and communicated.

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

Low Carbon Australia, now part of CEFC, was tasked with making cost effective carbon abatement through energy efficiency projects with business. It therefore developed a carbon abatement methodology, see **Appendix 1**, to help evaluate competing projects.

Effective management of all of these risks will require diverse specialist technical and financial knowledge and experience, supplemented by external due diligence on complex technical and engineering risk assessments. A commercially focused, specialist body may be best placed to undertake this work.

F. Potential Risks and Governance Arrangements

Fraud and Risk

Fraud is an important issue that needs to be properly addressed in the structure of the ERF. This is important for the reputation of the ERF and the protection of taxpayer funds. Provisions under the general *Commonwealth Fraud Control Guidelines 2002* should be applied to activity under the ERF and policed accordingly, with the Department of the Environment responsible for compliance in this area.

A fully developed due diligence framework will also significantly reduce the risk of fraud impacting on the ERF. Project due diligence and the commercial approaches to mitigating

project risk incorporating the following components will be vital to factor into thinking around the assessment of projects:

Technology Risks

Energy efficiency and low emissions technologies both present varying degrees of technological risk depending on the nature of the technology under consideration and its stage of development along the innovation chain.

Assessment, analysis and mitigation for technology risk will need to be a key component of the risk analysis process undertaken for each project. Conducting thorough technical due diligence and integrating those findings and outcomes with financial modelling analysis will also be a fundamental component of the assessment process for each project.

Critical considerations include:

- available historical data on the reliability of the technology
- the degree of customisation required for the project to succeed
- the assessed suitability of the technology for the purpose and location; and
- the levels of testing undertaken and the confidence levels expressed regarding the expected performance of the technology.

Competitive Risks

Competition in a market with only one buyer can encourage unsustainable offer prices and there is a real risk that a competitive process may encourage offerors to undervalue the cost of abatement thus setting projects up to fail.

While this should result in a return of funds to the ERF or a cancellation of the forward contract, if this occurs in any volume the administrative cost of running the process could well result in the program being characterised as inefficient and ineffective.
To mitigate this risk there should be an effective pre-screening process where the Government assesses the likely cost of abatement for a specific project and cross-check to ensure that the auction settlement price is not substantially lower than the modelled parameters (i.e. that the project has not underbid and is thereby financially feasible on the basis of the ERF funding).

Operation of a Reverse Auction

We understand a reverse auction process is to be used to determine allocation of funding by the ERF. A 'reverse auction' could take a number of forms, including mechanisms like a live procurement auction against a fixed set of terms and conditions, or a more flexible tender-style process involving individual negotiations. A number of generic broad principles would nevertheless apply:

Principles

- Public & transparent process for the price aspect
- Rules-based
- Auction participants make a binding offer to enter abatement contract with Government as purchaser at settlement price for auctioned tonnes
- Separation of eligibility/feasibility assessment and purchasing functions
- Reduces Cost to purchase
    - Option to allow for sale offers to go to negative cost (assuming prospective payment available).

    - Option for a silent or published 'reserve' set by purchaser (do not waste time with higher-cost abatement).
- Competitive / promotes competition between offerors
- Comparative advantage for Government as purchaser
    - Purchaser not bound to accept the offer
    - Purchaser sets conditions of contract – take it or leave it
    - Sidebar ability to negotiate with a auction participants if the auction price is unacceptable
- Of broad application as a mechanism - agnostic as to technology

ERF administration will entail a number of distinct functions and elements:

- Standards setting for technological standards and methodologies ('standards-setter')
- Pre-screening eligibility standards and the auction rules ('rules-setter')
- Conduct of the auction/tender/market process ('auctioneer')
- An eligibility screen will ensure only participants with projects consistent with an approved methodology can participate, in accordance with the technical guidance provided by the rules-setter ('technical eligibility screener')
- Feasibility assessment/due diligence role on project prior to contract, taking into account issues such as credit risk, technology risk, implementation risk, ability to attract a debt/equity financing package, performance risk etc. ('assessing/due diligence') To maximise the number of viable projects, particularly aggregation structures would be facilitated through an enabling/advisory/ assisting function (for example – helping proponents restructure their proposals to make them technologically and financially viable and thus fundable by the ERF) ('offer enabler').
- Negotiation and contracting ('purchasing agent')
- Treasury/payment ('payer')
- Monitoring and verification (accrediting external monitoring and verification consultants) ('integrity supervisor role').

From a governance point of view a 'heat map' of conflicts of interest that will need to be taken into account in the design of the scheme is provided below. Orange represents a conflict that could be managed and supervised, red represents an inherent conflict that should be avoided in scheme design:

	Standards setting	Rules-setter	Auctioneer	Technical Eligibility screener	Assessing/ due diligence	Offer enabler	Purchasing agent	Payer	Integrity supervisor
Standards Setting	NA								
Rules-setter		NA							
Auctioneer			NA						
Eligibility screener				NA					
Assessing/ due diligence					NA				
Offer enabler						NA			
Purchasing agent							NA		
Payer								NA	
Integrity supervisor									NA

- neither agency should be tasked with two roles where there is an irreconcilable conflict between the roles; and
- where one agency is tasked with two roles with conflicts that can be reconciled (i.e. orange in the diagram above), appropriate systems and procedures are developed and put in place to avoid the potential conflict becoming an issue.

In addition, the following functions will need to be specified and allocated:

- Assessment/ due diligence
- Offer enabler
- Purchasing agent.

Where there is a recognised conflict between, for example acting as a buying agent and assisting an auction participant with their offer, however as both the participant and the Government/purchaser have an interest in the purchase proceeding, and facilitating this may be managed.

4. Size of the Opportunity for ERF Abatement

Unless there is a compelling environmental or social reason to restrict certain activities from participation in the ERF, the eligibility criteria should be as inclusive as possible in terms of technologies, whilst maintaining rigour in assessing the veracity of emission reductions and project feasibility.

A 'bottom-up' approach is preferable, whereby if a particular activity can be proven to generate real (i.e. 'additional'), measurable, verifiable and permanent emission reductions, it should be *prima facie* eligible to apply for Direct Action funding. To ensure projects can be compared on a like-for-like basis, the Government will need to develop new and/or approve existing methodologies for assessing abatement generated by a particular activity. Projects will be eligible to participate in auctions if they involve generating abatement in accordance with one or more approved methodologies.

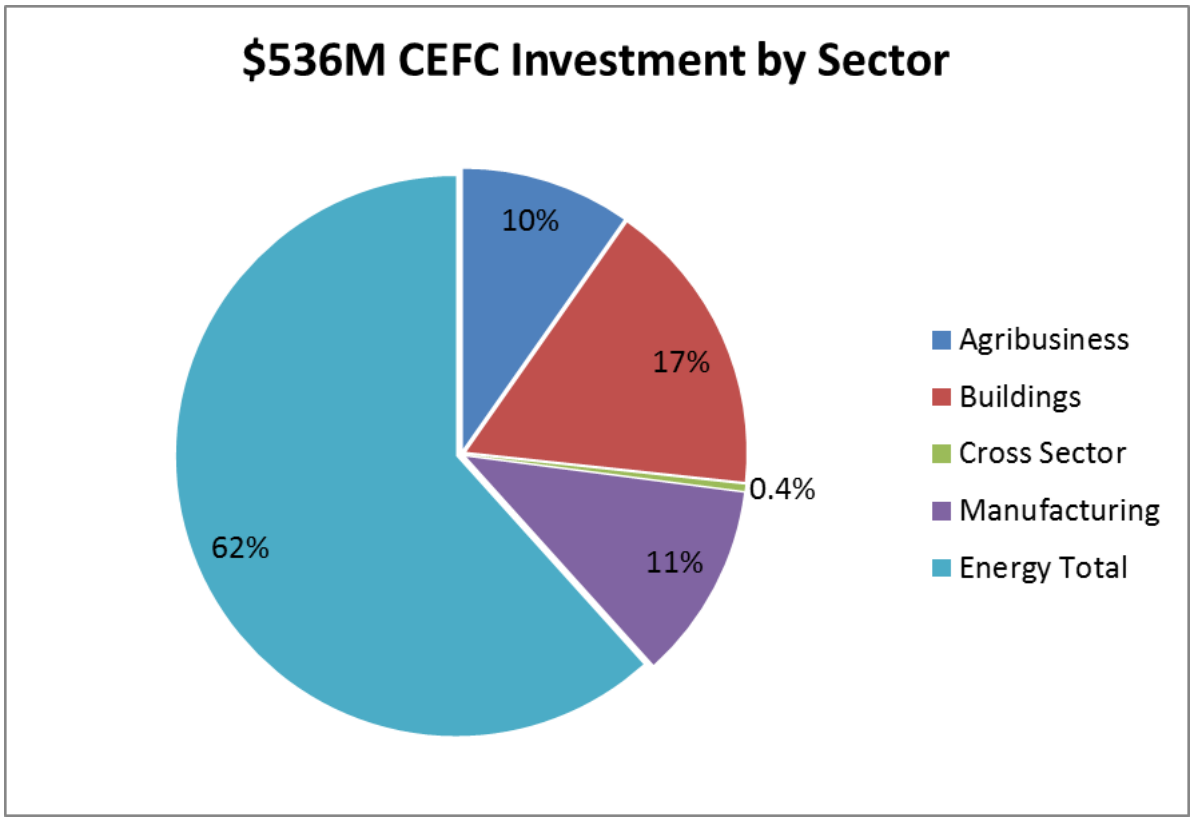
This could include activities as diverse as planting trees, generating solar power or choosing to take an emitting facility offline, in each case where it can be proven (or the Government has decided to 'deem') that such a decision is driven by the value of the emission reduction benefit. At a practical level, it is likely that only a small subset of potential projects will be able to achieve cheap and reliable abatement, obtain private sector finance and meet a strict financial additionality test.

As a prudent risk management strategy, if projects will be eligible to participate in an auction in advance of their construction/implementation, the Direct Action fund may impose sector limits on the volume of abatement purchased from certain project types.

CEFC's Market Opportunity Assessment

The CEFC portfolio provides a snapshot of the types of opportunities in the market that may be available under the ERF. The CEFC currently has an investment portfolio of $536M comprised of both CEFC and LCAL originated investments.

The CEFC portfolio covers Manufacturing Innovation, Advanced Services (included in the Buildings sector), Agriculture, Education and Research (Buildings sector) and Mining (included as Energy i.e. waste coal gas-fired generation). CEFC has a strong forward pipeline of viable investment opportunities in energy efficiency and emissions reduction.



Sector	Generation Capacity Installed (MW)(b)	Annual tCO2e abated ('000)(b)	Average Investor (i.e. CEFC) Cost $/tCO2e(a)(c)	Average Cost to Govt $/tCO2e(a)(d)
Buildings(e)	**2.61**	**275**	**- $1.33**	**-$1.14**
Agribusiness	**18.76**	**150**	**-$12.20**	**-$1.13**
Manufacturing	**2.50**	**249**	**- $0.77**	**-$0.07**
Energy	**479.80**	**3,297**	**- $2.32**	**$0.33**
Cross Sector(f)	**0**	**34**	**- $2.03**	**-$2.03**
Totals(f)	**503.67**	**3,975**	**-$2.40**	**$0.22**

Notes & Key:

a) Negative cost indicates a positive return to investor/government

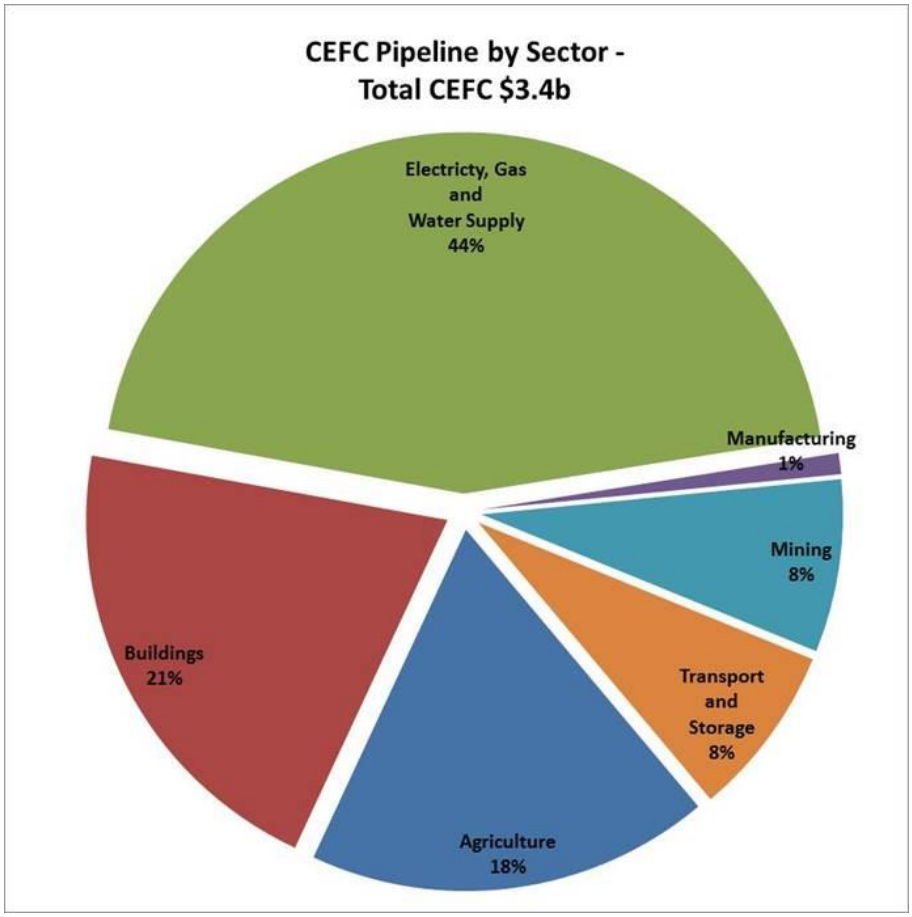
b) 'Nameplate' or maximum operating output of installed generation

c) Average Investor Cost = cost to CEFC as investor (including Govt cost of capital and operational cost)

d) Average Cost to Government = cost to government as funder (CEFC cost + Federal Grants received)

e) Buildings includes retail, tourism, hospitality, services, property, state and federal government, local government (including street lighting) and education, hospitals etc.

f) Includes an estimate of effect of unapplied demand aggregation financing programs



The CEFC has received investment proposals seeking investment of $3.4 billion in emission reductions projects with a total project cost of nearly $11.5 billion:

- $1 billion for utility scale renewable energy generation
- $1 billion for energy efficiency in buildings, manufacturing and other commercial sectors
- $307 million for solar PV projects and aggregation funding$268m for the mining sector

Opportunities in Industrial, Commercial (including Government) and Residential Strata-Title

Low Carbon Australia previously identified over 35MtCO2 of cost-effective carbon savings opportunities in commercial and industrial sectors that are profitable over the lifetime of the asset, yet over $22b of the required capital investment has not occurred.[6] Based on CEFC/ LCAL experience to-date there is also significant potential to capture energy efficiency opportunities in strata-title and high-rise residential properties - which can account for up to 10% of a city's footprint.

[6] Low Carbon Australia (2011) *Submission to CEFC Expert Review Panel*.

5. Market Barriers to Action

Despite the diversity across these sectors (building owners, occupiers, manufacturers, processers and mining) the investment has not occurred to capture the efficiency benefits (and carbon abatement) of these opportunities.

This has been analysed as being due to some typical market failures:

- *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 organisations 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

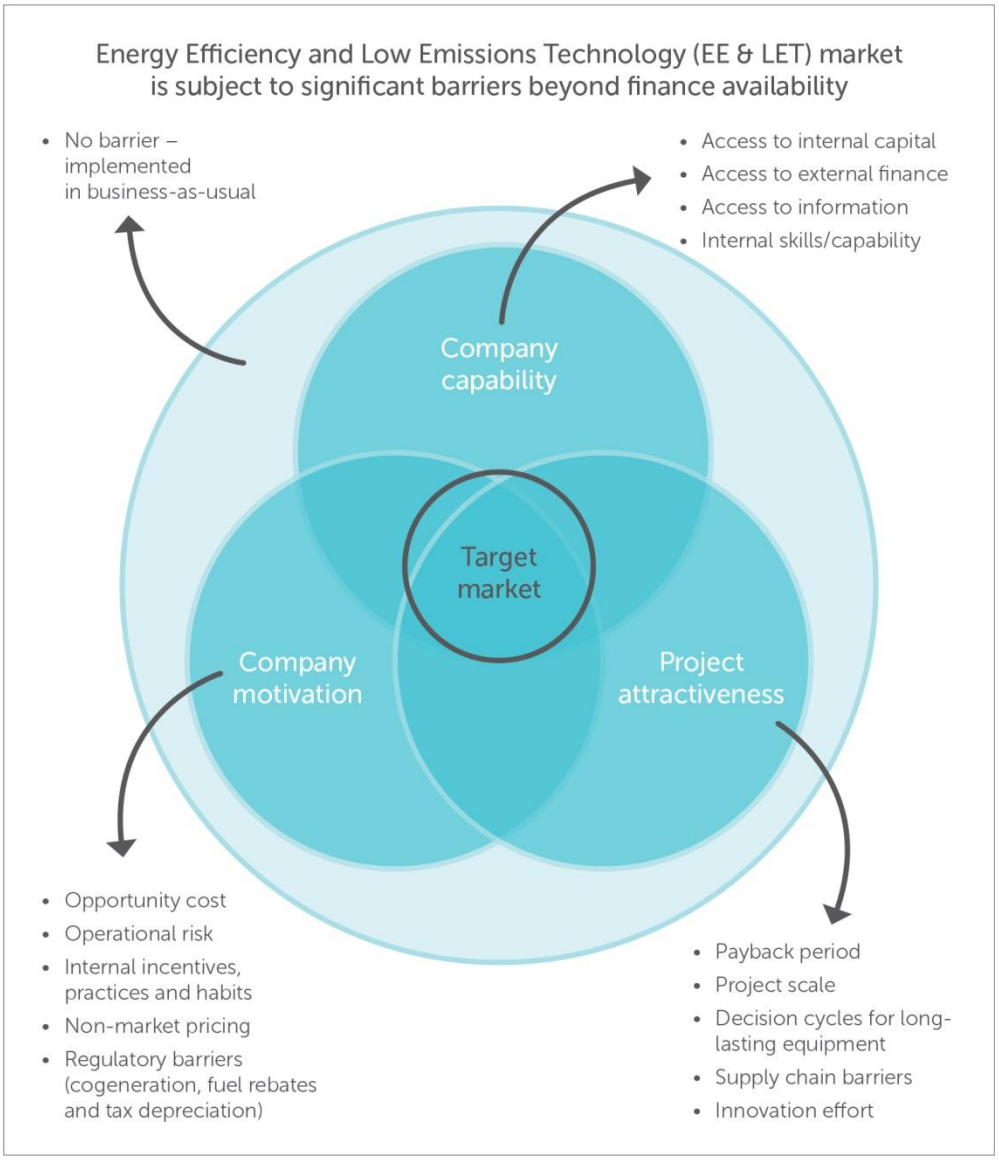
    - The sustainability management, with responsibility for carbon emissions and CSR
    - The decision makers with the authority to ultimately approve their organisation entering into a financial arrangement e.g. corporate executives
    - In smaller companies the same person might have responsibility 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 though to conclusion.


Energy Efficiency and Low Emissions Technology (EE & LET) market is subject to significant barriers beyond finance availability
No barrier – implemented in business-as-usual
Access to internal capital
Access to external finance
Access to information
Internal skills/capability
Company capability
Target market
Company motivation
Project attractiveness
Opportunity cost
Operational risk
Internal incentives, practices and habits
Non-market pricing
Regulatory barriers (cogeneration, fuel rebates and tax depreciation)
Payback period
Project scale
Decision cycles for long-lasting equipment
Supply chain barriers
Innovation effort

Appendix A: Carbon Abatement Methodology

A lifetime cost of carbon abatement method has been used by CEFC/LCAL to evaluate the emissions impact of investment. Costs can be estimated from the point of view of the Government, the proponent, and the resource cost to society.

An investor viewpoint methodology was appropriate rather than the Government's resource (societal) cost of abatement methodology for a number of reasons:

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

The key inputs in ascertaining the forecast public good benefit and economy wide benefit are:

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

The benefits in being able to assess and compare energy efficiency funding opportunities against a cost of carbon abated test are:

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

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

Lifetime Cost of Abatement Methodology for Energy Efficiency:

LCAL developed an approved methodology for assessing project based abatement which has been used for energy efficiency projects and fuel switching carbon saving retrofit projects. The methodology estimates both the total carbon abatement and the costs of carbon abatement over the lifetime of the projects.

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

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

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

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

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

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

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

Although the term 'net project cost' is used, for most energy efficiency projects, savings exceed costs due to reduced electricity or gas consumption, resulting in a negative net cost.

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

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

While the overall approach to measurement will be common to all projects, each project will have its own characteristics, and adjustments may be necessary on a case-by-case basis.

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.cleanenergyfinancorp.com.au

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