Rationale and Proposed Operation of the South-East Low Carbon Accelerator Fund

Prepared for: Martin Bolton
Head of Environmental
Development
SEEDA

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Prepared by

Name Jon d'Este-Hoare

Position Senior Consultant

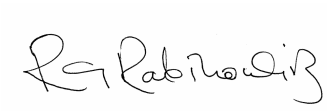
Signature 

Approved on behalf of BRE

Name Robert Rabinowitz

Position Director, Environmental Markets

Date

Signature 

BRE
Garston
WD25 9XX
T + 44 (0) 1923 664000
F + 44 (0) 1923 664010
E enquiries@bre.co.uk
www.bre.co.uk

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1 Introduction

This document is a compilation of materials provided to SEEDA during the second phase contract for the development of the South-East Low Carbon Accelerator Fund (LCAF) to answer questions that raised as part of SEEDA's assessment process of the proposal to fund the South-East LCAF.

The issues addressed in the document focus on the rationale for the fund, how it is envisaged that the fund should be set up and how moneys in the fund should be deployed.

2 Market Failures

The role of the SEEDA fund can be best understood in the context of the evolving policy environment for the funding of low carbon infrastructure in the UK. The Government is implementing a series of market-based policies designed to incentivise the investment required to shift the UK to a low-carbon economy.

The Feed-in-Tariff (FIT) pays owners of renewable energy generation equipment an index-linked price far above the wholesale market price for electricity for all electricity generated by the equipment over a period of 25 years. The FIT is designed to generate a return of 5-8% over 25 years. The Renewable Heat Incentive (RHI) which will commence in 2011 will pay a similar tariff for heat generated from renewable sources.

The SEEDA fund addresses five market failures related to FIT and RHI:

1. **Up-front capital** – As noted in the earlier stage of this work, place-based low carbon enterprises face a significant challenge in raising the up-front costs (which can be as high as £60-100,000) associated with demonstrating the feasibility of their projects. As new SMEs, these enterprises do not have their own capital to invest. Nor do they have assets against which to borrow money to fund the feasibility studies.
2. **Raising adequate equity** – To finance a project of £500,000-£2,000,000, place-based low carbon enterprises will need to raise 20-50% in equity, depending on conditions imposed by the lender. The level of returns offered by FITs is frequently inadequate to raise this scale of equity from investors.
3. **Scale** – While many financial institutions have funds available to finance renewable energy equipment taking advantage of the feed-in tariff, many projects being developed by place-based low carbon enterprises are too small for them to fund directly. They therefore are looking for trusted partners who can serve as regional conduits for their funding.
4. **Inability of potential project owners to receive commercial finance** – Government has previously funded smaller scale renewable energy projects in the public and voluntary sector via grants through the low carbon buildings programme. These grants are being abolished with the creation of the FIT and RHI on the assumption that commercial capital can simply step into their place. However, it is not clear how schools and other organisations can actually access this finance. A regional entity would help to create the legal and financial framework in which commercial capital could flow into these projects.
5. **Maximising regional economic benefits** – The FIT and RHI are structured to generate a return for investors without reference to benefits for the regional supply chain or economy. A regional fund can ensure that this funding is used to enhance the viability of regional equipment manufacturers, installers and distributed generation companies.

3 Bridging the Financing Gap

In order to unlock funding for the LCAF from SEEDA, it is necessary to demonstrate that the projects in which the LCAF would be investing face the first two market failures described above. To be viable, such projects require semi-commercial finance, i.e. while they generate financial returns over the longer term, the returns they deliver over the shorter and medium terms are not sufficient to secure purely commercial investment.

In order to demonstrate that these projects require semi-commercial finance, further financial analysis was undertaken of the business plans of the following three projects that were winners of DECC's Low Carbon Communities Challenge and/or NESTA's Big Green Challenge:

- Low Carbon West Oxford
- Community Renewable Energy
- Green Valleys

These projects are exemplars of community energy projects. They combine use of Feed-in-Tariffs and other incentives in order to generate financial returns with capital structures that ensure that the businesses are run for the benefit of their local communities.

The projects to be undertaken by each group were combined into a single project, based on the income and cost information already analysed as part of the Options Analysis study. This synthetic project consists of a representative range of community renewable energy technologies:

- 2 x 800kW wind turbines
- 2 x 15kW wind turbines
- 1 x 1MW anaerobic digester plant
- 1 x 16kW micro-hydro
- 1 x 49kW Archimedean screw micro-hydro
- 3 x solar PV installations totalling 196kW

The total cost of the project is £10.24 million and will reduce carbon emissions by 7,500 tonnes per year.

3.1 Base Case

- 50/50 debt/equity ratio
- 10 year loan at 6.5%

Over 10 years, the overall project IRR is 5%, with just a 4% return to the equity investors.

Over 15 years, returns are a more respectable 11% which is just below or at the low end of financial investors' likely target level of return.

The problem with the base case is that the project would be required to raise £5.1 million in equity. This might be an insuperable challenge given the perceived risk of the investment. In addition, the social enterprises that own these projects are often incorporated as mutuals or CICs which limit the possible upside to purely commercial investors.

3.2 Higher Gearing

To reduce the equity requirement, the debt-equity ratio is now changed to 80/20.

This reduces the returns to equity investors to a mere 1% over the first ten years of the project, rising to 10% over 15 years.

Interest and capital repayments in early years of the project also exceed the revenues for the first 2 years until all the renewable energy equipment is running at full capacity.

3.3 Low Interest Loan:

One alternative to raising the debt levels of the project is to reduce the rate of interest paid on the loan.

Assuming a 50-50 debt-equity ratio, an interest rate of 5% would boost equity investors' returns marginally to 4% over 10 years and 12% over 15 years.

A 0% interest rate boosts equity investor returns to 18% over 10 years and 22% overall.

The LCAF would have the flexibility to arrange the right solution to help bridge the financing gaps identified above. It could offer some equity to supplement locally raised equity to reach a level that would satisfy lenders. It could subsidise the effective rate of interest paid to the senior lender for the first 10 years. It should have the flexibility to offer a combination of both options tailored to the needs of the individual project and bearing in mind the LCAF's needs to achieve returns for its investors.

It should be borne in mind that this analysis applies to just three projects. It would not require a significant multiple of these projects to go ahead for the fund to have a full investment pipeline even if external investors are brought on board.

4 Fund Deployment

In order to address the market failures identified above and provide semi-commercial finance that is sustainable over the long term, the capital in the fund will be deployed in the following two ways:

4.1 Up-Front Capital

- Funding for projects to assist with the process of taking a project from feasibility to "investability" including:

  - Feasibility study
  - Environmental permitting
  - Planning permission
  - Legal costs associated with incorporation, leasehold agreements, power purchase contracts

- The cost per project can range up to £60-100,000.
- The fund will never cover 100% of the up-front costs. We would look to share the risk with local investors and other external parties we have identified who are prepared to take a share of up-front risk.
- Funding will be granted in the form of a line of credit which can be drawn down on achieving certain milestones.
- The funding will be structured as a loan with repayment contingent on the success of the project in completing the feasibility study.
- The funding may also have contingent fees or equity components attached to it so that costs can be recovered from successful projects to compensate for losses incurred for unsuccessful projects.
- The tranche of funding provided by SEEDA would be at greater risk than the funding provided by commercial investors, thus remedying the market failure related to up-front capital.

We have modelled the likely gross and net cost to the fund of providing up-front capital on the following assumptions:

	Time from feasibility study to commissioning	Up-front cost
Solar	1 year, 3 months	£25,000
Wind	2 years, 3 months	£50,000
Hydro	3 years, 3 months	£100,000

All projects share the same failure rate:

Development stage	Failure rate at that stage
Feasibility study	15%
Environmental permitting	15%
Planning permission	15%
Incorporation & prospectus	5%

- The fund releases funding on a stage-by-stage basis.
- The fund never pays more than 50% of the up-front costs.
- Successful projects repay the fund 125% of the amount loaned – 62.5% on financial close, 62.5% on completion of commissioning of the project.
- One new project in each category (solar, wind, hydro) receives up-front capital each quarter.

Over the first five years of the fund's life, 60 projects will receive up-front capital, of which:

- 18 projects will be operational (8 solar, 6 wind, 4 hydro)
- A further 12 projects will come on stream after the fifth year
- Total funds provided in up-front capital = £1,210,563
- Total funds repaid by projects = £628,907
- Net outflow of funds in up-front capital = £581,656

- Over the following four years, projects already underway will pay back a further £292,906.
- The total net amount loaned in up-front capital would therefore be £288,750 which will get 30 projects to the stage of "investability."
- The goal of the fund would thus be to make sufficient profit from its other lending and investment activities to pay back external investors and to recoup the £288,750 still outstanding.

Difference between the fund and venture capital

It is important to note that although the fund is providing up-front risk capital, it should not be confused with an early stage venture capital investment. A specific and limited amount of up-front funding is being used to bring to investability a specific project which follows a well understood process, employs well understood technology and enjoys guaranteed demand for the power it generates via FIT or RHI. Once the project is investable, further funding will be secured against the physical asset and/or the revenue stream from energy sales. This is far less risky than a VC-style investment in an early-stage business with an unproven business model, technology, management or market.

4.2 Loan Capital

- Once a project achieves investability, the fund will provide loan capital.
- It will not be a condition of the funding that the project will have already received up-front capital from the fund. Some projects reach investability independently. Other need very little up-front investment to prove their feasibility and get them through the planning process, such as small- and medium-scale PVs on the buildings of owner-occupiers.
- In order to provide a loan, the fund will take a charge over the renewable energy equipment and/or ensure that the revenue from the FIT or RHI is assigned to the fund.
- The interest rate charged by the fund, the debt-equity ratio required and the loan length will depend on the ability of the project to service its debt.
- The market failure which the fund is designed to address, as stated above, is that the level of returns offered by low carbon place-based enterprises is frequently inadequate to raise the required scale of equity from investors.
- Funding provided by commercial lenders, such as the Cooperative Bank, will be loaned out on the terms required to ensure the fund can repay its loans.
- The tranche of funding provided by SEEDA will be used as junior debt to boost project equity ratios and/or as a semi-commercial loan with a lower interest rate, longer term or capital repayment holiday.

5 Categories of Investor

The fund will have two categories of external investors:

Commercial lenders – We have already had a strong expression of interest from Cooperative Bank which has discussed a willingness in principle to match SEEDA's investment. Its primary requirements are:

- Assurance on technical capability of the fund
- Framework agreements with trusted technology suppliers and installers with a balance sheet, track record and able to offer adequate warranties
- The fund would secure its lending against equipment and/or have the FIT/RHI assigned to it

Carbon investors – Marks & Spencer have expressed a desire to invest in a fund to finance low carbon place-based enterprises. Its requirements are:

- "Naming rights" to the carbon reductions achieved by projects financed through the fund. They are prepared in principle to sacrifice a level of financial return in order to achieve this
- Protection from risks associated with providing up-front capital

We have also had an expression of interest from NESTA which may be prepared to help us to defray part of the operating costs of the funds in its early stages before it is earning an adequate return.

6 How Funds from Different Investors will be Deployed

Combining the different ways that the capital within the fund will be deployed with the investment goals stated by potential investors implies that the fund contains, in essence, three funding pots – three ways that money in the fund will be used:

1. Operating costs – these may be partly defrayed by an investment from NESTA which will be focused on paying for the "project originators" – the people tasked with supporting projects in the field and identifying those that are suitable for investment
2. Up-front capital – money provided by SEEDA and Marks & Spencer will be available for this, although SEEDA's tranche will be exposed to "first loss" risks
3. Loan capital – senior loans issued using funds from Cooperative Bank and junior loans issued using SEEDA funding – both to be repaid from the financial returns earned through FIT and RHI

The three pots and how potential investors might contribute to them is represented in the diagram below.

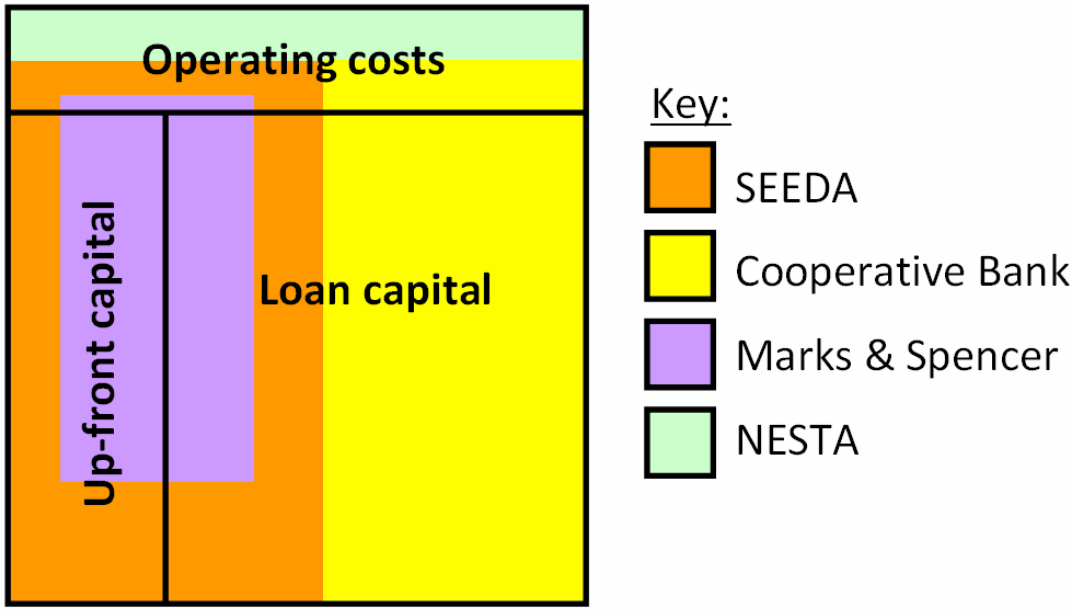

Figure 1: Investor contributions to different "funding pots" within the fund

7 Comparisons with Other Funds

SEEDA requested information on how similar funds in other countries have performed. We reviewed the general track record of funds based on Feed-in-Tariffs. We also looked at the applicability of different models of revolving loan funds for renewable energy deployment in the United States.

Investment funds based on feed-in-tariffs have an established track record. Similar policies are already in place in Germany, Spain, the Netherlands, France and the Canadian Province of Ontario where they are estimated to have created in excess on half a million jobs. Tens of billions of euros of investment has been catalysed and for France, Germany and Spain, investor IRRs tend to be in 7-10% range. Many countries have established funds to promote renewable energy. These funds enhance private sector credit with loan guarantees or lend money directly. This reduces projects' cost of capital, thus enhancing project IRRs. Public sector funding also provides longer tenor than private sector funding which many projects to be financially viable.1

The Alternate Energy Revolving Loan Program (AERLP) was created by the Iowa Legislature in 1996 to promote the development of renewable energy production facilities in the state. The $5.9 million of AERLP funds were provided entirely through a three-year assessment on Iowa's investor-owned utilities and the Iowa Energy Center was chosen by the Legislature to manage the program.

The Energy Center provides loan funds to individuals and organisations equal to 50% of the total financed cost of a project (up to $1 million) at 0% interest. Matching financing for the project must be obtained from a lender of the applicant's choice. As these loans are repaid, the Energy Center's share of funds become available for loans to future projects.

Interested parties submit a technical application to the Iowa Energy Center which provides specific technical, operational, and cost details about the planned alternate energy production facility. After the Energy Center technically qualifies a project, the lending institution chosen by the applicant financially qualifies the applicant.

Successful applicants receive a single, low-interest loan that consists of a combination of AERLP and lender-provided funds. The AERLP provides 50% of the total loan, up to a maximum of $1 million. This practice maximizes available funds and generates a high degree of commitment to the proposed projects on the part of the applicants. Requiring applicants to obtain at least half of the funds from a lender brings financial legitimacy to the program and distributes the risk.

The AERLP funds bear no interest. The remainder of the loan is made by the lender at an interest rate negotiated between the applicant and the lender. The loan term is determined as a function of the simple payback for the project, but the maximum term allowed for the AERLP funds is 20 years. The lender manages the entire loan and arranges repayment of the AERLP share of the loan to the Iowa Energy Center. As the loans are paid back to the Energy Center, those funds revolve back to the program and are made available to new applicants.

[1] Data sourced from "Paying for Renewable Energy: TLC at the Right Price," Deutsche Bank Climate Change Advisors, December 2009

Plus points

- uses technical skills of energy centre and financial skills of banks separately and appropriately
- 50% match funding effectively doubles the money available for financing
- the financing banks have to manage the loan on behalf of the energy centre so those costs borne by the bank, not the energy centre - the banks also have the incentive to make sure it is paid back since they cannot prioritise repayment of their debt first

Minus points

- 0% interest is probably too good a deal in the context of FITs
- 0% interest does not allow for costs incurred to do the technical analysis of the project
- one-off loans to place-based enterprises may not be the best way to go - the fund needs to find a way to interact and support the project on a much more iterative way
- in order to get bank loans, companies must already exist and have assets to secure against the loans, not the case for emerging place-based enterprises

Overall, this is a good simple workable model and may be workable, but projects financed by the fund should be charged a semi-commercial rate of interest for the parts of projects that can bear it and the fund should be able to provide risk capital to help projects to develop.

Iowa Energy Loan Program

- Low-interest loans for energy efficiency, renewable energy, recycling and alternative fuels.
- Loans for individuals, businesses, schools, cities, counties, special districts, state and federal agencies, public corporations, cooperatives, tribes, and non-profits.
  Loans usually range between $20,000 and $20 million and loan terms usually range from five to 15 years, depending on available funds and project type. Longer terms may be available.
- Public sector bodies get the funds at a tax-exempt rate based on the rate at which the state can borrow through tax exempt bonds.
- For residential and commercial customers, the rate is 5.5% - 6.5% for 5-15 years depending on availability of funds and term.
- Application, loan and underwriting fees are charged up to a total of around 1-1.5% of the total cost.

This model is of less relevance to the South-East LCAF because:

a) it is funded directly out of state borrowing rather than being a revolving fund
b) The loan must be fully secured. A first or second mortgage on the project's land, buildings, and equipment is usually pledged. Other assets may be pledged, if necessary. This would not help emerging place-based enterprises. It is much more designed for standard investments in particular projects by existing organizations rather than early stage projects by new organisations.

8 Potential Scale of Investment into the Fund from Corporates:

- We were asked by SEEDA to estimate the potential outflows of investment from the UK into international offset projects to meet voluntary "carbon neutrality" requirements.
- This figure could act as a proxy for the potential scale of investment from "carbon investors" such as Marks & Spencer who might wish to support such projects for voluntary CSR purposes or to meet voluntary offset targets.
- Below are details of the carbon footprint of 10 leading UK companies that are currently carbon neutral, that have committed to carbon neutrality (or an analogue, e.g. 'zero carbon') or that offer a carbon neutral product.
- For each company an estimated volume of emissions to be offset is included, based on publicly available information.

Company	Tonnes of CO_2 to be offset
1. HSBC	954,000
2. RBS	690,000
3. Barclays	670,000
4. M&S	700,000
5. B&Q	339,000
6. Royal Mail	1,000,000
7. BSkyB	45,000
8. British Airways	60,000
9. Easyjet	30,000
10. Eurostar	85,000
Total	**4,573,000**

- The total annual estimated offset for these 10 companies is thus in excess of 4.5 million tonnes.
- The vast majority of this offset will be achieved through the use of VERs, although some companies use or offer offsets via CERs.
- Assuming an average wholesale price of £5 per tonne, this translates to annual spending of £22.865 million per year.
- According to the World Bank, the average CDM project leverages about 6 times as much investment as the cost of the CERs from the project on the primary market, although for clean energy projects, the leverage ratio rises to 20.4:1.
- Based on a simple 6:1 leverage ratio, the total annual investment required to supply 4.5 million VERs at £5 per VER would be £137 million.

9 Looking to the Future:

Although in the initial study, it was recommended that LCAF focus its investment activity on investing its own capital on the basis of financial returns without consideration of revenue from the sales of carbon, there are considerable opportunities for LCAF to leverage other funding streams that will be used to fund carbon reductions in the South-East over the coming years.

9.1 Zero Carbon/Planning

In 2016, all new homes will be required to be Zero Carbon. If the developers are not able to meet this requirement from within their own development, it is proposed that they will be allowed to invest in "allowable solutions," project-based reductions happening elsewhere in the locality or region.

The Milton Keynes Carbon Offset Fund already operates on a similar basis. Developers must exceed Part L targets by 25% and then offset the rest at a rate of £200 per tonne of emissions to be offset per year (equal to £10 per tonne over 20 years).

In order to meet Government planning targets, the South-East will be required to build 33,000 homes per year over the next decades. Assuming each home has 2 tonnes of emissions to offset, this would generate an annual income stream of £13.2 million to fund place-based carbon reduction projects (33,00 homes x 2 tonnes x £200 per tonne).

9.2 CERT/CESP

The Carbon Emissions Reduction Target (CERT) and Community Energy Saving Programme (CESP) are obligations introduced by the government on energy suppliers to achieve targets for promoting reductions in carbon emissions in the household sector and combating fuel poverty. All qualifying energy suppliers must meet individual targets for the reduction of CO2 emissions in homes.

Collectively, energy suppliers must fund measures that will reduce emissions by over 150 million tonnes over the next 20 years. Across the South East it is realistic to assume that the energy suppliers and producers obligated under CERT and CESP will be looking to spend over £100 million annually through to 2012 on domestic energy efficiency measures. Each stage of the CERT/CESP regulation to date has involved a doubling of the funding commitment from power companies so it is realistic to assume that spending on these programmes will increase significantly after 2012. Also, as low cost measures are exhausted, meeting the targets will become more expensive, making funding available for more ambitious projects rather than the focus on loft and cavity wall insulation and low energy light-bulbs seen to date.

The opportunity for LCAF is to provide property developers and energy companies with a pipeline of projects that LCAF can manage on behalf of these entities. This is already happening for CERT with the task of meeting obligations, and hence the funding that goes with it, being outsourced to installers, local authorities, housing associations and even retailers. Suppliers can earn a healthy margin for helping to meet these obligations.