elementenergy

MANCHES

thelandscapepartnership

KINETIX
corporate finance
sustainable thinking

# *Cambridgeshire Community Energy Fund*

Stage 2

**Final report**

for

**Cambridgeshire Horizons**

23rd January 2012

Element Energy Limited
20 Station Road
Cambridge CB1 2JD
Tel: 01223 852499
Fax: 01223 353475


SUSTAINABILITY EAST
incorporating Climate East


Improvement
East
Partnership
for Improvement
and Efficiency

# Contents

## Authors

This report has been prepared by a consultant team of:

Element Energy

Manches LLP

The Landscape Partnership

Kinetix Corporate Finance

For comments or queries please contact:

ian.walker@element-energy.co.uk

Tel: 0330 119 0981

# 1 Executive Summary

## 1.1 Background

The UK government is committed to challenging and binding targets for the reduction of greenhouse emissions by 2020 and 2050. Achieving these targets will require aggressive action across all sectors of energy use, to improve the efficiency of energy use and decarbonise the energy supply. As a key part of these efforts, the pressing need to limit the additional $CO_2$ emissions resulting from new development has been recognised. In response, the zero carbon policy for new homes and non-domestic buildings has been devised.

The current proposals for the zero carbon policy, which is due to be introduced for new homes in England and Wales from 2016 and for non-domestic buildings from 2019, has been a number of years in the making. The early incarnations of the policy proposals envisaged a requirement for new development to be net-zero carbon with respect to $CO_2$ emissions from total energy usage. Over time, a body of technical evidence has developed that demonstrates the technical difficulty and prohibitive costs of achieving this standard on a broad range of development types. As a result, the definition of zero carbon has evolved to include a requirement for onsite $CO_2$ emissions reduction, which must be kept below a mandatory threshold, and a requirement for residual $CO_2$ emissions to be balanced by carbon savings delivered by investment in carbon reduction projects elsewhere.

The potential role for the community energy fund in the decarbonisation of new growth has grown out of this policy evolution and specifically the need for developers to invest in $CO_2$ reduction projects to mitigate the emissions arising from their developments. The concept is that rather than the developer identifying and directly investing in carbon reduction projects, roles that are well outside their core business and expertise, they would make a payment into a fund which would take on the responsibility for delivering the $CO_2$ reduction. The developer payments, determined on the basis of the amount of $CO_2$ to be offset and a price for carbon reduction (£/t$CO_2$), would provide the capital for the fund's investments.

The opportunity to establish a public sector-led community energy fund (CEF) to manage these developer payments is highly attractive to local authorities and other local public sector stakeholders. Such a fund would be a not-for profit entity with an investment strategy driven by carbon reduction goals rather than by financial returns. The CEF provides the opportunity to:

- Ensure that the investment raised from development for carbon reduction is invested locally and for the benefit of the local economy.
- Influence the delivery of attractive carbon reduction projects that are not being brought forward by the private sector alone, due to specific barriers that the CEF funding could help to overcome.
- Invest in projects that deliver wider benefits to the local community and economy, such as generating employment in the low carbon energy sector.
- Leverage additional private sector investment into delivery of carbon reduction projects in the area.

The CEF concept also has attractions to developers, as it provides a route to compliance with zero carbon policy without distracting from their core business, while also providing a

greater degree of certainty about the costs associated with achieving the $CO_2$ reduction obligations.

Cambridgeshire Horizons and the Cambridgeshire local authorities have been actively investigating the potential of establishing a community energy fund in Cambridgeshire for a number of years. An initial feasibility study performed by Element Energy, Manches LLP and Terence O'Rourke, was completed in late 2010. This report included an in-depth analysis of the planning policy required to impose collection of developer payments into a fund and considered the options for how a local authority-led fund might be constituted. The study also considered the types of investments that the fund might make.

This Stage Two report has been commissioned by Cambridgeshire Horizons to provide greater detail on key aspects of the fund structure and operation, particularly in light of changes to the zero carbon policy that have been announced since the first stage report was completed. In particular, the fund structure and governance, the size of the fund, its potential investments, carbon reduction impacts and means of measuring performance are considered in greater detail. Further work on defining the mechanism for collecting developer payments has also been done, in close consultation with the local authorities and with Department of Communities and Local Government.

The zero carbon policy continues to evolve and policy uncertainty remains. During the course of this study, the Zero Carbon Hub published its proposals for an 'Allowable Solutions Framework', which sets out how the developer payments into carbon reduction projects by way of Allowable Solutions might be managed. These proposals include the concept of community energy funds as one of a number of organisations that would make up a market of Allowable Solutions providers from which developers could select their preferred provider. These proposals have potential implications for development of a community energy fund in Cambridgeshire and are summarised in the following section.

## 1.2 The Allowable Solutions framework proposals

Allowable Solutions is the term used to describe the range of carbon reduction initiatives that developers might invest in to meet their remaining carbon reduction obligation under zero carbon policy once the target for on-site $CO_2$ reduction (known as the Carbon Compliance level) has been met. These Allowable Solutions could include further measures taken on-site, near to the site or off-site (i.e. further removed from the development).

The Allowable Solutions are the final part of the zero carbon definition to be assessed in depth. In July 2011, the Zero Carbon Hub put forward proposals for a consolidated Allowable Solutions framework, which was developed in consultation with industry and sought to set out what a workable framework for managing developer payments into Allowable Solutions might look like. The framework recommendations have been drawn up to inform government policy development and are expected to be the subject of a consultation in late 2011 / early 2012.

The key features of the proposed framework that have implications for the development of a CEF in Cambridgeshire (and elsewhere) are summarised below:

- Local authorities to have the opportunity to develop Allowable Solutions policies in their Local Plan. The existence of such policies will ensure that Allowable Solutions investment is directed to projects identified in the Local Plan.

- Even in the case that the local authority establishes a CEF, developers will have the opportunity to seek out the best value Allowable Solutions, via the CEF or third-party Allowable Solutions providers that are expected to emerge in competition. Provided that the local authority has appropriate policy in place, however, Allowable Solutions projects will have to be selected from the Local Plan, even if delivered by a third-party provider.
- In the case that a local authority does not develop Allowable Solutions policies, it is envisaged that there will be a market of private energy funds vying for the contracts to provide Allowable Solutions to developers. In this case, the private energy fund will not be restricted to developing projects in the local area and it is likely that investment will flow outward to projects identified in the national list.
- Local CEFs and third-party Allowable Solutions providers will be in competition on the basis of the Allowable Solutions price they can offer to developers. It is intended that the price that can be charged will be capped at a nationally imposed price ceiling.
- A key part of the proposed framework is a national body to hold Allowable Solutions funds. This would be a repository for all Allowable Solutions payments. Hence, in this framework the CEF would not hold its own funds. Developer payments would be made to the national fund and the CEF would be issued a credit note as evidence of the funds available – the CEF would use this credit note as a means of arranging further project finance.
- Closely aligned to the national fund would be an Allowable Solutions Verification and Certification Scheme. This body would control investment flow through the national fund – issuing credit notes to energy funds, providing certification to developers that they have made an appropriate payment and triggering release of funds to Allowable Solutions projects when certain milestones have been reached.

While the framework proposals are aligned with Cambridgeshire's objectives in a number of aspects, notably the ability to use local planning policy to retain investment locally, the existence of community energy funds and the potential for neighbouring local authorities to collaborate in CEFs so as to pool resources and deliver larger scale projects, there are also some concerns. Key among these are the lack of local control over the fund, which raises questions over how the CEF will finance its own operations and whether the CEF will be in a position to reinvest financial returns on its investments, concerns over the competition with third-party providers and whether this will hamper the CEF's ability to invest in projects that deliver wider public good, and uncertainties over the extent of the fund's liabilities, particularly in the event that it does not deliver the carbon saving it has contracted for with developers, as this could influence investment strategy and might not be consistent with delivery of additionality.

Following discussion of the Allowable Solutions framework document with Cambridgeshire Horizons and the local authorities, the decision was taken to progress development of proposals for a local community energy fund that acts as a local fund-holding body. This could be used to influence the policy direction during the forthcoming consultation.

Many aspects of the Allowable Solutions framework proposals put forward by the Zero Carbon Hub are consistent with a local fund-holding and are helpful in understanding how an overall framework might operate. These aspects of the proposed framework have informed the thinking on development of the Cambridgeshire CEF.

## 1.3 Main conclusions

This study has focused on four key aspects of the development and operation of a community energy fund, as follows:

- Collection mechanisms – analysis of potential means of collecting developer payments into a local fund.
- Structure and governance – analysis of options for the corporate governance of a community energy fund, its membership, management and operational control.
- Scale of fund and investments – forecasts of the size of the fund and assessment of the kinds of investments it might make and ability to deliver carbon reduction through those investments
- Carbon accounting – assessment of the requirements and possible methodologies for measuring and verifying the carbon reduction delivered

The findings of the work, summarised below, have been developed through detailed desktop research and analysis. Critical aspects of the implementation of a fund in Cambridgeshire have been tested through consultation with local stakeholders, in particular local authority planning and legal officers. The study has also been informed by consultation with Department of Communities and Local Government on the evolving policy framework.

The conclusions of this report have been prepared on the basis that the Cambridgeshire Community Energy Fund will hold its funds locally. The case for a community energy fund as the best vehicle to deliver carbon savings for the benefit of local communities will need to be made in the context of the forthcoming consultation.

### 1.3.1 Collection mechanisms

The assessment of various options for collecting developer contributions payments for Allowable Solutions has found that neither of the existing mechanisms (Section 106 Planning Agreements and the Community Infrastructure Levy (CIL)) offers an ideal solution when the Zero Carbon Policy and the new Part L of the Building Regulations come into force in 2016.

We therefore recommend that government should be urged to adopt a new and simpler, purpose designed, collection mechanism to enable developers to make payments for Allowable Solutions directly into a local Community Energy Fund or a National Energy Fund.

The two existing mechanisms are unsuitable because:

- Section 106 Planning Agreements are negotiable between the developer and the Local Planning Authority (LPA) but Allowable Solutions payments would be calculated according to a specific methodology and based on a fixed rate tariff. The limit on pooling developer contributions for Section 106 Planning Agreements, which will apply on adoption of the Community Infrastructure Levy (CIL) or from April 2014, would limit the use of this mechanism unless government can be persuaded that it should be relaxed. Although Section 106 Planning Agreements are site specific, as would be necessary for Allowable Solutions, they would not be ideally suited to the collection of fixed rate Allowable Solutions payments.
- The Community Infrastructure Levy (CIL) has been designed to collect developer contributions for area-wide transport and other infrastructure projects according to

an area wide charging schedule. This method of collecting developer contributions is not suitable for site specific payments but it could be used for area-wide carbon reduction and renewable energy projects in a period when economic recession does not constrain project viability. However, it would operate separately to the Allowable Solutions regime.

Section 106 Planning Agreements could provide a short-term mechanism to collect developer contributions toward carbon offsetting if Local Planning Authorities and others wanted to move forward with a Community Energy Fund before 2016 when Zero Carbon Policy will come into force. These contributions could be collected on the basis of a "Merton Rule" style policy that require developers to achieve a higher level of carbon reduction than the minimum required by Building Regulations. Local Planning Authorities would need to consider the feasibility of adopting these policies in the period before 2016.

### 1.3.2 Corporate structure and governance

The first stage report into the Cambridgeshire CEF considered the options for the structure of a locally controlled fund-holding body in some depth. The report concluded that the preferable structure was likely to be creation of a special purpose vehicle (SPV) and that of the structures available, a company limited by guarantee (CLG) was likely to be the most suitable.

As part of this second stage work, these preliminary conclusions were tested through consultation with the local authority legal officers. The preliminary conclusions regarding fund structure were borne out through this consultation. The feedback from participants suggested that an SPV-based structure was likely to work better than a partnership-style, contractual or "trust" structure. This is because an SPV structure presents the opportunity for more cohesive management and control shared between the local authority members – through, for example, agreed control and governance mechanisms contained in the constitution of the SPV.

We remain of the view that the company limited by guarantee (CLG) option appears to be the most suitable type of entity for the CEF vehicle for the following reasons:

- limited liability status and requirement of only a nominal guarantee;
- flexibility of membership arrangements;
- constitutional flexibility;
- familiarity to local authorities in Cambridgeshire; and
- suitability for a not-for-profit, community investment mandate.

Firm conclusions on the governance aspect of the CLG were more difficult to reach at this stage. There is clearly a case that each 'collecting' local authority should be a member of the CLG, as those local authorities will, through the collection mechanisms, be collecting money from developers and paying it over to the CLG as the fund holding body for investment in community energy schemes. It was noted by participants of the legal consultation, however, that no decision has been taken by local authorities to enter into a CEF.

Management and operational control of the CLG would be carried out by its directors. Appointing directors to the Board of the CLG is one of the key rights a member will acquire. The right of a local authority to make an appointment to the Board of the CLG will be regulated by provisions in the CLG's Articles of Association and will be a matter for negotiation and agreement between the local authorities. Participants in the legal

consultation meeting were, understandably, reluctant to express a view about who members should appoint to the board of directors, e.g. officers, councillors etc., feeling the issue to be a decision for the local authorities concerned. In making appointments, the local authorities will need to have regard to the duties of directors, ensuring that the Board has the appropriate mix of skills and experience.

### 1.3.3 Scale of fund and fund management

Based on recent growth plans for the Cambridgeshire local authorities and an Allowable Solutions price of £46/$tCO_2$ (the value used in recent government policy analysis), the cumulative Allowable Solutions income generated in Cambridgeshire over the period to 2026 is estimated at £55 million. Note that this figure is across all of Cambridgeshire's local authorities, assuming they are all partners in the CEF. It is also important to note that under the proposed Allowable Solutions framework a competitive market will be established between Allowable Solutions providers, such that the CEF will be in competition for these funds with third-party providers.

To summarise, the scale of the fund is dependent on a number of key factors, as follows:

- The final form of the zero carbon policy – policy changes announced following the 2011 budget have significantly reduced the requirement on developers to invest in Allowable Solutions (approximately halving the investment required compared to the prior definition).
- Allowable Solutions in the non-domestic sector – the form of the zero carbon policy for non-domestic development is less well developed than for the domestic sector. The extent to which developers of non-domestic buildings will be required to invest in Allowable Solutions is uncertain.
- Growth plans – The income into the fund will depend on the amount of development and also the extent to which developers rely on external Allowable Solutions providers, such as a community energy fund, in preference to delivering further onsite reductions
- The Allowable Solutions tariff – the price ceiling is as yet undefined. There is not expected to be a price floor, although the community energy fund will be in competition with other Allowable Solutions providers. Income into the CEF will depend on competitive pricing compared to these other providers.
- Membership – Clearly the scale of the fund will be strongly dependent on its membership.

A key decision for Cambridgeshire's local authorities will be whether to join a county-wide fund, or whether to develop funds at the district council level. We believe that there are significant advantages to be gained by the local authorities working together in a county-wide scheme. These advantages include:

- The county-wide fund will be able to make larger investments and therefore influence the delivery of larger, strategic projects.
- The larger-scale fund will be more likely to leverage additional sources of finance, such as bank debt, greatly increasing the overall level of investment in the area.
- Transaction costs will be lower as a percentage of money invested for larger investments.
- Economies of scale will increase efficiency in the fund's management and operational costs.
- The county-wide fund will have greater scope to develop a pipeline of cost-effective carbon reduction projects.

#### *1.3.3.1 Fund management*

There are two broad approaches to putting in place the expertise needed to run the fund:

- the Board of directors of the CLG could delegate day-to-day operational responsibilities to non-Board executives, who would be employees of the CLG. These employees would include the fund management team, with responsibility for developing the fund's investment strategy, identifying projects and structuring the finance. They would also be responsible for negotiating with developers and setting the Allowable Solutions price. These individuals will have a critical role in the success of the fund. The Board would be responsible for appointing the team and they would report back to the Board. It is unlikely that local authority officers currently have the expertise to undertake this role.
- the Board of the CLG could elect to contract out the day-to-day management of the Fund to a third party fund manager who would work to their strategic objectives.

### 1.3.4 Investments by the fund

There are broadly three ways in which the fund could invest in carbon reduction projects;

- Grants;
- Debt finance, in the form of loans made by the Fund; and
- Equity investments in project vehicles.

The appropriate form of investment will depend on the nature of the project and its financing requirements. Structuring finance will be the job of the fund management team.

A variety of types of project that the fund might invest in have been assessed to understand what levels of CEF finance might be required to unlock projects, the scale of carbon reduction impacts and the cost-effectiveness of carbon saving delivered.

A number of key conclusions can be drawn from this analysis:

- The Allowable Solutions ceiling price will strongly influence the types of investment the fund is able to make. If this price is set too low, either it will become difficult for the CEF to deliver its contracted $CO_2$ reductions or lead to very 'safe' investments, which may not be consistent with the desire for additionality.
- For example, the ceiling price of £46/t$CO_2$ used in recent government policy analyses does not seem to be high enough to enable the CEF to invest in low carbon energy generation projects or community heating infrastructure.
- Recycling of project returns into further investments will be very important to increase the scale of the fund's portfolio of projects. This is significant even in the case that the returns on CEF investment are modest.
- Reinvestment of funds should also enable the CEF to drive down the overall cost of $CO_2$ delivered. This will be important to enable the CEF to compete on price with third-party allowable solution providers. Even in the case that funds are held in a national fund, arrangements will need to be put in place to enable the CEF to recycle returns on investment.
- Leveraging of the CEF investment with bank debt and equity (where available) will be key to enabling the CEF to deliver large-scale projects.

### 1.3.5 Carbon accounting

The Zero Carbon Hub's Allowable Solutions framework proposes that a national Allowable Solutions Verification and Certification Scheme is established. We recommend that the principle of a national Allowable Solutions Verification and Certification scheme be supported. This is not inconsistent with a local fund, as all local authority areas would benefit from having nationally agreed and implemented verification/certification procedures. In our consultation with local authority legal officers, understandable concern was expressed about the prospect of local authorities having to implement their own verification and certification procedures and expertise. A national solution would be appropriate here.

The process that a national Allowable Solutions Verification and Certification would follow to assess carbon savings is not developed in detail in the Zero Carbon Hub report.

The processes established under the Clean Development Mechanism (CDM) to monitor and verify carbon savings are referred to as a potentially useful starting point, although it is recognised that the complexity of these processes is inappropriate for the Allowable Solutions framework.

The key stages in any carbon accounting process are as follows:

- **Evaluation** of carbon emissions that a project is expected to deliver.
- **Monitoring** of necessary data to enable actual carbon saving of the project to be calculated.
- **Verification** of carbon saved, by a process of analysis of the monitored data
- **Reporting** carbon saving to stakeholders

The evaluation stage is clearly critical for CEF managers to assess investment opportunities and to determine the allowable solution price offered. Fund managers would be expected to perform due diligence on investments, potentially involving external expertise. A set of clear, consistent methodologies for determining $CO_2$ reductions for typical project types would be useful to ensure projects can be evaluated on a consistent basis.

The monitoring and verification procedure will need to be agreed at the point that Allowable Solutions projects are contracted. Project developers should submit a monitoring methodology as part of the project plan, performance of which will be a condition of CEF funding. The appropriate level of detail of the monitoring and verification arrangements will be dependent on what the results are to be used for. For example, if the data is simply to allow the CEF to track the effectiveness of its investments and report on its overall carbon reduction performance, the level of monitoring and verification may be less onerous than if financial liabilities are triggered by underperformance (either for the project or for the CEF). The complexity of the monitoring and verification arrangements should be pragmatic and avoid the development of a potentially burdensome industry around verification of project performance.

# 2 Introduction

A community energy fund (CEF) is a mechanism to channel funds raised from development into low carbon infrastructure and carbon emissions reduction projects. This report presents a study of the role that a community energy fund might play in delivering carbon emissions reduction in Cambridgeshire. The report builds on an initial feasibility study[1] into the options for developing a local energy fund, by considering in greater detail the key issues concerning how such a fund might be structured, operate and how it fits within the wider framework of local and national carbon reduction policy.

## 2.1 What is a Community Energy Fund?

The basic principle of the community energy fund as described in this study is to levy a charge on developers for the carbon dioxide emissions resulting from new development. The payments raised from development across an area are pooled in the fund and used to finance local carbon saving projects.

In order to generate an income for the fund, a policy is required that imposes an obligation on developers to achieve a certain level of emissions reduction. The carbon emissions threshold set through this policy must be more stringent than the minimum standard required by the Building Regulations, i.e. the developers must be obliged to exceed Building Regulations in terms of $CO_2$ performance. The role of the fund is created by a provision in such a policy that enables a carbon reduction commitment to be commuted into a payment in the case that the required carbon reduction is not technically feasible or is economically viable to achieve onsite.

There are a small number of community energy funds currently operating around the country, perhaps the most established of which is in Milton Keynes. These funds operate on the basis of policies that the local authorities have established in their local development plan documents, either that require the development to comply with a certain level of carbon reduction or a target for provision of on-site renewable energy.

While these funds create a precedent for establishing a community energy fund that is funded through a carbon reduction obligation on development, they are relatively small-scale and impose fairly minimal costs on development. The major opportunity for development of community energy funds is created by the Zero Carbon Homes and Non-domestic Buildings Policy. This policy will impose a national carbon reduction requirement on development that exceeds the minimum requirement for onsite $CO_2$ reductions, with a framework put in place for those emissions not eliminated on-site to be dealt with through a payment. The zero carbon policy is described in more detail in the following.

## 2.2 Zero carbon policy and Allowable Solutions

Zero carbon policy is expected to be introduced for new homes in 2016 and for non-domestic buildings in 2019 (although certain public sector buildings will be required to be zero carbon from 2018). Since the policy was first conceived in 2008 a great deal of work has been done on developing the definition of what is meant by 'zero carbon'. The

[1] 'Carbon Offset Mechanism for Cambridgeshire', September 2010, Element Energy, Terence O'Rourke and Manches LLP.

definition of zero carbon is now well-developed in the case of new homes, while further technical work is ongoing on the definition for non-domestic buildings.

The introduction of zero carbon policy will be the culmination of progressive tightening of the Building Regulations, specifically Part L ('Conservation of Fuel and Power'), to limit the permissible $CO_2$ emissions from new developments. The first step on this path was taken with the 2010 edition of Part L, which imposed a 25% reduction of regulated[2] emissions compared to the pre-existing regulations. The next step is expected in 2013, when Part L will be revised again to impose a further 25% reduction in regulated emissions (equivalent to a 44% overall reduction on the 2009 baseline). In 2016, zero carbon policy will be introduced for homes, which will require all regulated emissions to be eliminated. Part L for non-domestic buildings will be revised at the same times, albeit that the trajectory of emissions reductions is expected to differ, on the way toward the 2019 introduction of zero carbon policy.

This pathway toward zero carbon for new homes is illustrated in the diagram below.

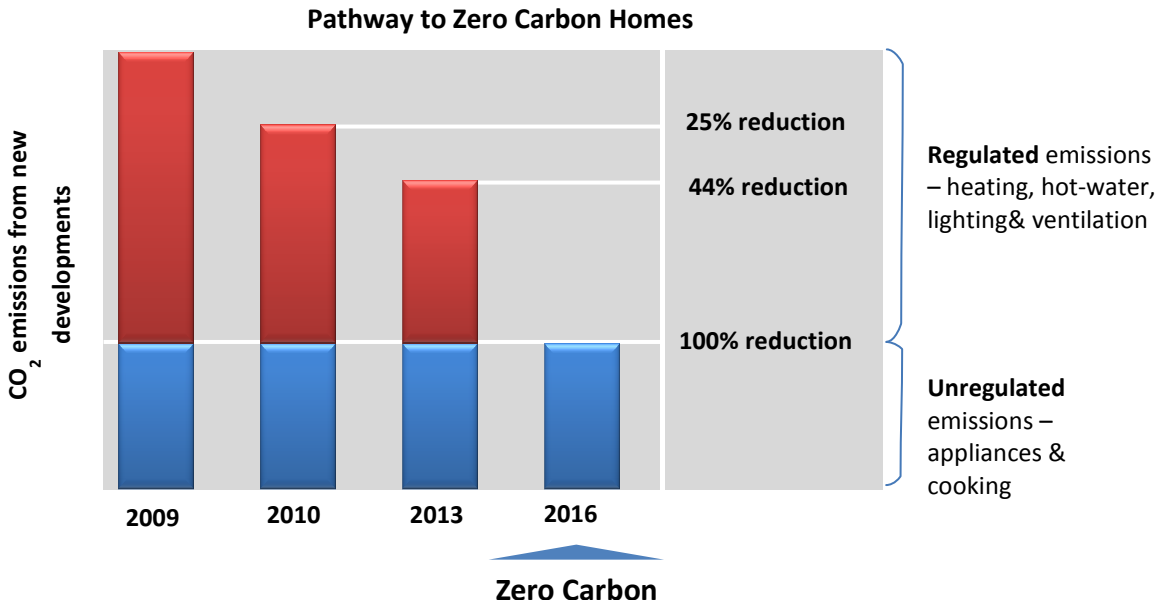



**Figure 1, Progressive reduction of permissible $CO_2$ emissions through Part L of the Building Regulations, on path to introduction of zero carbon policy.**

The intention under zero carbon policy is that all regulated carbon emissions are eliminated. The definition of zero carbon sets-out how this carbon reduction is to be achieved, by introducing a three-tier emissions reduction hierarchy.

This hierarchy is illustrated in the diagram below. Note that while the final definition of zero carbon for new non-domestic buildings may differ in the details from the definition for homes, the same basic hierarchy is expected to be adopted.

[2] Regulated emissions are those resulting from consumption of fuel and electricity for heating, hot-water, fixed lighting and ventilation. These are the emissions that are controlled by Part L of Building Regulations and, broadly speaking, are the emissions that can be influenced by building design and services. Unregulated emissions are those related to use of electrical appliances and cooking. These emissions are more strongly dependent on occupant behaviour and more difficult for the developer to influence through design and construction.

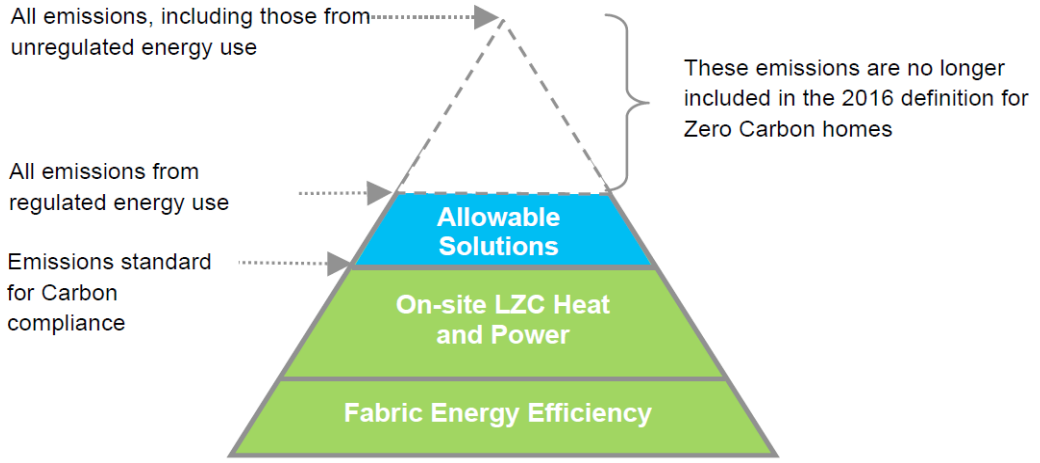



**Figure 2, Schematic representation of the 3-tier zero carbon definition**

The three tiers or the hierarchy are briefly described as follows:

1. **Fabric energy efficiency standard (FEES)** – Developers will be required to limit the energy demand in new buildings by constructing to a high standard of fabric efficiency. The Fabric Energy Efficiency Standard (FEES) will set a maximum limit on the permissible energy demand for space heating and space cooling (those elements of energy demand that are most strongly linked to fabric performance), measured in units of kWh/m$^2$/yr. FEES have been proposed for domestic buildings, varying by building type (e.g. detached, mid- or end-terrace, low- or high-rise apartments), but are yet to be determined for non-domestic buildings.

2. **Carbon Compliance** – The Carbon Compliance level is the limit on the amount of $CO_2$ emissions that a building is permitted to emit when in use (assuming that the FEES has been met). This will be measured in terms of kg$CO_2$/m$^2$/yr. Again, a set of Carbon Compliance levels have been proposed for various types of domestic buildings[3], but work is ongoing to define Carbon Compliance levels for non-domestic buildings.

3. **Allowable Solutions** – The final part of the zero carbon hierarchy are the "Allowable Solutions". These are measures that developers can take to mitigate a proportion of the residual carbon emissions (those that remain after the Carbon Compliance level has been met or exceeded). These 'Allowable Solutions' could include further carbon reduction measures taken within the site of the development, but could also include carbon reduction achieved through off-site initiatives – effectively off-setting the $CO_2$ emissions from the development.

It is the Allowable Solutions part of the zero carbon hierarchy that creates the opportunity for community energy funds. The developer, having achieved (or exceeded) the Carbon Compliance level will need to find carbon reduction projects to invest in that will deliver the remainder of the carbon reduction obligation. The energy fund represents a kind of allowable solution for the developer. Rather than identifying and developing carbon

[3] The Carbon Compliance limits have been set at 10 kg$CO_2$/m$^2$/year for detached houses, 11 kg$CO_2$/m$^2$/year for attached houses and 14 kg$CO_2$/m$^2$/year for low-rise flats (four storeys or less). Further work is required before the limit to be applied to high rise apartment blocks will be set. All standards relate to 'built[' performance.

reduction projects themselves, the developer can make a payment to an energy fund to deliver the carbon reduction.

It is important to emphasise here that the community energy fund is not an additional cost on developers over the cost of zero carbon policy. If developers do not make a payment into an energy fund, they will be required to make investments in other eligible measures that deliver the same carbon reduction. While zero carbon policy is likely to increase the cost of development, the energy fund has the benefit to developers that it provides certainty in what the cost of delivering Allowable Solutions will be.

Much of the definition of zero carbon described above has been developed by the Zero Carbon Hub, an organisation created and supported by government and tasked with shaping the zero carbon policy. The definitions of the fabric energy efficiency standard (FEES) and Carbon Compliance level have been devised by the Hub, following consultative working with the construction sector and relevant stakeholders. The Allowable Solutions tier of the Zero Carbon definition is the final part of the Hub's work. A proposed framework for Allowable Solutions was published by the Hub in July 2011 in the document 'Allowable Solutions for Tomorrow's New Homes: Towards a workable framework'. Government intends to consult on the proposed framework in late 2011 / early 2012. The key features of the proposed framework are described below.

## 2.3 The Zero Carbon Hub's proposed Allowable Solutions framework

As described above, developers will be required to mitigate the remaining regulated emissions from their developments (i.e. once they have achieved or exceeded the Carbon Compliance level), though investment in Allowable Solutions. Once occupied, the development will continue to emit $CO_2$ over an extended period of time. The zero carbon policy is expected to require the developer to mitigate the emissions released over a period of 30 years of occupation of the development.

The Allowable Solutions framework identifies a range of types of carbon reduction initiatives that could constitute Allowable Solutions. These include measures taken within the site, near the development or further afield, as shown in Figure 3. Further work is expected to be done on the definition of eligible Allowable Solutions projects.

There are a number of key features of the proposed Allowable Solutions framework that it is useful to introduce, as they will frame the discussion of the Cambridgeshire Community Energy Fund and its role as an allowable solution. These key features are summarised as follows:

- The framework introduces a role for local planning authorities, but also provides a choice for how engaged the local authority wishes to be.
- The framework also provides a choice for developers and limits the maximum exposure of developers to the cost of complying with zero carbon policy.
- The framework provides for creation of local community energy funds, but also introduces the concept of a national fund-holding body to manage developers' payments into energy funds.

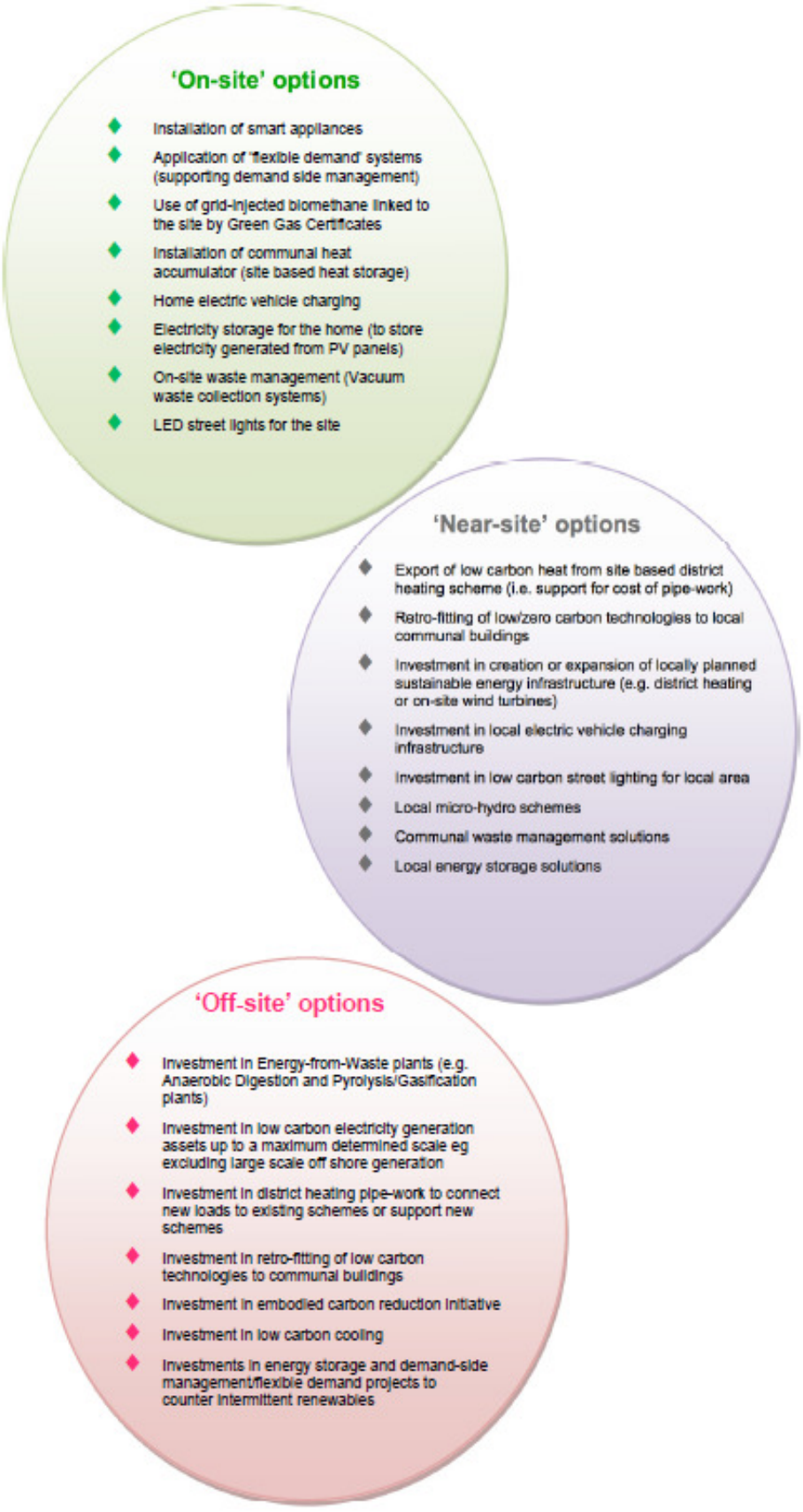



**Figure 3, Potential Allowable Solutions projects [Source: Zero Carbon Hub]**

### 2.3.1 Choice for local authorities

The choice for local authorities is around how much control they wish to exercise over the carbon reduction projects that are supported by development in their area, through the Allowable Solutions framework.

Once the zero carbon policy is in force, new development will generate investment in carbon reduction projects, i.e. Allowable Solutions. The local authority can take steps through local planning policy to ensure that this investment is kept within the local area. To do this, the local planning authority (LPA) must establish a mechanism to identify projects that are priorities for Allowable Solutions investment and include them in the Local Plan. If the local planning authority does not establish such a mechanism to identify projects in the local area, then the intention is that there will be a national database of Allowable Solutions projects and that the money raised could flow to projects anywhere in the country.

The introduction of suitable policies in the Local Plan and an evidence-based mechanism of identifying suitable projects for Allowable Solutions investment will be sufficient to ensure that the money raised from development in the local area is invested in local projects. The proposed framework recognises, however, that the local planning authority may wish to take a further step and establish a community energy fund (CEF). In this case the CEF becomes responsible for delivering the required $CO_2$ reduction, by developing the Local Plan projects.

In summary, there are three levels of engagement that the local authority can choose to take with respect to the Allowable Solutions framework, as follows:

- **No action** – in this case there will be a national database of Allowable Solutions projects and the developer will make arrangements privately (potentially through a private energy fund) to invest in a project from this list. In this case there is no requirement for investment to be made in initiatives local to the development.
- **Allowable solutions policies developed in the Local Plan** – the LPA establishes a mechanism to identify projects and introduces appropriate policy into the Local Plan. Money raised from development will be channelled via third-party private providers to carbon reduction projects in the area, as identified in the Local Plan.
- **Community energy fund (CEF) established** – the Local Authority, potentially working in partnership with neighbouring local authorities, establishes an energy fund to deliver projects. The developer pays into the CEF and the CEF is then responsible for arranging carbon reduction projects.

Only the CEF option establishes local democratic control over the management of Allowable Solutions carbon savings in the local area.

### 2.3.2 Choice for developers

If a local authority is pro-active and establishes a list of priority projects within the Local Plan, then developers active in the area will support those projects through their Allowable Solutions investments. Even in the case that the local authority has also established a community energy fund, however, the developer will still have a choice as to which organisation they use to deliver their carbon reduction obligation. The developer could pay into the CEF, but equally they could enter into an arrangement with a third-party provider of Allowable Solutions projects, in order to fulfil their obligation under zero carbon policy.

The choice for the developer is likely to be made on the basis of cost, i.e. which organisation offers to take on the carbon reduction obligation at the lowest price. The CEF

is therefore likely to be in competition with a number of third-party Allowable Solutions providers on the basis of the Allowable Solutions price, in terms of £/$tCO_2$, that they are able to offer. In order to limit the cost of complying with the zero carbon policy for the developer, the framework proposes that this price is capped at a ceiling price, which will be set nationally. All Allowable Solutions providers, whether they are community energy funds, private energy funds or third-party providers will be required to operate within the ceiling price (no floor price is currently proposed).

In the case of a developer building in an area where the local authority has not prescribed a list of Allowable Solutions projects, then the developer will be able to contract with one of a number of private organisations that are expected to develop to deliver projects of the national database.

The choices for developers are illustrated in the diagram below:

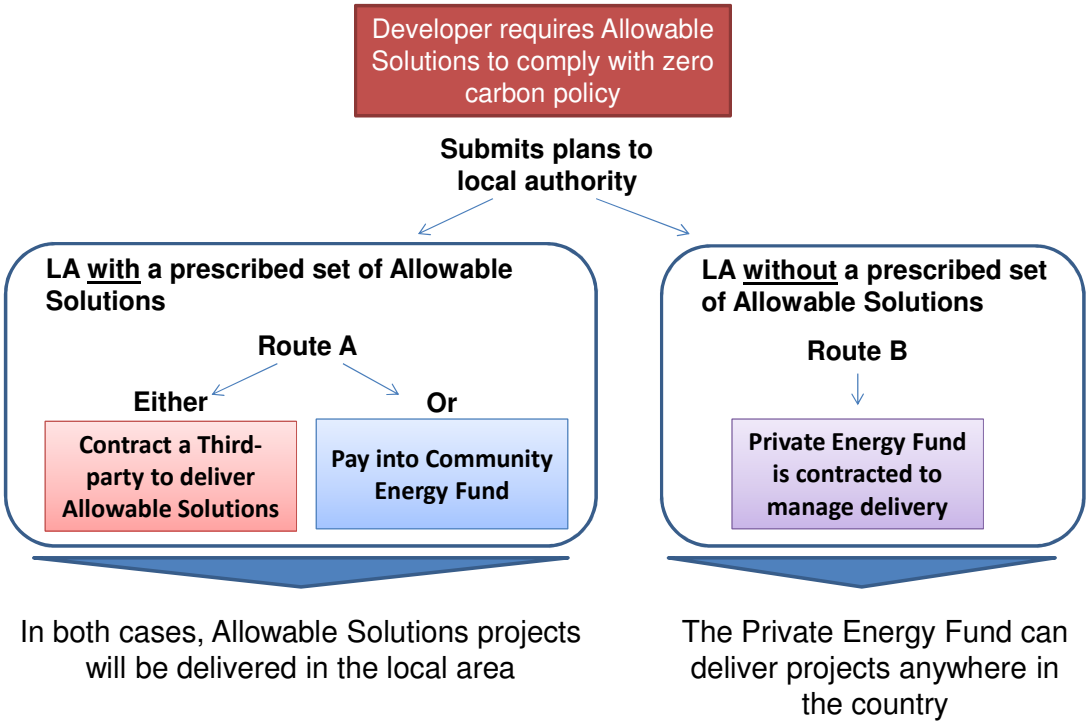



**Figure 4, Choice of Allowable Solutions providers available to developers, depending on whether the local authority has included an Allowable Solutions policy in their local plan**

### 2.3.3 Proposals for a national fund-holding body

The Allowable Solutions framework proposals put forward by the Zero Carbon Hub include the concept of community energy funds that contract with developers to deliver their $CO_2$ reduction obligations and assume responsibility for delivering projects from their local plan. In the framework proposals, however, the community energy fund is hybridised with the concept of a national fund – a nationally administered 'bank' in which the developers' Allowable Solutions payments will be held. So while the community energy fund would be responsible for setting the Allowable Solutions price, contracting with developers to become their Allowable Solutions provider and then going on to support development of the Allowable Solutions project, the funds paid by the developer would not be held locally, instead they would be held in the national fund until the project reaches particular milestones and can draw down funds.

In this framework, the national fund is closely aligned to an Allowable Solutions Verification and Certification Scheme (ASVCS), which is described as the brain of the national fund. The ASVCS fulfils a number of key roles in the framework process. When the CEF and the developer enter an arrangement for delivery of an Allowable Solutions project, they must each register the project with the ASVCS. The ASVCS then issues a credit note to the CEF, which is intended as evidence that the CEF has funds ring-fenced for the project, giving confidence to project developers and enabling the CEF to leverage other finance. The developer may be required to make a deposit into the ASVCS on the basis of as-designed SAP calculations, which indicate the amount of $CO_2$ emissions that the developer has to reduce through Allowable Solutions. The final payment from the developer will not be until the completion of construction and will be on the basis of the actual performance of the completed development. This final payment will be made directly into the ASVCS, on receipt of which the ASVCS will issue a certificate to the developer confirming that they have discharged their obligations under the zero carbon policy. The intention of the system of credit notes and certificates is to decouple the progress of construction of the development from the delivery of the allowable solution project.

The funds that are ring-fenced for a particular project within the national fund-holding body would be drawn-down when the project reaches certain, pre-defined milestones. Again it will be the ASVCS that will trigger the release of these funds, which would be paid directly to the project developer (this could be the project sponsor or an SPV established for delivery of a certain project).

The process is much the same if the developer chooses a third-party Allowable Solutions provider rather than a CEF to deliver their required Allowable Solutions. The flow of funds, certificates and credit notes between the participants is shown schematically in the diagram in Figure 5. Note that for simplicity, the Allowable Solutions project supplier – the final recipient of the funds earmarked for the particular project – is not shown on this diagram.

In the case that the local authority hasn't developed a list of Allowable Solutions projects in their local plan and the developer contracts with a private energy fund, the overall process is again very similar to that described above. The key difference in this case, as discussed, is that that the private energy fund is not obliged to deliver projects local to the development. They can fund projects located anywhere, as long as the project meets a set of criteria set-out to determine eligibility of projects as Allowable Solutions.

The eligibility criteria, which would apply equally to projects identified within Local Plans, have not yet been established in detail. The following rules were suggested in the Zero Carbon Hub reports as key ingredients in the project criteria:

- That they are genuinely additional and therefore pass the government 'additionality' test. (What is meant by additionality is discussed further in Section 5.3.)
- Where the project is funded by a community energy fund that the project is consistent with Allowable Solutions policies outlined in their respective local plan.
- That the project sponsor (i.e. the entity seeking capital) passes a set of criteria ensuring that they are in a 'fit state' to deliver the project.
- Carbon savings have been calculated using the national Allowable Solutions Carbon Reporting Methodology (this is as yet undefined).
- The project is consistent with a National Allowable Solutions Guidance (to be defined).

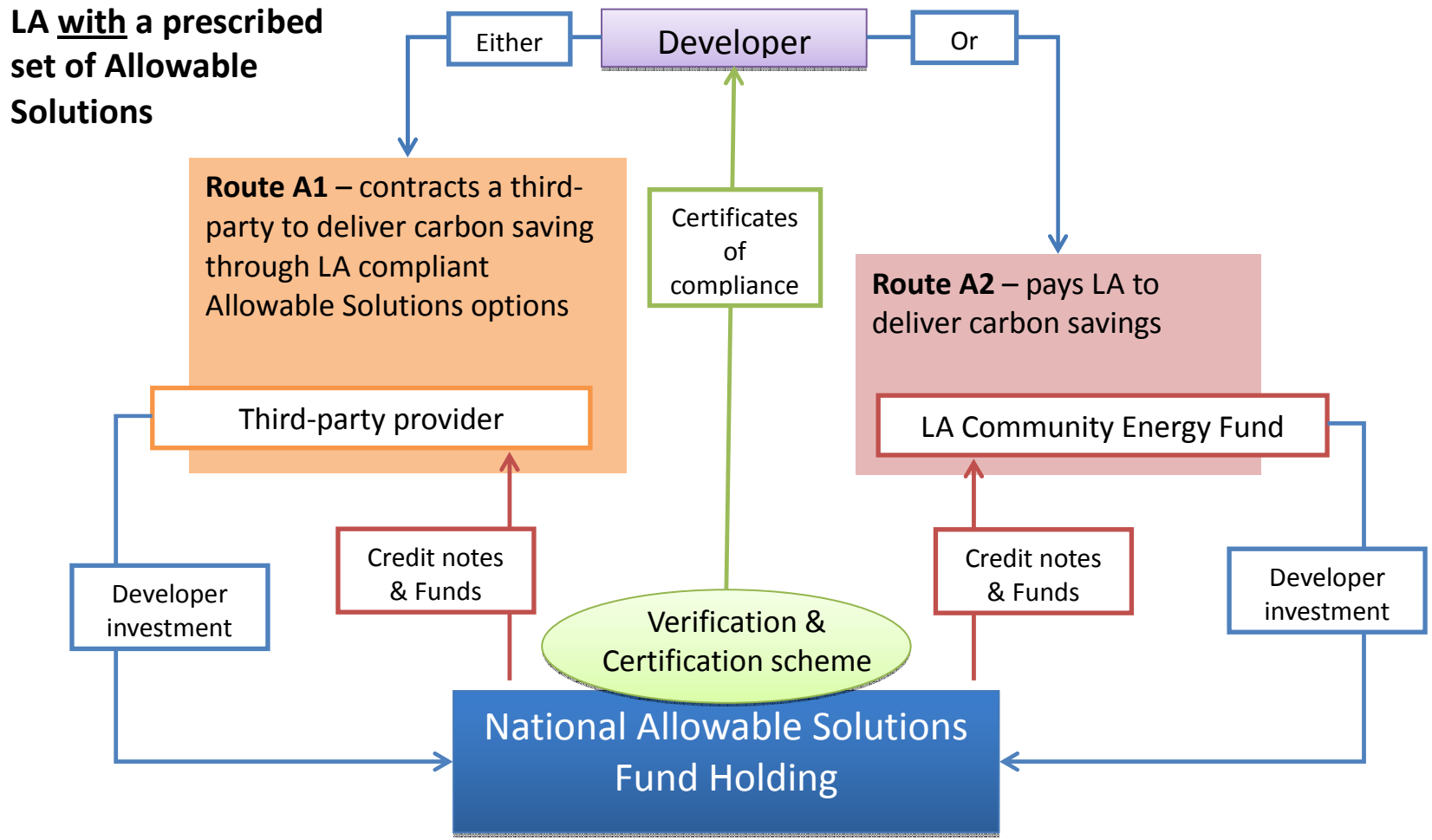



**Figure 5, Schematic of the relationships between the main parties in the Allowable Solutions framework**

### 2.3.4 Summary of key features of the proposed framework

The key features of the Zero Carbon Hub's proposed framework are summarised below:

1. The local authority can choose whether or not to develop an Allowable Solutions policy within its Local Plan. If it does develop appropriate policy, it will have the opportunity to prescribe a list of projects in the area that will be funded by developers' Allowable Solutions payments.
2. The local authority also has the opportunity to set-up a community energy fund to manage delivery of Allowable Solutions projects from their local plan.
3. Even in the case that the local authority has established Local Plan policy and a CEF, the developer will still have the option to contract with a third-party Allowable Solutions provider if they offer better value (e.g. a lower Allowable Solutions price). The third-party provider will deliver projects from the local project list.
4. If the local authority doesn't put an Allowable Solutions policy in place in the Local Plan, then the developer can contract with a private energy fund to fulfil their carbon reduction commitments. The private energy funds can deliver projects anywhere, as long as they meet a set of eligibility criteria. In this case it is quite likely that Allowable Solutions investment from a particular development will flow out of the area where the development took place.
5. There is an intention to establish a national database of Allowable Solutions projects. Private energy funds may select projects from this list.
6. The price that developers pay for Allowable Solutions will be capped at a ceiling price. All allowable solution providers, e.g. community energy funds, private energy funds and other third-party providers, will have to adhere to this price cap.
7. It is proposed that the developers' payments will be held in a national fund-holding body – a secure bank for all Allowable Solutions investment flows. It is suggested that this could be hosted by the Green Investment Bank or by a private fund management company.
8. An Allowable Solutions Certification and Verification Scheme is proposed to manage the flow of investment. It will issue credit notes to local funds as evidence of the funding they have ring-fenced for their projects, it will provide certification to developers that they have fulfilled their obligations by making the require payment and will trigger the release of funds to projects when they achieve milestones.
9. If a community energy fund or private energy fund fails to deliver a project as planned, ceases to operate or does not spend funds within a certain timeframe, then the national fund may invest the capital in an alternative project, potentially selected from the national Allowable Solutions project database or through an alternative call for projects.

### 2.3.5 Implications of the Zero Carbon Hub's proposed framework for community energy funds

The Zero Carbon Hub's proposed Allowable Solutions framework reduces the viability of community energy funds, for the following reasons:

- It introduces competition with private sector third-party providers, whose objectives will be driven by financial returns rather than wider community benefit.
- Accordingly developers will have a choice regarding which organisation they use to deliver their carbon reduction obligations.
- The national fund concept does not appear to allow for financial returns on investments to be reinvested in further investments in the local area.
- A national fund scheme limits local control over Allowable Solutions investments and hence appears to be less in keeping with the localism agenda.

## 2.4 Purpose of this study

A number of the elements of the Allowable Solutions framework put forward by the Zero Carbon Hub are well-aligned with the concepts for a community energy fund that Cambridgeshire Horizons and the Cambridgeshire local authorities have been developing since early 2010. Notably, the proposals include a means for local authorities to ensure that Allowable Solutions funds raised from development in their area is invested in carbon reduction projects in the area and that the local planning authority has a role in identifying those projects. The proposals also include the concept of community energy funds, established by local authorities to support the delivery of the Allowable Solutions projects identified within the local plan. The concept of neighbouring local authorities working in partnership, in order to develop a large fund that is able to deliver larger scale, more strategic projects is also included in the proposed framework. This is a key aspect of the community energy fund proposals that Cambridgeshire Horizons have been developing in cooperation with the local authorities.

While these elements of the proposed framework are encouraging, the proposals also create some uncertainties and raise some concerns for local organisations considering development of a community energy fund. The major points of concern identified through discussions with Cambridgeshire Horizons and local stakeholders are as follows:

- The national fund-holding body might diminish the role for the community energy fund.
- Returns on investments – it is not clear in the proposed framework what will happen to financial returns on investment. The community energy fund would be not-for-profit, but reinvestment of financial returns into further projects could be key to increasing the impact of the fund.
- Administration costs – the framework proposals suggest that the interest accrued on money in the national fund could be used to fund the administration and transaction costs of the ASCVS. It also states that local CEFs that engage with the scheme may be required to pay a fee. It is not clear how the CEF would meet its own costs if it does not hold any capital.
- Liability for failure to deliver $CO_2$ reduction – the issue of liability for failing to deliver $CO_2$ saving is raised but not discussed in detail. It is important to understand what the liabilities of the CEF would be. It should be noted that a punitive liability for failing to deliver the level of $CO_2$ reduction passed on to the fund from the developer will lead funds to play very safe in terms of their investments, which may not be consistent with delivery of genuinely additional projects.
- Competition with third-party providers – the CEF will be a not-for-profit organisation that seeks to maximise $CO_2$ reduction but also wider community benefit through its investments. These aims may not be consistent with a competition on the basis of price with private providers.
- The mechanism for collection of the payments from the developer into the fund is unclear. CIL and planning obligations are raised as possible mechanisms, although a direct payment from developer to the national fund is also discussed. It is unclear how this would work in practice.

The purpose of this study is to consider in greater detail how a local community energy fund might be structured and operate to deliver carbon reduction projects using income from developers' Allowable Solutions contributions. Following a consideration of the Allowable Solutions framework proposed by the Zero Carbon Hub, it was decided by Cambridgeshire Horizons and the project steering group to base this work on the assumption of a fully local community energy fund, i.e. a fund that holds its own capital, is responsible for committing funds to the projects it supports and is able to reinvest the proceeds from its investments. The implications of other aspects of the proposed Allowable Solutions framework for a local community energy fund, such as the competition with third-party providers, ceiling price and eligibility of projects, are discussed. The prevailing assumption is that a 'local' fund

for Cambridgeshire would be a partnership between the local authorities, although the implications of funds operating at different geographic scales are discussed.

The key aspects of a local community energy fund that the study seeks to address in detail are as follows:

- The mechanism for collecting Allowable Solutions payments from developers into a locally operated fund (assuming funds are held locally). (Section 3)
- The structure of the fund and governance arrangements, assuming joint local authority membership (Section 4).
- The impact a local fund can make through its investments, given the likely scale of funds available, and fund management options (Section **Error! Reference source not found.**).
- The mechanisms for measuring fund performance in terms of $CO_2$ reduction (Section 6).

The intention is that the outputs of this study will inform a response from the Cambridgeshire local authorities to the government's consultation on the Allowable Solutions framework, expected in late 2011 / early 2012.

# 3 Collection mechanisms

## 3.1 Introduction

The concept of Allowable Solutions recognises that developers can find it difficult to meet all of their carbon reduction requirement on-site, particularly on smaller sites (see Section 2.2), and so permits a proportion of the requirement to be met via a payment toward off-site carbon reduction projects. The mechanism for collecting these Allowable Solutions payments from developers is considered in this section.

The key features of the proposed Allowable Solutions Framework (detailed in Section 1.2 of this report) that affect the consideration of collection mechanisms include the provisions that:

- Local authorities will have the opportunity to develop allowable solutions policies in their Local Plans if they choose to do so. These policies would ensure that investment in allowable solutions is directed to projects that are identified in the Local Plan.
- Developers could find best value providers through the Community Energy Fund (CEF) or through the private sector in areas where a local authority has chosen to establish a CEF but the allowable solutions projects would have to be selected from the list in the Local Plan.

The basis for any mechanism for collecting developer contributions for "allowable solutions" must be established in the statutory development plan. Local Plans (known as Local Development Frameworks before the Localism Act was enacted in November 2011) can include policies for low carbon buildings up to 2016 and they can also include policies for renewable energy after 2016 as part of a wider approach to tackling climate change.

The Local Plan will need to include a policy to establish how developer contributions for allowable solutions would be paid into a national or a local Energy Fund. The Local Plan will also need to identify a list of renewable and low carbon energy projects that will be promoted for these purposes to help reduce carbon emissions and generate renewable energy in the plan area.

The review of mechanisms for collecting developer contributions for Allowable Solutions presented in this section have been developed in consultation with officials at the Department of Communities and Local Government (DCLG), the Cambridgeshire Community Energy Fund Steering Group and Cambridgeshire County Council and District Council planners. Comments received from these consultees are reflected in this final report.

This review of collection mechanisms considers the suitability of existing mechanisms for collection of developer contributions toward carbon reduction initiatives firstly in the period up to 2016, when Local Planning Authorities (LPAs) may wish to adopt local planning policies to require developers to mitigate impacts of the carbon emissions of their developments, and secondly in the period after 2016 when Zero Carbon Policy will come into force.

The existing mechanisms that have been considered for the collection of developer contributions for allowable solutions are Section 106 Planning Agreements and the Community Infrastructure Levy (CIL):

- **Section 106 Planning Agreements** are negotiated between developers and LPAs when a planning application is being considered for a particular site and can then form part of a planning permission to ensure that the developer provides a financial and/or other

contribution to help provide local infrastructure or other facilities that are required to serve the development.

- **The Community Infrastructure Levy (CIL)** is a mechanism that enables an LPA to draw up a list of infrastructure projects that will be required to serve the needs of development proposed in the Local Plan across the area and to draw up a charging schedule that, subject to limits on development viability, can be charged to developers according to the scale of each development.

This review of collection mechanisms has indicated that Section 106 Planning Agreements could be considered for the collection of developer contributions toward carbon reduction initiative before 2016. It concludes that a new mechanism for collecting Allowable Solutions payments will be needed when Zero Carbon Policy and the changes to Part L of the Building Regulations that introduce Allowable Solutions come into force in 2016. This suggested approach has been discussed with the CEF Steering Group and with District Council planners.

## 3.2 Collection mechanisms up to 2016

Local Planning Authorities (LPAs) could opt to require developers to reduce carbon emissions from building operation (and potentially from building construction) in the period up to 2016 when Zero Carbon Policy and the new Part L of the Building Regulations come into force. This could be achieved by developing updated "Merton Rule" style policies to require carbon reduction provisions for development projects above a certain threshold size. These policies would place a requirement on developers to achieve a level of carbon reduction in excess of the minimum standard required by Part L of the Building Regulations. These policies could include a provision to allow developers to make a payment, similar to Allowable Solutions payments, in lieu of delivering the required carbon reduction through on-site means, thereby creating a role for a community energy fund prior to 2016. The principle aim of such policies would be ensure the maximum amount of carbon reduction is achieved through on-site measures in the first instance, but with payment into a fund being an option for those developments where this is not possible.

**Examples of previous "Merton Rule" style policies**

The original "Merton Rule" policy required new residential development over 10 units and commercial development over 1,000 square metres across the London Borough of Merton to generate at least 10% of their energy needs from on-site renewable energy equipment and it also encouraged the use of sustainable building materials. The so-called "Merton plus" policy, which was adopted by the Greater London Authority and several other local authorities, aims for all developments to achieve a 20% reduction in carbon emissions through renewable on-site generation where this is viable following guidance in the Supplement to Planning Policy Statement No 1 (PPS1) on Planning and Climate Change.

Milton Keynes provides an example of a local planning authority that has established a carbon reduction policy that permits the carbon reduction requirement to be commuted into a payment into a fund. Milton Keynes Council is aiming to "achieve development … with zero carbon growth" preferably by reducing carbon emissions from development "by using renewable energy or, as an interim measure, by making payments into a carbon offset fund" (Policy D4)4. In this example, developer contributions are collected by Section 106 Planning Agreements to "to improve the energy efficiency of existing homes across the city."

[4] Milton Keynes Local Plan, adopted December 2005, http://www.milton-keynes.gov.uk/planning-policy/documents/Local_Plan_Part_5.pdf

This type of approach would enable developers to make payments in lieu of the requirements for carbon reduction requirements that could not be met on-site. The amount of carbon emissions to be offset by this payment could be calculated by developers using the Standard Assessment Procedure (SAP) (explained later in this section of the report), which is used to demonstrate compliance with Part L of the Building Regulations. These calculations could be certified by the local Development Management Service as part of Section 106 Planning Agreements for individual development schemes. However, it is recognised that LPAs may not have sufficient staffing resources in their development management teams with the necessary skills to assess these calculations and that they would therefore need to consider the resource implications arising from adopting any carbon reduction and renewable energy policies in their Local Plans.

It is suggested that developer payments for these "carbon offsets" could be collected alongside developer contributions for Section 106 Planning Agreements in Cambridgeshire as they are in Milton Keynes. They would need to be calculated separately from the Section 106 payments, which are negotiable between the Local Planning Authority and the developer, in order to comply with the carbon reduction requirements identified in the Local Plan policy. The existing collection mechanism would provide a convenient means of channelling the payment in the period up to 2016. However, it should be noted that these "carbon offset" payments would have to be subject to the viability limitations for Section 106 Planning Agreements (see (c) below).

The statutory tests for Section 106 Planning Agreements stipulate that any developer contributions that are required should be (a) necessary for the development to proceed, (b) specific to the site and the development and (c) proportionate to the scale of the development. These requirements could in principle be met by the need for developers to meet their Zero Carbon Homes policy obligations and it would need to be argued that:

(a) the carbon reduction requirements of a "Merton Rule" type policy are necessary for each development above a certain size threshold because of the evidence based rationale of the policy.

(b) this approach is by its nature specific to the site and the development.

(c) the scale of the carbon reduction requirement is proportionate to the scale of the development including an assessment of the effect of the requirement on the viability of the development scheme.

The limitation of project "pooling" (currently 5 projects) in Section 106 Planning Agreements which will come into force either on adoption of CIL or from April 2014 could restrict the scope of the suggested collection of "carbon offset" payments. It was suggested at the meetings with the Community Energy Fund Steering Group and with Cambridgeshire County Council and District Council planners (September 2011) that the Cambridgeshire CEF could seek a further meeting with DCLG to propose an appropriate relaxation or exception to these limitations. This could form part of wider discussions about the overall recommendations of this study as DCLG prepares its consultation on the application of the proposals of the Zero Carbon Hub report on "Allowable solutions for tomorrow's new homes". A recent meeting with DCLG has raised these issues and officials have agreed to consider them.

### 3.2.1 Policy implications of collecting payments prior to 2016

Each LPA in Cambridgeshire will need to decide whether to adopt "Merton Rule" style policies in their Local Plans to require developers to reduce carbon emissions beyond regulatory minmum standards and to permit part of this requirement to be met through a payment, thereby create a role for a Community Energy Fund before 2016. This decision would need to be informed by two main factors:

- The quantity of development likely to come forward before the Zero Carbon Policy and the new Part L of the Building Regulations come into force in 2016 to identify the overall potential to reduce carbon emissions.
- The strength of the available evidence-base to support a policy to require developers to achieve a higher level of carbon reduction than required by the Building Regulations, including the likely effect of such a policy on development viability.

A specific study of the low carbon and renewable energy opportunities within a local authority area would probably need to be commissioned to develop a sufficient evidence base to justify a policy to require developers to exceed the carbon emission requirements of the Building Regulations. . It would assess the low carbon energy supply-side opportunities, the nature of planned development and opportunities for on-site carbon reduction and also assess the effect of carbon reduction policies on development costs and the overall cost-effectiveness of carbon emissions saved.

A study of this sort would recommend the form of carbon reduction policies and, crucially, the threshold size and type of development projects in the light of the evidence base. Cambridge City Council's "Decarbonising Cambridge" study provides examples of the kinds of policy that could be used before 2016 and the evidence base that would be needed to support them5.

A suite of policies would be needed in the Local Plan to impose a carbon reduction requirement on developers and to create the potential for carbon reduction payments into an energy fund in the period up to 2016. This will include a high-level policy in the Local Plan (Core Strategy) to set out the need to reduce carbon emissions from development in the area. A more detailed policy on the amount of carbon reduction required, how it should be achieved and how payments could be made into a Community Energy Fund would need to be included in a Development Control Development Plan Document (DPD).

There might also be a need for a policy to require a more onerous carbon reduction larger scale developments than would be required in the general policy. This policy could be included in an Area Action Plan or a Site Specific Allocations Development Plan Document (DPD). Further guidance to developers on carbon reduction policies might be included in a Supplementary Planning Document (SPD). An example of a policy that could be used to create an opportunity for a Community Energy Fund in the period up to 2016 which has been taken from the "Decarbonising Cambridge" report is included in Appendix 3. It should be noted that the sustainability standards referred to in the policy are based on the evidence base work performed as part of that study and are not necessarily applicable to other local authority areas.

LPAs will also need to consider the timetable for preparing the Local Plans and various Development Plan Documents (which are set out in the Local Development Scheme) when deciding whether to adopt a carbon reduction policy in the period up to 2016 Current progress on planning policy development and the future programme for the revision and adoption of DPDs and SPDs is given in Appendix 2.

It appears that opportunities to adopt a carbon reduction policy within the timetables for revising development plan documents vary across the LPAs in Cambridgeshire. Cambridge City Council could include policies in its draft Local Plan which is due for Issues and Options consultation in summer 2012 and is scheduled for adoption in 2014. These policies could require reductions in carbon emissions and allow developer contributions to be made to an Community Energy Fund in the period up to 2016 and enable suitable policies to be substituted for the period after 2016 when Zero Carbon Policy and the new Part L of the Building Regulations come into force.

[5] Decarbonising Cambridge, September 2010, Element Energy and Terence O'Rourke, http://www.cambridge.gov.uk/public/docs/Decarbonising_Cambridge_final_report_220910.pdf

East Cambridgeshire could also include carbon reduction policies in its draft Local Plan which is due for consultation from April to May 2012. Opportunities for South Cambridgeshire, Fenland and Huntingdonshire are less clear because Local Plan have either been adopted or consultations have recently completed. There are opportunities to introduce carbon reduction policies into the Area Action Plans for St Neots (Huntingdonshire) which are due to be adopted in 2012/13.

Opportunities to develop carbon reduction policies for the period up to 2016 will depend to some extent on whether Local Authorities in Cambridgeshire agree to develop a county-wide Community Energy Fund with associated governance arrangements or whether Cambridgeshire Districts decide to progress these propositions independently. In either case, it is important Local Plan Reviews are future-proofed to ensure that contributions for Allowable Solutions can be collected into a local Community Energy Fund after 2016 even if policies for the period up to 2016 are not included.

## 3.3 Collection mechanisms after 2016

The introduction of Zero Carbon Policy in 2016 will require developers to eliminate the "regulated emissions" from all residential developments (ie emissions from heating, hot-water, fixed lighting and ventilation) and a policy for non-domestic buildings will follow in 2019. This carbon reduction will be partly achieved on-site, as a development's emissions must be reduced to within the Carbon Compliance limit; to reduce the remaining emissions, developers will make a payment towards Allowable Solutions (See Section 2.2).

The basis for any mechanism for collecting developer contributions for Allowable Solutions must be established in the statutory development plan (see Section 3.1). Local Plans (known as Local Development Frameworks before the Localism Act was enacted in November 2011) can include policies for low carbon buildings up to 2016 and they can also include policies for renewable energy after 2016 as part of a wider approach to tackling climate change.

The Local Plan will need to include a policy to establish how developer contributions for Allowable Solutions would be paid into a National Energy Fund or a local Community Energy Fund. The Local Plan will also need to identify a list of renewable and low carbon energy projects that will be promoted for these purposes to help reduce carbon emissions and generate renewable energy in the plan area.

It is recommended that a new collection mechanism should be developed to enable developer contributions to be paid directly into a National Fund or preferably into a local Community Energy Fund for Allowable Solutions payments when Zero Carbon Policy comes into force in 2016. This would be much simpler and more effective than trying to adapt the existing Section 106 Planning Agreement and/or Community Infrastructure Levy (CIL) collection mechanisms that were designed for different purposes. In particular, it would avoid "double handling" of developer contributions.

The procedure for collecting developers' Allowable Solutions payments would be based on a calculation using the Standard Assessment Procedure (SAP). This will demonstrate that the Carbon Compliance level has been met (as required by Part L of the Building Regulations) and therefore the amount of regulated emissions that remain to be reduced. The SAP calculations would be made by the developer and submitted to the local Building Control Service, or to an accredited private sector Building Control Service in areas where the service has been privatised, to certify that the developer has complied with the requirements of Part L of the Building Regulations and Zero Carbon Policy.

Initially the developer would submit an "as-designed" SAP calculation to the local Building Control Service or to an accredited private sector Building Control Service. The CEF and the developer would

then use this calculation to contract for the amount of carbon reduction required and a deposit might be paid at that stage. On completion of the development, the developer would submit a final "as-built" SAP calculation to the chosen Building Control Service provider. The balance due would then be paid either to the local Community Energy Fund or to the National Fund.

The Zero Carbon Hub report ("Allowable Solutions for Tomorrow's New Homes") proposes that a national Allowable Solutions Verification and Certification Scheme would be established to issue a certificate to the developer to confirm that the requirements of Zero Carbon Policy had been met. This certificate would enable the developer to complete the rest of the building control process in the usual way.

The new mechanism for collecting developer contributions for carbon reduction policies could be used to collect payments directly into a local Community Energy Fund, as recommended to the Cambridgeshire Community Energy Fund Steering Group, or to collect payments into a National Energy Fund, as proposed by the Zero Carbon Hub report.

## 3.4 The role of the Community Infrastructure Levy (CIL)

The Community Infrastructure Levy (CIL) is not considered to offer an appropriate mechanism for collecting developer contributions for Allowable Solutions because it is intended to raise funding from development schemes for a variety of area-wide infrastructure projects. CIL is also inappropriate for this purpose because Allowable Solutions payments must be calculated on a site specific basis related to the remaining carbon reduction requirement, whereas CIL is calculated simply on the basis of the developed area of the site.

However, it should be noted that CIL could present an opportunity for collecting developer contributions for area-wide renewable and low carbon energy projects in the longer term if the projects are included in the list of CIL projects. In the present recession, the viability limit on CIL tariff rates is likely to preclude inclusion of renewable and low carbon energy projects in most areas but in the longer term, during a period of economic recovery, local authorities may wish to consider including these projects in their CIL project lists.

## 3.5 Conclusion

The examination of various options for collecting "carbon offset" payments in the period up to 2016 and payments for Allowable Solutions in the period after 2016 has found that neither of the existing mechanisms offers an ideal method for collecting developer contributions.

- Section 106 Planning Agreements are site specific but the payments are negotiable and do not include fixed rate contributions; a collection mechanism for carbon reduction payments would have to operate separately.
- The Community Infrastructure Levy (CIL) was designed to collect developer contributions for transport and other local infrastructure projects but it is not site specific; it does not have the flexibility to accommodate differing carbon reduction requirements on a site-by-site basis.

The assessment of the suitability of the existing collection mechanisms for collecting developer contributions is summarised in the table below:

| **Comparison of possible Collection Mechanisms for Allowable Solutions** | | | |
|---|---|---|---|
| | | | |
| *Criteria* | *Section 106 Planning Agreements* | *CIL (Community Infrastructure Levy)* | *New purpose designed collection mechanism* |
| Site specific | ✓ S106 site specific | x CIL area wide | ✓ site specific |
| Fixed rate contributions | x S106 negotiable | ✓ CIL fixed rate | ✓ fixed rate |
| Suitable pre 2016 | ✓ existing mechanism | x CIL area wide | x not possible pre-2016 |
| Suitable post 2016 | X unsuited to CEF | ? CIL extra area wide | ✓ direct payment to CEF |

The conclusions of this assessment suggest that:

- Section 106 Planning Agreements could be used up to 2016 in conjunction with "Merton Rule" style carbon reduction policies if government agrees that the current limits on pooling Section 106 Planning Agreement contributions could be relaxed; CIL is not a suitable collection mechanism.
- A new and simpler, purpose designed collection mechanism should be introduced after 2016 when the Zero Carbon Policy and the new Part L of the Building Regulations come into force; this mechanism should enable developers to make payments for Allowable Solutions directly into a local Community Energy Fund.

# 4 Corporate structure and governance

## 4.1 Introduction

Our First Stage Report was prepared on the assumption that a Cambridgeshire CEF would operate a purely local structure: contributions from developers would be collected by the participating local authorities through the relevant collection mechanisms and those contributions would form a pooled fund in Cambridgeshire which would be used to make investments in appropriate schemes. This Second Stage Report was commissioned with this local structure in mind.

However, in July 2011 the Zero Carbon Hub published its report, "Allowable Solutions for Tomorrow's New Homes: Towards a Workable Framework". One of the key parts of the consolidated framework proposal presented in the report was a single Allowable Solutions Fund Holding to provide a secure 'Bank' for the Allowable Solutions investment flow. The Green Investment Bank was suggested as a possible body to manage such a national fund. The Zero Carbon Hub's report therefore envisaged a more centralised, national structure to the fund holding arrangements.

Following consultation with the Steering Group, it was decided that this Second Stage Report would explore the local alternative to the national fund holding structure set out in the Zero Carbon Hub report. Accordingly, this section considers proposals for a Cambridgeshire CEF in which funds are held locally rather than being remitted to a national body such as the Green Investment Bank.

## 4.2 Consultation with local authority legal officers

A consultation meeting held by Element Energy and Manches LLP was held in Cambridge in August 2011. Invitations were extended to legal officers from all the Cambridgeshire local authorities. A summary note of the responses to the consultation, and a list of the attendees, is contained in Appendix 1.

The authors of this Report are grateful for the time committed and engagement of the local authority officers who attended the consultation meeting. Participants were conscious of the democratic sensitivities involved in this consultation process, and while the discussion aimed to explore how the CEF proposals might be implemented, the consultation team emphasised that no decisions had been made and that the decision to proceed would ultimately rest with the partner local authorities. The consultation meeting was held principally to brief local authority legal officers on key issues arising from the CEF proposals and to ensure that they were engaged in the working up of the proposals contained in this Report.

## 4.3 Structure

### 4.3.1 Contractual and SPV approaches

The First Stage Report set out the two broad approaches to joint venture working between local authorities:

- the contractual or "partnership" approach, whereby the rights and obligations of each local authority partner are set down in a written agreement; and
- the special purpose vehicle ("SPV") approach, in which the local authorities would each have an interest in a vehicle established to carry on the joint venture operations. The principal advantage of the SPV approach is that the legal entity is separate from its members and can contract in its own name.

A summary of the advantages and disadvantages of these two approaches, and of specific options within the two categories, can be found in Appendix 1.

### 4.3.2 SPV: rationale for preference

Our First Stage Report indicated that the SPV approach was likely to be a more suitable structuring option for the CEF proposal as it afforded greater flexibility and would allow efficient regulation of the relationship between the participating local authorities. This preliminary conclusion was borne out during the consultation with local authority legal officers. The feedback from participants suggested that an SPV-based structure was likely to work better than a partnership-style, contractual or "trust" structure. This is because an SPV structure presents the opportunity for more cohesive management and control shared between the local authority members – through, for example, agreed control and governance mechanisms contained in the constitution of the SPV. A previous project in Cambridgeshire was given as an example of a partnership-style scheme between authorities where governance and control was not felt to have worked well, as the rights and obligations of the parties were not clearly set out.

None of the local authority officers present could see any objection in principle to the ability of the local authorities to become members/stakeholders in a separate legal entity which would manage and hold the funds constituting the CEF. Similarly, participants could not see any legal objections to the concept that local authorities would collect in funds (through whichever collection mechanism(s) would ultimately be used) and pay these to the separate legal entity for application. However, participants recognised that certainty on this point was not possible until the legislative framework was finalised.

### 4.3.3 Choice of SPV

The advantages and disadvantages of various types of potential vehicle are set out in Appendix 1.

#### *Preferred option:*

#### *4.3.3.1 Company limited by guarantee (CLG)*

Companies limited by guarantee (CLGs) are commonly incorporated for non-profit making functions, with no share capital and members rather than shareholders. The members undertake to contribute a pre-determined nominal sum to meet the liabilities of the company which becomes due in the event of the company being wound up.

The key features of a CLG in the context of the Cambridgeshire CEF would be:

- each of the local authorities would become members of the CLG (similar to becoming a shareholder in the context of a company limited by shares) and would therefore have ultimate control of the entity;
- the CLG would hold the funds paid to it by the local authorities collecting contributions from developers under the relevant collection mechanisms;
- each of the member local authorities would undertake to contribute a pre-determined nominal sum to meet the liabilities of the CLG in the event of its winding up (this nominal sum would likely be as little as £1 or £10). This is the mechanism by which the liability of the members is limited;
- the management and operational control of the CLG would be exercised by the Board of Directors of the company;
- the constitution of the CLG would be its Articles of Association, which would set out, amongst other things:
    - the objects and powers of the company;

  - the process involved in becoming a member and ceasing to be a member;
  - how the Board of Directors would be appointed, and what their powers are; and
  - provisions relating to meetings of the members and the directors; and
- the CLG's Articles of Association would include a restriction on its right to distribute any profit on its activities to its members.

This last feature – the proposed restriction on the distribution of profits to members – is a common one in the context of CLGs carried on for social enterprise or not-for-profit purposes. "Not for profit" and "not for distribution" clauses do not preclude CLGs generating profits but rather from distributing the profits to their members. Any profit generated must be applied for the purposes of the company. (Subject to the provisions of the 2006 Act, a company limited by guarantee is in fact allowed to distribute its profits to its members provided there is nothing in its articles of association to the contrary; relatively few CLGs make distributions in this way, as an enterprise wishing to distribute profits usually assumes the guise of a company limited by shares, which distributes dividends to shareholders.)

#### *4.3.3.2 An example of a CLG in action: Cambridgeshire Horizons Limited*

Companies limited by guarantee are corporate vehicles familiar to local authorities. Cambridgeshire Horizons Limited ("CH Ltd") operated as a CLG and is a useful practical example to illustrate how the key features set out above worked in practice:

- CH Ltd's member organisations were:
  - The "Local Authority Members", being Cambridgeshire County Council, Cambridge City Council, East Cambridgeshire District Council, Fenland District Council, Huntingdonshire District Council and South Cambridgeshire District Council;
  - The East of England Development Agency; and
  - The Urban Regeneration Agency known as English Partnerships.
- Under clause 8 of CH Ltd's Memorandum of Association, each member undertook to contribute £1 to the company's assets in the event of its winding up (the nominal guarantee limiting the liability of the members);
- Articles 13 to 15 of the Articles of Association regulated the appointment and removal of directors by the members;
- The Articles of Association also carried detailed provisions on general meetings of the members, and voting rights;
- The objects and powers of CH Ltd were set out in detail in paragraphs 3 and 4 of the company's Memorandum of Association; and
- Clause 5 of the Memorandum of Association set out the restriction on distributing profits, providing that "the income and property of the Company shall be applied solely towards the promotion of the Objects and no portion thereof shall be paid transferred or distributed… to members of the Company". (Under paragraph 9 distributions could be made to members of any surplus on a winding up).[6]

The example of CH Ltd indicates that a CLG can work successfully in the context of a joint relationship between Cambridgeshire local authorities (and, indeed, other non-local authority bodies).

[6] As a result of changes effected by the Companies Act 2006 the Memorandum of Association of a company has now become a historic document detailing the original subscribers. Provisions once commonly contained in a company's Memorandum of Association, as set out here, would now be contained in the company's Articles of Association instead.

Further implications relating to the governance and control of a CLG in the CEF context are discussed below.

#### *4.3.3.3 An example of a CLG in an energy fund context: United Sustainable Energy Agency ("USEA")*

The Milton Keynes Carbon Offset Fund is managed by the United Sustainable Energy Agency ("USEA"). USEA is a private company limited by guarantee and although its current members are not specified in its current filings at Companies House, its directors appear to be individuals affiliated with different political parties, suggesting that the vehicle is controlled – directly or indirectly – by their related local authorities (although it is not possible to confirm this from the public filings currently available).

### *Other options:*

### *Community Interest Company (CIC)*

CICs are formed within the company law framework but have certain additional constraints and features which make them suitable for social enterprise and not for profit activities. They have been available since 2005 and were developed to address the absence of a legal vehicle for non-charitable social enterprises.

CICs are normal companies – they can be established either as CLGs or as companies limited by shares. They have some particular regulatory features in keeping with their social enterprise purpose:

- a CIC's activities must fulfil a "community purpose"; and
- a CIC has an "asset lock" to prevent profits being distributed to its members or shareholders other than in certain limited circumstances.

CICs are regulated by the Community Interest Company Regulator, which is intended to provide "light-touch" regulation when compared with the regulation of charities. A CIC is required to file a community interest report each year, which will include details of how it has pursued the community interest and involved stakeholders.

CICs can be registered with Companies House in the same ways as normal companies, with the completion of an additional form setting out the community interest and how it will be pursued.

It is difficult to see any particular advantage of a CIC over a CLG, particularly as many CLG constitutions are drafted to contain not-for-profit objects and contain a restriction on distributions of profits being made to members. While this effectively achieves the same result as an asset lock, it is of course possible for members to alter a CLG's constitution to remove such a restriction. The asset lock in a CIC is, however, a legal requirement.

The optical advantage of enjoying the CIC "brand" must be set alongside the additional regulatory requirements. Our view is that unless particular importance is attached to the CIC brand, a CLG which is not a CIC is a more flexible vehicle for the Cambridgeshire CEF.

### *Industrial and Provident Society (IPS)*

IPSs are societies rather than companies. They can take two forms: community benefit societies (CBSs) and co-operative societies (co-ops). A co-op is set up to benefit its members, whereas a CBS is set up to benefit the community more widely (whether people are members or not). This legal structure tends to be used where it is appropriate to give a wide membership an equal stake in the organisation and an equal say in management and other affairs.

The regulator of IPSs is the Financial Services Authority and IPSs are not governed by mainstream company law. An IPS qualifies for registration if:

- it is a society for carrying on an industry, business or trade; and
- it satisfies the registrar that either it is a bona fide co-operative society or, in view of the fact that its business is being conducted for the benefit of the community, there are special reasons why it should be registered under the IPS Acts rather than the Companies Acts.

Most housing associations are established as IPSs, and local authorities have recently used the IPS structure to run leisure centres. Moreover, IPSs are of interest in the community energy context because a number of local community energy social enterprises have chosen them as their legal form. Examples include the following CBSs:

- Bath & West Community Energy Limited;
- West Oxford Community Renewables Limited; and
- Community Energy Warwickshire Limited.

There is no legal objection to local authorities becoming members of an IPS, but the IPS is a perhaps a more suitable vehicle for a "grass roots" member-based organisation, particularly where money needs to be raised from members. The additional regulation and the relative lack of flexibility in managing the organisation are other factors indicating that a CLG is likely to be a more suitable vehicle for the Cambridgeshire CEF project.

### 4.3.4 Company Limited by Guarantee – summary rationale for preference

We remain of the view that the company limited by guarantee (CLG) option appears to be the most suitable type of entity for the CEF vehicle for the following reasons:

- limited liability status and requirement of only a nominal guarantee;
- flexibility of membership arrangements;
- constitutional flexibility;
- familiarity to local authorities in Cambridgeshire; and
- suitability for a not-for-profit, community investment mandate.

The Community Interest Company (CIC) option might also be considered, although there are no particular advantages to opting for a CIC vehicle as opposed to a CLG, other than the CIC "brand"; this, however, is counter-balanced by the additional regulatory requirements that come with the CIC proposal.

## 4.4 Governance and control

### 4.4.1 Introduction

This section is predicated on the assumption that the CLG will be the vehicle used for the Cambridgeshire CEF. It is, however, also generally applicable to a CLG which is registered as a Community Interest Company.

A fundamental distinction in company law is the distinction between:

- matters which are reserved for decision by **members** (the persons – natural or legal – who have ultimate control and ownership of the entity); and
- matters which are reserved for decision by **directors** (the persons – usually natural - who are appointed by the members to run the company).

Some decisions are reserved by law to the members of a company (such as the right to change the company's Articles of Association). However, there remains considerable flexibility in company constitutions to decide which decisions should be made at which level.

It is important for individuals to ask which "hat" they are wearing when they act on behalf of a company, or take a decision relating to a company. Directors may be appointed by a particular member of a company (especially in the case of a membership-based entity like a CLG). That member is entitled to act in its own best interests. However, the first duty of a director of a company is to that company, not to his or her appointing member. This point is discussed further below.

### 4.4.2 Constitutional documents

Following the reforms contained in the Companies Act 2006, the Memorandum of Association is now a simple document stating only the initial members of the company. The key constitutional provisions of a company are contained in the company's **Articles of Association**, which is a public document. The CEF CLG would have Articles of Association containing provisions negotiated by the local authority partners in relation to:

- the company's objects and powers;
- the limited liability of the members and the extent of their guarantees;
- how members join and leave the company;
- how members' meetings are conducted;
- the voting and other rights of members; and
- the directors and officers of the company.

In addition to the Articles of Association the members of a CLG may also consider putting in place:

- a separate members' agreement to regulate further the relationship between them and the nature of their control over the company; and/or
- membership rules, which are generally more helpful in the context of a larger membership organisation where there need to be detailed provisions on, for example, subscriptions and expulsions.

Subject to the detailed negotiations that would need to be held before the local authorities incorporated a CLG for the purposes of the Cambridgeshire CEF project, there would appear to be no pressing need for either of these documents (which are private and would not be required to be filed publicly) in this case.

### 4.4.3 Membership of the CLG

#### *4.4.3.1 Local authority members*

Which local authorities should become full, voting members of the CLG? There is clearly a case for each "collecting" local authority becoming a member, as those local authorities will, though the collection mechanisms, be collecting money from developers and paying it over to the CLG as the fund holding body for investment in community energy schemes. The question then arises as to whether Cambridgeshire County Council should also be a member, notwithstanding that it will not generally be collecting funds through the collection mechanisms for payment to the CLG.

In view of the regional importance of Cambridgeshire County Council it is difficult to see a rationale for it not assuming the role of member with a status equivalent to the district authorities. This view was expressed in the consultation meeting with legal officers, though the participants recognised that this is of course a matter for ultimate agreement between the local authorities concerned.

### *4.4.3.2 Voting and quorum arrangements*

***Reserved matters***

The Articles of Association of the CLG will need to set out the arrangements by which the local authority members will vote on matters concerning the company and its activities and, indeed, the matters which will be reserved for decision by the members rather than the CLG's Board of Directors. Some of these reserved matters are prescribed by law (such as amending the Articles of Association) but there is, as indicated above, considerable flexibility in determining which other matters should be reserved to members. If a decision is made to proceed with the CEF proposal, a list of such 'reserved' matters will need to be negotiated and agreed by the members.

***Voting***

Some member decisions are fixed by company law and require either an **ordinary resolution** (a simple majority of total voting rights) or a **special resolution** (75% or more of total voting rights) of the members. In respect of decisions not prescribed by law the members can decide whether to take decisions by a simple majority or introduce a "super-majority" for some decisions.

The member local authorities will also need to decide whether their votes should carry equal weight or whether their voting rights should be weighted by reference to certain criteria – for example, the respective financial contributions to the fund originating in their local authority area. Any arrangement will need to balance equity with ease of governance and decision making.

***Quorum***

Similarly, workable quorum arrangements will need to be established. For example, how many members will need to be represented at general meetings of the members for a quorum. And, in taking a vote, what proportion of members voting in favour will be required for a decision to be made?

***Example:***

An example of quorum and voting arrangements can be drawn from the constitution of Cambridgeshire Horizons Limited which, as set out in paragraph 4.3.3 above, had eight member organisations: six local authorities and two other bodies (EP and EEDA).

- Quorum: the company's Articles of Association provided that no business could be transacted at any general meeting of the members unless a quorum of 4 member organisations was present in person (as represented by their duly authorised representatives), of which one had to be EP or EEDA (for so long as those bodies were members).
- Voting: each member present in person at a general meeting (by their duly authorised representative) had one vote. No reserved matters were included in the Articles of Association as requiring a higher majority, and so majority voting would apply (save where the law required a decision to be made by ordinary or special resolution).

Specific arrangements in the Cambridgeshire CEF context would need to be negotiated and agreed by the member local authorities.

### *4.4.3.3 Other members*

Consideration should be given to whether membership of the CLG would be open to other, non-local authority persons or bodies. As set out above, Cambridgeshire Horizons Limited had two non-local authority member organisations (EEDA and EP). If membership is to be extended in this way, the relative rights of other members in relation to local authority members will need to be decided. It may be considered more appropriate for other organisations with an interest or expertise in the operation of the Cambridgeshire CEF to have a less formal, consultative, role as opposed to membership status. This is discussed further below. On balance, we would recommend that only the

Cambridgeshire local authorities are members of the CLG, and that other stakeholding organisations have a non-member relationship with the CLG.

### 4.4.4 Management of the CLG: the Board of Directors

Management and operational control of a company is carried on by its directors. The separation of ownership and control of a company is a crucial aspect of company law, and the relationship between the members and the directors is regulated through the Articles of Association of the company.

#### *4.4.4.1 Directors' duties*

As indicated above, directors might be appointed by a particular member but their primary duties are owed to the company, and individuals must bear this in mind when assuming the "hat" of a director.

It is important to note that potential liability for directors is an issue quite distinct from the limited liability of the members; it is, therefore, important that directors appointed by partner local authorities are fully briefed on their responsibilities and duties as directors of the CLG. The Companies Act 2006 now contains a codified list of directors' duties which all directors must observe. These duties include:

- the duty to promote the success of the company (i.e. acting the way the director considers, in good faith, would most likely promote the success of the company for the benefit of its members *as a whole*);
- the duty to exercise independent judgment;
- the duty to exercise reasonable care, skill and diligence;
- the duty to avoid conflicts of interest;
- the duty not to accept benefits from third parties; and
- the duty to declare interests in proposed transactions or arrangements.

Directors appointed by local authorities to the boards of companies in which their employing local authority has a membership stake will be familiar with the challenges, and potential conflict, inherent in their appointments.

#### *4.4.4.2 Appointment of directors by members*

Appointing directors to the Board of the CLG is one of the key rights a member will acquire. The right of a local authority to make an appointment to the Board of the CLG will be regulated by provisions in the CLG's Articles of Association and will be a matter for negotiation and agreement between the local authorities.

***Example:***

The Articles of Association of Cambridgeshire Horizons Limited gave each member organisation the right to appoint and remove one Director from the Board of Directors. Other persons could be appointed as directors provided that at least three-quarters in number of the member organisations had voted in favour.

#### *4.4.4.3 Who would members appoint as directors?*

Member local authorities have a number of options here. They could appoint to the Board:

- local authority councillors;
- local authority officers;
- a mixture of councillors and officers; or
- someone who is neither a councillor nor an officer.

Participants in the legal consultation meeting were, understandably, reluctant to express a view on this, feeling the issue to be a decision for the local authorities concerned. In making appointments, the local authorities will need to have regard to the duties of directors, ensuring that the Board has the appropriate mix of skills and experience.

#### *4.4.4.4 Other directors not appointed by the local authorities*

Other directors not appointed by the member local authorities could also be appointed to the Board – perhaps (as in the case of Cambridgeshire Horizons Limited) with a certain majority agreement of the members. This would potentially allow the optimum mix of specialist skills and experience to be obtained. Such members are often referred to as "independent" directors, as they are independent of the controlling members.

#### *4.4.4.5 Day to day operational management*

Legal management of the CLG would rest with the Board of Directors. There are two broad approaches the Board could take to put in place appropriate operational expertise for the management of the fund. Firstly, it could elect to delegate day-to-day operational responsibilities to non-Board member executives. Such individuals would probably be employees of the CLG and their duties would be set out in contracts of employment between such individuals and the company. The Board would be responsible for appointing them and they would report to the Board. This would be a practical solution to ensuring that the CLG's operations are carried on efficiently and with the appropriate expertise. The CLG's directors would need to understand, however, that appointing executives in this way does not absolve them of their duties and responsibilities as directors. Secondly, the Board could elect to sub-contract operational responsibility for the management of the fund to a third party fund manager. Both options should be evaluated carefully as part of the implementation phase of the project.

#### *4.4.4.6 Consultative committees*

The constitutional flexibility of the CLG structure affords considerable scope for involving other people in the *process* of decision making, although not in making decisions themselves (which will be taken at member or director level). The Articles of Association could contain provision for one or more consultative committees to be established. Such committees could serve as a useful source of advice and dialogue for the Board of Directors, and their functions would be strictly consultative.

***Example:***

A member-based CLG included provision in its Articles of Association for its Board to establish an Advisory Committee ("AC") to advise the Board on such matters as the Board might decide assisted it in helping the company to achieve its objects. The Articles provided that:

- the AC would have no role or part to play in the management of the affairs of the Company and the AC's members would not solely by virtue of membership of the AC be officers of the Company;
- the AC would be chaired by a director and its members would comprise persons drawn from such organisations as were selected by the Board;
- the terms of reference and objectives of the AC would be set (and could be amended) by the Board.
- the Board could disband the AC at any time.

The CEF partners should consider which bodies might be involved in the CLG's affairs in this way. Examples might include the Local Economic Partnership or any successor body to Cambridgeshire Horizons. Participants in the legal consultation were of the view that possible consultative bodies should not be tightly prescribed.

# 5 Fund: Scale and management

In this section we explore the potential impact of the Cambridgeshire community energy fund through its investments in low carbon projects. The starting point of this assessment is to understand the scale of the likely income into the fund from development in the area. This is subject to many uncertainties, as discussed below, but an estimation of fund scale is important to understand the potential number and size of projects that it could support. Based on the estimation of fund scale, we look at some possible projects that the fund might support and the potential impact of the fund's investments in terms of $CO_2$ reduction delivered. $CO_2$ reductions are compared against the forecast of $CO_2$ emissions from new growth to understand the implications for project mix and the Allowable Solutions price charged by the fund.

## 5.1 Scale of Allowable Solutions investment

The main source of income into the CEF is expected to be the Allowable Solutions payments raised from development across the local authorities participating in the fund. The monetary size of the fund will therefore be dependent on the geographical scale, i.e. which local authorities participate, the extent of the growth in these areas and the Allowable Solutions price (i.e. the tariff paid by developers to pass on their carbon reduction obligation to the fund, £/tonne$CO_2$).

The amount of Allowable Solutions investment raised is also dependent on the zero carbon policy and the extent of the carbon reduction obligation that it places on developers. The definition of zero carbon has evolved over time, since the policy was first put forward in 2008. Much of the work has been focussed on determining a reasonable requirement for the level of onsite $CO_2$ reduction – what is now known as the Carbon Compliance level. As an increasing body of technical evidence was compiled, the level of onsite reduction was revised downwards, culminating in the Zero Carbon Hub's proposed Carbon Compliance levels in February 2011. The prevailing assumption had been that Allowable Solutions would bridge the gap between the Carbon Compliance limit and net-zero carbon with respect to all of a development's emissions, including remaining regulated and all unregulated emissions. However, following the March 2011 budget it was announced that unregulated emissions, i.e. those related to use of electrical appliances and energy for cooking, would no longer be part of the zero carbon definition. As a result, the requirement for Allowable Solutions is now limited to reduction of the remaining regulated emissions once the Carbon Compliance level has been met. The impact of excluding unregulated emissions from the zero carbon definition is very significant, approximately halving the investment required in Allowable Solutions for domestic properties. This policy change needs to be factored into revised forecasts of the funds available to the Cambridgeshire Community Energy Fund, which will clearly be substantially reduced compared to earlier forecasts.

The Allowable Solutions price levied on developers will be a key determinant of the overall size of the community energy fund. It is intended that the Allowable Solutions tariff charged by energy funds will be capped at a ceiling price, which will be fixed nationally. The ceiling price has not yet been fixed, however, in the recent government impact assessment on the zero carbon policy[7] a price of £46/t$CO_2$ was used.

The Allowable Solutions income from development across Cambridgeshire has been forecast based on local authority growth projections and an Allowable Solutions tariff of £46 /t$CO_2$. The growth projections assume development of around 50,000 new homes in Cambridgeshire over the period to 2026, with associated growth of non-residential floor space.

[7] Zero Carbon Homes: Impact Assessment, May 2011, Communities and Local Government

Based on the above assumptions, the cumulative Allowable Solutions income generated in Cambridgeshire is shown in the plot below. Note that this income is based on growth across all of Cambridgeshire's local authorities.

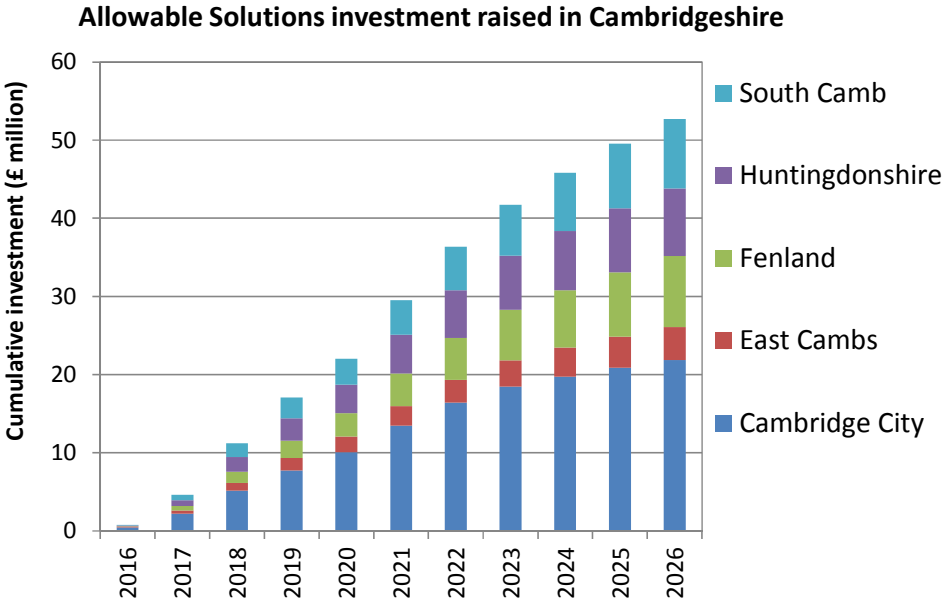



**Figure 6, Forecast of the cumulative (undiscounted) Allowable Solutions investment raised from growth across Cambridgeshire, disaggregated by local authority. The $CO_2$ reduction delivered by the CEF would be allocated to the local authorities in proportion to the Allowable Solutions payments invested in the fund.**

The growth plans on which this forecast of investment in Allowable Solutions is based are uncertain and will be subject to change over the coming years. However, based on these current growth projections, the level of investment shown in the figure above, which reaches a cumulative total of £54.5 million by 2026, can be taken to be an upper bound on the level of income that a Cambridgeshire CEF could expect to receive.

Firstly, the projection assumes that all local authorities across Cambridgeshire participate in the CEF. The forecast also assumes that the ceiling price for Allowable Solutions, i.e. £46/t$CO_2$, is paid for every tonne of $CO_2$ that developers offset through Allowable Solutions (note that there is uncertainty over the ceiling price and it could eventually be set higher or lower than £46/t$CO_2$). Furthermore, the projection assumes that developers do not deliver carbon reductions in excess of the minimum required by the Carbon Compliance level through onsite measures, i.e. the amount of $CO_2$ to be reduced through Allowable Solutions is assumed to be the maximum for the underlying assumptions regarding the extent of new development.

There is a further reason for caution in using these figures as a projection of the income into a Cambridgeshire CEF, relating to the Allowable Solutions framework proposals put forward by the Zero Carbon Hub. Under these proposals, developers will have freedom to choose the Allowable Solutions provider they contract with to meet their carbon reduction obligations. Hence, even in the case that the local authority has identified a list of Allowable Solutions projects within the Local Plan and established a community energy fund, other third-party Allowable Solutions providers are expected to become established and to compete with the local authority fund. This competition is expected to be largely on the basis of the Allowable Solutions price offered by the energy funds, as developers seek to find the lowest cost means of complying with the zero carbon policy.

Clearly there are considerable uncertainties inherent in any forecast of the Allowable Solutions income into a CEF. The figure of around £55million is taken as an upper bound estimate in the following. The implications of the fund not achieving this level of income are also considered.

It is important to note that a fund of this size – around £6million per year on average – is not huge in the context of the capital costs of low carbon energy projects. For context, this investment is very approximately equivalent to the cost of installing 4 – 5 MW of onshore wind power per year or retro-fitting district heating infrastructure to around 1,000 homes per year. The relatively limited scale of the fund is a strong argument in favour of the Cambridgeshire local authorities partnering in a joint community energy fund that will provide funding to the most beneficial projects across the county. A fund at a smaller geographic scale than county-wide will be too limited in terms of funds available to significantly influence development of large-scale, strategic infrastructure projects.

The fund is likely to invest in a range of types of projects and provide various kinds of finance, e.g. this could be grant-funding or low cost debt, as appropriate for a particular project. Where the fund provides debt or equity, even if the terms are soft compared to normal commercial terms, a financial return will be generated in addition to carbon saving. Reinvestment of these returns could significantly enhance the scale of the fund's portfolio and its overall impact on carbon reduction. It will be important that the community energy fund is able to create and reinvest a financial return, particularly where the Allowable Solutions income is relatively limited.

## 5.2 Fund management

As discussed in Section 4.4.4 there are two broad approaches to the management of the fund: the CLG could employ fund managers who report to the Board; or the Board could contract a third party fund manager.

The major roles of the fund management team (however appointed or contracted) would include responsibility for the following aspects the fund's operation:

- Negotiate with developers to secure contracts for provision of Allowable Solutions
- Setting the Allowable Solutions price
- Identifying Allowable Solutions projects and assessing their carbon saving potential
- Working with Allowable Solutions project sponsors to structure project finance, e.g. arranging bank debt and potentially attracting further equity
- Managing the overall portfolio of CEF investments to achieve a balance of projects that will deliver the target cost of carbon for the fund (and adjusting the Allowable Solutions price as required).
- Monitoring project delivery, potentially sitting on project boards or working closely with project management teams.
- Verifying carbon reductions delivered by the fund's investments and reporting on the fund's performance
- Reporting to the board of the CLG.

This will constitute a substantial workload. It is difficult at this stage to estimate the size of management team that will be required. In the scenario where expertise is employed "in-house", a core fund management team of at least three individuals, probably of varying experience and seniority, would seem to be reasonable. The size of the team employed by the CLG will depend to some extent on how much of the work is contracted to external specialist advisers. It is likely that an element of external expertise will be required, for example in technical due diligence of potential investments. The scope of the funds potential projects is broad, e.g. from wind turbines, to energy from waste to smart grid technologies etc., and it is not reasonable to expect that sufficient technical expertise or indeed investment experience in these diverse areas will be available 'in-house'.

It will also be important to attract high calibre individuals into the fund management team. As will be shown in the following sections, the fund will have most impact if it is able to use its investment to leverage in other sources of finance, including bank debt and potentially equity investment. Other investors will assess the skills and experience of the fund management when making decisions on whether to co-invest in projects.

On this basis, the fund's running costs are likely to be substantial. For example based on a core team of three employees, supported by external advisers and including basic operating overheads, it is likely the costs of running the fund will be in excess of £500k per year. This is a significant fraction of the average annual income from Allowable Solutions of around £6million (based on the assumptions discussed above).

The alternative option of contracting a third party fund manager might bring some advantages, in that the fund management organisation would have the necessary corporate governance structures in place and would be FSA regulated. An example of this kind of structure is the approach taken by the London Green Fund, which has been set up with £50million funding from the London Development Agency and London Waste and Recycling Board to invest in waste and energy efficiency projects. To do this, the London Green Fund will provide funding to two smaller funds – the Urban Development Funds (UDFs) – which will focus investment in each of the technology areas. The UDFs will be revolving funds, where the funds invested in each project are repaid and reinvested in new projects. The Foresight Group have been appointed as the fund managers of the Waste UDF, which will be known as Foresight Environmental Fund.

## 5.3 Potential CEF projects

There are broadly three ways in which the fund could invest in carbon reduction projects;

- Grants;
- Debt finance, in the form of loans made by the Fund; and
- Equity investments in project vehicles.

As discussed in Section **Error! Reference source not found.**, the intention of the Allowable Solutions framework proposals is that allowable solution projects will be selected from a list of priority projects, either those prescribed by a proactive local planning authority or that are included in a national database of Allowable Solutions projects.

The types of projects that will be eligible as 'Allowable Solutions' has been a matter of debate since the initial consultation on Zero Carbon Homes and Non-domestic Buildings Policy, in 2008. The Zero Carbon Hub's framework proposals provides some further examples of the types of projects that might be eligible and the considerations to be taken into account in defining eligibility. This is discussed further below.

### 5.3.1 Allowable solutions project types

Under the proposed Allowable Solutions framework, in order to ensure that Allowable Solutions payments are invested in the local area, local planning authorities will need to at least have introduced an Allowable Solutions policy, which includes:

- A mechanism for approving particular Allowable Solutions projects within the overall Local Plan.
- Evidence that the Allowable Solutions included in the Local Plan represent the most cost-effective way of saving carbon in the LPA area
- A clearly stated pricing policy for Allowable Solutions (within the nationally set price ceiling).

Clearly the list of Allowable Solutions projects will need to be a 'live' document, which can be updated with new projects as they are developed (and potentially as project initiatives are scrapped) on a

much more regular basis than the Local Plan. The Local Plan should set the framework for selecting projects on the list and setting the Allowable Solutions price.

Local authorities will not have a free-hand to define local projects as Allowable Solutions, a number of eligibility criteria are likely to apply. These eligibility criteria are yet to be defined in detail, but certain key considerations can be drawn from the framework proposals:

- **Cost-effectiveness** – Projects categorised as Allowable Solutions should offer cost-effective carbon savings.
- **Additionality** – Allowable Solutions investment should be used to enable delivery of projects that would not otherwise have been brought forward by the market.

These two key criteria for selection of Allowable Solutions projects are discussed further below.

#### *5.3.1.1 Cost-effectiveness of Allowable Solutions projects*

It is clearly in the best interest of the UK economy overall to deliver carbon saving in the most cost-effective manner. The way in which the cost of carbon is defined is crucial, however. Local Planning Authorities may want to promote projects that bring wider community benefits, for example tackling fuel poverty or generating local employment. These projects may not be the most cost-effective where cost of carbon is calculated on the basis of direct costs and revenues associated with the project (e.g. capital costs, fuel costs, operating costs, revenues from sale of heat and power etc.).

Under the allowable solution framework proposals, local CEFs will compete for developer payments with third-party energy funds. Developers are likely to choose the allowable solution provider on the basis of least cost, i.e. the lowest allowable solution price in terms of £/t$CO_2$. There is a risk that this will put local CEFs at a disadvantage compared to the third-party funds.

The risk is mitigated to a certain extent by the intention for both the Local CEF and any third-party allowable solution providers to deliver projects from the same list, which, in the case of an area that has a local CEF, will be a list prescribed by the local planning authority. Local planning authorities should be able to apply a broad definition of cost-effectiveness when approving projects for inclusion in the local list.

The Allowable Solutions price will be subject to a nationally set price ceiling, which local CEFs and third-party Allowable Solutions providers will be required to adhere to. The level at which the price ceiling will be set has not yet been determined. Compliance with the Allowable Solutions component of zero carbon policy, i.e. mitigation of the remaining regulated emissions once the Carbon Compliance level has been met, is potentially a significant cost and the final decision on ceiling price will therefore need to be viability tested. In the May 2011 Zero Carbon Homes Impact Assessment a ceiling price of £46/t$CO_2$ was used[8].

In reality, projects supported by the community energy fund will deliver $CO_2$ savings at a range of costs. It will be the job of the fund manager to balance the portfolio of projects such that the overall discounted cost of carbon saving delivered by the fund is equivalent to the average Allowable Solutions price charged to developers, in order to ensure that the fund delivers an equivalent amount of $CO_2$ saving as has been 'purchased' by developers through their Allowable Solutions payments. Some projects that the fund wishes to invest in may have a cost of carbon saved that is in excess of the ceiling price. These projects should be permitted as Allowable Solutions, but will need to be balanced by lower cost of carbon projects in order for the fund to achieve its overall cost-effectiveness target (i.e. the average Allowable Solutions price charged to developers, which must be within the

[8] This price was generated on the basis of the discounted cost of carbon dioxide abatement over the period that the $CO_2$ emissions occur (taken to be 30-years post-construction of the dwelling). The cost of carbon abatement used in the analysis is the weighted average of the government's forecast of the cost of abatement of non-traded carbon over the policy period.

ceiling price). If community energy funds are put into competition with third-party Allowable Solutions providers, then the extent to which high cost of carbon projects can be supported will be limited, as the CEF will need to be competitive on the Allowable Solutions price it offers.

The Allowable Solutions ceiling price ensures the cost of compliance with zero carbon policy for developers is constrained and will also have the effect of driving Allowable Solutions providers (of all types) toward cost-effective carbon saving projects. There may be an argument that the ceiling price of £46/$tCO_2$ used in the May 2011 Impact Assessment is too low and would be too restrictive in terms of the projects that can be supported. The typical cost of carbon saving for a range of low carbon heating and electricity generation technologies are shown in the figure below. These are discounted costs, derived using an 8% cost of capital and discounting at 3.5%. The £46/$tCO_2$ ceiling price is indicated by the dotted line.

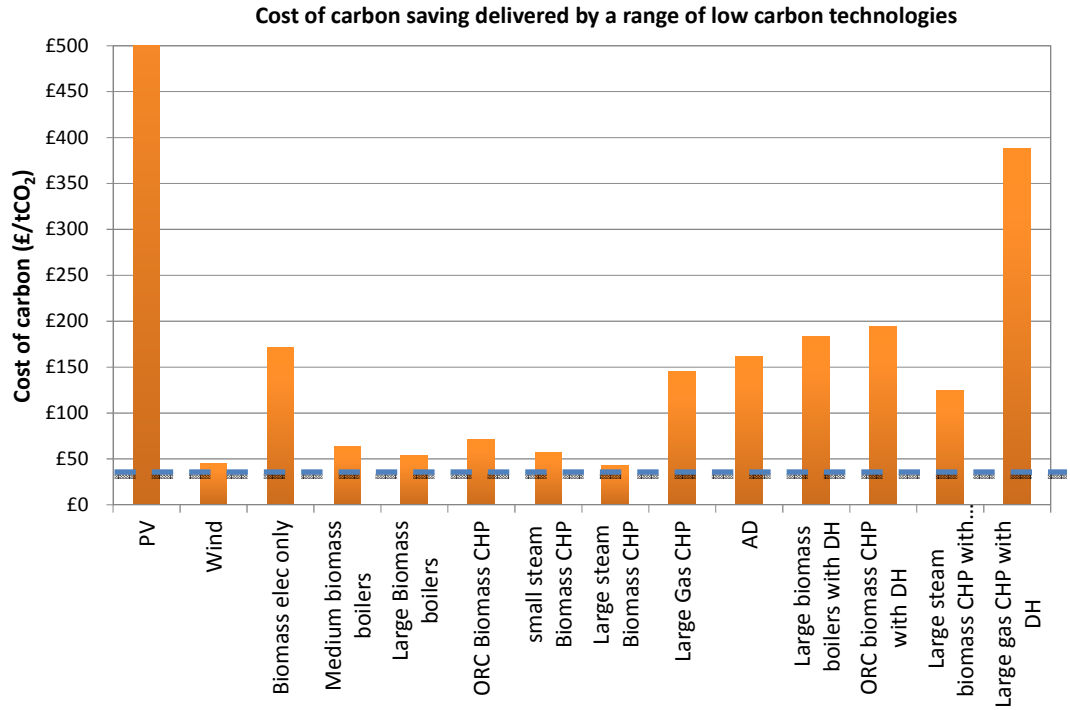



**Figure 7, Discounted cost of carbon analysis for a range of low carbon heat and electricity generating technologies.**

On the basis of this analysis, very few low carbon generation technologies deliver $CO_2$ saving within a ceiling price of around £50/$tCO_2$. Low carbon heating technologies linked to district heating, a potential priority for the Cambridgeshire Community Energy Fund, delivers $CO_2$ saving at a considerably higher cost. Wind projects (assuming MW-scale turbines) do fall within the price ceiling and large-scale biomass heat technologies approach the price ceiling (although are generally in excess) when district heating systems are not included. It should be noted that the costs of carbon presented in this figure have been calculated excluding income from financial incentives such as the Feed-in Tariff or Renewable Heat Incentive. This is consistent with the likely definition of additionality, as discussed below.

#### *5.3.1.2 Additionality*

One of the proposed underpinning principles of the Allowable Solutions framework is that the carbon savings delivered should be additional, i.e. that the projects supported by Allowable Solutions finance would not otherwise have happened. This principle seems to be somewhat inconsistent with the requirement for cost-effective carbon savings, as the projects that deliver the most cost-effective carbon savings would also be expected to be most economically viable. There will be projects, however, that deliver cost-effective carbon savings in the long-run, but might not be implemented

without Allowable Solutions funding due to particular barriers – the high up-front costs of district heating systems is an obvious example.

The Zero Carbon Hub's Allowable Solutions framework document sets out a number of potential approaches to ensuring that $CO_2$ savings delivered by Allowable Solutions projects are not double-counted with $CO_2$ savings delivered by other policies (e.g. the EU-ETS, Renewables Obligation, Feed-in Tariff, Renewable Heat Incentive etc.). Potential approaches include ruling that projects that are supported by these other policies are ineligible as Allowable Solutions. These approaches seem overly restrictive, there may be projects that provide an acceptable rate of return when supported by the FiT or RHI, but that would still require seed-financing from Allowable Solutions funds in order to instigate the project (a district heating system fed by a renewable heating technology is a possible example).

The approach to avoiding double-counting assumed in the project examples described in the following section is referred to as the 'Shared benefit approach'. Under this approach, Allowable Solutions projects would be permitted to benefit from all other incentives available (subject to State Aid rules), but the carbon savings attributed to Allowable Solutions would be in proportion to the percentage of project finance provided from the Allowable Solutions fund.

### 5.3.2 Potential projects in Cambridgeshire

The Zero Carbon Hub's framework proposals identify a number of types of carbon reduction initiatives that could potentially be classed as Allowable Solutions – these have been categorised as 'on-site', 'near-site' and 'off-site', as shown in Figure 3. On-site solutions are more likely to be delivered directly by the developer, rather than involving an Allowable Solutions provider such as a community or private energy fund. Allowable solutions projects delivered outside of the site boundary, i.e. near or off-site, are more likely to be delivered through an energy fund.

Delivery of low carbon heat through investment in district heating infrastructure, either by extending new systems to serve existing loads or investing in heat pipes to connect new loads to existing systems, are prominent in the Zero Carbon Hub's list of potential Allowable Solutions projects. A number of priority district heating projects have been identified within Cambridgeshire, notably the potential retrofit schemes at St. Neots and Cambridge City and a new district heating system to serve the major Northstowe development. The Cambridgeshire Renewable Infrastructure Framework (CRIF) work has also identified Cambridge City centre and potentially Huntingdon as promising areas for development of district heating systems.

The CEF could play an important role in bringing forward these large infrastructure projects through provision of early stage finance and de-risking projects for further private sector investment. The scale of investment required to influence projects of this scale is significant relative to the Allowable Solutions income, such that the fund will be limited in the number of these projects it can invest in at a given time.

There may also be a delay between launch of the fund and the time at which it is in a position to make major investments. The zero carbon policy for homes is expected to come into force in 2016, however, in practice many developments that gained planning approval under Part L2013 will still be being built-out in the first few years beyond 2016. There will be a time lag before new projects brought forward post-2016 and therefore subject to the zero carbon policy start to be delivered on site in significant numbers and, given that final Allowable Solutions payments are expected to be made on as-built performance, a further delay before money starts to flow into the fund. The Zero Carbon Hub's Allowable Solutions framework proposals suggest a possible solution to this slow build-up of funds would be for the national fund to be capitalised at the outset with a zero interest loan from the Green Investment Bank (GIB). In the situation where local energy funds hold their own capital, the GIB could potentially provide start-up loans to enable them to start investing quickly, although this would be less efficient than in the case of the single national fund.

In reality the fund is likely to develop a portfolio of investments in projects at a range of scales. Smaller scale projects, such as retrofit of low carbon technologies to existing buildings, could provide some early-wins in terms of delivering carbon reduction and potentially generating a financial return to the fund.

A number of potential projects that the Cambridgeshire CEF could invest in are discussed below. In each case the likely size of investment, scale and cost-effectiveness of carbon reduction delivered and potential to generate a return on the fund's investment is assessed.

#### *5.3.2.1 PV retrofit projects*

Since the introduction of the feed-in tariff in 2010, there has been a huge increase in interest in the installation of photovoltaics. The attractive returns on investment on installation of PV has provoked significant interest from private investors, both in development of large-scale systems (e.g. MW-scale ground-mounted installations) and small-scale systems, for example on domestic roofs. The interest in the sector has been fuelled by a more rapid than expected fall in the cost of photovoltaic modules, which has led to reduced installation costs and in turn, increased the returns on investment available. In recognition of this, the government has undertaken a comprehensive review of the feed-in tariff policy. This review has already resulted in a very significant reduction in the tariffs offered for PV systems of greater than 50 kW. A significant reduction in the tariffs for sub-50 kW systems has also been announced recently, in order to bring the level of support into line with the changing system economics (i.e. to provide a modest rate of return, sufficient to encourage uptake but not deliver large profits). The reductions at the sub-50kW scale take effect from April 2012.

Under the 'shared benefit' approach to additionality (see Section 5.3.1.2), projects that receive support under the FiT and generate a financial return as a result, would be eligible as Allowable Solutions. The role for the CEF in these projects will depend to some extent on the attitude of the private sector (including householders and commercial property owners) to the revised tariffs – for example, if significant investment continues to flow into retrofit of PV systems then there may not be a need for CEF investment.

Perhaps the most likely role for the CEF in PV projects would be to invest in retrofit in the public sector stock, this could include council offices, schools, hospitals, leisure centres and local authority owned housing stock. RSL owned housing stock may also present an attractive opportunity.

In the following, it is assumed that the CEF supports installation of PV systems in a number of non-domestic buildings. It is assumed that the size of each individual installation does not exceed the 50 kW capacity threshold and will therefore benefit from the FiT at the recently announced reduced rate for 10 – 50 kW systems (i.e. 15.2 p/kWh). The analysis has been prepared on the basis of current capital costs; while it is expected that the installed costs of PV will fall over the period to 2016, it is also assumed that that the degression of the feed-in tariff (i.e. the year-on-year reduction of the tariff level) will keep pace with falling costs to maintain the rate of return on investment.

A simplified financial analysis for investment in a portfolio of 50 kW PV installations is tabulated below. The analysis is based on one hundred installations, giving an overall installed capacity of 5 MW. An installed cost of £2,300 /kW has been assumed, which is realistic in the current PV market, particularly if it were possible to arrange bulk procurement of modules across a collection of sites.

It is also assumed that the CEF and potential equity investment is leveraged with debt finance. The ratio of debt to CEF / equity investment has been selected to ensure adequate coverage of debt service costs for the project to be considered bankable.

**Table 1, Economic analysis of investment in a collection of 50 kW PV projects, e.g. within the public building stock**

| Item | 50 kW PV projects - public sector stock |
|---|---|
| Capacity per project (KW) | 50 |
| Number of installations | 100 |
| | |
| Total capital investment (£) | £11,500,000 |
| Debt (£) | £4,600,000 |
| CEF investment + equity (£) | £6,900,000 |
| | |
| Cost of debt | 7% |
| Loan period (years) | 15 |
| Electricity export tariff (£/Mwh) | 31 |
| FIT level (£/MWh) | 152 |
| | |
| Gross revenue | £732,000 |
| Annual maintenance cost | £57,500 |
| | |
| Operating profit | £674,500 |
| Debt service costs | £505,055 |
| Net cashflow | £169,445 |
| IRR on CEF + equity investment | -6% |
| | |
| Annual $CO_2$ reduction (Total) | 2116 |
| Annual $CO_2$ reduction (CEF share) | 1270 |
| £/tonne$CO_2$ (Capital) | 522 |

The analysis above suggests that projects at this scale are unlikely to be attractive to investors. On this basis, this kind of project may be an opportunity for a CEF to deliver additionality.

The cost of carbon calculated for this project is high at £522/t$CO_2$. Note that this is a whole-life cost of carbon, assuming a cost of capital of 8% and period of 20 years (these parameters will be held constant in the cost of carbon calculations for all projects, in order to provide a consistent basis for comparison). The cost of carbon does not include the value of subsidies, but does include the value of displaced fossil fuel energy generation.

The economic analysis suggests that the CEF could deliver additionality in this kind of project, as the rates of return are unlikely to attract private investment and the local authorities may not have the capital available to invest in a large-scale retrofit programme of their stock. This kind of project is also scalable in terms of the number of projects undertaken and therefore size of the investment, hence it could be an early project opportunity for the CEF (note that in the case that the CEF funds are leveraged with bank finance a minimum scale of project will apply, as banks will not be interested in lending below a certain threshold size of investment, e.g. around £5 million).

This project might not qualify as an allowable solution on the basis of cost-effectiveness, however. The cost of carbon saved is significantly in excess of the ceiling price for Allowable Solutions used in recent analysis of the zero carbon policy. While the fund manager may be able to accommodate a certain element of higher cost of carbon projects in a portfolio of investments, a significant fraction of

funds invested in such high cost of carbon projects would make the overall cost of carbon target of the fund difficult to achieve. Those higher costs of carbon projects that the fund does support would be expected to be those that brought some wider community benefit. This is unlikely to be the case for photovoltaic retrofit projects, which generate relatively little employment benefit and investment in the local economy.

#### *5.3.2.2 Wind projects*

Although politically sensitive, the work on the Cambridgeshire Renewable Infrastructure Framework currently being undertaken by Camco has identified a large potential for wind projects within Cambridgeshire. In the following, the economics of wind projects at the 5MW scale is considered. These projects are assumed to be supported by the Feed-in tariff rather than the Renewables Obligation.

As in the case of the PV project, it is assumed that CEF / equity investment is leveraged with bank debt.

**Table 2, Economics of 5 MW scale wind projects**

| Item | 5 MW wind turbine projects |
|---|---|
| Capacity per project (KW) | 5,000 |
| Number of installations | 10 |
| | |
| Total capital investment (£) | £75,000,000 |
| Debt (£) | £56,250,000 |
| CEF investment + equity (£) | £15,000,000 |
| | |
| Cost of debt | 7% |
| Loan period (years) | 15 |
| Electricity export tariff (£/MWh) | 31 |
| FIT level (£/MWh) | 47 |
| | |
| Gross revenue (£/year) | £9,565,920 |
| Annual maintenance cost (£/year) | £750,000 |
| | |
| Operating profit (£/year) | £8,815,920 |
| Debt service costs (£/year) | £6,175,948 |
| Net cashflow (£/year) | £2,639,972 |
| IRR on CEF + equity investment | 14% |
| | |
| Annual $CO_2$ reduction (Total) | 64,877 |
| Annual $CO_2$ reduction (CEF share) | 9,731 |
| £/tonne$CO_2$ | £71 |

In this case, the return on investment once debt service costs have been met is far more attractive – an IRR of 14%. This level of return is likely to be adequate to attract private investment and, on this basis, it is unsurprising that existing private energy funds tend to be heavily invested in onshore wind projects.

On the basis of these attractive rates of return, it may not be necessary for the CEF to finance wind turbine projects and it may be difficult to justify the additionality of investing in such projects. Private investment is only likely to flow into projects that have gained planning permission, however, which can be a lengthy process with high risk of failure. There may be a case, therefore, for early stage CEF funding of wind projects. Developing wind turbine projects on council owned land may be an example of the type of wind turbine project that the CEF could invest in. It is also the case that wind projects sponsored by the CEF might meet less local resistance, if residents are aware that part of the profits will be returned to the fund and ploughed back into the community through further investments.

Wind projects also provide relatively cost-effective carbon savings, such that the CEF may wish to invest in some wind projects in order to reduce the overall cost of carbon saving of its portfolio of investments. An element of lower cost of carbon projects would enable the CEF to provide funding to some higher risk projects or projects that are less cost-effective but may deliver other benefits, while meeting its carbon reduction targets overall (i.e. delivering the carbon reduction 'purchased' by developers through their Allowable Solutions payments).

#### *5.3.2.3 District heating projects*

Development of district heating infrastructure seems to be particularly well-aligned with the use of Allowable Solutions investment. These projects have potential to deliver large carbon reduction, particularly decarbonisation of the existing stock, and could also assist in meeting other objectives, such as providing affordable warmth. The projects are also heavily reliant on public and private sectors working in concert, particularly in the case of retrofitting district heating systems to the existing stock (which has been very limited to-date).

The early-stage investment that a community energy fund could make would be highly beneficial in bringing these projects forward, by developing projects to a point where they are sufficiently de-risked to attract private investment. Indeed, this has already been recognised through the creation of the Low Carbon Development Initiative by Renewables East, with a remit to use public intervention to mitigate risk and create projects that the market can invest in.

Three opportunities for district heating systems that have been identified in Cambridgeshire to-date are the St Neots scheme, involving retrofit to existing building with potential extension to serve new growth areas, the Cambridge City retrofit scheme and Northstowe, a major new-build, mixed-use development. The potential role of the CEF in two of these projects – St Neots and Northstowe – is discussed below.

##### St Neots – Retrofit district heating project

The opportunities for district heating at St Neots have been subject of significant and ongoing analyses. There are a number of features that combine to make St Neots a potentially attractive location for district heating. In particular there is a significant commercial and industrial area along the Cromwell Road, which includes a number of large heat users. This area is adjacent to a large new growth site – the proposed 'Eastern Extension', which is expected to provide 3250 new homes together with associated employment and community use buildings. The commercial area and Eastern Extension site are both in close proximity to the Little Barford power station and the potential to capture waste heat to supply local loads has also attracted interest.

The current plans for St Neots involve an initial phase – the Phase 1 scheme – which is focussed on the Cromwell Road commercial centre. The intention is to develop a district heating (DH) scheme to connect a number of large commercial users, four primary schools and potentially a community academy and leisure centre with swimming pool. The current proposals do not include capture of heat from Little Barford, instead a new energy centre will be developed to serve the thermal loads. The energy centre will house a gas-fired CHP system of 1.5 MWe capacity, which, given the load profiles of the users, will be able to run at very high utilisation. The energy centre will also include gas boilers and thermal storage to maximise use of heat from the CHP and to meet peak loads.

While the Phase 1 scheme is not dependent on connection to the Eastern Extension, the strategic vision is to extend the scheme to connect the new developments. Indeed, the energy centre as currently proposed has been sized to meet the additional loads that the Eastern Extension will create and the intention is that a heat pipe will be laid to the site boundary, thereby providing the developer a straightforward opportunity to plug-in to the existing system.

The capital cost of the Phase 1 system has been estimated at £8.4m, which divides as £3.7m for the energy centre and £4.7m investment in the DH system[9]. An estimation of the additional investment required to extend the system to serve the Eastern Extension has also been made, as shown in Figure 8 below. Note that the investment in the DH infrastructure for the Eastern Extension includes offset for the developer's contribution.

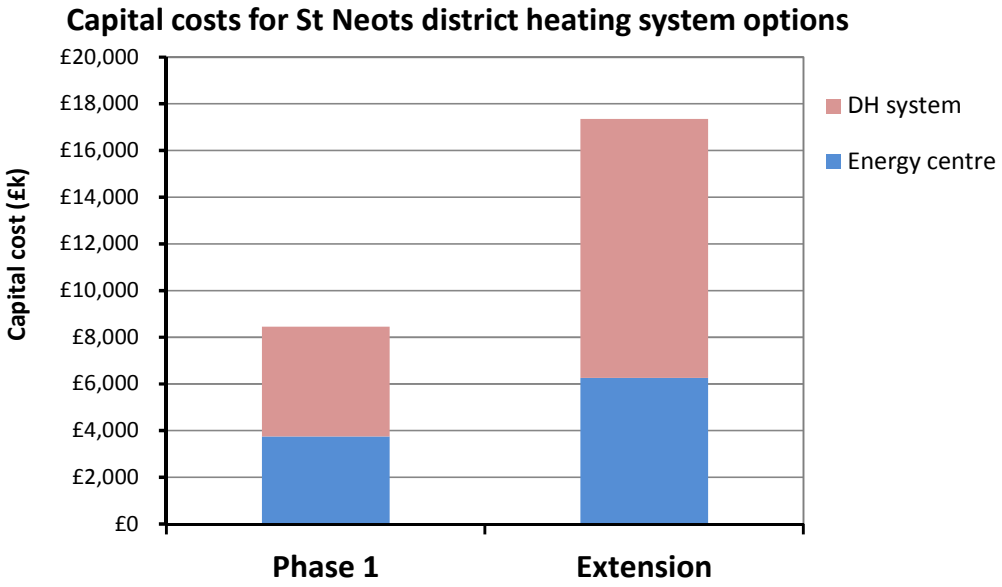



**Figure 8, Capital investment required in Phase 1 of the proposed St Neots district heating system and an extended system that also serves the Eastern Extension.**

A simple economic analysis of the Phase 1 scheme has been performed. The annual net benefit of investment in the scheme has been assessed at various costs of capital from 5% to 15% (assuming a 20 year period). As shown in the Figure below, the project approximately breaks-even at a cost of capital of 5%, but incurs a loss at higher costs of capital. The project internal rate of return (IRR) is therefore around 5%.

[9] Based on figures provided by Aecom

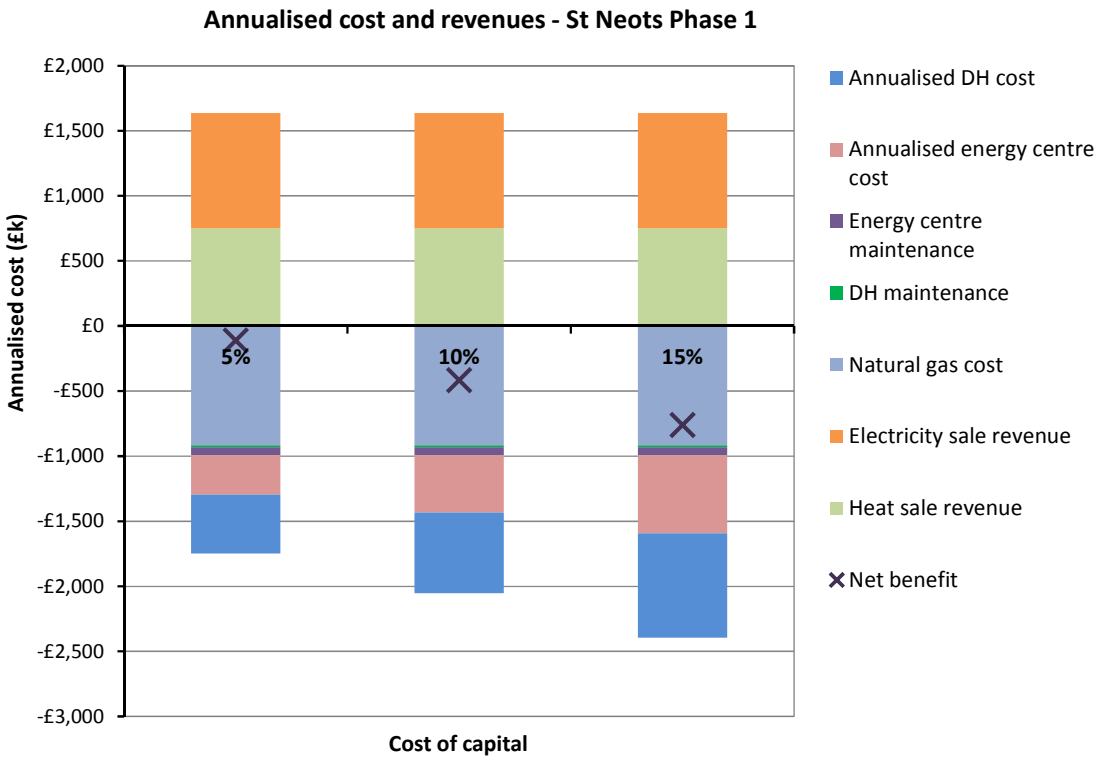



**Figure 9, Annualised costs and revenues of the Phase 1 scheme under varying cost of capital assumptions.**

Given the modest IRR of the Phase 1 scheme and the high capital outlay associated with developing a district heating system – a significant risk and therefore a barrier to securing finance – the project seems to be an appropriate opportunity for CEF investment.

In order to assess the level of CEF funding that might be required to unlock a project such as this, the investment has been considered in two parts – (i) the energy centre and (ii) the DH infrastructure.

The energy centre has a clear opportunity to generate revenue through sale of heat and electricity. Particularly in an application such as this where the CHP engine is able to run at a very high load factor without excessive heat rejection, it is possible to generate a reasonable return on investment.

An economic assessment of the energy centre is tabulated below. In this analysis it is assumed that heat is sold from the energy centre to the DH network operator (which may be the same organisation) at a price of £35/MWh (note this is not the price of heat supply to the consumer). It is also assumed that electricity generated by the CHP system is used within the commercial estate, such that a high electricity tariff is received (in comparison to the tariff received for grid export).

**Table 3, Economic analysis for the St Neots Phase 1 energy centre**

| Energy centre financial model | |
|---|---|
| **Energy centre capital cost** | £3,750,000 |
| | |
| **Debt** | £3,000,000 |
| **Equity** | £750,000 |
| | |
| **Interest rate** | 7% |
| **Repayment period (years)** | 15 |
| | |
| **CHP heat sale price (£/MWh)** | 35 |
| **CHP electricity sale price (£/MWh)** | 71 |
| **Natural gas cost (£/MWh)** | 30 |
| **CHP maintenance cost (£/MWhe)** | 5 |
| | |
| **Heat sale revenue (£/year)** | £525,000 |
| **Electricity sale revenue (£/year)** | £886,293 |
| **Natural gas cost (£/year)** | £916,100 |
| **Annual maintenance cost (£/year)** | £62,415 |
| | |
| **Operating cashflow (£/year)** | £432,778 |
| **Debt service cost (£/year)** | £329,384 |
| **Net cashflow (£/year)** | £103,394 |
| | |
| **Return on equity** | 10% |

As shown in the analysis above, under the assumptions regarding energy prices and costs of debt, the energy centre is a commercially viable investment.

A similar analysis has been performed for the investment in the district heating network. It is assumed here that some debt finance is also raised to fund the DH infrastructure and that a margin is charged on delivery of heat to the final customer. Note that to finance the DH infrastructure, assuming that the energy centre operates commercially, a significant investment from the CEF would be required without an economic return on investment.

**Table 4, Financial model for investment in St Neots phase 1 district heating infrastructure**

| District heating system financial model | |
|---|---|
| **Phase 1 infrastructure cost** | £4,700,000 |
| | |
| **CEF finance** | £3,290,000 |
| **Debt** | £1,410,000 |
| | |
| **Interest on debt** | 7% |
| **Repayment period (years)** | 15 |
| | |
| **Margin on heat sale price (£/MWh)** | 15 |
| **Maintenance cost (£/MWh)** | 1 |
| | |
| **Gross revenue on heat sales (£/year)** | £225,000 |
| **Annual maintenance cost (£/year)** | £15,000 |
| | |
| **Operating cashflow (£/year)** | £210,000 |
| **Debt service cost (£/year)** | £154,810 |
| **Net cashflow (£/year)** | £55,190 |
| | |
| **Return on CEF investment** | -13% |

The project would be expected to deliver a significant carbon saving, as shown in the table below. The cost of carbon saving has been calculated using the same assumptions as previously used for the renewables projects (i.e. whole-life basis assuming a cost of capital of 8% and period of 20 years), in order to enable comparison.

**Table 5, Projected carbon savings and cost of carbon associated with the Phase 1 St Neots district heating scheme**

| Carbon reduction | |
|---|---|
| **$CO_2$ saved (tonnes/yr)** | 2,594 |
| **$CO_2$ saved by CEF (proportional to investment, tonnes/yr)** | 1,010 |
| **Cost of carbon saved (£/$tCO_2$)** | £84 |

The project would generate a carbon saving attributable to the CEF of around 1,000 $tCO_2$/yr. Once the district heating system is in place, facilitated by the CEF investment, there may be an opportunity to swap out the gas CHP at a later date for a renewable heat source, which would greatly increase the carbon savings. The cost of carbon saving, based on the gas CHP energy centre, is estimated at around £85/$tCO_2$, again indicating that a higher ceiling price that the £50/$tCO_2$ currently being used in policy assessments will be required if the intention is for the Allowable Solutions regime to support these kinds of infrastructure projects.

Finally the economics of extending the district heating system to serve the Eastern Extension have been assessed. Again in this case it has been assumed that the energy centre is operated on a commercial basis – the heat sale price has been tuned to maintain an IRR of 10% (note that it is assumed that a second gas CHP is installed in the energy centre). As expected, there is no economic return on investment in the district heating infrastructure. An investment by the CEF could therefore play a pivotal role in delivering the vision for extension of the district heating infrastructure at St Neots.

**Table 6, Economics of investment in the DH infrastructure to extend the scheme to connect the Eastern Extension. Note it is assumed that the developer makes a contribution via connection charges, in line with the expected on-costs of meeting the Carbon Compliance level.**

| District heating system financial model - extended system | |
|---|---|
| **Number of domestic connections** | 3200 |
| **Phase 1 DH infrastructure cost** | £4,700,000 |
| **DH extension cost** | £19,200,000 |
| **Developer connection charges** | £12,800,000 |
| **Net total DH infrastructure cost** | £11,100,000 |
| | |
| **CEF finance** | £4,440,000 |
| **Debt** | £6,660,000 |
| | |
| **Interest on debt** | 7% |
| **Repayment period (years)** | 15 |
| | |
| **Margin on heat sale price (£/MWh)** | 25 |
| **Maintenance cost (£/MWh)** | 1 |
| | |
| **Gross revenue on heat sales (£/year)** | £935,000 |
| **Annual maintenance cost (£/year)** | £37,400 |
| | |
| **Operating cashflow (£/year)** | £897,600 |
| **Debt service cost (£/year)** | £731,232 |
| **Net cashflow (£/year)** | £166,368 |
| | |
| **Return on CEF investment** | -7% |
| | |
| **Carbon reduction** | |
| **$CO_2$ saved (tonnes$CO_2$)** | 5,187 |
| **$CO_2$ saved by CEF (proportional to investment)** | 1,327 |
| **Cost of carbon saved (£/t$CO_2$)** | £70 |

### Northstowe – New build district heating

Northstowe is a proposed new town expected to provide approximately 10,000 new homes and associated employment, retail and community development in South Cambridgeshire. Although an outline planning applications for the whole of Northstowe was submitted in 2007, the difficult economic conditions since then and the withdrawal of a proposed A14 road improvement scheme have necessitated revisions to the plans for Northstowe. A revised master plan, describing a phased approach to development of Northstowe is currently out for consultation.

An energy strategy feasibility study for the whole Northstowe development[10] was carried out in 2009. This study identified a biomass CHP based district heating system as the most cost-effective approach to delivering low carbon development at Northstowe (a number of system configurations were assessed, based on either 5MWe or 10MWe biomass CHP plant).

A detailed economic analysis was carried out as part of the feasibility study, based on a dual SPV approach to delivering the energy system, i.e. the energy centre and the heat distribution network were considered as separate financial entities. This analysis suggested that a pre-tax project IRR of 10% for the biomass energy centre and 7.5% for the district heating infrastructure were possible.

This financial analysis was predicated on relatively high developer contributions to the investment costs, which at that time were consistent with the expected costs of compliance with zero carbon policy (i.e. based on a carbon compliance level of 70-100% of regulated emissions and a requirement to reduce all unregulated emissions by investing in Allowable Solutions).

Given the amendments to the zero carbon policy and changed economic climate, a new financial model is required for the Northstowe energy strategy. Nonetheless, the results of the techno-economic analysis, i.e. that a biomass CHP based district heating system is the most cost-effective means of achieving very low carbon development are likely to remain valid. An investment from the CEF could be a key part of a revised financing structure enabling delivery of a very low carbon energy system for Northstowe.

The capital cost of a district heating system to serve the whole of a development the size of Northstowe would be very significant. The initial feasibility study estimated a cost of £63m, including an offset saving on the cost of natural gas distribution infrastructure (this cost would be spread over several phases of the development). The level of investment required from the CEF in order to secure financing for this infrastructure would therefore be very substantial.

A simple economic analysis for Northstowe has been carried out, based on development of a 5 MWe biomass CHP system and development-wide district heating system. Assuming that the energy centre is delivered commercially (i.e. maintaining a 10% IRR on this element of the system) and revising the developer contribution in line with the expected cost of compliance of the amended zero carbon policy[11], the IRR on the district heating system drops to around 1%. Assuming bank debt is available at a 7% interest rate, the CEF would need to provide effectively zero cost finance for half of the investment cost of the district heating infrastructure. This would account for a large proportion of the Cambridgeshire CEF's available funds.

An estimate of the cost of carbon has been calculated for the Northstowe energy system. Excluding the value of incentives (i.e. ROCs and the RHI) from the net present cost calculation, the lifecycle cost of carbon has been estimated at £75/t$CO_2$. This figure includes the carbon reduction required for the development to meet the Carbon Compliance level. As this carbon saving has been paid for by the developer through its contribution to financing the energy system, it shouldn't be attributed to the community energy fund. If this carbon is excluded from the calculation, then the cost of carbon

[10] Northstowe Feasibility Report, Camco, September 2009
[11] A figure of £4,500 per dwelling has been used. This includes the cost of Carbon Compliance but not the developer's Allowable Solutions payment, which the developer would pay into the fund.

delivered by the CEF rises to around £230/t$CO_2$. Again this is well above the ceiling price that has been assumed in recent government policy analyses. It should be noted that the cost of carbon is highly sensitive to a large number of underlying assumptions on costs and revenues.

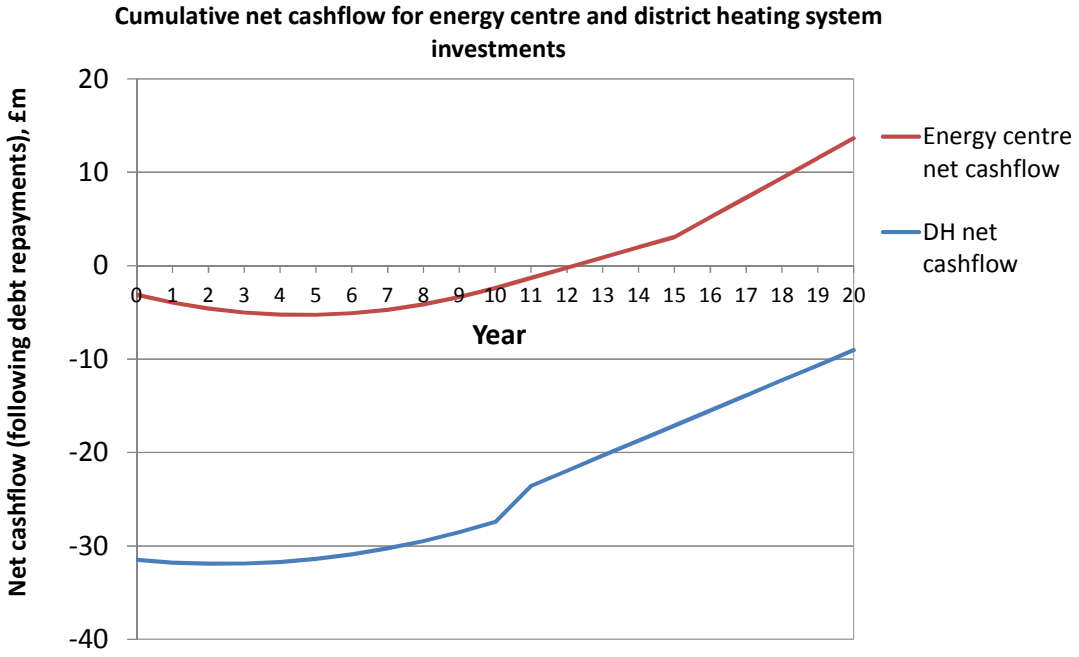



**Figure 10, Cumulative net cashflow (post debt repayment) for the energy centre (assumed to be supplied by project equity) and the district heating infrastructure (CEF investment) at Northstowe.**

### *5.3.2.4 Biomass and energy from waste*

A number of other potential project opportunities have been identified through the course of the study. There is significant interest in biomass and energy from waste projects across the county. Among these is an initiative to use waste heat from the Ely straw burning plant to meet part of the thermal energy requirements of a new data centre facility, which is proposed for land immediately adjacent to the power plant.

The Ely straw burning plant, the world's largest biomass power station when constructed in 1998, generates 38 MW of electrical power and currently rejects 75 MW of heat to the atmosphere. Planning permission has been obtained for a 700,000 sq. ft data centre facility on a 50 acre site next to the power plant. Data centres are extremely energy intensive , with large electrical loads to power the IT equipment and the cooling plant (usually electrically-driven chillers). If constructed in the traditional manner, the Elean data centre would be expected to impose an electrical load of approximately 65 MW. The energy strategy proposed for the Elean facility is expected to reduce this electrical load to 34 MW. The strategy involves use of thermally-driven absorption chillers to meet the cooling load, rather than electrical chiller plant. A gas-fired CHP system will also be installed on the site, which will generate 27 MW of electrical output and provide the data centre with a resilient electrical supply. A low temperature hot-water supply will be taken from the Ely power station, which will be passed through the CHP jacket to raise its temperature to the level required to feed the absorption chillers.

The use of waste heat to meet cooling loads is forecast to reduce the electricity consumption by around 22% compared to a traditional data centre. The annual $CO_2$ emissions reduction delivered can be estimated at around 45,000 t$CO_2$/yr.

The location of a data centre in close proximity to a large source of waste heat clearly presents a very substantial opportunity for carbon reduction compared to conventional practice. The capital expenditure in equipment will be significant, particularly related to the additional cost of absorption chiller plant compared to conventional chillers and investment required in the heat capture equipment and heat supply pipes to deliver heat from the Ely power station to the data centre complex. This could provide an opportunity for investment from the CEF. However, the large operational saving that will be delivered through reduction in electricity costs, initially estimated at £12.7 million per year, and further saving on carbon costs under the Carbon Reduction Commitment may provide sufficiently strong business case for investment in the low carbon energy strategy that the CEF would not provide additionality. There must also be a question over whether the timescales for this project are consistent with the timelines for establishing a CEF.

Interest in opportunities for Energy from Waste has also been expressed by the CEF steering group. Energy from waste using 'advanced' treatment technologies has also been identified as a potential kind of Allowable Solution in the Zero Carbon Hub's framework proposals. Advanced treatment technologies include anaerobic digestion and thermal treatments such as gasification and pyrolysis.

The majority of Cambridgeshire's waste is dealt with under the PFI contract with AmyCespa.. The main waste treatment facility at Waterbeach is a mechanical biological treatment (MBT) plant, involving separation of recyclables, followed by composting of the residual waste. The plant employs two types of composting technology. Separated organic waste, such as kitchen waste, is composted to form a soil improver that can be used by farmers for growing food crops and animal feed. The material resulting from composting of the mixed 'black bag' waste does not meet the standards required to enable it to be used by farmers or the public, but AmyCespa hope that it will be used for quarry restoration, growing energy crops or as a fuel, rather than being landfilled.

Of the 300,000 tonnes per annum of waste that AmyCespa treats for the County Council and under private contracts, currently around 55% is sent to landfill. There will be a strong imperative to reduce the quantity of material sent to landfill in the future, as the rate of landfill tax and the cost of the landfill allowances trading scheme (LATS) increase (landfilling will become significant more costly as the amount of biodegradable material that local councils are permitted to landfill – the landfill allowance – is progressively reduced, requiring further permits to be purchased from other councils that have a surplus or a penalty buy-out price to be paid). This will result in significant investment in alternative treatment plant and energy from waste is likely to play a role. The waste sector may therefore present significant opportunities for the CEF to play a role and to deliver substantial carbon savings.

### 5.3.3 Cost of carbon

The costs of carbon calculated for the project examples assessed above range from around £70 to £525 /t$CO_2$. This range is significant in the context of the ceiling price for Allowable Solutions proposed within the Zero Carbon Homes Impact Assessment of £46/t$CO_2$.

There is some uncertainty over how $CO_2$ saving should be attributed to the Allowable Solutions investment in projects. A clear methodology on this will need to be developed as part of the Allowable Solutions framework to enable fund managers to evaluate the $CO_2$ saving of prospective investments in a consistent manner.

Under the 'Shared benefit' approach to additionality, the carbon saving attributed to the Allowable Solutions investment could only claim savings in proportion to the funding provided. For example, in the case of renewable energy projects that receive support under the Feed-in Tariff, Renewable Heat Incentive or Renewables Obligation, the contribution of these incentives have been excluded from the cost of carbon calculation. Similarly, where there is co-investment in a project with another party, the carbon reduction would only be attributable to the Allowable Solutions provider in proportion to the percentage of funding provided.

The fact that these costs of carbon lie outside the ceiling price for Allowable Solutions, even for relatively cost-effective projects such as MW-scale wind, suggest that Allowable Solutions providers will struggle to deliver the carbon reductions 'purchased' by developers.

Where projects generate further revenues , such as Feed-in Tariff revenues, that the fund is able to reinvest in further carbon saving measures, the overall cost of carbon saved by the fund will be reduced. This recycling of project returns is potentially key to increasing the funds available and therefore carbon saving impact of local community energy funds, as shown below (note that the calculation methodology used to calculate the fund's cost of carbon will need to consider how carbon reduction delivered by reinvestment of revenues derived from other support policies, such as the FiT, are accounted for).

The recycling of revenues into further projects and thereby driving down the overall cost of carbon saved by the fund will also help the community energy fund to remain competitive on price with private sector Allowable Solutions providers and attract further income into the fund.

## 5.4 CEF cashflow

The potential Allowable Solutions income into the Cambridgeshire CEF was explored in Section 5.1. Based on current growth plans and a ceiling price for Allowable Solutions of £46/t$CO_2$, an absolute upper bound on the cumulative income of £55m was estimated. This assumes that all Cambridgeshire local authorities participate in the CEF and that Allowable Solutions are collected for new developments up to 2026.

Under the Allowable Solutions framework proposed by the Zero Carbon Hub, these Allowable Solutions payments would be held within a national fund-holding body or bank for Allowable Solutions, potentially hosted by the Green Investment Bank. The community energy fund would be issued with credit notes to demonstrate the funds it has held within the fund-holding, which would form the basis on which the Local fund could contract with Allowable Solutions project suppliers and arrange further financing. As Allowable Solutions projects progress and certain milestones are reached, funds would be released from the fund-holding directly to the Allowable Solutions supplier, i.e. directly to the project level.

In this framework, the local community energy fund does not hold the funds collected from developers. As was explored in the previous section, some of the investments that a community energy fund is expected to make will generate a financial return, albeit at a lower than usual commercial rate. Indeed, the Hub's proposed framework envisages Allowable Solutions funds being invested as mezzanine debt. However, it is not clear from the framework document what will happen to repayments made on the debt provided by the fund, for example, whether these returns will be reallocated to the energy fund that arranged the initial investment and be available for reinvestment in further projects. The ability for community energy funds to recycle the proceeds from investments is a big opportunity, which will greatly increase the impact of the Allowable Solutions regime (particularly if a tranche of funds is invested in more economic projects, for example wind projects).

An indicative forecast of the cashflow for a Cambridgeshire CEF has been performed. This analysis is necessarily simplistic, given the large uncertainties over the Allowable Solutions income and the projects that the fund will invest in.

The analysis assumes that the upper bound Allowable Solutions income discussed in Section 5.1 is obtained. The fund is assumed to split its investment in four project types – retrofit PV projects, wind projects, retrofit district heating (such as St Neots Phase 1) and new build district heating (such as Northstowe). Returns on investment are assumed to be available for recycling into further projects, such that over time the total funds invested exceed the Allowable Solutions investment paid into the fund.

An example for how the funds invested might split between the project types is shown below.

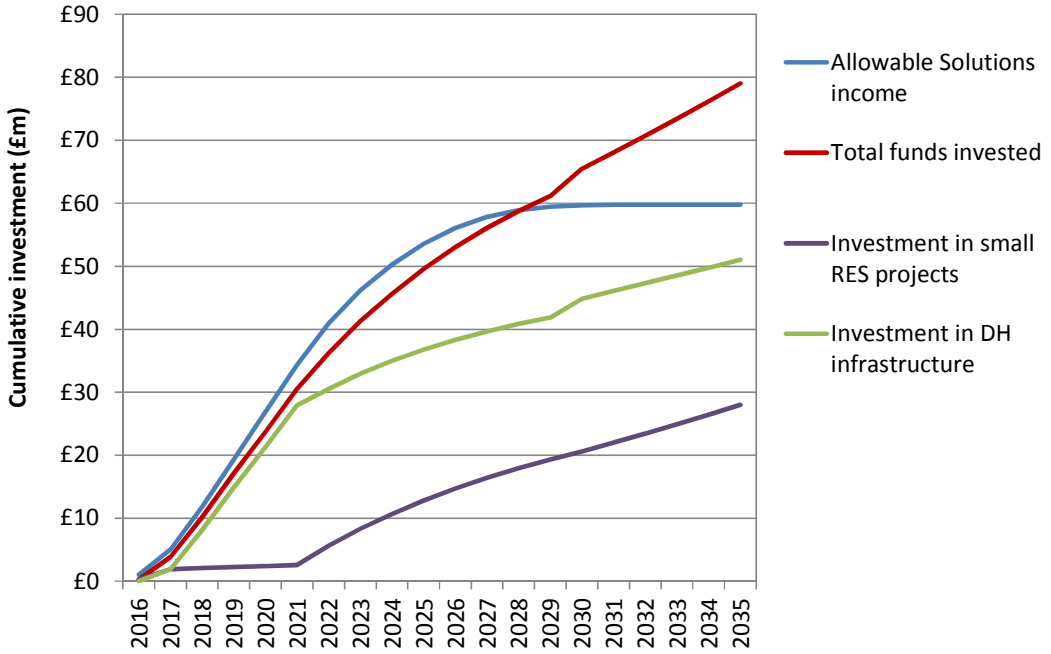



**Figure 11, An example of the cumulative investment achieved by the fund for an indicative split of investment between project types. The total fund investment is compared to the Allowable Solutions income into the fund.**

In this example, the funds available in the early years are weighted toward the district heating infrastructure investments. This is in order to direct the significant levels of investment required by the St Neots and Northstowe schemes, i.e. around £30m. The available funds are then assumed to be split equally between the small RES projects (with an equal split between PV and wind) and the DH infrastructure projects.

The forecast assumes that the Allowable Solutions regime is in place for all new starts up to 2026 and that some of these sites take 5 years to build out – hence the final Allowable Solutions payments are received in 2031. Due to the reinvestment of project returns, the funds invested continue to build beyond the time at which Allowable Solutions income ceases. The reinvestment of project returns also means that the funds invested exceed the total Allowable Solutions receipts – by 2035 the fund has invested a total of approaching £80m, on the basis of a total Allowable Solutions income of £55m.

The carbon reduction performance of these investments is shown in the plot below, compared to the carbon emissions growth on which the Allowable Solutions payments are based. The CO2 emissions and reductions are shown on the basis of annual emissions, i.e. the additional annual regulated emissions[12] due to new growth and the annual $CO_2$ reduction delivered by the Allowable Solutions invested in carbon reduction projects.

[12] The additional regulated emissions, i.e. the emissions that remain once the Carbon Compliance level have been met are the emissions that should be offset through Allowable Solutions.

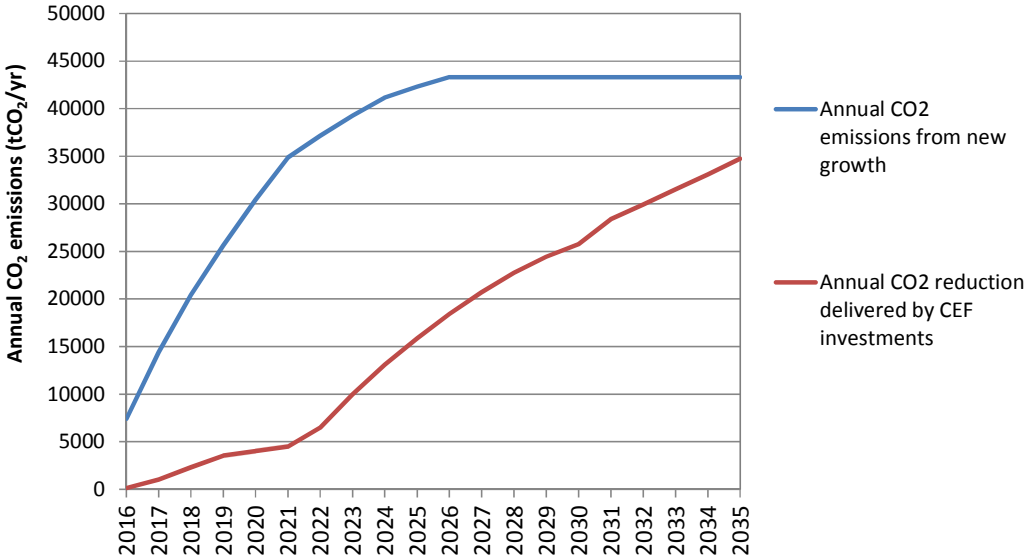



**Figure 12, Annual emissions reduction delivered by the fund's investments compared to the additional annual emissions arising from new growth. The emissions reductions do not balance the additional emissions, due to too much investment in high cost of $CO_2$ projects**

Based on the indicative investment portfolio, the annual $CO_2$ reductions per year delivered by the Fund have not reached the level of additional emissions from new growth that the fund has contracted with developers to reduce. This is unsurprising, given the cost of carbon reduction for these project types compared to the ceiling price for Allowable Solutions.

The level of carbon reduction delivered by the fund could be increased by changing the project mix in its portfolio. For example, the plot below is based on an assumption that the same proportion of the fund is invested in DH infrastructure, but that an increased share of the remainder is invested in wind projects rather than less cost-effective solar (note that this plot assumes that $CO_2$ reductions resulting from reinvestment of project returns are attributed to the fund in the same proportion as the initial investment of Allowable Solutions income).

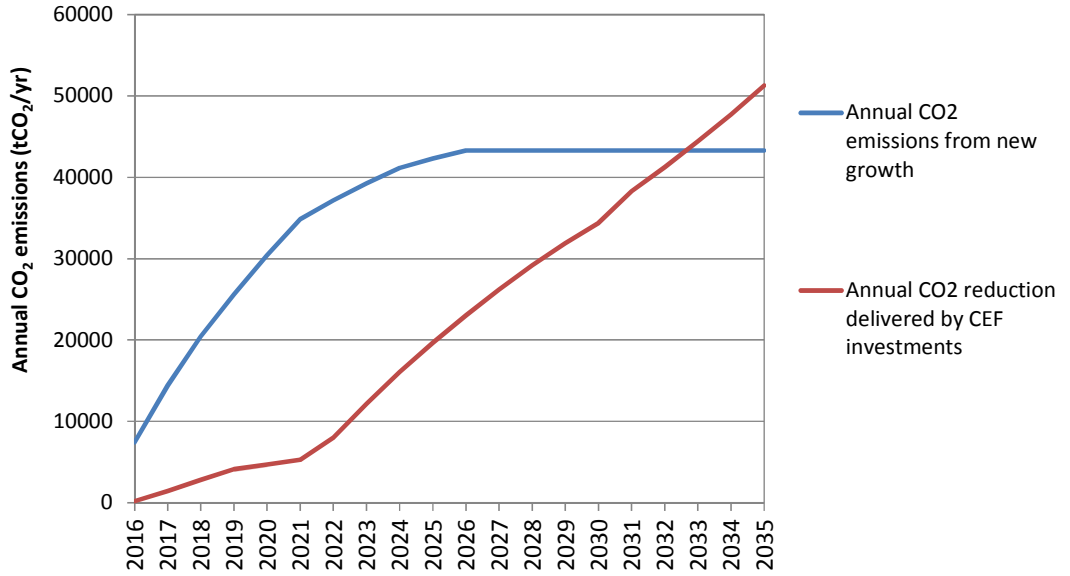



**Figure 13, Comparison of annual emissions reduction delivered by fund projects with annual additional emissions from new development on the basis of a project portfolio more heavily weighted toward low cost of carbon projects.**

In this case the annual $CO_2$ saving delivered by CEF investments has exceeded the additional annual emissions from new developments by 2035. As the Allowable Solutions investments must deal with the $CO_2$ emitted by new developments over a 30 year period, the CEF projects will need to continue to deliver annual $CO_2$ reductions in excess of the annual emissions from new growth, in order to account for the lag in build-up of $CO_2$ reductions compared to the growth in emissions.

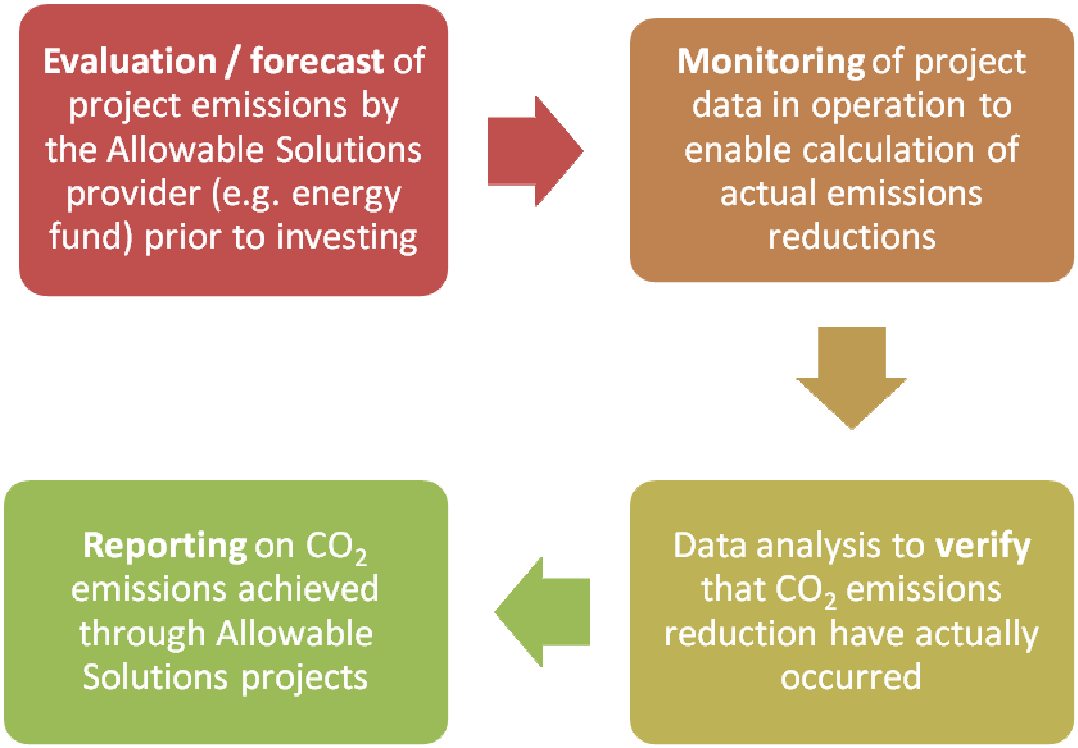
Note that the $CO_2$ emissions reductions shown in these figures are those reductions that can be attributed to the fund's investments, assuming the 'shared benefit' approach to additionality. The total $CO_2$ emissions reduction delivered by the projects would be significantly greater. In certain cases, for example a district heating project in which the CEF investment is critical to financing the installation of the network, it could be argued that all project $CO_2$ reductions are attributable to the CEF as the project would not have gone forward without CEF funding.

While the above analysis of the CEF cashflow is clearly simplistic at this stage, it illustrates a number of key points regarding the scale of impact of the CEF.

- Recycling of project returns into further investments is important to increase the scale of the fund's portfolio of projects. This is significant even in the case that the CEF returns on CEF investment are modest.
- Leveraging of the CEF investment with bank debt and equity (where available) is key to enabling the CEF to deliver large-scale projects.
- The Allowable Solutions ceiling price will strongly influence the types of investment the fund is able to make. If this price is set too low, either it will become difficult for the CEF to deliver its contracted $CO_2$ reductions or lead to very 'safe' investments, which may not be consistent with the desire for additionality.

# 6 Carbon accounting

The key stages in a potential carbon accounting procedure for Allowable Solutions are set out in the diagram below:




Allowable solutions providers such as community energy funds will 'contract' with developers to deliver a certain amount of $CO_2$ reduction. It is therefore clearly of fundamental importance that those Allowable Solutions providers are able to evaluate the $CO_2$ emissions reductions that will be developed by prospective investments. This is the 'evaluation' stage of the carbon accounting procedure.

The remaining steps involve determination of the $CO_2$ reduction that are actually delivered by an investment. Clearly it is important to monitor the efficacy of the Allowable Solutions part of the zero carbon policy, to ensure that it is delivering against expectations and so that underperformance of the policy is recognised and can be addressed. The importance of verifying the $CO_2$ reduction of Allowable Solutions is dependent to a certain extent on the implications of underperformance. This may depend on the terms under which the Allowable Solutions provider, such as an energy fund, provided funds to the project developer, for example whether the project developer is obligated to return funds if $CO_2$ reductions are not delivered. It could also depend on whether the energy fund is in any way liable in the event that it fails to deliver an equivalent level of $CO_2$ reduction to the amount of Allowable Solutions payments received.

The Allowable Solutions framework proposed by the Zero Carbon Hub introduces the concept of an Allowable Solutions Verification and Certification Scheme. This body is described as the 'brain' of the proposed national fund – triggering the release of funds to projects when they reach certain milestones and verifying the $CO_2$ emissions reductions delivered. The framework proposals refer to

the monitoring and verification procedures underpinning the Clean Development Mechanism (CDM), a scheme in which developing countries can earn emissions reduction credits for deployment of carbon reduction projects that can be traded with rich countries, which use them to meet emissions reduction targets. It is recognised that the procedures under the CDM are too complex to be adopted by the Allowable Solutions framework, although alternative procedures have not yet been developed.

## 6.1 Evaluation

A community energy fund will invest in a number of different projects, providing finance to numerous project developers and project operating companies. While the fund or technical consultants employed by the fund would be expected to go through a process of due diligence to evaluate the carbon savings any investment is likely to deliver, they will, to a certain extent, rely on data and analysis provided by the project developer. A consistent set of methodologies for forecasting carbon reduction of projects could be developed to ensure that Allowable Solutions providers compare investment opportunities on the basis of consistent information. The methodology should, for example, specify the baseline against which carbon savings are to be measured for particular project types and define the project boundary. DECC guidance on evaluating emissions impacts for policy appraisals provides some useful data to feed into project evaluation methodologies, for example projections of emissions factors for electricity and fossil fuels.

## 6.2 Monitoring and verification

As part of the contractual arrangements between the project developer and the energy fund, a monitoring methodology should be agreed. This methodology should set out a process for determining the carbon reduction delivered by a project, specify the data requirements and the method by which the data will be collected. As discussed above, the extent of the data collection and accuracy of the carbon reduction measurement may depend on what the information will be used for. For example, if the data is simply to allow the energy fund to track the effectiveness of its investments and report on its overall carbon reduction performance, the level of monitoring and verification may be less onerous than if financial liabilities are triggered by underperformance. The complexity of measuring carbon reductions and amount of data collection required will vary significantly depending on the type of allowable solution. It is usually relatively straightforward to measure the carbon reduction from low carbon generation assets, while the carbon reduction delivered by investing in smart demand-side management technologies or embodied carbon reduction initiatives, for example, may be less clear.

## 6.3 Reporting

Under an arrangement where the local energy fund is responsible for verification of the carbon saving of its investments, it is likely to be required to report both to national government and to local stakeholders. National government will require these reports to assess the overall effectiveness of the zero carbon policy and to evaluate the contribution toward national and international carbon reduction targets. Local stakeholders, including the board of directors of the fund CLG, will need to monitor performance of the fund as this may influence decisions over the management and ongoing investment strategy of the fund. In the case that monitoring and verification is done centrally, as in the proposed Allowable Solutions framework, it will still be necessary for the local fund to monitor the effectiveness of its projects, both to inform investment strategy and assess whether Allowable Solutions tariffs levied on developers are appropriate.

# 7 Recommendations

During the course of this study, the Zero Carbon Hub published its proposals for an Allowable Solutions Framework. These proposals are intended to inform government policy thinking and will be the subject of a forthcoming consultation. A number of the ideas presented in the Hub's document have implications for the Cambridgeshire Community Energy Fund. While some aspects of the proposed framework are complementary with fund proposals being developed in Cambridgeshire, there are certain conflicting concepts – chief among them being the idea of a national fund-holding body rather than a fund held locally.

In view of these proposals, Cambridgeshire Horizons instructed the consultant team to continue to work on the design of a locally held fund. This arrangement gives the local authority community energy fund the greatest opportunity to use Allowable Solutions investment in the carbon reduction projects that deliver the greatest community benefit. The following recommendations are therefore directed toward developing a locally held community energy fund for Cambridgeshire.

**Response to the Allowable Solutions Framework consultation**

- Use the forthcoming consultation on the Allowable Solutions framework to make the case for local funds holding their own capital. Managing the fund enables community energy funds to reinvest returns (which should be argued for in the case that the national fund arrangement prevails) and to fund their own operations.
- Use the consultation to argue for rules around Allowable Solutions pricing that enable community energy funds to compete on a level-playing field with third-party Allowable Solutions providers. A market for Allowable Solutions that is purely based on price is unlikely to deliver the most beneficial or additional projects.
- Press for clarity on the extent of the liability that energy funds will bear for failure to achieve contracted levels of $CO_2$ reduction. Liabilities should not be so onerous that energy funds are averse to accepting greater risk in their investments than private investors would be willing to bear, as this will not lead to delivery of additionality through fund investments.

**Collection mechanisms**

- Lobby government for creation of a bespoke mechanism for collection of allowable solution payments as current mechanisms are not fit-for-purpose.
- All local authorities should work on developing appropriate Allowable Solutions policies, to ensure that investment is channelled into local Allowable Solution projects (this should be done irrespective of whether a community energy fund is established). This will need to include an evidence-based mechanism for identifying projects (the CRIF should provide a starting point for this) and a means of including and updating project lists within Local Plans.
- If the local authorities wish to launch a community energy fund based on carbon offset payments from development prior to 2016, it is recommended that S106 Planning Agreements are used as the mechanism to collect payments. In order to impose such a collection, the local authorities will need to introduce policies into their Development Plan Documents that require a level of carbon reduction in excess of that required by Building Regulations. Any such policy would need to be evidence-based and viability tested and it is likely that it could only be applied to development in certain opportunity areas or above a critical size threshold. The decision on whether to establish a fund prior to 2016, given the considerable policy development work required, might be informed by an assessment of when

major sites are likely to come forward for development: for example, is a large amount of development likely to proceed prior to enforcement of zero carbon policy?

**Corporate structure and governance**

- The company limited by guarantee (CLG) is the most suitable vehicle for the management and control of a local fund by the partner authorities, each of whom would become members of the CLG.
- Articles of Association of the CLG should be drafted at the implementation stage, setting out how the CLG would be governed and controlled. The local authority partners should, as a next step, discuss and agree the key principles including:
    - Decisions to be reserved to the local authorities as members, rather than the CLG's Board of Directors;
    - Appointment rights in respect of the Board of Directors; and
    - Voting and quorum rights.
- We recommend that other stakeholders are involved either by appointment of their representatives as "independent" members of the Board of Directors, or by way of consultative committee constituted by the Articles of Association.

**Scale of fund and fund management**

- In light of the reduced requirement for investment in Allowable Solutions to comply with zero carbon policy, we recommend that a county-wide scheme comprising all local authorities as members of the fund should be the minimum scale for Cambridgeshire. Smaller scale funds, e.g. local authority scale, will struggle to influence larger low carbon infrastructure projects and will be less efficient in terms of their administration costs.
- At the implementation stage, a decision will need to be taken by the local authorities whether the fund should employ people with fund management experience 'in-house' (as employees of the company limited by guarantee) or to contract operation of the fund to a third-party fund manager.

**Investments by the fund**

- We recommend the client team uses the consultation to make the case for an Allowable Solutions ceiling price that accommodates investment in higher cost of carbon saving projects, including renewable energy generation (not limited to onshore wind) and district heating infrastructure.
- Collate available information on priority projects already identified, such as St Neots and Northstowe, to understand in more detail how timelines and finance requirements fit with the CEF timescales and available funds. Discussions with project partners should be entered into early to ensure that opportunities are not missed.
- Use the consultation to argue that the concept of the Green Investment Bank capitalising the national fund with a zero interest loan could be extended to community energy funds to facilitate early investments.

**Carbon accounting**

- We recommend that the principle of a national Allowable Solutions verification and certification scheme be supported, as national procedures on verification of carbon savings is not inconsistent with the concept of a local fund. The proposals set-out in the Zero Carbon

Hub report are prepared on the basis of a national fund and contain little detail on methodology for measurement and verification of carbon reduction.

- While the processes developed under the Clean Development Mechanism to monitor and verify carbon savings may provide a useful starting point, submissions should be made to government to develop a simpler and less bureaucratic system for Allowable Solutions.

# 8 Appendices

# 9 Appendix 1 – Summary advantages and disadvantages of possible legal structures

## A. Contractual/partnership structures

### *Joint committee working*

One alternative to the formation of a company is the creation of a joint committee under section 101(5) of the Local Government Act 1972. This is essentially a contractual partnership of local authorities operating together on a statutory footing. The advantages and disadvantages of this approach as summarised below.

| Advantages | Disadvantages |
|---|---|
| • No administrative/regulatory burdens under the Companies Acts. | • No independent legal status.<br>• Cannot hold property in its own right.<br>• Still need contractual documentation to regulate relationship between participating authorities.<br>• Requires one of the local authorities to take a "lead" role (e.g. on administration of the project).<br>• Voting membership restricted to local authority members (though this may not be an issue in the context of the CEF as all members may be local authorities). |

### *Other contractual/partnership structures:*

### *Development/partnership schemes*

Local authorities' ability to combine with the private sector on development / partnership schemes – in the context of developing land, buildings or communications within an area – has been recognised by the Courts, although there has been some uncertainty about the statutory basis for such schemes. However, such development / partnership schemes are generally more suitable in the context of private/public co-operation involving perhaps a single local authority. For partnership working between a number of partners, all of whom are local authorities, the joint committee option is likely to be more suitable. However, similar disadvantages to the joint committee structure apply.

### *Trusts*

Another potential alternative is a form of trust arrangement – "trust" in this context being a form of unincorporated association. Similar disadvantages to the joint committee structure apply, and the lack of separate legal status can be of particular concern to individual trustees who may be personally liable for liabilities of the trust or association.

## B. Legal entities

### *Company limited by shares*

Companies limited by shares are the vehicle of choice for profit-making enterprises because of the ease with which capital can be injected into the business and the ability to distribute profits to shareholders.

| Advantages | Disadvantages |
|---|---|
| • Separate legal personality and limited liability.<br>• Board structure permits independent management, and can include external representatives.<br>• Can be capitalised through shareholdings – i.e. subscribing for a premium on the shares.<br>• Constitutional flexibility as regards comparative rights of shareholders and directors.<br>• Dividends can be declared and paid (provided there are sufficient profits). | • Restrictions on reduction of capital apply – so cannot simply cancel shares that are no longer held by a departing shareholder, which must be transferred to a new shareholder.<br>• Bureaucratic compliance in accordance with Companies Acts – e.g. filing of accounts and annual returns, and statutory directors' duties.<br>• Not a suitable structure for charitable purposes. |

### *Company limited by guarantee*

Companies limited by guarantee are commonly incorporated for non-profit making functions, with no share capital and members rather than shareholders. The members undertake to contribute a pre-determined nominal sum to the liabilities of the company which becomes due in the event of the company being wound up.

| Advantages | Disadvantages |
|---|---|
| • Separate legal personality and limited liability – usually a nominal guarantee sum (e.g. £10).<br>• Board structure permits independent management, and can include external representatives.<br>• Changing members is easier than with a company limited by shares – new members can be introduced and existing members can resign.<br>• More suitable than a company limited by shares for charitable or not for profit purposes.<br>• Constitutional flexibility as regards comparative rights of members and directors.<br>• Dividends/distributions to members can be declared and paid provided there are sufficient profits (although it is uncommon for this to happen in practice, as most CLGs are established on a not for profit basis and hence have constitutional restrictions on the payment of dividends). | • Bureaucratic compliance in accordance with Companies Acts – e.g. filing of accounts and annual returns. |

### *Community Interest Company (CIC)*

CICs are formed within the company law framework but have certain additional constraints and features which make them suitable for social enterprise and not for profit activities. A CIC must satisfy the "community interest test": it must be able to demonstrate that a reasonable person might consider that its activities are being carried on for the benefit of the community.

| Advantages | Disadvantages |
|---|---|
| • CIC "brand" indicates the community benefit of the entity, and may be useful in promoting the aims of the organisation.<br>• Separate legal personality and limited liability (either as a company limited by guarantee or limited by shares).<br>• "Asset lock" protects the assets of the CIC, which can be transferred below market value only if for the benefit of the community.<br>• Board structure permits independent management, and can include external representatives.<br>• If a company limited by guarantee, new members can be introduced and existing members can resign.<br>• Constitutional flexibility as regards comparative rights of members and directors. | • Bureaucratic compliance in accordance with Companies Acts – e.g. filing of accounts and annual returns.<br>• Compliance with CIC regulation requirements, including the preparation of a community interest report. A CLG can achieve similar results but without the additional regulatory burden. |

## *C. Industrial and Provident Societies (IPS)*

IPS's are corporations under the jurisdiction and control of the Registrar of Friendly Societies. They are not governed by mainstream company law. An IPS qualifies for registration if:

- it is a society for carrying on an industry, business or trade; and
- it satisfies the registrar that either it is a bona fide co-operative society or, in view of the fact that its business is being conducted for the benefit of the community, there are special reasons why it should be registered under the IPS Acts rather than the Companies Acts.

Most housing associations are established as IPS, and local authorities have recently used the IPS structure to run leisure centres.

| Advantages | Disadvantages |
|---|---|
| • IPS "brand" may be useful in promoting the aims of the organisation.<br>• Separate legal personality.<br>• Can apply for sources of funding in its own right. | • Controlled by members equally (i.e. one vote per member), not according to financial interest. Less flexibility than a company.<br>• Restrictions on dividend distributions.<br>• Relatively unfamiliar to the business community. |

## *D. Other options considered unsuitable*

### *Limited partnership (LP)*

Limited partnerships are unincorporated bodies comprised of one or more general partners who have unlimited liability (and hence tend to be SPVs) and limited partners, who have limited liability. The

general partner(s) manage and control the partnership. An LP has no separate legal personality. The general partner does and can enter into contracts in the name of the LP. Limited partners may not be involved in day-to-day management and control, which makes the LP option unattractive.

### *Limited liability partnership (LLP)*

LLPs are a hybrid of a company and a traditional partnership, combining limited liability with the advantages of a partnership (tax treatment and the ability to control internal arrangements). There are, however, no statutory powers expressly sanctioning a local authority's participation in an LLP which rules it out as a suitable option.

# 10 Appendix 2 – Local Plan progression

The table below indicates the current status and programme for adoption or revision of the local development documents for each of Cambridgeshire's local authorities.

| Local Authority | Development Plan Document | | | | Supplementary Planning Document | | Infrastructure Framework |
|---|---|---|---|---|---|---|---|
| | Core Strategy | Site Specific Policies | Generic Development Control Policies | Area Action Plans | Section 106 | Sustainable Design and Construction | |
| Cambridge City | **Cambridge Local Plan Towards 2031 (one plan combining the Core Strategy, Site Specific Allocations and Development Control Policies DPD**<br>Consultation on Issues and Options, June – July 2012<br>Submission Draft, February – March 2013<br>Submission July 2013<br>Adoption, February – April 2014 | | | Cambridge East AAP – adopted Feb 2008<br>North West Cambridge AAP – adopted Oct 2009 | Adopted March 2009 | Adopted June 2007 | Joint Infrastructure Study with South Cambs currently being prepared |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| South Cambs | Adopted Jan 2007 | Adopted Jan 2010 | Adopted July 2007 | Cambridge East AAP – Adopted Feb 2008<br>Cambridge Southern Fringe AAP – Adopted Feb 2008<br>North West Cambridge AAP – Adopted Oct 2009<br>Northern Fringe East AAP (joint with Cambridge City)<br>Submission draft Feb-March 2011<br>Submission June 2011<br>Adoption July 2012 | | Adopted as part of District Design Guide in March 2010 | Being taken forward as part of the evidence base for a Community Infrastructure Levy. Final report Spring 2012, Community Infrastructure Levy in place by Autumn 2013 |
| East Cambs | Development of options (June 2011 – March 2012)<br>Publish and consult on draft Local Plan (Apr – May 2012)<br>Document submission to Secretary of State (Aug 2012)<br>Adoption (Feb 2013) | | | SPDs for Sutton Conservation Area (July 2012) and Little Downham Conservation Area (Feb 2012) | - | Planning Obligations SPD (July 2013)<br>Other SPDs (Sep 2011 to July 2013) | |
| Fenland | Consultation July - Sept 2011<br>Submission Spring 2012<br>Adoption November 2012 | Not proposed | Design SPD Consultation Spring 2012<br>Adoption Autumn 2012 | None proposed | No timetable | No timetable | Preparing through 'Shaping Fenland' and Core Strategy Adoption November 2012 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Huntingdonshire | Adopted Sept 2009 | Planning Proposals DPD (adoption Dec 2012) | Publication March 2010<br>Submission Oct 2010<br>Adoption July 2011 | Huntingdon West AAP – Adoption Jan 2011<br><br>St Neots AAP<br>Publication Feb 2012<br>Submission Sept 2012<br>Adoption June 2013 | - | Not currently proposed | Completed Jan 2009 |

# 11 Appendix 3 – Example pre-2016 local plan policy

The policy option below has been taken from Cambridge City Council's Decarbonising Cambridge report (2010). This study provides the evidence base for developing sustainable design and renewable energy policies within the Local Plan.

The policy sets targets for residential developments in terms of the Code for Sustainable Homes, in line with national planning guidance. Each level of the Code for Sustainable Homes sets a mandatory requirement for reduction of the Dwelling Emissions Rate (DER – the annual $CO_2$ emissions from regulated energy consumption) compared to a baseline of compliance with Part L. Code Level 4 requires a mandatory reduction of 44% from a baseline of Part L 2006. The CO2 reduction required by the Code must be delivered through onsite means; it is not possible to achieve a Code level by making a payment into an energy fund. However, in the policy example below, developers of residential development in the period of 2013 to 2016 are required to achieve Code Level 4, which requires good practice in a range of areas in addition to the energy and $CO_2$ standard, while exceeding the mandatory emissions reduction at Code Level 4 by achieving a 70% reduction of DER compared to Part L2006[13]. The policy goes on to state that the preference is for the carbon reduction requirement to met through on-site means, but where this is not achieved developers may be required to make a one-off financial contribution to a community energy fund (referred to as a Carbon Offset Fund).

**Proposed policy option – Sustainability Standards**

Proposals for all residential and non-domestic developments should demonstrate that they will meet the following targets:

| Development type | Up to 2013 | 2013–2016 | 2016 onwards |
|---|---|---|---|
| Residential development | CSH level 4 | Carbon Compliance level of 70%<br>CSH level 4 | CSH level 4 |
| Commercial development | BREEAM Very Good | BREEAM Very Good | BREEAM Very Good |

There will be a presumption that the targets will be met in full except where developers can demonstrate that in the particular circumstances there are compelling reasons for the relaxation of the targets. The onus will be on developers to robustly justify why full compliance with policy requirements is not viable.

Developments that fail to meet the required levels of carbon emissions reductions may be required to make a one-off financial contribution to be used to achieve equivalent emissions savings through off-site measures (potentially to a Carbon Offset Fund should this be put in place). In the first instance, however, the Council envisages that carbon growth resulting from new development will be minimised by requiring on-site carbon reduction measures. The amount of this payment, where applicable, will

[13] At the time of writing of the Decarbonising Cambridge report, a 70% reduction of DER compared to a Part L2006 baseline was equivalent to the Carbon Compliance level expected to be introduced as part of zero carbon policy in 2016. Since this report was published, the Carbon Compliance level has been changed to a lesser requirement. In light of this, Cambridge City Council should review the $CO_2$ reduction required in their evolving Local Plan to ensure it remains consistent with the national policy direction and national planning guidance.

be determined on a site-by-site basis and calculated in line with a methodology to be set out in an updated Sustainable Design and Construction SPD.

The Council will develop through current and future Development Plan Documents, policies that set the highest standards of carbon emissions reductions, having regard to site circumstances and will seek to ensure that development adapts to climate change. To this effect, sustainability requirements will be tightened to ensure that development takes account of expected further changes in climate and to ensure that the commitments contained in the Cambridge Climate Change Strategy are met. Where standards are set beyond those contained in this policy, the higher standards will apply.

# 12 Appendix 4 – Notes of meeting held with legal representatives of local authorities

**Cambridgeshire Horizons, 15 August 2011**

**1. Introduction and overview of CEF proposals**

1.1. The attendees are listed in Annex 1, and the agenda for the meeting is contained in Annex 2. An introductory briefing note was circulated to participants in advance of the meeting (Annex 3).

1.2. Ian Walker (Element Energy) and Richard Stevens (Manches LLP) took the attendees through the proposed structure of the CEF.

**2. General feedback**

2.1. Concern was expressed by some legal officers that they were being asked to give opinions on the detailed structure of the proposed CEF when no decision has yet been taken on whether to set up a CEF or on what scale (e.g. local authority, County or wider). Ian Walker and Richard Stevens explained that while Cambridgeshire Horizons had engaged the consultancy team to explore how the CEF proposals might be implemented, no decisions had been made and the decision to proceed would ultimately rest with the local authorities.

2.2. Concerns were raised over whether the CEF would be too complex for local authorities to manage, particularly at a time when they are being asked to 'do more with less'.

2.3. A related concern was raised over the set-up costs and the amount of officer time that would be required. For example, would local authorities have to put in place their own carbon reduction verification procedures? It was acknowledged that answers to many of these questions would have to await national legislation.

2.4. Collection mechanisms were briefly discussed. It was felt that the CIL mechanism could be used, as long as the Allowable Solutions money was kept separate from the CIL contribution. Concerns were raised over the use of section 106, in relation to meeting the statutory tests, potential for claw-back and the legality of use of section 106 contributions under the Town and Country Planning Act 1990.

**3. Legal/vires issues**

3.1. None of the local authority officers present could see any objection in principle to the ability of the local authorities to become members/stakeholders in a separate legal entity which would manage and (potentially) hold the funds constituting the CEF. One participant noted that, "section 111 [of the Local Government Act 1972] is a big answer to a lot of this".

3.2. Participants agreed that the constitution of any separate legal entity established for the purposes of the CEF project would need to state its objects clearly in its constitution.

3.3. Participants could not see any legal objections to the concept that local authorities would collect in funds (through whichever collection mechanism(s) would ultimately be used) and pay these to the separate legal entity for application. However, certainty on this point was not possible while the legislative framework remained uncertain.

3.4. There was some discussion about the extent to which geographical constraints would limit the potential application of a Cambridgshire CEF. Would, for example, an off-shore wind farm be a suitable project for the CEF to invest in, in view of it (of necessity!) not being located in Cambridgeshire?

**4. Structure**

4.1. There was a lengthy discussion about whether the CEF project should be structured using a separate legal entity (the "SPV" proposal) or based on contractual partnership working between the local authorities. The options for the SPV and non-SPV approaches were set out in the first stage report prepared by the consultancy team for Cambridgeshire Horizons in 2010.

4.2. The feedback from participants suggested that an SPV-based structure was likely to work better than a partnership-style, contractual or "trust" structure. This is because an SPV structure presents the opportunity for more cohesive management and control shared between the local authority members – through, for example, agreed control and governance mechanisms contained in the constitution of the SPV.

4.3. A previous project, CAM EAST, was given as an example of a partnership-style scheme between authorities where governance and control was not felt to have worked well.

5. There was further discussion about the precise status of the SPV. The company limited by guarantee ("CLG") was discussed, and it was noted that the guarantee made by local authorities as members of a CLG would be a nominal amount (e.g. £10).

5.1. The Community Interest Company ("CIC") was also discussed. There were few benefits of using a CIC as opposed to a CLG (aside from the CIC "brand"), and the former entailed a greater degree of regulation under the jurisdiction of the CIC Regulator.

## 6. Governance

6.1. There was a discussion about whether the County Council, which would not be a "collecting" authority, should be a full member of the SPV. There was agreement among the participants that the County Council would need to be a participant in view of its regional importance.

6.2. For obvious reasons, participants were reluctant to express a view on governance aspects generally, and particularly on the question of whether the board of directors of the CLG should be comprised of members or officers (or a mixture of both). This was felt to be something that should be decided by members of the authorities involved.

6.3. There was general agreement that the involvement of non-member bodies would be needed and a feeling that the identity of such bodies should not be "prescribed". This might involve public sector bodies (e.g. the LEP) as well as private sector bodies (e.g. utility companies).

## 7. Other issues

7.1. Any proposals for implementing the CEF project would need to be approved by the full Council in the local authorities concerned. Scrutiny committees would also need to be involved.

7.2. The procurement and state aid implications of the proposals would need to be considered in due course.

**Element Energy Limited**

**Manches LLP**

**Annex 1: attendees**

| Name | Company & Position | Contact Number | Email |
|---|---|---|---|
| Quentin Baker | Director, Legal Services Cambridgeshire County Council | 01223 727961 | quentin.baker@cambridgeshire.gov.uk |
| Gary Duthie | Senior Lawyer South Cambridgeshire District Council | 01954 713022 | gary.duthie@scambs.gov.uk |
| Jeanette Thompson | Head of Legal & Democratic East Cambridgeshire District Council | 01353 616372 | jeanette.thompson@eastcambs.gov.uk |
| Ian Hunt | Chief Solicitor Fenland District Council | 01354 622214 | ihunt@fenland.gov.uk |
| Isabel Edgington | Environmental Projects Officer Fenland District Council | 01354 602167 | iedgington@fenland.gov.uk |
| Emma Davies | Senior Sustainability Officer (Design & Construction) | 01223 457170 | emma.davies@cambridge.gov.uk |
| Penny Jewkes | Planning Lawyer/ Environmental Lawyer | | penny.jewkes@cambridge.gov.uk |
| Ian Walker | Director, Element Energy | 0330 119 0981 | ian.walker@element-energy.co.uk |
| Richard Stevens | Solicitor, Manches LLP | 01865 813 707 | richard.stevens@manches.com |

**Notes of meeting held with legal representatives of local authorities Cambridgeshire Horizons, 15 August 2011**

**Annex 2: agenda**

Element Energy, Twenty, Station Road, Cambridge, CB1 2JD tel 01223 852 499 fax 01223 353 475

# MEETING AGENDA

| | |
|---|---|
| **Project** | Cambridgeshire Community Energy Fund |
| **Purpose of meeting** | Local Authority legal consultation meeting |
| **Date** | 15/8/11 10.00 am – 13.00 pm |
| **Venue** | Cambridgeshire Horizons offices, Endurance House, Vision Park, Histon Cambridge, CB24 9ZR |
| **Participants** | Emma Davies (City), Penny Jewkes (City)<br>Gary Duthie (S Cambs)<br>Quentin Baker (County), Graham Hughes (County)<br>Ian Hunt (Fenland), Isabel Edgington (Fenland)<br>Jeannette Thompson (East Cambs)<br>Ian Walker (EE)<br>Richard Stevens (Manches) |

| **Note** | |
|---|---|
| | |
| **1. Introductions**<br><br>**2. Overview of Community Energy Fund concept – national policy background and local objectives**<br><br>**3. Discussion of key legal issues:**<br><br>***Legal/vires issues***:<br><br>• Becoming a member of the legal entity holding the CEF<br>• Paying funds collected through the collection mechanism to the legal entity<br><br>***Political and governance issues***:<br><br>• Membership of the legal entity: only the six local authorities?<br>• Arrangements for involving other stakeholders e.g. LEP<br>• Constitution of the board of directors of the legal entity (Members, officers, "non-execs")<br>• How will the Board operate (e.g. quorum) | |

| | |
|---|---|
| • Decision making thresholds: should certain investments require the consent of the local authority company members rather than simply the directors?<br>• Fund management<br><br>***Procedural issues***:<br><br>• Appropriate level of decision-making in each local authority: e.g. full Council, Cabinet, delegated member decisions<br>• Procedural requirements relevant to decision making process e.g. involvement of scrutiny committees<br><br>**4. Local authority questions and concerns**<br><br>**5. Next steps**<br><br>**6. Close** | |

**Annex 3: introductory briefing note**

# Cambridgeshire Community Energy Fund – Introductory briefing note

## Introduction

Cambridgeshire Horizons has recently appointed a team of consultants to develop proposals for a Cambridgeshire Community Energy Fund (CEF). This fund will provide a means of financing low carbon infrastructure projects in Cambridgeshire and form an integral part of the zero carbon policy for new developments. In developing these proposals, the team is keen to involve Cambridgeshire's local authorities at an early stage and to consult them on key issues, including fund governance and operation. In particular, the local authority legal, planning and sustainability teams will be key consultees. The consultant team undertaking this study includes low carbon energy consultants Element Energy, legal advisers Manches LLP, planning experts The Landscape Partnership and financial advisors in the low carbon sector Kinetix Corporate Finance.

The CEF concept is an evolving one, and advancing proposals for a CEF in the county would allow Cambridgeshire's local authorities to demonstrate thought leadership in this area and provide an opportunity to influence central government thinking.

This document provides an initial introduction to the Community Energy Fund concept and the aims of the current study for local authority officers. It is a precursor to a more formal stage of consultation ahead of the team preparing a final report for Cambridgeshire Horizons, due in September 2011.

## What is a Community Energy Fund (CEF)?

The Community Energy Fund (CEF) is a mechanism to channel funds from development projects into low carbon infrastructure and carbon emissions reduction projects. Under zero carbon policy, developers will be required to take measures, through energy efficient design and the installation of on-site low carbon energy, to ensure that the carbon dioxide emitted by their developments is within certain limits. If 'zero carbon' is not achieved by these measures, they will then be required to either invest directly in further measures to mitigate the remaining emissions or to make a payment into a CEF. Cambridgeshire's CEF would pool payments from developers in the area and invest it in selected, high priority carbon reduction projects. The amount that a developer pays into the fund for a particular development will depend on the amount of outstanding carbon emissions (once on-site carbon reduction measures have been undertaken) that will be emitted by the development when fully occupied, with a standard tariff per tonne of remaining $CO_2$ being applied.

## Role of the Community Energy Fund within zero carbon policy

Zero carbon policy is expected to be introduced for new homes in 2016 and for non-domestic buildings in 2019 (although certain public sector buildings will be required to be zero carbon from 2016). The definition of zero carbon will differ between different types of building, but in all cases it is expected to be made up of three parts, as follows:

1. **Fabric energy efficiency standard (FEES)** – Developers will be required to limit the energy demand in new buildings by constructing to a high standard of fabric efficiency. The Fabric Energy Efficiency Standard (FEES) will set a maximum limit on the permissible energy demand for space heating and space cooling (i.e. those elements of energy demand that are most strongly linked to fabric performance), measured in units of kWh/$m^2$/yr. FEES have been proposed for domestic buildings, varying by building type (e.g. detached, mid- or end-terrace, low- or high-rise apartments), but are yet to be determined for non-domestic buildings.

2. **Carbon Compliance** – The Carbon Compliance level is the limit on the amount of $CO_2$ emissions that a building is permitted to emit when in use (assuming that the FEES has been met). This will be measured in terms of kg$CO_2$/$m^2$/yr. Again, a set of Carbon Compliance levels have been proposed for various types of domestic buildings, but work is ongoing to define Carbon Compliance levels for non-domestic buildings.

3. **Allowable Solutions** – The final part of the zero carbon hierarchy are the "Allowable Solutions". These are measures that developers can take to mitigate a proportion of the residual carbon emissions (i.e. those that remain after the Carbon Compliance level has been met or exceeded). It is the requirement on developers to invest in Allowable Solutions to mitigate part of the residual $CO_2$ emissions that creates the opportunity for the CEF. While it is currently uncertain what will constitute an Allowable Solution, (i.e. what kind of investments by developers will be eligible under the zero carbon policy), one proposal that has gathered support within government is the Community Energy Fund concept.

**It is important to emphasise here that the Community Energy Fund is not an additional cost on developers over the cost of zero carbon policy. If developers do not make a payment into the CEF, they will be required to make investments in other eligible measures that deliver the same carbon reduction**. While zero carbon policy is likely to increase the cost of development, the CEF has the benefit to developers that it provides certainty in what the cost of Allowable Solutions will be.

### Community Energy Fund Options

The government has tasked the Zero Carbon Hub with defining the role of Allowable Solutions in zero carbon policy. Their initial report will be published shortly and it is widely expected that the Community Energy Fund concept will be among the potential types of Allowable Solutions put forward. However, there is uncertainty over what form the proposals will take regarding how a CEF would collect, administer and invest funds, and to what extent the CEFs would be locally controlled. Broadly, the potential options are a national fund that collects contributions from developers across the country and, alternatively, local funds which would collect contributions from development in a certain geographic area (defined by the membership of the fund). In the case of the national fund, the investment decisions could be taken centrally or funds could be redistributed to local agencies to invest. In the case of the local fund, investment decisions would be

taken at the local level, which it could be argued would accord more clearly with the Government's localism agenda.

### A Community Energy Fund in Cambridgeshire

Cambridgeshire Horizons has been developing proposals for a locally operated Community Energy Fund. The local area would include the five district authorities in the county together with Cambridgeshire County Council. Horizons is also considering the benefits of an extended geographic scale that might for example include Peterborough, which would correspond with the scope of the Cambridgeshire & Peterborough Structure Plan and the new Cambridgeshire & Peterborough Local Economic Partnership (LEP).

An initial report into the possible design of a CEF for Cambridgeshire was completed in 2010, predicated on a locally operated, rather than a nationally administered fund. This study made an initial assessment of how such a fund might be structured, the options for collecting developer contributions using existing planning mechanisms, the likely monetary size of the fund and the options for providing investment into carbon reduction projects. The study recommended that a special purpose vehicle is developed as the fund-holding body and that a company limited by guarantee, which would have as its members the six local authorities, is likely to be the most appropriate corporate structure. The study also found that, in the longer term, the Community Infrastructure Levy could be the most appropriate amongst existing mechanisms to collect payments from developers.

A further piece of work is now underway to build on the initial study and provide a detailed proposal for the structure and operation of a Cambridgeshire Community Energy Fund. The key outputs of the current work will be:

- A detailed **structure for governance of the fund-holding body**, including its membership, makeup up of the board of directors and voting arrangements. The work will also define the fund management role and how decision-making authority would be delegated from the board to the fund manager.
- A recommended **approach to collecting developer contributions.** Informed by the most recent government thinking on the collection of Allowable Solutions and the impact of the Localism Bill on planning policy, the study will assess whether CIL remains the most suitable mechanism or whether a preferable alternative can be identified.
- A detailed **guide to the fund's investment strategy**, to maximise impact of the fund's investments through attracting additional investment (for example, by engaging with joint venture partners) and through releasing capital from mature projects to reinvest in the establishment phase of new ones. The work will also assess the relevant constraints on how funds can be invested.
- An **approach to measuring and verifying the impact of the fund's investments**, in terms of measuring the carbon reduction delivered.

The outcomes of the work will be used to influence the direction of national policy development for Community Energy Funds as an allowable solution and the role that local authorities could play in operating these funds. It will also enable Cambridgeshire's local authorities to take a decision on how to proceed with the development of a local fund.

### Consultation with the local authorities

In order to develop these proposals the consultant team wishes to consult with the local authorities on the key issues of governance and the operation of the fund. The kinds of issues that the consultants would like to discuss through this consultation include:

### Legal and governance issues:

- Appropriate level of decision making in each local authority: e.g. full Council, Cabinet, delegated member decisions
- Procedural requirements for decision making process e.g. involvement of scrutiny committees
- Who will be members of the legal entity: only the six local authorities?
- What arrangements will be put in place to involve key local bodies (e.g. LEP?) bearing in mind the "duty to cooperate" now proposed in the Localism Bill
- How should the Board of the legal entity be constituted? Members, officers, both? "Non-execs"?
- How will the Board operate – e.g. quorum
- Decision making thresholds: should certain investments require the consent of the local authority members rather than simply the Directors of the fund holding body?
- How will the entity engage a fund manager, and what relationship will they have to the Board?

### Planning:

- How far has each Local Authority progressed in adopting CIL and do they think it could be adapted to operate the CEF?
- Will Local Plans now include specific policies to incorporate CIL, to address climate change and carbon emissions reduction and to accommodate a CEF?
- Are Local Authorities confident that CIL could be used effectively to collect CEF contributions and, if not, what alternative mechanisms would they suggest?

- What timetables are Local Authorities now following to introduce CIL, to adopt or develop Local Development Frameworks and to incorporate renewable energy and carbon emissions policies?