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Scoping Report:
Feasibility of a
Carbon Offset
Mechanism for
Cambridgeshire

for

Cambridgeshire
Horizons

Final Report
(Technical Report)
September 2010

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Glossary

| | |
|-------|---|
| AAP | Area Action Plan |
| AMR | Annual Monitoring Report |
| CERT | Carbon Emission Reduction Target |
| CHP | Combined heat and power |
| CIL | Community Infrastructure Levy |
| COF | Carbon offset fund |
| CRC | Carbon Reduction Commitment |
| CSH | Code for Sustainable Homes |
| | |
| DCLG | Department for Communities and Local Government |
| DCLRE | Decentralised low carbon and renewable energy |
| DECC | Department for Energy and Climate Change |
| FIT | Feed-in tariff |
| LDF | Local Development Framework |
| PPS | Planning Policy Statement |
| RES | Renewable Energy Strategy |
| RHI | Renewable heat incentive |
| ROC | Renewables Obligation Certificate |
| SPD | Supplementary Planning Document |

Contents

1 Executive Summary 1

1.1 Interaction with national policy2

1.2 Planning mechanisms for collection of funds.....3

1.3 Structure of the Fund5

1.4 Scale and impact of the fund5

1.4.1 District heating5

1.4.2 Energy efficiency6

1.5 Implementation Plan7

2 Introduction.....8

3 The Carbon Offset Fund: Overview..... 10

3.1 Benefits for Cambridgeshire 11

4 Policy background 13

4.1 National and international policy obligations..... 13

4.1.1 Renewable Energy Directive 13

4.1.2 UK Low Carbon Transition Plan 2008 13

4.1.3 Climate Change Act 2008..... 13

4.1.4 UK Renewable Energy Strategy 2009..... 14

4.2 Building related energy / CO₂ policy 14

4.2.1 Building Regulations: Part L 14

4.3 Local planning policy.....20

4.4 Other relevant policy initiatives23

4.4.1 Renewables Obligation and the Clean Energy Cashback Scheme (Feed-in tariff) 23

4.4.2 Renewable heat incentive23

4.4.3 CRC Energy Efficiency Scheme.....24

4.4.4 Carbon Emissions Reduction Target.....24

5 Scale of the opportunity for an Offset Fund27

5.1 Development in Cambridgeshire.....27

5.2 CO₂ emission impact of new development28

| | | |
|-------|--|----|
| 5.3 | Tariff levels..... | 29 |
| 5.3.1 | The cost of carbon reduction measures | 29 |
| 5.3.2 | Impact on cost of development..... | 32 |
| 5.4 | Estimated size of the Fund | 36 |
| 5.4.1 | Upper estimate of Fund size post-2016..... | 36 |
| 5.4.2 | Upper estimate of Fund size under alternative policy assumptions | 37 |
| 5.4.3 | Comparison with other Local Authority Schemes..... | 38 |
| 5.4.4 | Benefits of a County-wide scheme | 39 |
| 5.5 | Risks to fund income..... | 39 |
| 5.5.1 | Loss of public sector investment | 39 |
| 5.5.2 | Other investment into the COF | 40 |
| 6 | Collection of financial contributions into the Fund..... | 42 |
| 6.1 | Planning mechanisms for collecting financial contributions..... | 42 |
| 6.1.1 | Introduction | 42 |
| 6.1.2 | Section 106 agreements..... | 42 |
| 6.1.3 | The Community Infrastructure Levy | 47 |
| 6.1.4 | Summary of planning mechanisms to collect funds | 49 |
| 6.2 | Development of appropriate local policy..... | 51 |
| 6.2.1 | Recommended policy documents | 51 |
| 6.2.2 | Other considerations..... | 52 |
| 6.2.3 | The role of SPDs | 52 |
| 6.2.4 | Planning policy documents and the Community Infrastructure Levy | 53 |
| 6.2.5 | LDF progression | 54 |
| 6.2.6 | Local Investment Frameworks..... | 55 |
| 6.2.7 | Development Management | 55 |
| 6.3 | Implications of the change of Government | 57 |
| 6.3.1 | Potential planning policy..... | 57 |
| 6.3.2 | Potential low carbon and renewable energy policy | 58 |

| | | |
|--------|--|----|
| 6.3.3 | Implications of the new Government: conclusions | 59 |
| 7 | Structure of the Fund..... | 60 |
| 7.1 | The Fund-holding body | 60 |
| 7.1.1 | Contractual/partnership structures | 60 |
| 7.1.2 | SPVs..... | 61 |
| 7.1.3 | Other structures | 63 |
| 7.1.4 | Company Limited by Guarantee – rationale for preference | 63 |
| 7.1.5 | Governance and control | 64 |
| 7.1.6 | Constitutional and statutory constraints: summary of potential issues..... | 65 |
| 8 | Project investment methods | 66 |
| 8.1.1 | Ability to participate in joint ventures | 67 |
| 8.1.2 | The Low Carbon Development Initiative | 68 |
| 8.2 | Constraints on investment of funds..... | 69 |
| 8.2.1 | State-aid | 69 |
| 8.2.2 | Project risk | 71 |
| 8.2.3 | Sub-division of the Fund..... | 71 |
| 8.2.4 | Geographic Constraints..... | 71 |
| 9 | Management and accountability..... | 73 |
| 9.1 | Performance metrics..... | 73 |
| 9.1.1 | Equalisation | 74 |
| 9.2 | Carbon accounting..... | 75 |
| 10 | Activities of the fund | 77 |
| 10.1 | District heating | 77 |
| 10.1.1 | Case study: Opportunity at Northstowe | 79 |
| 10.1.2 | Case Study: An opportunity at St Neots..... | 81 |
| 10.2 | Energy efficiency improvements in the existing stock | 82 |
| 10.2.1 | House type and improvement measures: definition | 83 |
| 10.2.2 | Cost and performance of fabric improvement measures | 83 |
| 10.2.3 | Scale of the opportunity: Cambridge City Council | 85 |

| | | |
|--------|--|-----|
| 10.3 | Investment in renewable energy projects | 86 |
| 10.3.1 | Wind farms | 86 |
| 10.3.2 | Solar PV | 87 |
| 10.4 | Further opportunities..... | 88 |
| 11 | Delivery Plan | 89 |
| 11.1 | Key decision on timescales..... | 89 |
| 11.2 | Fund implementation – next steps..... | 91 |
| 11.3 | Key planning actions..... | 93 |
| 11.3.1 | Actions required to support the use of CIL..... | 94 |
| 11.3.2 | Other planning actions | 94 |
| 11.4 | Alternative approach | 95 |
| 12 | Appendix 1: Examples of existing Carbon Offset Funds..... | 98 |
| 12.1 | Milton Keynes..... | 98 |
| 12.2 | Ashford..... | 101 |
| 12.3 | Aberdeen City Council | 105 |
| 12.4 | Reigate and Banstead | 106 |
| 12.5 | Uttlesford..... | 108 |
| 12.6 | Examples of Carbon Offset Funds: conclusions..... | 108 |
| 13 | Appendix 2: Definition of zero carbon homes and non-domestic buildings consultation, 2008..... | 111 |
| 13.1 | Overview | 111 |
| 13.2 | CIL as an allowable solution | 111 |
| 13.3 | Consultation responses on Section 106 | 112 |
| 13.4 | Consultation responses on CIL..... | 112 |
| 13.5 | Consultation responses on geographical scope of Allowable Solutions spending..... | 113 |
| 14 | Appendix 3: Local Development Framework Programmes..... | 116 |
| 15 | Appendix 4: Fund size estimation – key assumptions | 119 |
| 15.1 | Build projections – data sources..... | 119 |
| 15.2 | CO ₂ emission data | 120 |

Please note that legal advice and opinion given in this report is of a generic nature only. Further consideration will need to be given to the detail of proposed projects in the context of the powers of individual councils before formulating a view as to the legality of undertaking such projects.

1 Executive Summary

This study explores the role that a Carbon Offset Fund (COF) could play in delivering low carbon growth within Cambridgeshire.

Delivering high levels of carbon reduction in certain types of site can be technically very challenging and expensive. Where high levels of carbon reduction are difficult and expensive to achieve, a cost-effective alternative would be to allow developers of those sites to pay into a fund, effectively to purchase offset credits, rather than meet their whole carbon reduction obligations through on-site measures. This “Carbon Offset Fund” would then be able to pool these payments and invest the funds that accrue into priority carbon reduction projects in the region. The operation of a Carbon Offset Fund would also deliver higher levels of carbon reduction than would be achieved by the use of on-site measures alone.

Cambridgeshire is expected to experience significant growth in the coming decades. This growth will be split between a limited number of large developments and a dispersion of many small sites. The large developments provide opportunities for large-scale low carbon energy infrastructures that can deliver high levels of CO₂ emissions reduction in a relatively cost-effective manner. However, the high capital outlay and risks associated with these energy projects deter investment and may lead to less optimised solutions being delivered. The Carbon Offset Fund could provide crucial seed-finance to de-risk these large-scale projects for private sector investment, using funds collected from the multiplicity of smaller sites, where high levels of CO₂ reduction are not cost-effective. In so doing, the Carbon Offset Fund would limit the exposure of developers of small sites to the costs associated with meeting carbon reduction obligations, which will be imposed by national and, potentially, local policy.

The activities of the Carbon Offset Fund may not be limited to investment in energy projects in new developments. There are a wide-range of potential CO₂ reduction initiatives that the Carbon Offset Fund could invest in. These are explored in this report.

It is anticipated that the Carbon Offset Fund would encourage private sector investment into low carbon projects for the region. The involvement of private sector partners in joint ventures would significantly increase the ambition of the Fund in terms of the scale of projects it invests in. The prospects for the Carbon Offset Fund to attract private sector investment are also considered in this report.

The key benefits that Cambridgeshire stands to gain from establishing a Carbon Offset Fund are as follows:

- The fund provides a mechanism to direct investment into the most cost-effective CO₂ reduction opportunities in the region.
- It enables high potential projects, in terms of CO₂ reduction, to be taken forward, that would not have been delivered by the private market (due to high risk, large up-front cost or insufficient returns).

- It leverages private sector investment into low carbon infrastructure projects in Cambridgeshire.
- It strengthens the partnership working between public sector partners in Cambridgeshire, facilitating a coordinated approach to prioritization and deployment of low carbon infrastructure projects.
- Successful demonstration of the Carbon Offset Fund provides an opportunity to demonstrate national leadership and influence the direction of policy. This will be necessary for the Carbon Offset Fund to secure significant income from development.
- The Carbon Offset Fund's investments will stimulate local supply chain and generate 'green jobs'.

1.1 Interaction with national policy

A carbon reduction obligation on developers is required to create an opportunity for a Carbon Offset Fund. The policy that imposes this obligation must include flexibility on how the obligation is met, in terms of whether it is through on-site carbon reduction measures or through a commuted payment into a fund.

Carbon reduction obligations on new developments can be set by both national regulations, i.e. the Building Regulations, or local planning policy. The Building Regulations set a minimum requirement for the level of carbon reduction that must be achieved, without flexibility for this requirement to be offset by a payment. Local planning authorities, however, have a remit to set targets for sites in their areas in terms of carbon reduction or renewable energy generation, provided these targets are justified by a sound evidence base. The local policy could provide for a payment into an offset fund, rather than meeting the target on-site, if the developer can demonstrate that achieving the target on-site is not technically feasible or jeopardises the commercial viability of the site.

Government is committed to the introduction of zero carbon policy for homes and non-domestic buildings. The zero carbon policy will require that all emissions from a development are eliminated, by reducing energy demand or providing a low carbon supply, or mitigated by other means. The measures that developers can adopt to mitigate the remaining emissions, once energy efficiency and low carbon generation have been accounted for, are collectively described as 'Allowable Solutions'.

The range of measures that will be included as Allowable Solutions is currently being considered by government. In order for the Carbon Offset Fund to have an opportunity to collect investment from developers post the introduction of zero carbon policy – 2016 for domestic buildings and 2019 for non-domestic buildings – it is key that payment into the fund is included as an Allowable Solution.

The previous government consulted on the definition of zero carbon domestic and non-domestic buildings, including what measures should be included as Allowable Solutions. This consultation sought views on whether S106 obligations or Community Infrastructure Levy (CIL) contributions, which could act as mechanisms to collect funds into the Carbon Offset Fund, are appropriate as Allowable Solutions. The consultation responses provided only limited support for the use of planning obligations or CIL as Allowable Solutions and these

mechanisms were not identified in the government’s response to the consultation as measures that had received broad support. Since the change in government, further work has been initiated on the definition of zero carbon (in both domestic and non-domestic sector), including the role and form of Allowable Solutions. Recent government statements have suggested that the concept of local offset funds as an Allowable Solution is being viewed favourably, although no further formal announcements on government policy have been made.

To enable the Carbon Offset Fund to play a significant, ongoing role in carbon reduction in the region, we recommend that Cambridgeshire Horizons and appropriate local stakeholders, lobby government for a broad definition of Allowable Solutions. This should include financial contributions into a locally administered offset fund.

Until the advent of Allowable Solutions and zero carbon policy in 2016, the mechanisms available to enable the payment by developers into a Carbon Offset Fund are limited to those provided under existing Planning law.

- The key role for the offset fund in the longer term will be as an Allowable Solution within the definition of zero carbon homes and non-domestic buildings.
- Once zero carbon policy is in force, developers will be obliged to invest in Allowable Solutions to deal with any residual emissions from their development (i.e. those not avoided through onsite measures). Contributing into the Carbon Offset Fund will not therefore constitute an additional cost on developers, it will simply be a type of Allowable Solution.
- In order to implement a Carbon Offset Fund prior to introduction of zero carbon policy (i.e. before 2016), local planning policy will be needed to create a role for the Fund. This will involve a target on new development to achieve a CO₂ reduction standard that is more onerous than the Building Regulations in force at the time. The policy will allow for a commuted payment into the offset fund in cases that the developer cannot achieve the target onsite.
- Note that in the case of implementation of the Carbon Offset Fund prior to zero carbon policy, it does represent an extra cost on developers as the local planning policy requires a standard that is more advanced than they are required to achieve by regulation.

1.2 Planning mechanisms for collection of funds

Following a review of the existing and emerging legislation related to the use of S106 obligations and CIL, the report concludes that either mechanism could be used to collect funds for a Carbon Offset Fund.

CIL is intended to enable the pooling of contributions to provide funding for infrastructure to support the development of an area. The charging schedule that forms the basis of requests for funds from developers must be supported by an evidence base that provides details of specific projects or purposes for which funds are being sought. They should be identified in the integrated development plan and local infrastructure framework. The integrated development plan for Cambridgeshire has been adopted, and currently includes a chapter

related to low carbon development, as well as a clear understanding of the challenges of climate change adaptation and mitigation.

CIL regulations more narrowly define how Section 106 can be used such that contributions sought through this mechanism are generally related to development specific impacts. It is intended that after 2014 or following adoption of CIL by a local planning authority, Section 106 will no longer be able to be used for the pooling of five or more contributions towards a project or type of infrastructure. Given the nature of development in Cambridgeshire, it is considered more likely that S106 will be used to collect funds into the Carbon Offset Fund, where it is not intended to pool such contributions towards specific projects or types of infrastructure. After 2014, however, it will be necessary for each of the local authorities to implement CIL if they are to progress strategic infrastructure projects that contribute towards carbon emissions reductions or wish to pool contributions from a larger number of developments.

The concerns regarding the use of S106 mainly relate to the limitation of the use of obligations following the introduction of CIL. One of the concerns relating to the use of S106 as a mechanism to collect funds is the requirement that planning obligations should be directly related to the development, including a 'geographical or functional link' between the development and the item being provided. Although a functional link between the effect of the development, in CO₂ terms, and the purpose of the fund to reduce CO₂ emissions can be demonstrated, it would need to be argued that geographical proximity is not critical to achieving the aim of the obligation, which is delivering CO₂ emissions.

In order to create the opportunity for the Carbon Offset Fund to generate funds, an appropriate local policy framework must be put in place. This policy framework must not only seek to reduce carbon emissions, but also provide scope for developers to deliver carbon reduction by payment into an offset fund, where appropriate.

All local authority planning teams in Cambridgeshire must be made aware of the potential for a Carbon Offset Fund to be developed in the County, so that this can be taken into account when formulating policy.

Where Local Development Documents (LDDs) are already adopted these should be reviewed and updated at the earliest opportunity, to enable updated policies to be put in place that will enable the collection of funds.

If supported by appropriate policies in the LDF, Supplementary Planning Documents (SPDs) could be used to provide details of a local authorities requirement to contribute to a Carbon Offset Fund.

- We consider that either S106 or CIL could be used to collect contributions into the fund. There are existing precedents for use of S106 to collect contributions into a fund.
- However, the introduction of CIL has narrowed the scope of S106 and this may limit the use of S106 over time. In particular we recommend Counsel opinion is sought as to how the requirement for planning obligations to demonstrate a 'geographic or functional link' between the development and the item being provided should be interpreted with respect to a Carbon Offset Fund.

1.3 Structure of the Fund

The vehicle for collecting monies into the Carbon Offset Fund will be the same whether or not the funds are collected by virtue of Allowable Solutions or Planning law.

A variety of potential vehicles for the fund-holding body have been assessed, including the contractual or partnership approach and the special purpose vehicle or SPV approach. The principal advantage of the SPV approach is that the legal entity is separate from its members and can contract in its own name.

The report concludes that the most appropriate vehicle for the Carbon Offset Fund appears to be the company limited by guarantee (CLG). These vehicles are commonly incorporated for non-profit making functions, with no share capital and members rather than shareholders. The CLG offers the advantages of limited liability status, a flexible membership structure and constitutional flexibility, required by the fund vehicle.

- The Company Limited by Guarantee seems to be the most appropriate structure for the fund-holding company.

1.4 Scale and impact of the fund

An analysis of potential tariff levels – purchase price of CO₂ offsets (£/tCO₂) – has indicated that a tariff level of 100 £/tCO₂ provides an appropriate mix of limiting the costs incurred in meeting carbon reduction obligations, while providing an incentive for developers to exploit cost-effective onsite CO₂ reduction opportunities (this assumes that the tariff is paid for 30 years of emissions from the property). This is in the mid-range of capped cost for Allowable Solutions being considered by government.

The greatest opportunity for the fund to generate income will be once zero carbon policy is in effect, assuming that payment into the fund is considered an Allowable Solution. Payments into the Carbon Offset Fund prior to the operation of Allowable Solutions will be generated only where developers contribute to the Carbon Offset Fund rather than achieving a level of onsite CO₂ reduction that must be set within the local authority planning policy framework.

Based on the forecast levels of development and assuming a tariff of 100 £/tCO₂, the fund is estimated to generate an annual income of £15m to £23m per year over the period from 2017/18 to 2021 (beyond this point the fund income is forecast to drop, but data on the quantity of new completions is expected to be less reliable, i.e. sites that are not currently envisaged in the annual monitoring reports (AMRs) will be brought forward).

The impact of potential fund investments have been assessed, in particular the use of fund investments to improve the investment proposition of district heating systems and the opportunities for energy efficiency improvements.

1.4.1 District heating

The specific opportunity for installation of a biomass fuelled CHP system and a site-wide district heating system at Northstowe, sized to provide net zero CO₂ emissions on site, has been assessed. Prior financial modelling has shown that in order for investment in the district

heating system at Northstowe to make a reasonable financial return (IRR of 7.5%), a connection cost of £14.2k per dwelling is required. An analysis of the cost of compliance with zero carbon policy, in the absence of a district heating network, showed that providing 100% of the town's heat and power on site would be only marginally more costly than providing the 70% necessary to comply with policy. However, the risks associated with investment in DH infrastructure and very modest financial return may deter investment.

The Carbon Offset Fund could provide initial finance to the project, helping to attract further investors and potentially to reduce connection costs. The Carbon Offset Fund could provide finance in terms of a grant, low cost debt or an equity stake.

The onsite carbon reduction delivered by a biomass CHP/DH system at Northstowe providing 100% of the town's heat and power has been estimated at an additional 25,000 tCO₂/yr. [This would represent a highly cost-effective CO₂ saving for the Carbon Offset Fund, particularly in the case of the low cost loan, as a relatively small overall cost to the Carbon Offset Fund is expected to leverage substantial further investment]. A similar investment model could be used at Cambridgeshire's other large sites, e.g. the urban extensions around Cambridge, where there are opportunities for high levels of CO₂ reduction to be delivered on-site at marginal additional costs. In total, around 25,000 homes are expected to be delivered in these sites, together with substantial supporting uses, so the opportunity for additional CO₂ reduction (beyond meeting policy), is very large.

1.4.2 Energy efficiency

The role of the Carbon Offset Fund in delivering energy efficiency improvements has provoked debate among the local authority partners. In its favour, energy efficiency improvement does provide a highly cost-effective means of CO₂ reduction. On the other hand, there is a view that other support programmes adequately incentivise energy efficiency improvement (particularly the Supplier Obligation). There are also some concerns regarding the use of either S106 or CIL as a mechanism to collect funds for energy efficiency improvement. A decision on this can be deferred until later, when an investment strategy for the Carbon Offset Fund is developed. For the purpose of this study, energy efficiency improvements have been considered as a potential investment opportunity for the Carbon Offset Fund.

The Cambridgeshire local authorities have identified approximately £255 million of potential energy efficiency improvements across their existing stock. Taking the cost of CO₂ saving in Cambridge City Council¹ as a proxy for the cost of CO₂ saving through energy efficiency across the County, this implies the potential of 1.4MtCO₂ saving over the lifetime of measures applied.

The level of grant required from the Carbon Offset Fund to capture these CO₂ savings would not be required to fully fund the measures (i.e. the full £255m). Based on the experience of the Supplier Obligation and CERT, grant levels in the range of 50% to 75% of the capital cost are highly effective at stimulating uptake of simple energy efficiency measures (higher levels of grant are required for 'priority group' households, e.g. those receiving income support).

¹ Estimated at £185/tCO₂, based on data included in the Cambridge Housing Condition Survey

Assuming the full income into the Fund, around £20m/yr, were invested in energy efficiency improvements, an estimated 165,000 tCO₂ (over the lifetime of the measures) would be delivered by the measures applied each year. The opportunity for carbon saving through energy efficiency would reduce over time due to the action of the fund and the cost of remaining CO₂ saving measures would be likely to increase (as low cost measures, such as cavity wall insulation, become saturated).

The opportunity for investment in energy efficiency improvements to be leveraged by, for example, combining with CERT grants should be investigated.

In relation to energy efficiency projects, the Carbon Offset Fund may be constrained by the mechanism used to enable payment by Developers. Energy efficiency projects will not amount to “infrastructure” under CIL and may not be sufficiently directly linked to the relevant development to enable use of s.106. This report recommends that Counsel’s opinion is sought on the scope of use of s.106 in this context (and for other projects proposed by the Carbon Offset Fund).

1.5 Implementation Plan

The major next steps required to progress the Carbon Offset Fund have been set out in an indicative programme. The programme will clearly be highly dependent on the decision regarding whether to implement the offset fund prior to zero carbon policy (i.e. prior to 2016) or to wait until zero carbon is in force. This decision will need to be informed by knowledge of local authority growth plans (i.e. how much development will proceed prior to 2016) and a realistic view of the timescales for implementing the required local policy. Ideally, this decision would also be informed by greater clarity from government on the role of Allowable Solutions, although the timescale for this is uncertain.

The critical path in terms of establishing a Carbon Offset Fund is mainly determined by the timescales for developing appropriate local policy (particularly in the case of early introduction of the Fund). However there is significant additional work to be done in developing the detailed design of the fund’s structure, identifying projects and developing an investment plan. These key tasks are identified in the Implementation Plan.

2 Introduction

The Carbon Appraisal of the Long Term Delivery Plan for the Cambridge sub-region, which sets out the long-term growth plans for the county in accordance with the East of England Plan², identifies that the sub-region is not currently on track to meet its targets to reduce carbon emissions. To ensure that the Cambridge sub-region meets its targets for 2031 and 2050 the report identifies a range of measures that should be considered:

- Establishment of a ring fenced carbon investment fund to provide upfront investment in low carbon infrastructure (initially financed by the public sector, but reimbursed through payments from private sector developers) and additional measures to mitigate early stage infrastructure development risk such as those being proposed for Northstowe.
- Increased support for renewable energy development in the sub-region with mechanisms to link offsite renewable energy infrastructure to new developments (contractually and physically).
- Further support for low carbon infrastructure, such as CHP systems and district heating networks, including planning policies that require district heating and CHP within large mixed use developments.
- Develop further planning guidance, policies and wider support package to deliver zero carbon growth.

Alongside this there has been a range of recent planning and climate change related legislation and policy statements that have strengthened the role that planning is expected to play in managing climate change. The 'Zero Carbon for Non-Domestic Buildings' consultation recognises that even with rapid decarbonising of the grid and accelerating reduction of emissions from existing buildings, new non-domestic buildings need to be designed to contribute to carbon reductions, given that almost half of the UK's carbon emissions come from the use of buildings. Whilst in Cambridgeshire there is expected to be significant growth in terms of housing and employment, much of this will be small-scale and would make little contribution to reducing carbon emissions under the current planning policy framework in Cambridgeshire.

This report examines existing and future planning and other relevant legislation and comments on changes that are considered necessary within Cambridgeshire in order to develop a Carbon Offset Fund.

The level of collection of funds from development within the County is dependent on the level and scale of development that takes place. Accordingly a brief examination of development envisaged in the county is included. This arises from the requirements set out in the East of England Plan which are translated at the local level into current and emerging local development frameworks (LDFs). The report goes on to identify the policies required to be in place at the regional level and in each of the local authorities in the county in order to facilitate the taking of funds from developers to be placed in a Carbon Offset Fund.

² Note that the East of England Plan is no longer current

The planning mechanisms by which funds could be collected from development in the County are examined. This includes an assessment of the potential relationship between a Carbon Offset Fund and current proposals under development by Cambridgeshire Horizons and its Local Authority partners to take forward proposals for a Variable Rate Tariff through the Community Infrastructure Levy, as well as existing Section 106 legal agreement arrangements.

The report also examines examples of existing carbon offset mechanisms that are in place, setting out how they work in planning terms. It goes on to examine the possible changes to the planning system following the general election in May 2010 and formation of the Coalition Government, scoping the implications for the establishment of a Carbon Offset Fund.

Finally, the report provides some conclusions on the way forward.

3 The Carbon Offset Fund: Overview

A Carbon Offset Fund would provide a mechanism for reducing the net CO₂ emissions of new development by taking financial contributions from developers and investing in a range of projects that deliver carbon savings.

Motivation for considering a Carbon Offset Fund comes from the recognition that achieving very high CO₂ emission cuts using measures applied within a site is very challenging in some developments and not technically feasible in others. After basic energy demand and CO₂ emission reduction measures have been taken in a new development, opportunities to further reduce the CO₂ impact can be limited and costly. However, there is likely to be a range of opportunities for more cost-effective CO₂ reduction elsewhere within the local area.

The offset fund is a mechanism to collect investment in carbon reduction from new development and channel it into the projects that will deliver most benefit for the region.

The role of the offset fund is illustrated in the simple schematic below.

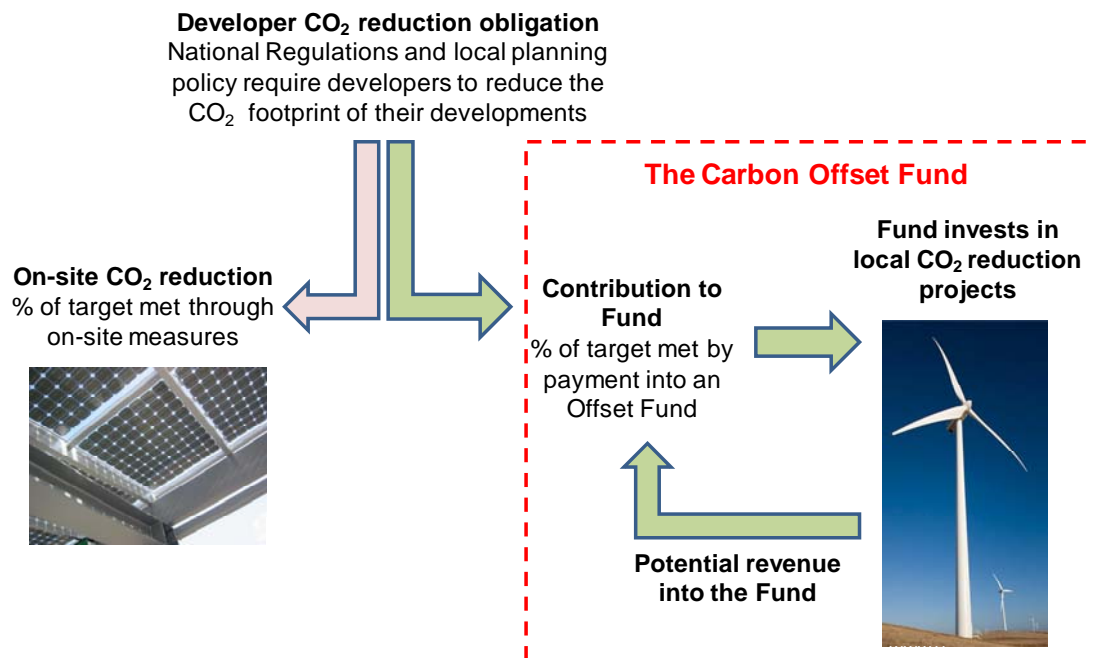


Figure 1, Simple schematic illustration of the role of the Carbon Offset Fund in mitigating the CO₂ emissions of new developments.

Developers of new sites will have an obligation to reduce the CO₂ emissions created by developments when in use, set by a combination of national and local level policies. These policies are discussed in detail in Section 4.

A certain fraction of this obligation will be met by measures taken within the site, such as reducing the energy demand through improved fabric performance and installation of low carbon energy generation technologies. The minimum level of reduction to be achieved through these onsite measures is also likely to be stipulated by policy.

The remaining emissions, however, represent the fraction of the total emissions that in a great many sites are very difficult – technically and on cost grounds – to address through actions taken at the site level. Rather than force the developer to invest in these costly measures, the offset fund provides an alternative solution – the payment into a Carbon Offset Fund. The investment that the developer is required to make into the fund will be determined by the shortfall between the target level of CO₂ reduction and what has been achieved on-site, multiplied by a fixed tariff per tonne of CO₂.

The tariff levied on the developer to offset residual site emissions should be carefully selected. It should not be too low, so as to act as a disincentive to investment in cost-effective on-site measures, but should also not be so high as to place an unreasonable burden on developers. The setting of offset tariff levels are discussed in Section 5.3.

It is the role of the Carbon Offset Fund to identify suitable investment opportunities for the funds it collects. The fund's investments should deliver at least as much carbon reduction as the quantity of carbon offsets that were invested in by the developers. The carbon reduction delivered as a result of the Fund's investment should also be additional to that which would have been brought forward in the absence of any involvement by the Fund, i.e. grants or low cost finance from the fund should not act to increase margins on projects that were commercially viable without the funds involvement. The success of the Fund will eventually be judged on the basis of the amount of CO₂ emissions reduction delivered and how cost effective that emissions reduction, in terms of tonnes of CO₂ saved per pound invested, has been.

3.1 Benefits for Cambridgeshire

Significant growth in Cambridgeshire is expected over the coming decades. The growth of carbon emissions footprint that will accompany this development is substantial, even assuming that tightening regulations on the emissions permitted from new developments are met. Under current projections, as already noted, Cambridgeshire is not on track to meet its long-term targets to reduce carbon emissions. This provides the driver for concerted action to reduce existing emissions and facilitate low carbon growth.

Although much of the growth within Cambridgeshire will be delivered in large developments, such as Northstowe and the urban extensions around Cambridge City, a significant proportion of the planned new development will be dispersed across a large number of small sites. It is at these small sites where high levels of carbon reduction can be difficult to achieve onsite. The large sites, on the other hand, do offer relatively cost-effective opportunities for carbon reduction, for example through large renewable generation projects and district heating infrastructure. The exploitation of these opportunities may be hindered, however, by the risks associated with high levels of up-front capital investment, lack of stringent enough CO₂ reduction policy (particularly during build-out of early phases) and low rates of return on investments, among other factors. The Carbon Offset Fund provides a mechanism to ensure

that the investment in carbon reduction that can reasonably be collected from developers is focussed into the projects where it can deliver the greatest benefit.

The investments of the Carbon Offset Fund may not be limited to low carbon infrastructure for new development, but could include a broad range of types of carbon reduction project. The types of projects that the Fund could potentially invest in include stand-alone renewable energy generation projects, energy efficiency improvements in existing buildings and low carbon transport projects (e.g. electric vehicle infrastructure). The types of project that the Fund might invest in and the implications for the structure and operation of the Fund are considered elsewhere in this study.

In order to maximise the opportunity for the Carbon Offset Fund, such that it provides a mechanism to deliver significant benefit to Cambridgeshire, the local partners will need to work collaboratively to influence the direction of national policy in key areas, while creating a common local policy framework to enable its implementation. The key interactions between the Fund and national policy are discussed in detail in the following section. The local policy framework is discussed in more detail in Section 4.

Key Benefits of a Carbon Offset Fund (COF) for Cambridgeshire:

- Provides a mechanism to direct investment into the most cost-effective CO₂ reduction opportunities in the region.
- Enables high potential projects, in terms of CO₂ reduction, to be taken forward, that would not have been delivered by the private market (due to high risk, large up-front cost or insufficient returns).
- Leverages private sector investment into low carbon infrastructure projects in Cambridgeshire.
- Strengthens the partnership working between public sector partners in Cambridgeshire, facilitating a coordinated approach to prioritization and deployment of low carbon infrastructure projects.
- Successful demonstration of the COF provides an opportunity to demonstrate national leadership and influence the direction of policy. This will be necessary for the COF to secure significant income from development.
- The COF investments will stimulate local supply chain and attract further investment in the region – generate ‘green jobs’.
- The COF has the potential to invest in a broad range of low carbon initiatives across the region.

4 Policy background

4.1 National and international policy obligations

A number of key legislative changes and studies have taken place that highlight the importance of reducing CO₂ emissions and increasing the supply of electricity from renewable energy. The most relevant and recent are summarised below.

4.1.1 Renewable Energy Directive

In terms of EU law, the Renewable Energy Directive (2009/28/EC) requires 20% of the EU's energy consumption (including electricity, heat and transport fuels) to come from renewable sources by 2020. The EU's "20:20:20 package" requires greenhouse gas emissions to be reduced by 20% by 2020 (the UK target clearly exceeds this). Due to the fact that the UK is behind its EU neighbours in developing renewables, a lower percentage (15%) has been agreed in relation to the UK's renewable energy quotient further to the EU "Effort Sharing Decision".

The EU Energy Performance of Buildings Directive (2002/91/EC) was implemented into UK Law in 2006 and introduced Part L and Part F of the Building Regulations. The Energy Services Directive 2006 introduced CERT and included a requirement for public sector bodies to fulfil an exemplary role in meeting the UK's energy savings target.

4.1.2 UK Low Carbon Transition Plan 2008

The UK Low Carbon Transition Plan, the national strategy for climate and energy, was published in July 2008. The plan aims to deliver CO₂ emission cuts of 18% on 2008 levels by 2020 (and over a one third reduction relative to 1990 levels). The plan covers a range of sectors, from buildings and power, to transport, land use and waste management. One of the key steps is achieving production of 40% of the UK's electricity consumption from low carbon sources by 2020. The full plan is available from the DECC website: www.decc.gov.uk.

4.1.3 Climate Change Act 2008

The Climate Change Act established the national framework against which carbon emissions should be assessed. The Climate Change Act 2008 (2020 Target, Credit Limit and Definitions) 2009 Order set the level of the target for 2020 at a 34% reduction in greenhouse gas emissions. In the longer term the target reduction in carbon emissions by 2050 is 80% relative to 1990 levels. These targets are starting to cascade down to regional and local level including Cambridge City Council which has adopted, through its Climate Change Strategy and Action Plan, 2008 an even more demanding target to cut emissions by 89% by 2050, from 2005 baseline. A further consequence of the Climate Change Act is the introduction of the CRC Energy Efficiency Scheme, creating a carbon market (see below). Copies of the Act are

available for download from the Office of Public Sector Information website and a summary is provided by DECC.³

4.1.4 UK Renewable Energy Strategy 2009

This strategy outlines how the UK aims to move towards generating 15% of its energy (including electricity, heat and transport) from renewable sources by 2020.⁴ The strategy is part of the Government's UK Low Carbon Transition Plan, which plots how a 34% reduction in emissions on 1990 levels by 2020 will be achieved. Full details of the RES are available from the DECC website.

4.2 Building related energy / CO₂ policy

The key tool used to control the energy consumption and CO₂ emissions of new development will be the Building Regulations and introduction of zero carbon policy for domestic and non-domestic buildings. The interaction of these policies with local development management policy are key to understanding the potential role and operation of a local Carbon Offset Fund. These key policies are described in detail in the following.

4.2.1 Building Regulations: Part L

4.2.1.1 Current standards and changes over time

In terms of energy use and CO₂ emissions the relevant aspect of the Building Regulations is Part L. This sets minimum standards for the permissible CO₂ emissions from new buildings in the form of a **building emission rate** (BER – or dwelling emissions rate, DER, in the case of domestic buildings), measured as kilograms of CO₂ per square metre of floor area per year (kgCO₂/m².yr).

The current Building Regulations, while ensuring a decent level of construction in terms of insulation standards and air-tightness, do not demand any particular innovation in terms of building services, beyond efficient thermal plant (e.g. condensing gas boilers).

The government has committed to the introduction of zero carbon policy in homes and non-domestic buildings. What constitutes a zero carbon building is discussed in more detail in the following section. The zero carbon standard must be met by all new homes from 2016 and for all non-domestic buildings from 2019 (although the standard is expected to be introduced for certain types of public sector buildings prior to this date).

The intention is that Part L of the Building Regulations will be progressively tightened on the way toward introduction of the zero carbon standard. Revisions to Part L are planned for 2010, 2013 and 2016, with a potential further revision to accompany the introduction of zero carbon policy for non-domestic buildings in 2019.

³ See www.decc.gov.uk/en/content/cms/legislation/cc_act_08/cc_act_08.aspx.

⁴ The 15% target comes from the EU Renewable Energy Directive.

To understand the impact of changes to Part L on the emissions from new buildings, a key concept that must be understood is the concept of **Regulated** and **Un-regulated** emissions. These two classes of building emissions are defined as follows:

- Regulated emissions – those arising from provision of space heating and hot-water, electricity consumed by pumps, fans and fixed lighting.
- Unregulated emissions – those arising from use of appliances and fuel used for cooking

Part L of the Building Regulations is only concerned with the Regulated emissions. The unregulated emissions have generally been considered to be too dependent on occupant behaviour and therefore difficult to control through regulation of construction standards. For a home, the Regulated emissions typically account for two-thirds of the total emissions. This ratio is far more variable across the non-domestic stock, differing widely for different types of building use.

The changes to Part L of the Building Regulations will progressively limit the amount of Regulated emissions that are permitted, but will not affect unregulated emissions. Zero carbon policy, as discussed in the following section, will seek to address regulated and unregulated emissions.

The reductions of regulated emissions to be enforced through changes to Part L for domestic buildings are shown in the figure below. The government recently consulted on what the trajectory of emissions reduction should be in the non-domestic stock and a decision on this is expected soon.

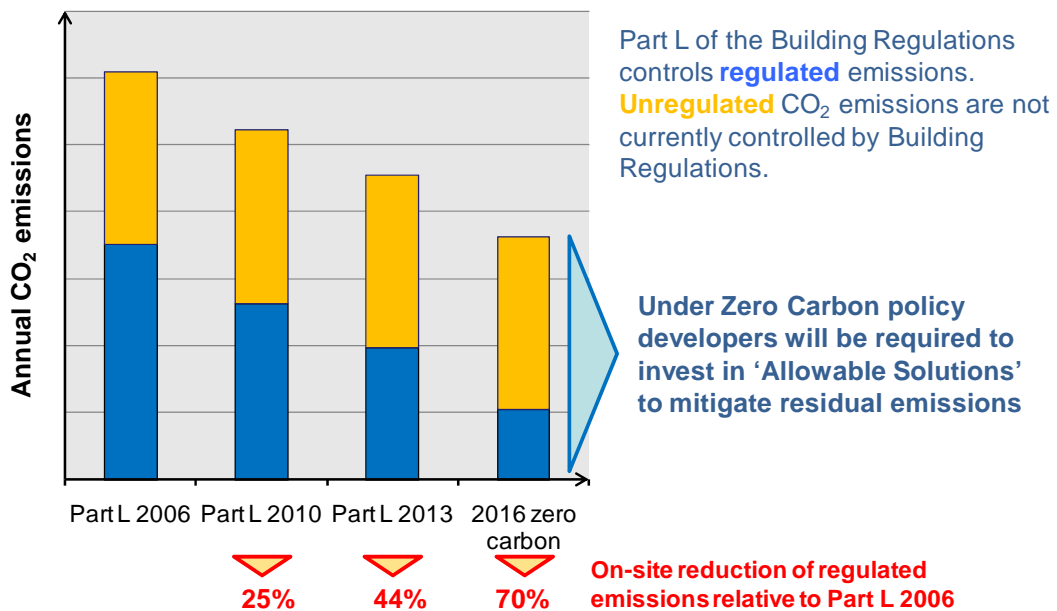


Figure 2: Graphic representation of proposed changes to the Building Regulations

As indicated by Figure 2, future changes to Part L are measured relative to Part L 2006, i.e the current standard. Reductions of regulated emissions of 25%, 44% and 70% will be required

by the 2010, 2013 and 2016 revisions, respectively. These reductions should be delivered by measures taken within the dwellings or within the site of the development, e.g. energy efficiency improvements, low carbon energy generation within the dwelling or site.

As indicated in Figure 2, zero carbon policy for homes will require 70% of regulated emissions to be delivered through onsite measures. The residual emissions will need to be dealt with, but the developer is to be afforded greater flexibility on how this further emissions reduction is delivered, as discussed below.

4.2.1.2 Zero carbon policy

Zero carbon policy aims to eliminate or mitigate all CO₂ emissions from a new building, regulated and unregulated. It has been recognised that to eliminate all emissions through provision of on-site low carbon and renewable energy could be expensive when compared with alternatives and may not be technically achievable in certain types of development. In light of this, Government proposes that the zero carbon standard will be based on a hierarchy of CO₂ reduction through energy efficiency, CO₂ reduction through provision of on-site low carbon energy supply and finally, mitigating the remaining emissions through a range of other measures, potentially applied off-site. These other measures are collectively being referred to as ‘Allowable Solutions’.

The three distinct parts to CO₂ reduction under the zero carbon definition are illustrated in the figure below.

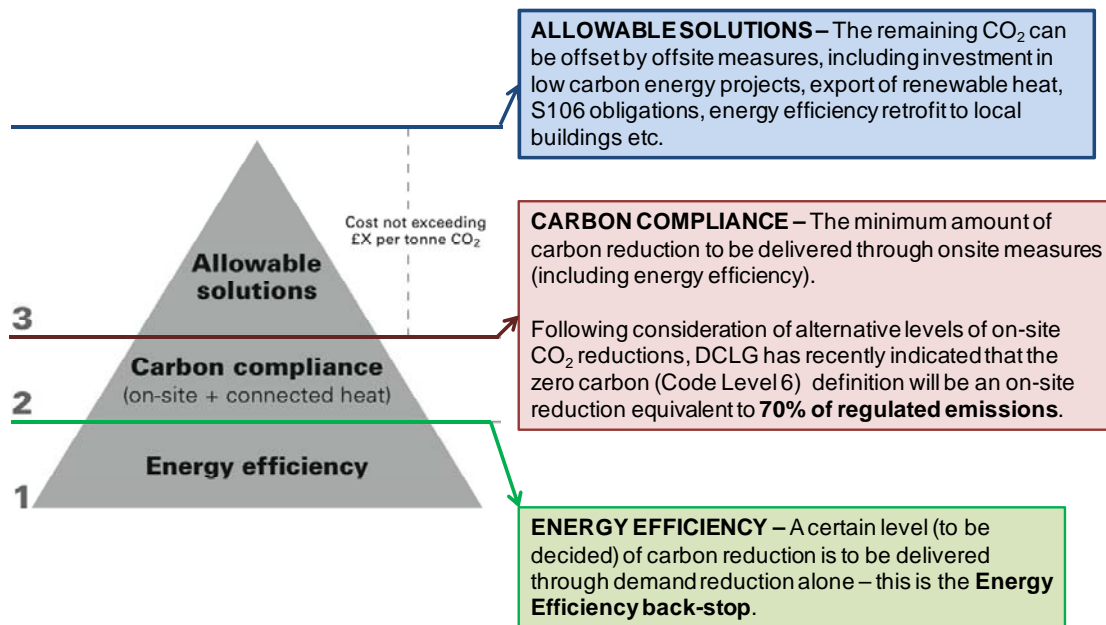


Figure 3: Schematic describing the three part approach to CO₂ emissions reduction under the zero carbon definition

The amount of CO₂ reduction required by onsite measures – including demand reduction through energy efficiency, on-site generation of low carbon heat or electricity and supply of low

carbon heat to the site from a district heating network – is described as the Carbon Compliance level. The Carbon Compliance level for zero carbon homes has been set at 70% of Regulated emissions as shown in Figure 2. The level of Carbon Compliance to be applied to non-domestic buildings is yet to be decided. It is likely that a varying level will be applied, dependent on the building usage type.

4.2.1.3 Allowable Solutions

The emissions reduction to be delivered through Allowable Solutions is of particular relevance to the potential role of a Carbon Offset Fund. It is also clear that the scale of emissions to be dealt with through Allowable Solutions is a very significant proportion of the total. Taking the case of domestic buildings and based on the approximation that two-thirds of a dwelling's emissions are regulated, then a Carbon Compliance level of 70% means that around half of a dwelling's total emissions will be mitigated via Allowable Solutions under the zero carbon policy.

The intention is that investment in Allowable Solutions will generate sufficient CO₂ saving to mitigate the CO₂ emitted by the home over a period of 30 years from the build. It is also proposed that the cost of investment in Allowable Solutions will be capped at a certain level. A number of potential capped costs are under discussion, ranging from 50 to 200 £/tCO₂. The capped cost of Allowable Solutions is discussed in more detail in Section 5.3.

Exactly what is meant by an Allowable Solution is currently a matter of debate and ongoing work within government. A number of potential carbon reduction measures that could constitute an Allowable Solution were considered in the government's consultation on the definition of zero carbon homes and non-domestic buildings. In July 2009, a statement by the Minister for Housing and Planning identified the potential Allowable Solutions that had received 'broad support' in the responses to the consultation, as follows:

- *Further carbon reductions on site beyond the regulatory standard*
- *Energy efficient appliances meeting a high standard which are installed as fittings within the home*
- *Advanced forms of building control system which reduce the level of energy use in the home*
- *Exports of low carbon or renewable heat from the development to other developments*
- *Investments in low and zero carbon community heat infrastructure*
- *Other Allowable Solutions remain under consideration*

The other potential Allowable Solutions identified in the consultation document that are not specifically referred to in this statement, i.e. those that 'remain under consideration, but that may be of particular relevance to the low Carbon Offset Fund include investing in improvement of energy efficiency refurbishment in the existing local stock and use of S106 obligations or the Community Infrastructure Levy as a means to provide investment in low carbon infrastructure projects.

A summary of the responses to the zero carbon and non-domestic buildings consultation is given in Section 13 (Appendix 2).

The potential importance of Allowable Solutions to the principle of a Carbon Offset Fund is clear. Developers will reduce the CO₂ emissions of new developments to a certain extent using on-site carbon reduction measures. Investment in Allowable Solutions will be used to mitigate the remaining emissions. Investment in the Carbon Offset Fund will need to be classed as an Allowable Solution for a significant income to be derived from new development following the introduction of zero carbon policy.

In order that the opportunities opened up by a Carbon Offset Fund can be optimised we recommend that Cambridgeshire Horizons and its partners lobby Government to define Allowable Solutions broadly such that financial contributions into a fund to be used to reduce carbon emissions form part of the wider role of Allowable Solutions. This may be implemented through the use of the existing Section 106 mechanism and potentially through the Community Infrastructure Levy. Should this not be taken forward Cambridgeshire Horizons and its partners may wish to lobby Government for the introduction of an alternative mechanism by which funds could be sought.

4.2.1.4 The Code for Sustainable Homes

The Code for Sustainable Homes was introduced in England in 2007 as a national standard against which the sustainability of new homes could be measured. The Code rates the sustainability of homes from level 1 to 6 on the basis of a points scoring system, where level 1 is a modest improvement on minimum regulatory standards and level 6 is an extremely challenging standard. Points are awarded under nine categories of sustainability on the basis of certain targets being met, e.g. reduced CO₂ emissions or water consumption, or incorporation of certain elements of sustainable design. Under some categories, such as energy, minimum standards are stipulated that must be met to achieve a certain Code level, whereas under other categories developers are given the flexibility to choose which actions to take to score the points required for a certain target Code level.

The Code is essentially a voluntary standard, although there is evidence that planning authorities are increasingly stipulating that developers should build to certain Code standards within their Development Plan Documents. In addition, the Homes and Communities Agency is committed to ensuring that all homes it funds are built to Code Level 3 and it is expected that this will be raised to Code Level 4 from 2011.

Notwithstanding particular local planning requirements, developers of private housing are free to choose whether to exceed regulatory minimum standards and, if they choose to build to the Code, what Code level to build to. However, in 2008 legislation was passed that introduced a mandatory requirement for a Code rating certificate to be included in the Home Information Packs for all new housing. This does not mean it is mandatory for all new housing to be assessed by a Code assessor, as if a developer has not attempted to build to any Code level they can simply issue a 'nil-rated' certificate.

The intention of the Code for Sustainable Homes is to encourage the construction of more sustainable housing by providing better information to home-buyers regarding the sustainability of homes on the market. The Code is also intended to signal to the home

building industry the future direction of change of the Building Industry, toward higher standards of sustainability. This is particularly the case in the Energy category of the Code which, among other issues relating to energy consumption in homes, sets out mandatory CO₂ reduction targets at each Code level which closely reflect the trajectory of CO₂ emissions reductions expected to be introduced through the Building Regulations, as given in Figure 2. The mandatory CO₂ emissions reduction targets for each Code Level are shown below.

| Code Level | % Reduction on Part L 2006 Regulated Emissions | Notes |
|------------|--|---|
| 1 | 25% | Initially the Code Level 1 and 2 targets were set at 10% and 18% improvements, respectively. These targets have now been superseded by the 2010 revision to Part L of the Building Regulations. |
| 2 | 25% | |
| 3 | 25% | Equivalent to Part L 2010 |
| 4 | 44% | Equivalent to Part L 2013 |
| 5 | 100% | This exceeds the Carbon Compliance level expected to be required by Zero Carbon Homes Policy. |
| 6 | Zero Carbon | This is a more stringent standard than proposed in the Zero carbon Homes policy – all emissions (Regulated and Unregulated) are to be dealt with by onsite measures |

Figure 4, Mandatory CO₂ reduction requirement at each level of the Code for Sustainable Homes

As shown in the table above, Levels 5 and 6 of the Code for Sustainable Homes set a requirement for carbon reduction through onsite means that exceed the Carbon Compliance level proposed in the Zero Carbon Homes policy (i.e. the CO₂ reductions to be achieved through energy efficiency, onsite generation of low carbon energy and use of directly connected low carbon heat). The recent CLG consultation on the Code ‘Sustainable New Homes: The Road to Zero Carbon’⁵, sought views on a proposed revision to the Code that would bring the mandatory CO₂ reduction requirements at Code Levels 5 & 6 into line with the zero carbon homes policy. If this revision were to be adopted, the concepts of Carbon Compliance, set at a level of a 70% reduction on Part L 2006 regulated emissions, and Allowable Solutions, would become part of the Code.

The potential for Allowable Solutions to be introduced into the Code is particularly relevant to the COF prior to 2016. One of the main streams of income into the COF is expected to be

⁵ Sustainable New Homes – The road to zero carbon: Consultation on the Code for Sustainable Homes and the energy efficiency standard for zero carbon homes, December 2009 (www.communities.gov.uk/publications/planningandbuilding/futureofcodeconsultation)

developers investments in Allowable Solutions, dependent on the COF being recognised as an allowable solution, as discussed in the preceding section. Currently, this income stream is not expected to materialise until zero carbon homes policy is introduced in 2016. If the Code were to be amended to permit developers to invest in Allowable Solutions to achieve high Code levels, however, then this source of income would develop prior to 2016 (albeit that it would probably rather limited, relating only to those developers that choose to build to Code Level 5 or 6).

An announcement on proposed changes to the Code in light of the recent consultation is expected later this year.

4.3 Local planning policy

Planning Policy Statements (PPS) and Planning Policy Guidance Notes (PPGs) set out the Government's national policies on land use in England. Local authorities must take the PPSs into account when developing their Development Plan Documents (DPDs).

The existing PPSs that inform local planning policy with respect to energy and sustainability are:

- PPS1: Delivering Sustainable Development
- Supplement to PPS1: Planning and Climate Change
- PPS22: Renewable Energy

At the time of writing the Government is running a consultation on a new PPS: Planning for a Low Carbon Future in a Changing Climate. This new PPS is expected to replace the existing supplement to PPS1 and PPS22 as it brings together key aspects of both.

Collectively, the PPS framework places a responsibility on local planning authorities to promote development of energy efficient buildings, the generation of renewable energy in new developments and carbon reduction in new developments. This can include the setting of specific targets for renewable energy generation, achieving Code for Sustainable Homes levels and other policy interventions that assist in delivery of the national objectives for carbon reduction in new developments, as set out in the planned revisions to the Building Regulations.

For example, PPS1 (Planning and Climate Change) states that the following key elements should be considered by local planning authorities when developing their Local Development Documents: Ensure that the local approach to protecting landscape and townscape does not preclude supply of any type of low carbon or renewable generation, other than in exceptional circumstances.

- Consider identifying areas for renewable and low carbon energy sources and supporting infrastructure.
- Take account of the extent to which low carbon or renewable energy sources could contribute to the needs of a development and the capability of a development to adapt to the effects of climate change when selecting land for development.

- Planning authorities should set out a percentage of the energy to be used in a new development to come from decentralised, low carbon or renewable sources and bring forward development area where there is potential to exceed regional targets.
- Where there are existing decentralised energy supply systems, or firm proposals, planning authorities can expect proposed developments to connect to an identified system or be designed to connect in the future.
- Implement policies that help to achieve the national timetable for reducing CO₂ emissions from new domestic and non-domestic buildings (as set out in the Building a Greener Future policy statement and to be introduced through Building Regulations).
- Where appropriate, set targets for levels of building sustainability in advance of those set nationally. In these instances planning authorities must demonstrate that there are particular local circumstances that justify the higher targets.
- Specify requirements for building sustainability in terms of nationally recognized standards, such as the Code for Sustainable Homes and BREEAM.

The national planning policy therefore provides a remit for target-setting, with respect to renewable energy generation and CO₂ reduction, at the local level. These targets should be evidence-based and should not negatively impact viability of development. The alternative of a commuted payment into a Carbon Offset Fund, in lieu of meeting a particular local target, could provide a means of ensuring that the impact of a local target on development cost is capped and therefore does not jeopardise viability. It should be noted, however, that the consultation proposes that the setting of local authority-wide targets will become unnecessary after 2013, following tightening of the Building Regulations. There is support for such targets prior to 2013.

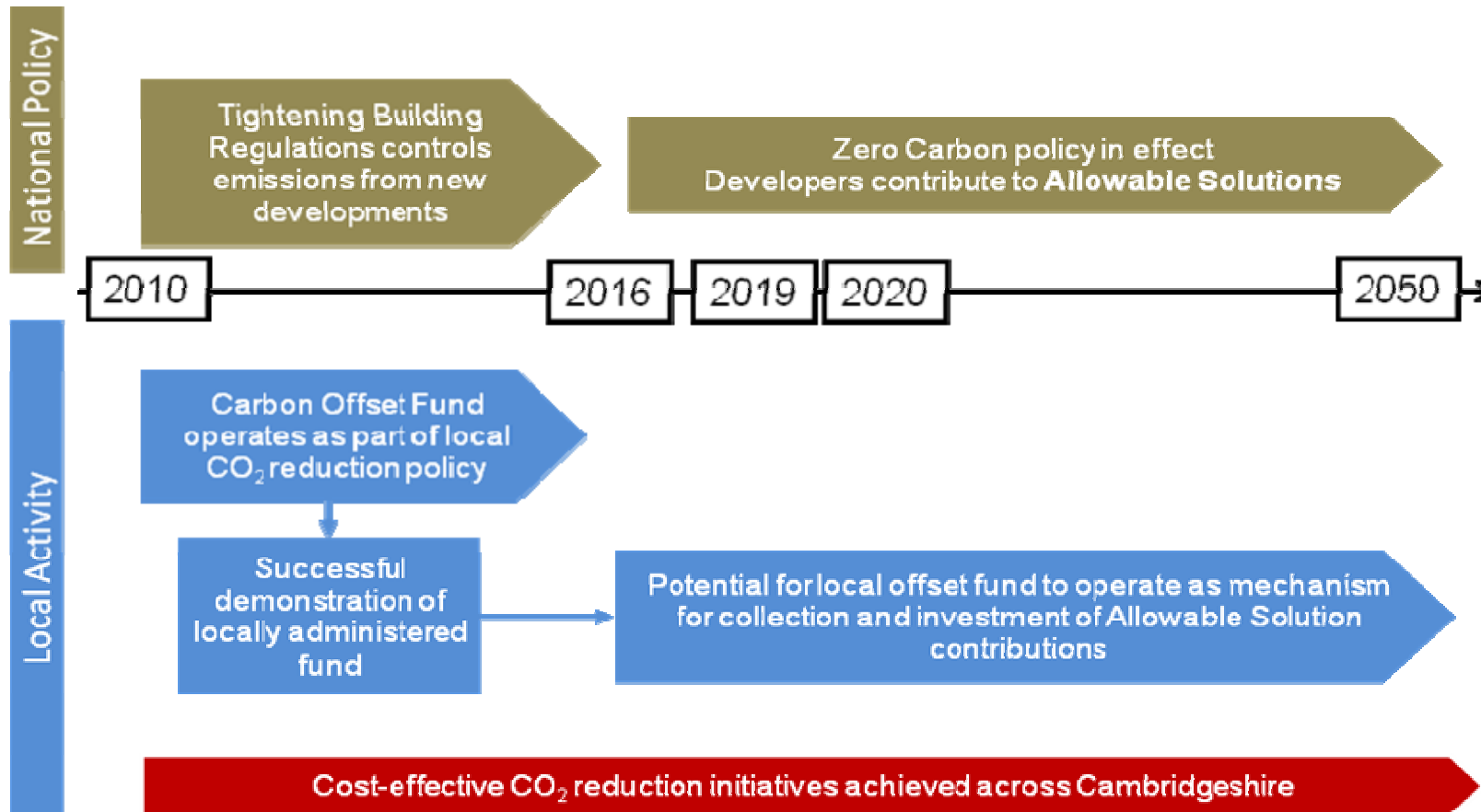


Figure 5, Simplified timeline illustrating the role of the Carbon Offset Fund in local CO₂ reduction policy and its relationship to national policy for CO₂ reduction in new developments.

4.4 Other relevant policy initiatives

In addition to planning policy and low carbon building policy, there are a number of other national policy initiatives designed either to incentivise energy demand reduction or investment in low carbon generation. The policies of potential relevance to the activities of the COF are summarised below.

4.4.1 Renewables Obligation and the Clean Energy Cashback Scheme (Feed-in tariff)

Until earlier this year, the primary support policy for renewable electricity generation in the UK has been the Renewables Obligation. This is a cap and trade scheme whereby Renewable Obligation Certificates (ROCs) are issued to generators of renewable electricity. Electricity supply companies have to purchase enough ROCs to demonstrate that they have met their obligation for supply of renewable electricity (a fraction of total supply that increases year-on-year), or pay a punitive buy-out to make up any shortfall.

This scheme has been effective in supporting the growth of markets for the more established technologies, such as onshore wind farms, but as the ROC price is set by a market, it has tended to adequately support only the most cost-effective technologies. To address this, the Renewables Obligation was amended to provide differentiated levels of support depend on the commercialisation stage of particular technologies. This was done by introducing banding, such that the least mature technologies can obtain up to 2 ROCs for every MWh of electricity produced, whereas mature technologies receive only a single ROC (or less than 1 ROC in cases such as landfill gas).

The support for small-scale renewable electricity generation (less than 5MW) has been significantly increased by the introduction of the Clean Energy Cashback Scheme, widely referred to as the feed-in tariff (or FIT). The FIT provides a guaranteed tariff for every kWh of renewable electricity generated. The tariff rate is fixed at the level offered at the time of commissioning of the system (the level offered to new connections drops over time) and is paid out over a guaranteed lifetime (up to 25 years in the case of photovoltaics). As the rate of the feed-in tariff is fixed at commissioning, it provides a more dependable income than ROCs, which will fluctuate in value depending on the market.

The feed-in tariff rates and lifetime over which the tariff is paid varies depending on technology type and scale. The level of tariff has been set with the intention of providing approximately an 8% return on investment for each technology.

4.4.2 Renewable heat incentive

The introduction of a renewable heat incentive (RHI) to support the use of renewable heat was also announced by the labour government in 2008. The RHI would be similar to the FIT, insofar as it would provide a fixed tariff for every unit of useful renewable heat generated over a guaranteed lifetime. Like the FIT, the level of support and lifetime would be differentiated by technology type and scale (although there is no upper limit on eligibility in the case of the RHI). The RHI lags behind the FIT by around a year. Since the election of the coalition government,

there has not been a firm announcement on the future of the RHI policy. Work is still on-going within Government to define the scope of the RHI, to set the support levels and design the payment structure. Proposed levels of support were published by DECC in the RHI consultation, which ran from February to April 2010.⁶ It had been anticipated that the RHI would be introduced in 2011, although confirmation of this timetable is awaited.

4.4.3 CRC Energy Efficiency Scheme

This scheme, which came into effect on April 1st 2010, is the UK's mandatory climate change and energy saving scheme and applies to all large organisations.⁷ Formerly known as the Carbon Reduction Commitment (CRC), it has been designed to achieve energy efficiency improvements and CO₂ emissions reductions. The scheme is based around a cap and trade mechanism which provides a financial incentive to reduce energy use by putting a price on CO₂ emissions. Full details of the scheme can be found on the Environment Agency website.

4.4.4 Carbon Emissions Reduction Target

The Carbon Emissions Reduction Target (CERT) is a statutory obligation (pursuant to the Electricity and Gas (Carbon Emissions Reduction) Order 2008) on the six largest energy suppliers to deliver energy efficiency improvements in housing and reduce carbon emissions. The CERT Order 2008 was amended in 2009 by the Electricity and Gas (Carbon Emissions Reduction) (Amendment) Order 2009, increasing the carbon emissions reduction target for household energy suppliers to 20%. This is expected to boost supplier household energy efficiency investment by some £560 million by 2011 and forms a key part of the Government's £1 billion Home Energy Saving Programme announced in September 2008. CERT runs until 31 March 2011.

The Community Energy Saving Programme (CESP) is a programme which targets households in designated areas of deprivation. The Electricity and Gas (Community Energy Saving Programme) Order 2009 (the CESP Order) came into force on 1 September 2009. The CESP on energy suppliers is in addition to CERT. The Warm Homes, Greener Homes strategy document sets out the Government's policy for replacement of CERT and CESP as follows⁸:

“Energy Companies will have a new obligation from 2013, following CERT, to help householders save energy. They will be required to consult with local authorities on partnerships to deliver against that obligation. Where a local authority has a Local Carbon Framework covering household energy efficiency, companies will be obliged to agree with the local authority that their plans are in line with this framework before acting. Some local authorities may provide their own incentives, such a council tax rebates. Our ambition in the longer term is that all authorities take on responsibility for saving carbon from energy use in the homes in their area.”

⁶ Proposed tariff levels are set out in the consultation document (p.46-47), which is available for download from the DECC website:

www.decc.gov.uk/en/content/cms/consultations/rhi/rhi.aspx.

⁷ Organisations are eligible for CRC if they (and their subsidiaries) have at least one half-hourly electricity meter settled on the half-hourly market or if their total half-hourly electricity consumption exceeded 6,000MWh during 2008.

⁸ Note that the Warm Homes, Greener Homes document was the strategy of the previous government, although this has not been superseded so is assumed to remain current.

The strategy emphasises the potential for different types of partnership working, between local authorities, energy companies, third sector, commercial sector, financial providers and others. Involvement of partners may provide opportunities for the COF to leverage in funds from external sources, delivering carbon savings for the region at a lower cost and risk to the councils. The strategy anticipates that the role and level of engagement of local authorities in partnership arrangements will vary widely.

Partnerships can operate between multiple local authorities using multi-area agreements as appropriate. This could enable the local authorities to spread the burden of risk (in terms of finance and project delivery) and increase the level of ambition for projects across the region.

The pilot programmes of local carbon frameworks announced in January 2010 signal the direction that Government is seeking local authorities to take in relation to carbon reduction. £3 million has been made available by Government to support the pilot programmes.

There are sources of generic funding and specific funding relevant to project types. Some of these are described below. The COF could leverage in funds from these sources to support projects.

- **Salix Finance** provides interest free loans to local authorities and other public sector bodies.
- **European Regional Development Fund** – funding from this source is available through Regional Development Agencies. This funding is aimed at innovation and knowledge transfer, enterprise, sustainable development and building sustainable communities.
- **Regional Improvement and Efficiency Partnerships (RIEPs)**. A share of the DCLG funding package for RIEPs may be available for projects relating to climate change.
- **EU LIFE+ Fund** – offers co-financing of projects relating to nature and biodiversity; environmental policy and governance; and information and communication.
- **Primary Care Trusts** may be willing to invest in energy efficiency measures in the homes of the fuel poor. Partnering with PCTs may offer mutual benefit.
- Funding may be available from the new **Green Investment Bank** (announced in the March 2010 budget) once established.
- **DECC Bio-energy Infrastructure grants** are available for local authorities (and farmers, foresters) – the deadline for applications for this was February 2010. Similar schemes may emerge to replace this funding source.
- The **Local Carbon Framework initiative**.
- The **Prudential Borrowing Regime** may provide a further opportunity to raise funds for the COF, subject to limits set locally and to the CIFPA Prudential Code for Capital Finance in Local Authorities.

Please note that this is not a finite list.

In March 2010 DECC published a Consultation on “Allowing Local Authorities to Sell Electricity”, a consultation on making new regulations under the Local Government (Miscellaneous Provisions) Act 1976. The current position is set out in section 11 of the Local Government (Miscellaneous Provisions) Act 1976 which provides that a local authority may

generate and sell heat and electricity, and may also purchase and supply heat. However, that power is limited by section 11 (3) which provides that:- *“Except in such cases as may be prescribed, a local authority shall not be entitled to sell electricity which is produced otherwise than in association with heat”*. The Consultation document states that *“the Government is keen to see local authorities play a full part in the development of renewable heat and electricity”* and *“Allowing them to sell electricity generated by them from renewable sources would encourage the development of local renewable electricity projects by those local authorities that are well-placed to undertake such projects either on their own or in partnerships”*. An example cited of such a partnership would be with an NHS Trust.

5 Scale of the opportunity for an Offset Fund

This section explores the potential size of a local Carbon Offset Fund by analysing the expected development in the region and considering the effect of alternative policy scenarios on the role of the Fund.

5.1 Development in Cambridgeshire

The population of Cambridgeshire is expected to increase by 13% by 2021 relative to 2008 levels.⁹ If this growth occurs the county’s population will exceed 670,000 by the start of the next decade. Parts of Cambridgeshire also fall within one of the four key growth areas defined by Government in 2005 as part of the response to address the shortfall between housing supply and demand (the London-Stansted-Cambridge-Peterborough growth area).¹⁰ Data from each of the five local authorities in Cambridgeshire show the expected housing delivery in the period to 2026.

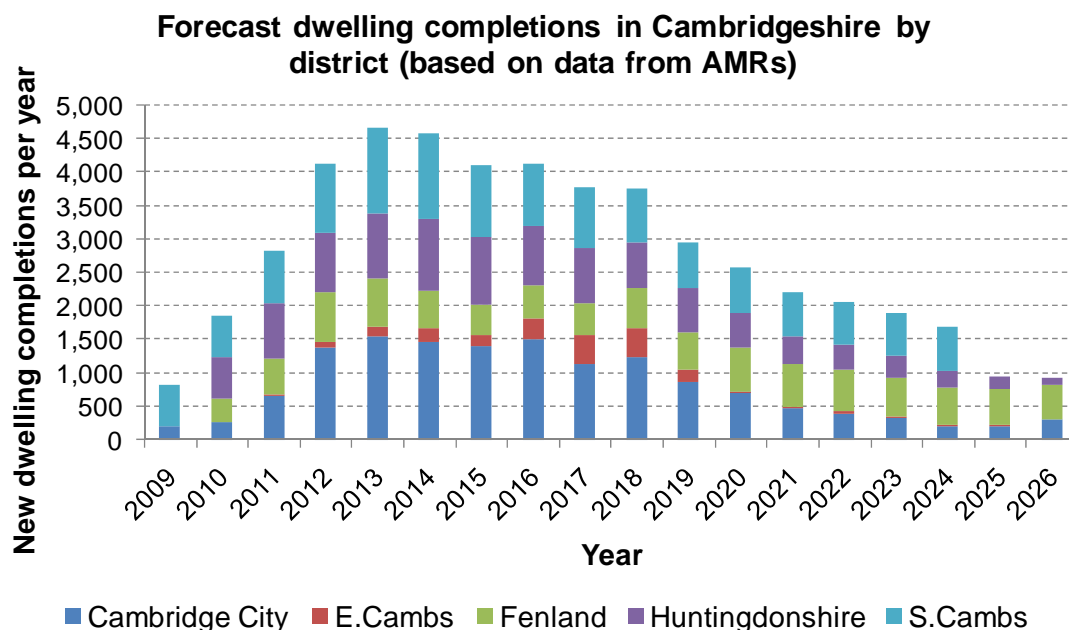


Figure 6: Forecast dwelling completions in Cambridgeshire to 2026

The level of house building shown above would deliver around 50,000 new homes across the county by 2026, which is around a 20% increase relative to the 2008 housing stock. Population growth and new housing is expected to be accompanied by new non-residential development, as shown in the retail capacity studies and employment land reviews of each district/city council.

⁹ Cambridgeshire RSS AMR (2008), p.i.

¹⁰ See www.communities.gov.uk/housing/housingsupply/growthareas/.

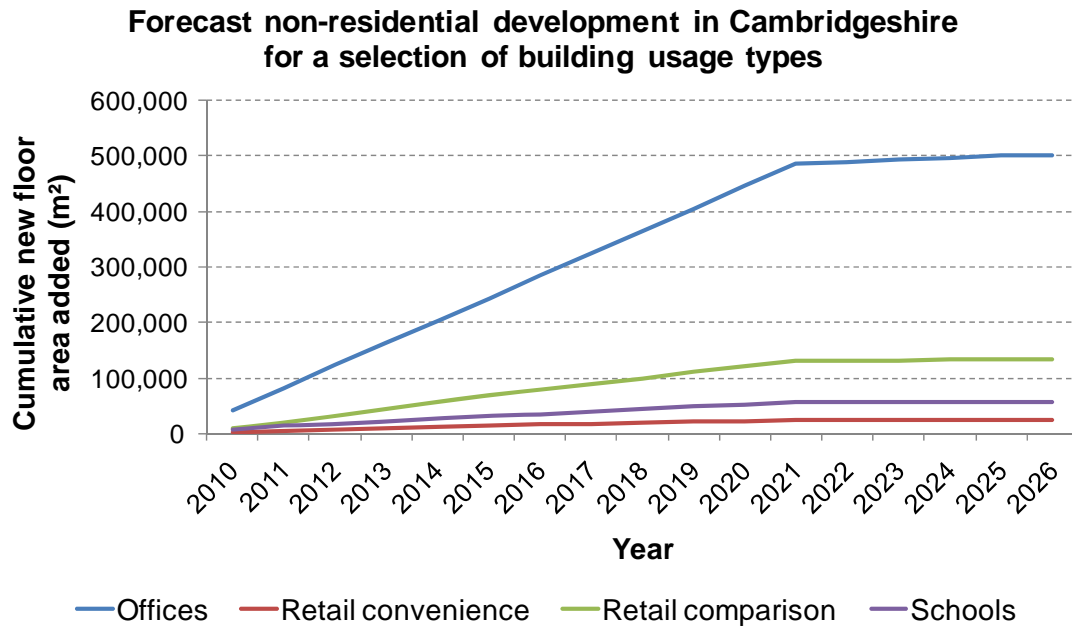


Figure 7: Forecast non-residential floor area growth in Cambridgeshire to 2026

With the exception of Schools, the data plotted in Figure 7 come from each district/city council’s retail capacity study and employment land review. An estimation of additional school floor area required was made based on population growth forecasts (for full details see appendix).

The data presented above show the expected building development in the region in the period to 2026. Typical emission data for each building type (residential and non-residential uses) can be used to estimate the expected CO₂ impact of this new development, as discussed in the following section.

5.2 CO₂ emission impact of new development

The following graph shows the growth in annual CO₂ emissions from the new development described above assuming that all new additions comply with the relevant revision of Part L (see section 4.2.1).

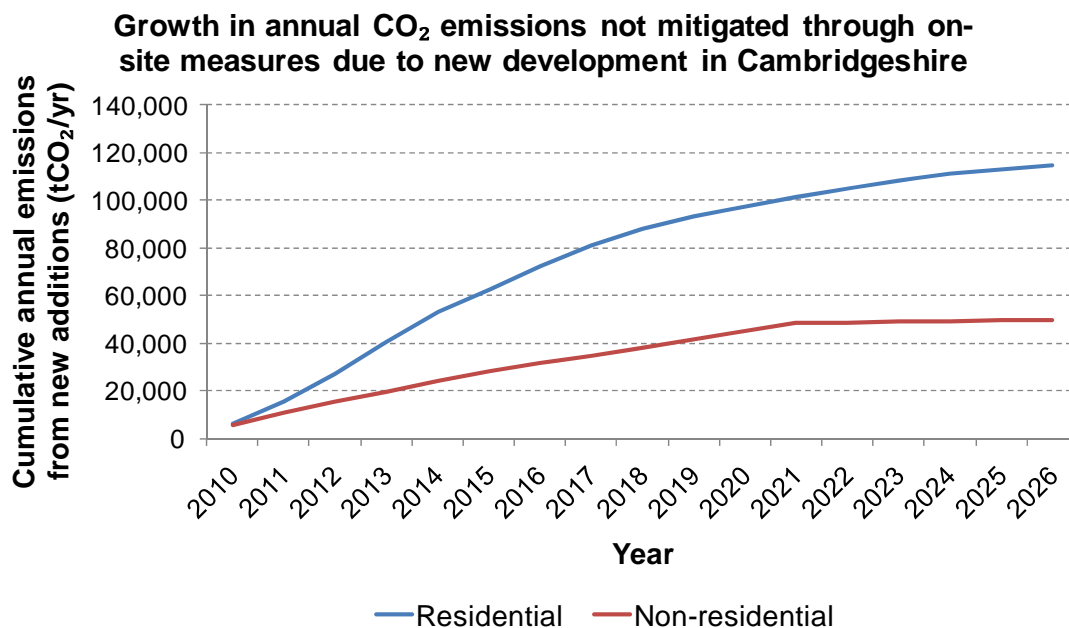


Figure 8: Growth in total CO₂ emissions from new development (2010–2026)

The emission trajectories plotted represent an upper estimation of CO₂ emission growth in that it is assumed that new development complies with the relevant revision of Part L only.¹¹ For example, new homes built to Part L 2013 are assumed to add regulated emissions equivalent to 66% of Part L 2006 regulated emission levels and unregulated emissions equivalent to 100% of Part L 2006 unregulated emissions (Part L 2013 requires a 44% cut in regulated emissions through on-site measures). For development built to zero carbon standards the residual emissions (those not mitigated on-site) added depend on the carbon compliance level. Assumptions as to the carbon compliance levels for each building type are given in the appendix, section 15.

With an understanding of the expected emissions growth, estimations of potential contributions to a Carbon Offset Fund can be made. The following section considers the annual contributions the Fund could receive under a selection of policy scenarios.

5.3 Tariff levels

5.3.1 The cost of carbon reduction measures

Under zero carbon homes and non-domestic buildings policy, it is expected that developers will be required to invest in Allowable Solution to mitigate the residual emissions, i.e. those that remain once the Carbon Compliance level has been reached, which will be generated by the development over a 30 year period.

¹¹ This is an upper estimate for the development described in section 5.1, however it is acknowledged that there may be other non-residential development which has not been represented in this study due to a lack of data.

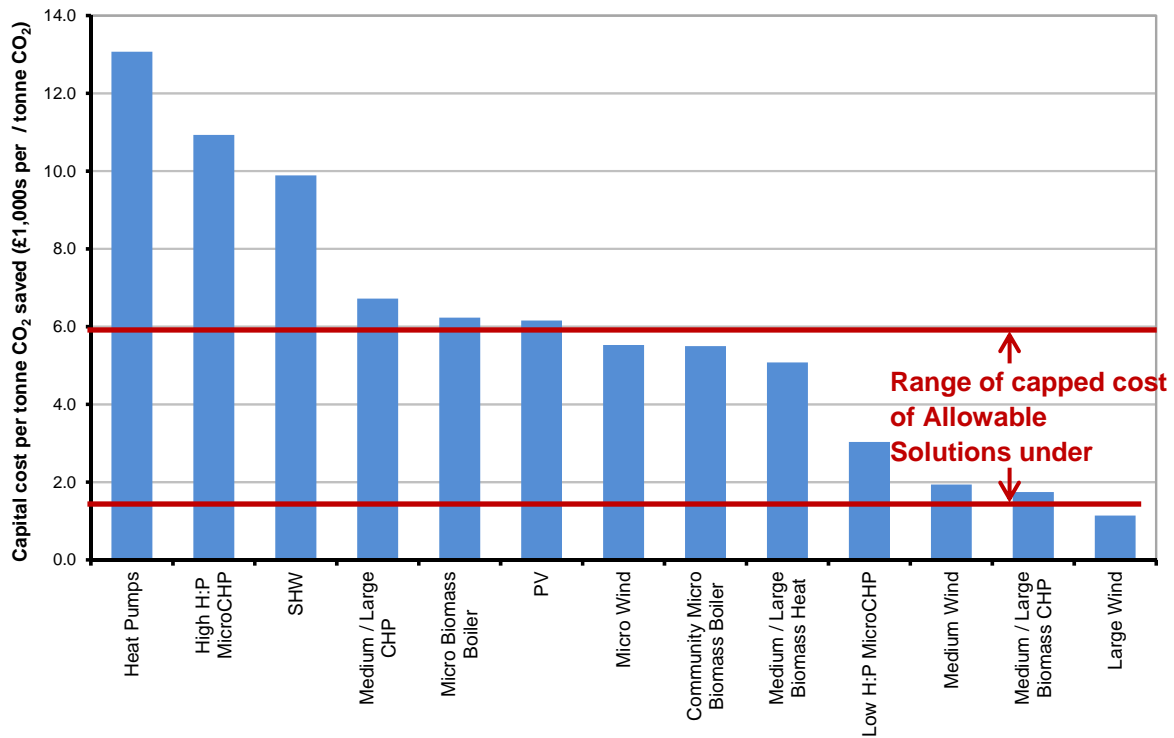
A cap is expected to be placed on the cost of Allowable Solutions. The level of this capped price has not been determined, although government policy analysis has considered a range of capped cost from £50 to £200/tCO₂.

The range of capped cost of Allowable Solutions provides a useful guide to determination of appropriate tariff levels for the Cambridgeshire Carbon Offset Fund, as post-2016 (i.e. following the introduction of zero carbon homes policy) the level of tariff charged by the COF would be subject to the cap.

The level of the COF tariff (and the capped cost of Allowable Solutions) should strike a reasonable balance between incentivising more cost-effective onsite measures, while limiting the additional burden on developers of complying with policy. It is also necessary to ensure that the tariff levied is sufficient to enable the Fund to deliver a tonne of CO₂ reduction through its investments.

In the plots below, the capital costs spent per tonne of CO₂ saved is shown for a range of low carbon energy generation (based on forecast 2016 technology costs) and energy efficiency measures.

Cost-effectiveness of CO₂ saving by different technologies, based on capital costs (forecasts for 2016 technology costs)



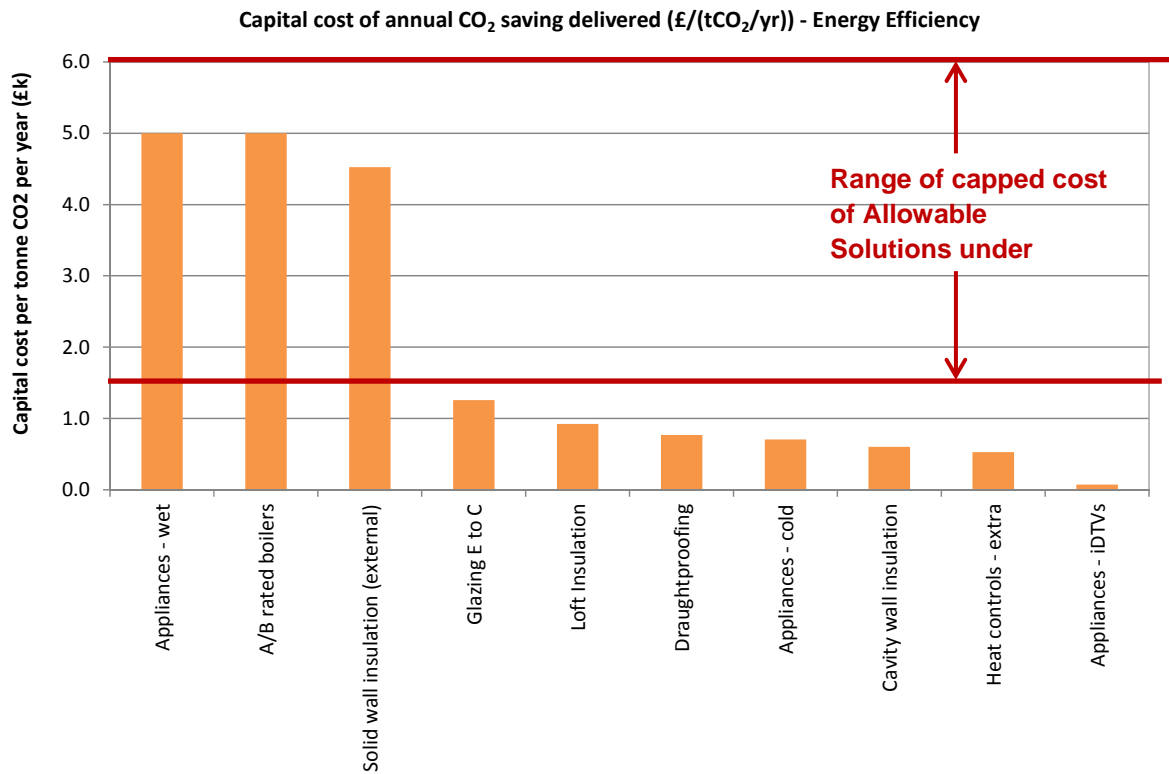


Figure 9, Capital costs of CO₂ saved (£/(tCO₂/yr)) for a range of low carbon generation (based on projected 2016 prices) and energy efficiency measures.

The lower bound capped cost of Allowable Solutions (£50/tCO₂) is sufficient to provide the capital investment required to deliver carbon saving by large onshore wind turbine projects, but would not meet the capital investment costs of any of the other technologies considered. At the upper bound assumption for the capped cost of Allowable Solutions (£200/tCO₂), the COF income would be sufficient to deliver CO₂ saving via a range of technologies, including medium to large biomass technologies and smaller-scale wind turbines. In practice it is unlikely that the COF would provide the whole capital outlay for low carbon energy generation projects, more likely it would provide a contribution toward financing a project (could through capital support, a low cost loan or equity), in order to incentivise other parties to invest in the project.

Retrofit energy efficiency measures tend to be more cost-effective means of delivering carbon emissions reductions than low carbon energy generation. Even at the lower bound tariff assumption, the COF income would be sufficient to fund a wide-range of energy efficiency measures (note that costs shown in the figure are based on improvements to domestic properties). At the upper bound capped cost assumption, even expensive energy efficiency measures such as solid wall insulation are within reach of the COF's investments.

5.3.2 Impact on cost of development

A further element to be considered in setting the level of COF tariff is the impact on the cost of development and the implications for deliverability of new development in Cambridgeshire.

Assuming that investment in the COF is treated as an allowable solution following the introduction of zero carbon policy, then the requirement for a developer to contribute to the COF becomes a means of complying with national policy and is not an additional cost burden on developers. The Cambridgeshire COF would only be an additional burden if it were applied prior to the introduction of zero carbon policy (2016 for homes and 2019 for non-domestic buildings) and were therefore a local requirement in addition to compliance with national Building Regulations.

5.3.2.1 Impact prior to introduction of zero carbon policy

The requirement for developers to contribute into a COF prior to the introduction of zero carbon policy and the existence of Allowable Solutions would need to be imposed through a local DPD policy. This policy would place a requirement on developers to achieve a level of CO₂ reduction that is greater than that required by the Building Regulations, with the option of a commuted payment into a fund in lieu of achieving some or all of that additional reduction onsite.

Any local policy that sets a requirement on developers that is more onerous than compliance with national regulations is likely to increase the cost of development. Nevertheless, a substantial number of local authorities have recently set policies in their LDFs that require CO₂ reduction or renewable energy generation in advance of that required by regulation, in response to PPS1 and PPS22. The combination of such a local policy with the provision for a commuted payment into a COF has a number of potential advantages:

- Reducing the cost burden of a particular policy requirement on developers of sites where meeting the required CO₂ reduction is particularly challenging.
- A fixed tariff per tonne of CO₂ reduction provides greater certainty on the cost of complying with policy to developers.
- It is a means of seeking a contribution toward reducing the carbon reduction of developments, even where it has been shown to be not feasible to deliver the reduction onsite.

The impact that imposition of the COF has on the cost of development will depend on the additional CO₂ reduction required (i.e. over the Building Regulation standard in force at a particular time) and the tariff level.

As an example, a case is considered below where the requirement for a contribution into a COF is imposed from 2013, which coincides with an anticipated change in the minimum CO₂ standards required by Building Regulations. From 2013, it is expected that residential development will be required by regulations to achieve a 44% reduction in regulated emissions (see Section 4.2.1 for a definition of regulated emissions). In this example, it is supposed that a local development control policy requires residential development to achieve a 70% reduction of regulated emissions, which is the carbon compliance level that zero carbon policy

is currently expected to introduce from 2016. Rather than requiring this additional CO₂ reduction to be achieved onsite, however, the local policy permits a commuted payment into a COF where it can be shown that complying with the policy is technically or financially very onerous.

In the figure below, the increase in construction cost of a typical dwelling (e.g. a 3-bed semi) in 2013 is compared to current construction costs (i.e. construction to Part L 2006) standards. The cost increase has been estimated for two different types of site – a small development of 10 to 15 houses and a large development of several thousand homes. For each site type, the cost increase is shown in the case that compliance with the local policy is achieved either entirely by paying into the COF or entirely by onsite CO₂ reduction.

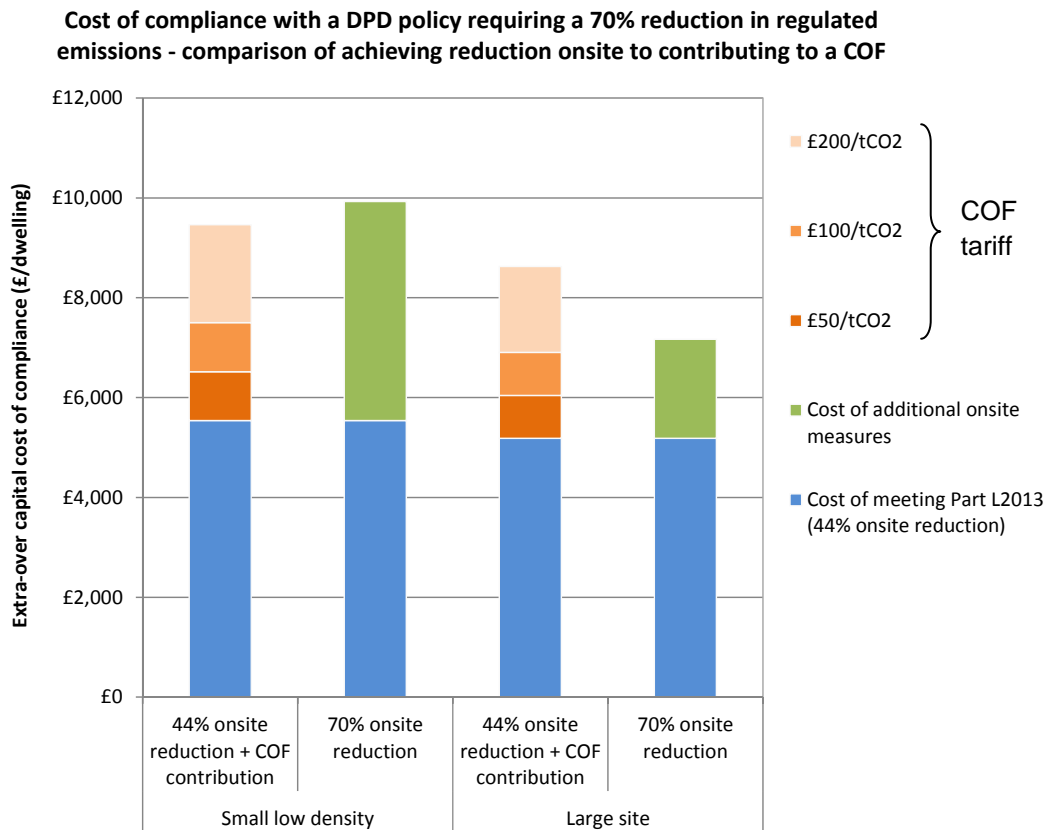


Figure 10, Comparison between two routes of complying with a local DPD policy requiring a 70% carbon compliance level from 2013. The two routes are (i) comply with Part L2013 and then invest in the offset fund, (ii) achieve 70% reduction on-site.

The additional cost per unit of achieving a 44% carbon compliance level, i.e. complying with Part L 2013, is similar irrespective of the site characteristics, as the measures applied to reach this level are likely to be taken at the scale of an individual dwelling (e.g. improved energy efficiency, microgeneration). There is a significant difference in the cost of achieving the 70% carbon compliance level between the two sites, as site-wide strategies become more cost-effective where there is sufficient scale. The opportunity to make a payment into the Offset

fund reduces the cost of compliance on the small site, even at an offset price of £200/tCO₂. On the large site, it is significantly more cost-effective to achieve the 70% carbon compliance level onsite than it is to offset at a price of £200/tCO₂ (assuming only the minimum regulatory requirement has been achieved onsite).

At an offset price of £100/tCO₂, the offset fund significantly reduces the burden on the developer of the small site without providing a significantly lower cost alternative to achieving the 70% carbon compliance level on the large site. This suggests that a carbon offset price of around £100/tCO₂ would be an effective price for the local offset fund, by ensuring that the local CO₂ reduction policy does not over-burden the developers of small sites, while being high enough that it does not act as a disincentive to achieving high levels of onsite CO₂ reduction where it can cost-effectively be achieved.

5.3.2.2 Cost impact post introduction of zero carbon policy

As discussed above, the continuing role of the COF following the introduction of zero carbon policy would be as an allowable solution. The COF would not impose an additional cost burden on developers under zero carbon policy, but would provide a means, potentially among a range of opportunities, of complying with the policy.

As an illustration, the estimated additional capital cost of complying with zero carbon policy for an average dwelling on the two notional site types is shown in the figure below. Under the current definition of zero carbon homes (which may be subject to further change), it will be necessary to achieve a minimum 70% reduction of regulated emissions on-site (the carbon compliance level). To achieve net zero carbon standard, the developer can further reduce emissions on-site or invest in Allowable Solutions to offset any remaining emissions. The figure compares the cost of meeting the policy by achieving the minimum carbon compliance level and then investing in Allowable Solutions (at three potential costs of Allowable Solutions) to the cost of achieving net zero carbon wholly through onsite means. All capital costs are shown extra-over the cost of construction of a typical Part L 2006 compliant dwelling.

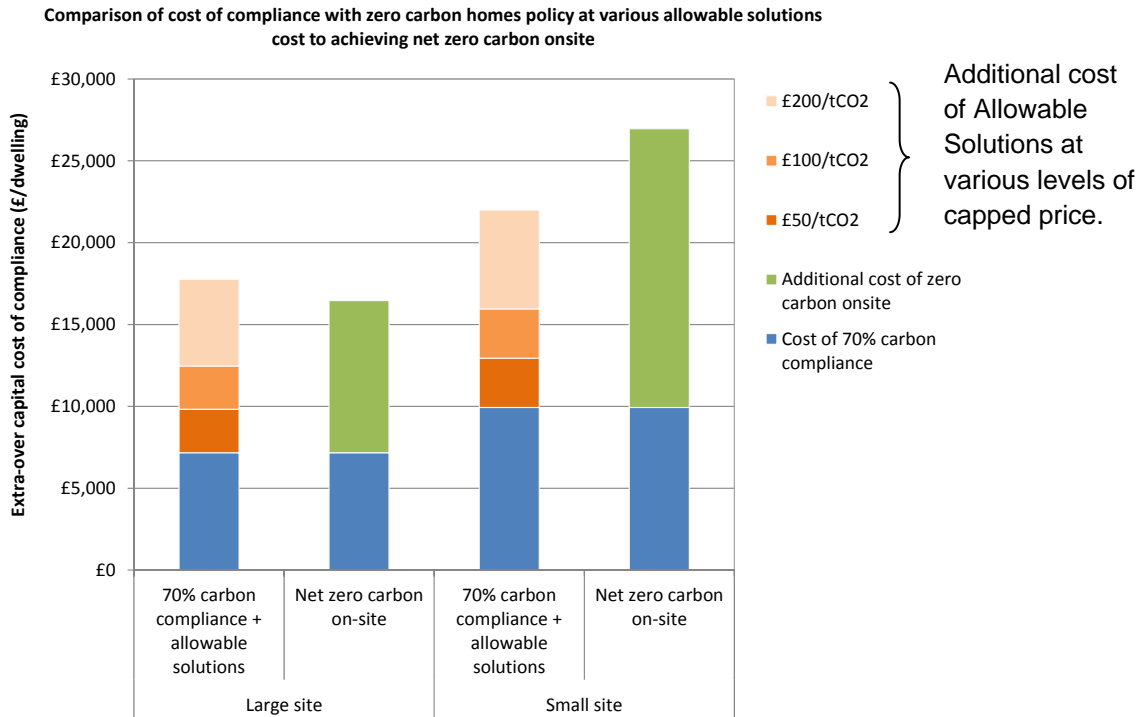


Figure 11, Comparison of the extra-over cost of complying with zero carbon homes policy for two example site types and via two alternative approaches – (i) meet the minimum carbon compliance level and invest in the COF (3 potential capped prices for the offset tariff are shown) and (ii) achieve net zero carbon on-site.

The impact of zero carbon policy on capital costs of construction is expected to be substantial, particularly on smaller sites where low carbon energy options are more limited. The option of investing in Allowable Solutions rather than achieving net zero carbon standard on-site is expected to reduce the cost burden of zero carbon policy. In the case of larger sites, it may be more cost-effective to achieve a higher level of onsite carbon reduction than the minimum carbon compliance level, particularly if the Allowable Solutions cost is set toward the upper end of the range.

The tariff level for the Cambridgeshire COF would need to be set within the capped cost of Allowable Solutions. The tariff could be set below the cap, if there were sufficient low cost carbon reduction opportunities in the area for the COF to ensure it could deliver the required carbon savings at lower levels of investment. If sufficient opportunities did exist, then a lower COF tariff could have the advantage of making development in Cambridgeshire lower cost compared to elsewhere. This would also need to be balanced by the need for the COF tariff to be sufficiently high to drive developers to exploit on-site carbon reduction measures where they are cost-effective. For example, based on the cost comparison in Figure 11, a tariff of £50/tCO₂ may not be sufficient to incentivise developers to push onsite CO₂ reduction much past the minimum carbon compliance level on the example large site. Based on the cost comparisons shown here and subject to further developments on the capped cost of Allowable Solutions, a tariff level of £100/tCO₂ seems to be an appropriate level, providing a balance between generating sufficient funds into the COF to deliver low carbon reduction projects,

incentivising developers to take-up cost-effective on-site measures and limiting the additional cost burden on developers.

5.4 Estimated size of the Fund

In order to forecast the level of income expected into the Fund, based on the quantity of development discussed above, it is first necessary to understand what tariff it is appropriate to levy on developers for each tonne of CO₂ offset. Government thinking into the capped price of Allowable Solutions under zero carbon policy provides a guideline for the range of tariff levels that might be considered for the local fund.

5.4.1 Upper estimate of Fund size post-2016

This section considers the potential size of contributions to the Fund if it were used as an Allowable Solutions delivery mechanism (see section 4.2.1.3). The period of interest is therefore post-2016, since this is the earliest data of the introduction of zero carbon policy. The following graph shows an upper estimate of annual contributions to the Fund, assuming that all new development meets carbon compliance levels only through on-site means and offsets all remaining emissions via investment in the Fund.

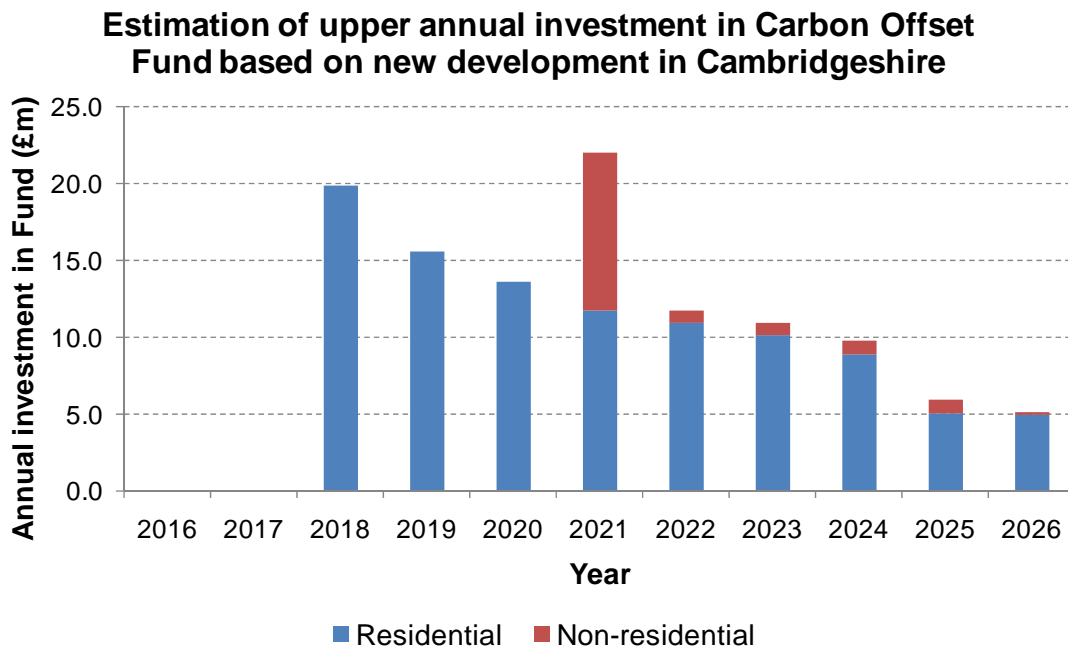


Figure 12: Estimation of annual investment in Fund assuming Fund is used to offset all residual CO₂ emissions under zero carbon policy (based on 30 year building lifetimes and £100/tCO₂)

The undiscounted estimations of investment in the Fund presented above are based on a fixed price of carbon of £100/tCO₂ and a 30 year building lifetime. Comparison with the

expected build trajectory presented in section 5.1 above shows that with these base case assumptions the average investment required per new dwelling is around £5,300.

According to the base case assumptions payments would not be expected until around 2018. This is a result of the assumption that Part L 2016 (ZCH policy) comes into effect towards the end of 2016 and that development in the following year will be based on the previous revision of Part L (transitional arrangements may give up to a year to complete the build of development that gained permission under the previous standard). Clearly the precise timing of when contributions may be expected are subject to regulations surrounding the transition from one Part L standard to the next and the details of when a developer would be expected to pay. These are unknowns at this stage, therefore simplifying assumptions have been made.

Zero carbon policy for non-domestic buildings is expected from 2019 and the assumption regarding transitional arrangements for this type of development is consistent with that for the residential development. Hence no payments are seen from non-residential development until 2021. The apparent fall in contributions from non-residential development post 2021 is a result of the assumptions on anticipated build in the period from 2021 to 2026 (the base case assumption is that no further additions occur beyond 2021 in those regions for which data are unavailable)

According to the above results the total cumulative investment in the Carbon Offset Fund to 2026 could be up to around £114m (c.£100m from residential and £14m from non-residential development). Annual contributions could be up to around £10m to £20m, depending on the level of development.¹²

5.4.2 Upper estimate of Fund size under alternative policy assumptions

5.4.2.1 Early introduction of 70% carbon compliance level

In developing local planning policies as part of their LDFs, local authorities can stipulate that carbon savings in advance of Part L requirements must be met (provided that such policies are supported by a robust evidence base). One such policy involves bringing forward the data from which advanced levels of CO₂ reduction are required. This section considers the potential payments into an Offset Fund under a scenario whereby all local authorities in Cambridgeshire require that residential development built to Part L 2013 exceed minimum Part L standards by bringing forward the regulated emission reduction target of 70% (from Part L 2016). In this scenario the Fund could provide the mechanism by which CO₂ savings beyond the 44% required by Part L could be delivered. Under such policy some developments would be expected to aim to achieve the 70% target through on-site means, whilst others would opt for 44% on-site saving with the remaining 26% through contributions to the Fund. The relative balance between developments using the Fund and those that meet the 70% target through on-site means is reflected by the alternative scenarios presented below.

¹² Note that the level of investment in the Fund will is also sensitive to building lifetime and cost of carbon assumptions. Total contributions scale linearly with these assumptions.

Estimation of annual investment in Fund under policy that requires 70% reduction in regulated emissions after implementation of Part L 2013

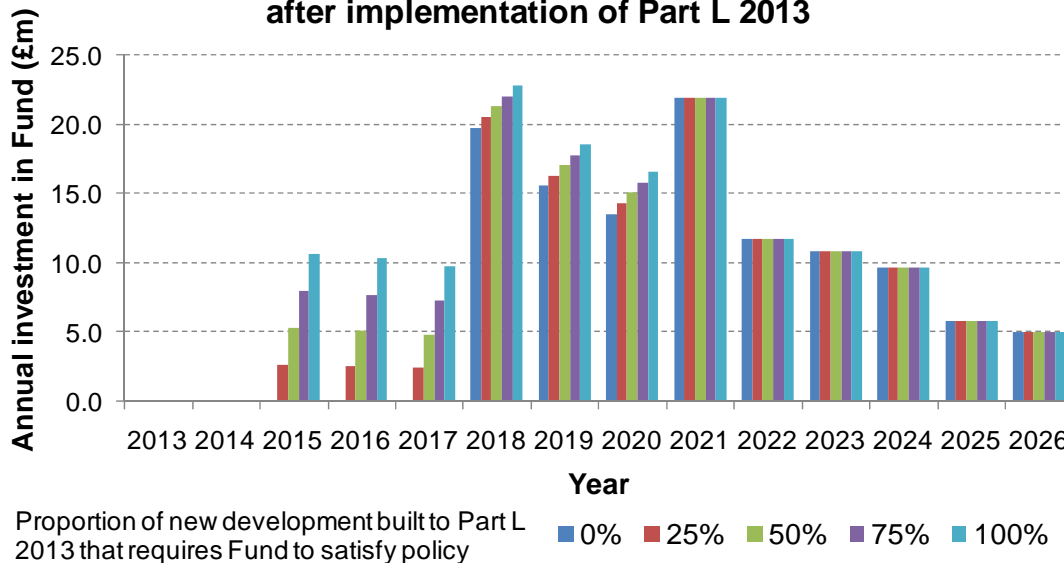


Figure 13: Annual investment in Fund under policy that demands CO₂ reductions in advance of Part L standards

These results represent the total investment required across all new development (residential and non-residential). The alternative scenarios indicate what proportion of total development contributes to the Fund to meet the policy in the years prior to zero carbon policy being implemented. For example, in the 0% scenario it is assumed that all development affected by the policy meets the requirements through further on-site CO₂ reduction measures, hence the Fund receives no input until zero carbon homes policy takes effect (from 2018). At the other end of the scale the 100% scenario represents the upper bound in that all new development affected by this policy makes an investment in the Fund.

These results suggest that in the central (50%) case annual contributions to the Fund prior to the implementation of zero carbon policy could be around £5m per year across the county.

5.4.3 Comparison with other Local Authority Schemes

A number of other local authorities have initiated carbon offset schemes, notably Milton Keynes, Ashford, Aberdeen City Council, Reigate and Banstead and Uttlesford. These are discussed in some detail in the Appendix (Section 12). These existing schemes are run at the single local authority level and collect relatively modest sums from developers. For example, the Milton Keynes scheme, which is probably the most advanced of the existing local authority schemes, imposes a charge of £200 per tonne of CO₂ that a development will emit in its first year. The charges are collected through a S106 arrangement and the proceeds of the fund have been spent on improving the energy efficiency of the existing stock (the fund has insulated around 2,500 private homes and sheltered housing across the city). The other local authorities mentioned above are following a similar model.

The fund proposed for Cambridgeshire is on a much larger scale. The levels of income into the fund discussed in the projections above are much larger than the sums that have been

collected by existing schemes. This is firstly a result of the county-wide scale of the fund, with large future growth projections, and secondly as a result of the level of tariff being considered. The tariff levels discussed above are in line with those being considered as the Allowable Solutions contribution under emerging zero carbon policy. In this case, the tariff is paid for each tonne of CO₂ emitted over a 30 year lifetime of the developments (rather than just on the annual emissions, as is the case under the Milton Keynes scheme). Once zero carbon policy is in force, the contribution into the COF will satisfy the developers obligations under zero carbon policy, however, collecting this level of tariff under a local planning policy prior to introduction of zero carbon standards will result in a significant additional cost on developers (over and above their regulatory requirement to comply with the Building Regs).

5.4.4 Benefits of a County-wide scheme

As discussed above, the projected scale of the Cambridgeshire COF is substantially large than the other local authority run schemes. This is partly a result of the higher tariff assumptions and partly due to the County-wide nature of the Cambridgeshire proposal.

There are significant benefits to the County-wide nature of the Cambridgeshire approach. These include:

- The ability to impact on the delivery of large-scale infrastructure projects
- Wider geographical scope increases the range of project opportunities available for the COF to invest in.
- Overcomes the potential dislocation between major growth areas and areas with greatest opportunity for low carbon projects.
- The scale of the fund will enable it to leverage further private sector investments, resulting in skills and jobs creation.
- Economies of scale reduce the spend on administration and management as a proportion of the overall fund.

There are also significant challenges involved in coordinating the delivery of a fund across local authorities, for example, the need for each local authority to develop appropriate local planning policy. Although there are large benefits to County-wide working, it should not necessarily be seen as an obstacle to launching a fund if not all local authority partners are ready to join from the outset. The fund should have a membership and governance structure that provides for accession of local authorities, allowing flexibility for local authorities to develop their policies at different rates.

5.5 Risks to fund income

5.5.1 Loss of public sector investment

The ability of the COF to collect contributions from developers in respect of the emissions from their developments over the mid to long-term seems to be strongly dependent on the status of the COF as an Allowable Solution. Once zero carbon homes policy is in force, assuming it is

adopted in the currently proposed form, developers will be required to mitigate those emissions that they do not eliminate through actions taken on site by investing in Allowable Solutions. Local Authorities will not be able to require a further payment from developers in relation to those emissions into a fund that is not an Allowable Solution.

Although the COF may be recognised as an Allowable Solution, developers are likely to have a choice as to how the zero carbon requirement is met. Other Allowable Solutions may also be available to developers, as discussed in consultations on the policy. In the form proposed here, it is not anticipated that the COF would provide any financial return to developers, regardless of the level of return provided by its portfolio of projects. Given the opportunity, a developer may choose an allowable solution that does provide a return. However it should be noted that such projects will deliver the carbon emissions savings that the public sector is seeking and associated benefits, so are no detriment to the fund.

Providing levels of CO₂ reduction onsite that are in excess of the minimum requirements of the zero carbon policy (the so-called Carbon Compliance level) will almost certainly constitute an allowable solution. If, for example, there were an opportunity for high levels of onsite CO₂ reduction to be delivered by development of an onsite biomass system with community heating, then the developer may decide to invest in this system directly (i.e. at the project level in Figure 14), in order to share in the revenues generated by sale of heat and receipt of incentives such as the RHI.

The example described above, although diminishing the potential scale of investment in the COF, would still provide beneficial low carbon infrastructure for Cambridgeshire. If, however, the definition of Allowable Solutions were to allow a developer to offset emissions from a development in Cambridgeshire by investing in a carbon reduction project elsewhere, this can be regarded as a lost opportunity for investment in infrastructure in the county.

In the long term, as developers become more familiar with zero carbon policy and the concept of Allowable Solutions, they are likely to seek investments that generate a return rather than pay into a COF (unless the COF tariff were very low, such that it provided a low-cost, low hassle solution, with no investment risk). The fund should therefore be clear about the need for an exit strategy as in the coming decades the economy decarbonises, zero carbon development becomes the norm, and public sector support for it becomes unnecessary.

5.5.2 Other investment into the COF

The size of the COF has been estimated on the basis that developers' contributions are the sole income into the Fund. The opportunity for private sector investment to be made into the COF has also been considered, i.e. for the COF to manage private sector investment together with the developer contribution. In order to attract private sector investment, the fund would need to achieve an attractive financial return on investment, in addition to achieving its carbon reduction targets.

The opportunity to invest in a fund of this nature, alongside public sector investment, may present some attractions to private sector investors that are looking to invest in low carbon projects. For example, the COF would develop a pipeline of projects, thereby generating significant scale of investment opportunity (whereas many individual projects may be too small to interest private investors), reducing investment risk across a portfolio of projects and

avoiding transaction costs associated with entering into project specific partnerships. The public sector partners may also be able to provide access to project opportunities that would not have otherwise been readily accessible, for example on public sector land or within the public sector building stock. The potential to attract private sector investment directly into the COF also has advantages to the public sector partners, as it would increase the scale and overall ambition of the fund.

There are, however, key issues to be considered if combining of developer contributions and private investment within the COF. The first issue is divergent investment priorities. The remit of the COF must be to deliver carbon reductions, whereas the principal concern of the private partners would be an attractive rate of return. To date, carbon reduction and low carbon infrastructure projects have not typically offered the levels of return required to attract large sums of private investment, the exception being large-scale onshore wind farms supported by the Renewables Obligation. This may change over time, particularly as a result of the supportive policy environment, including generous financial incentives for investment in renewable energy generating capacity such as the Clean Energy Cashback Scheme (feed-in tariff).

The local authority partners will need to be cautious when considering pooling private sector investment in a fund with monies collected from developers. The key concern is that capital raised from developers under statutory powers should be used in accordance with those powers and subject to any statutory constraints (for instance under planning law), rather than to generate a financial return. Clearly this is not consistent with a public-private fund from which private investors will expect to extract an attractive return on investment. We will be exploring ways in which different funding streams could be managed differently in order to try and overcome this issue.

6 Collection of financial contributions into the Fund

6.1 Planning mechanisms for collecting financial contributions

6.1.1 Introduction

Existing planning legislation restricts the ability of local authorities to collect financial contributions from developers. Until April 6 2010 when CIL Regulations 2010 came into force the only mechanism by which contributions could be sought by a local planning authority was through Section 106 of the Town and Country Planning Act 1990 (TCPA), as substituted by the Planning and Compulsory Purchase Act 2004. After April 6 2010 CIL regulations also allow local authorities to place a levy on development to fund infrastructure projects.

This section considers the potential role of Section 106 and CIL in collecting contributions for a Carbon Offset Fund. In respect of Section 106 it outlines existing guidance, changes that took effect when the CIL Regulations came into force and the proposed changes included in the ***New Policy Document for Planning Obligations: Consultation***. It goes on to outline the implications for the establishment of a Carbon Offset Fund.

This section also outlines relevant parts of the recently enacted CIL regulations and the implications of these for the establishment of a Carbon Offset Fund.

6.1.2 Section 106 agreements

6.1.2.1 Circular 05/05, Planning Obligations Practice Guidance 2006 and changes under the Community Infrastructure Regulations 2010

Circular 05/05 provides guidance to local authorities on the use of planning obligations under Section 106 of the TCPA and is supplemented by the Planning Obligations Practice Guidance 2006.

Circular 05/05 sets out the role of planning obligations. It states that planning obligations are “*intended to make acceptable development which would otherwise be unacceptable in planning terms*”. Such obligations may restrict development or use of the land, require operations or activities to be carried out in, on, under or over the land, require the land to be used in any specified way or, of relevance in this instance, require payments to be made to the authority either in a single sum or periodically. It is of relevance that a planning obligation may be unconditional or subject to conditions and may be either a specific amount or determined by a formula.

The Circular 05/05 set out five tests that must be met by a planning obligation. The advent of the CIL Regulations, which has implications for the way in which planning obligations may be used, has put three of these tests into law. A planning obligation must be:

- i. Necessary to make the proposed development acceptable in planning terms.

- ii. Directly related to the proposed development.
- iii. Fairly and reasonably related in scale and kind to the proposed development.

In respect of i) this is intended to ensure that proposals are in accordance with planning policies at all levels. The Circular states that “*Development plan policies are therefore a crucial pre-determinant in justifying the seeking of any planning obligations since they set out the matters which, following consultation with potential developers, the public and other bodies, are agreed to be essential in order for development to proceed*”. In respect of ii) the Circular cites examples of a functional or geographic link between the development and the item being provided as part of the developer’s contributions.

In terms of financial contributions the Circular requires that the local authority’s generic policies on payment types be contained in DPDs with the details of their application in SPDs (this allows updating and revising of detailed aspects of the application of planning obligations, such as the methodology used to calculate the level of contributions for different developments, to be more readily undertaken). It is therefore important that all local authorities in Cambridgeshire put in place up to date DPDs and SPDs to enable payments to be made into a Carbon Offset Fund. These should be supported by a sound and robust evidence base as required by the guidance, which in the case of a Carbon Offset Fund would establish the cost involved in offsetting the carbon emissions that a development was not able to deal with directly or could be better dealt with through a financial contribution.

The Guidance specifically states that “*LPA’s may wish to use a generic development control DPD to outline how they intend to deal with sites where developers cannot comply with planning obligations because of limited financial viability.*” In respect of carbon emissions reductions requirements this could include the role of a Carbon Offset Fund where it has been demonstrated that on site measures are not viable.

6.1.2.2 New Policy Document for Planning Obligations consultation 2010

Research published in March 2010 by DCLG on ‘The Incidence, Value and Delivery of Planning Obligations in England in 2007-08’ confirms that there has been an increase in the use of Section 106 agreements, particularly for larger sites, but also in respect of smaller sites, since studies carried out in the early and mid 2000s. There has also been an increase in the range of contributions sought “*to secure wider community benefits, and not just limited to developers’ contributions to off-site infrastructure*” (page 16). Furthermore, the effect of various court judgements has been to extend the scope for which planning obligations may be sought, to include the types of more general contributions which CIL is intended to cover. As a result, the Government considers that local planning authorities have previously sought to maximise developer contributions through planning obligations in ways that do not appear to accord with the policy Circular 05/05.

In light of this and the changes to planning obligations brought about by the introduction of CIL Regulations, a new policy document was published on March 25th 2010 for consultation¹³.

¹³ The intention is for the new policy document to replace Circular 05/2005 and form an annex to the new Development Management Planning Policy Statement on which the Government launched a consultation on 21 December 2009

The consultation document seeks to:

- clarify the purposes of planning obligations in the light of CIL – by restricting their use to their original intended purpose of direct impact mitigation,
- prevent the opportunity for double charging through planning obligations and CIL - planning obligations should aim to secure necessary requirements that facilitate the granting of planning permission for a particular development, while CIL contributions are for general infrastructure need,
- put tariff-style charges on a better statutory basis – resulting in a migration over time of existing tariffs to a CIL basis, this being a more appropriate basis for generalised pooled charges, and
- streamline planning policies.

A number of key changes are noted in the document, which have the potential to affect the ability to take contributions from development through Section 106.

The consultation document highlights the definition of CIL as set out in the Planning Act. It states that the Act provides a wide definition of the types of infrastructure that can be funded by CIL, including roads and other transport facilities, flood defences, schools and other educational facilities, medical facilities, sporting and recreational facilities, and open spaces. It is these types of infrastructure to which the proposed restrictions on the use of planning obligations apply in order to avoid the opportunity for double charging. It is notable that there is no reference to energy infrastructure although it is our view that this need not necessarily exclude the funding of such projects through CIL, where they constitute more strategic infrastructure. Other low carbon projects may be funded through Section 106 obligations.

The consultation document goes on to state that, as CIL infrastructure may only be funded by capital receipts, revenue payments towards any infrastructure items, such as maintenance payments, are not able to be funded through CIL receipts.

A charging authority is expected to set out its intentions for how CIL monies will be spent on the authority's website. Where it does not set out its intentions the consultation proposes that this will be taken to mean that the authority was intending to use CIL monies for any type of CIL infrastructure, and consequently that authority could not seek a planning obligation contribution towards any such infrastructure.

The proposed new policy document also has implications for the ability to pool planning obligation contributions. The consultation document states that from 6 April 2014 (or from the date that a charging authority's first charging schedule takes effect, if earlier) planning authorities will no longer be able to seek more than five individual planning obligation contributions towards infrastructure that is capable of being funded by CIL. For infrastructure that cannot be funded by CIL, no restrictions on the number of obligations that may be pooled apply.

The Policy Annex makes a number of similar provisions to that contained in the current Circular which are of particular relevance including the returning of unspent contributions within an agreed timeframe.

Crucially, the Policy Annex also sets out further details on the application of the three tests that all planning obligations must pass, as follows:

(i) necessary to make the development acceptable in planning terms

Planning obligations should be used to make acceptable development which would otherwise be unacceptable in planning terms in accordance with published local, regional or national planning policies.

(ii) directly related to the development

Planning obligations should be so directly related to proposed developments that the development ought not to be permitted without them. There should be a functional or geographical link between the development and the item being provided as part of the agreement.

(iii) fairly and reasonably related in scale and kind to the development

For example, developers may reasonably be expected to pay for or contribute to the cost of all, or that part of, additional infrastructure provision which would not have been necessary but for their development. The effect of the infrastructure investment may be to confer some wider benefit on the community but payments should be directly related in scale to the impact which the proposed development will make. Planning obligations should not be used solely to resolve existing deficiencies in infrastructure provision or to secure contributions to the achievement of wider planning objectives that are not necessary to allow consent to be given for a particular development. There should be a fair and reasonable relationship between what is lost, in terms of infrastructure or facilities removed as part of a proposed development, and what is to be offered to replace that loss. A reasonable obligation should at least seek to restore facilities, resources and amenities to a quality equivalent to that existing before the development." (PO2.1)

In light of the changes outlined above, the Government intends to review and if necessary replace the current Planning Obligations: Practice Guidance, to provide further practical guidance for practitioners in the use of planning obligations.

6.1.2.3 Implications for a Carbon Offset Fund

The advent of the CIL Regulations has narrowed the scope of the use of Section 106 to exclude those elements that constitute more strategic infrastructure, which will be financed through CIL. Section 106 will be able to be used where infrastructure is required as a direct result of the development. Accordingly we consider that it would be acceptable under the new regime for contributions to be sought which seek to offset carbon emissions that will be generated by a development and which it is not possible to reduce by other means or where it is preferable either technically or economically to deal with by means of a financial contribution. This must, however, be progressed within the context of clearly related planning policies.

Putting the three tests in respect of planning obligations on a statutory basis has resulted in a more stringent basis on which requests must be made. It will be necessary to ensure that there is adequate justification for requests for contributions, having regard to planning policy

and the specific characteristics of a proposed development. Test ii) continues to seek a functional or geographical link between the development and that being provided by the legal agreement. In the context of a Carbon Offset Fund it is considered that a functional link could be demonstrated between the contribution given and the purpose of the fund which would aim to reduce carbon emissions. Whilst anecdotal evidence suggests that the geographic relationship of contributions and the purpose to which they have been put historically has been reasonably close, the purpose of a Carbon Offset Fund, to reduce carbon emissions, suggests that geographical proximity need not be as important as the same result will be achieved regardless of location. However, this has not, to our knowledge, been tested. In order for greater certainty to be obtained we recommend that Counsel's opinion is sought as to the correct interpretation of test ii) in light of the aims of the Carbon Offset Fund and the potential uses to which it could be put. This is an area for further work.

In the event that a contribution provided to the COF through Section 106 does not make adequate carbon savings a developer could seek the return of part or all of the contribution made. However, this must be considered against the fact that planning permission would not have been granted in the event that this contribution was not paid.

In order to comply with requirements regarding the returning of contributions it will be necessary for an annual report to be produced by the body administering the Carbon Offset Fund which sets out what money has been received, what money has been spent, and on what. This could be similar to that required under CIL and set out below. Where money has not been spent within a timeframe agreed with the developer when a Section 106 is completed it will need to be returned from the fund. This is typically a period of five or ten years. Furthermore, if contributions are sought on the grant of planning consent and that consent is not implemented then contributions should be returned.

6.1.3 The Community Infrastructure Levy

The Planning Act 2008 introduced the ability for regulations to be made in respect of the imposition of CIL. The Community Infrastructure Levy Regulations 2010 provide a further means by which contributions can be taken from development to fund infrastructure projects.

Since 2008 Cambridgeshire Horizons and its local authority partners have been developing proposals for the introduction of a variable rate tariff (VRT) across the county. This would have been introduced through the individual authorities within the County. This was intended to ensure that the costs of mitigating the impact of development on its surrounding through the improvement of existing or provision of new infrastructure were properly dealt with. Following publication of the detailed proposals and draft regulations for CIL in 2009 the Cambridgeshire local authorities, in particular Huntingdonshire and East Cambridgeshire District Councils, has been moving towards the implementation of CIL rather than VRT, although the proposals are similar. The Cambridgeshire Horizon’s proposals were intended to improve upon the existing system and run alongside a streamlined Section 106 process, which would deal with site-specific issues only. Under previous proposals the VRT was to be collected via the existing Section 106 system, until such time as the authorities adopted the Community Infrastructure Levy (CIL). This will not now be the case.

6.1.3.1 The Community Infrastructure Levy Regulations 2010

The Planning Act 2008 (the Act) paved the way for the introduction of CIL as a means to ensure that costs incurred in providing infrastructure to support the development of an area can be funded (wholly or partly) by owners or developers of the land.

The Act defines ‘infrastructure’ as including (as amended by CIL Regulations):

- roads and other transport facilities,
- flood defences,
- schools and other educational facilities,
- medical facilities,
- sporting and recreational facilities, and
- open spaces.

The CIL Regulations further define the meaning of development to exclude buildings into which people do not normally go and buildings into which people only go intermittently for the purpose of inspecting or maintaining fixed plant or machinery. They also exclude minor development, which is deemed to be a gross internal area of new build of less than 100 square metres, excepting that this does not apply to one or more dwellings. A chargeable development which includes social housing is eligible for relief from liability for CIL based on a set formula.

Cambridgeshire is a two tier authority with district councils and a city council as well as the county council. The regulations confirm that a county council is the collecting authority for CIL charged in its area in respect of development for which it grants planning permission.

Charging authorities are required to issue a charging schedule setting rates, or other criteria, to be applied to development in its area. In setting the charging schedule, the charging authority must have regard to the actual and expected costs of infrastructure, other matters related to economic viability and other actual and expected sources of funding for infrastructure.

More detail is given within the regulations as to the format and content of charging schedules for CIL. It provides for the setting of differential rates for different zones and by reference to different uses of development. In setting differential rates consideration may be given to supplementary charges, nil rates, increased rates or reductions. This would allow different planning authorities within Cambridgeshire to set different rates within their authority boundary as had been previously proposed under the VRT.

The regulations seek to ensure that a balance is struck between the desirability of funding from CIL, the cost of infrastructure required to support development of an area, taking account of other actual and expected funding, and the potential effects of the imposition of CIL on the economic viability of development across its area. This will be important in the context of the economics of the districts in Cambridgeshire.

Alongside the submission of a draft charging schedule for independent examination local planning authorities are also required to submit copies of relevant evidence. At present it is not clear on what basis the examination will take place, although a robust evidence base will be required. Further details on charge setting and charging schedule procedures were set-out in a DCLG guidance note in March 2010¹⁴.

Key to the establishment of a Carbon Offset Fund is the requirement that a charging authority must apply CIL to funding infrastructure to support the development of its area (Regulation 59). Funding may be applied outside of an authority's area where this would support the development of its area. The Regulations also allow a charging authority to reimburse expenditure already incurred on infrastructure. This could potentially allow Cambridgeshire authorities to fund low carbon or renewable energy projects upfront and reclaim the money from subsequent developments.

In order for the CIL process to be transparent a charging authority must prepare a report detailing the total CIL receipts for the year, the total CIL expenditure, a breakdown of the CIL expenditure by item and the total amount of the CIL receipts retained at the end of the year.

6.1.3.2 Implications for a Carbon Offset Fund

The need for a county-wide infrastructure plan

It will be necessary for the Integrated Development Programme (IDP), which identifies the sub-regional infrastructure required for Cambridgeshire and its costs, to be kept up to date and contain sufficient detail to provide the basis for charging schedules within each local authority. It will also be necessary for each of the local authorities to prepare their own local infrastructure framework, with the relationship between the county and local infrastructure

¹⁴ Community Infrastructure Levy Guidance: Charge setting and charging schedule procedures, March 2010, Communities and Local Government, www.communities.gov.uk/documents/planningandbuilding/pdf/1518612.pdf

frameworks to be made clear. All of these plans will need to be carefully developed in order to stand up to scrutiny. These plans will form part of the evidence base for emerging core strategies, including those that will need to be reviewed, and should therefore take account of the requirements of PPS12. Reference should be made to the potential for funding to be sought from the Carbon Offset Fund, in line with paragraph 4.9 of the PPS.

In order for a Carbon Offset Fund to be legitimate in the context of CIL the infrastructure identified by these plans will need to be clearly related to the growth and other aspirations for Cambridgeshire, including the delivery of reduced carbon emissions.

The Cambridgeshire Integrated Development Programme was adopted in December 2009. It sets out a need to respond to climate change mitigation and adaptation. It recognises that reducing emissions by increasing renewable energy generation must be matched by demand management measures. However, at present only one initiative is identified within the plan associated with low carbon development. It is unclear at present how this might relate to the provision of funds through the CIL and how this could then be diverted into a COF. Further identification of low carbon projects or types of projects should form part of the review and update of the Programme.

The need for local authority infrastructure plans

It is understood that Huntingdonshire District Council will be the first local authority in the county to bring forward the CIL, based on the IDP and its own charging schedule related to the development of its Local Investment Framework (LIF). It is understood that East Cambridgeshire will follow. As with the IDP all LIFs will need to contain adequate detail and be sufficiently robust to provide the evidence base for charging schedules, including low carbon projects or types of projects.

6.1.4 Summary of planning mechanisms to collect funds

Whilst local planning authorities are not required to implement CIL, the narrowing of their ability to use Section 106 as a mechanism by which to collect contributions will encourage authorities to use it in order to ensure that revenue for essential infrastructure can continue to be sought. It is our view based on existing and emerging legislation and guidance related to the use of S106 and CIL that it should be possible to utilise both mechanisms to provide funds for a COF although in the case of CIL funds would need to be put (in broad terms) towards specific projects or types of projects identified through the charging schedule.

It appears likely, given the nature of current development in Cambridgeshire and that many of the large development sites already have planning permission, that Section 106 is more likely to be used in the short term, that is prior to 2014 when the restrictions on the pooling of Section 106 contributions take effect (unless CIL has been put in place in a local authority at an earlier time). Section 106 should also be used where contribution are not intended to be used for a specific piece or type of infrastructure covered by CIL. After 2014 it will be necessary for each of the local authorities to progress CIL if they are seek funds to progress strategic infrastructure projects that contribute towards carbon emissions reductions or wish to pool contributions from a larger number of developments. In light of this, a policy framework that enables the use of both mechanisms should be put in place.

It is acknowledged that the East of England RSS review outlines four growth scenarios, which with the exception of Scenario 1, which is a continuation of current trends, all propose increased development within Cambridgeshire. There will be infrastructure requirements arising from higher levels of growth that may include low carbon and renewable energy infrastructure. These future requirements could be met through CIL payments either directly or through a Carbon Offset Fund. At this time, the rate of future growth is uncertain given the confirmation by the coalition government that it intends to abolish RSSs. It is the government's intention that future housing requirements will be generated locally. It is likely that further infrastructure will be required regardless of the mechanism by which future growth is determined.

In respect of CIL charging schedules it may be appropriate, whether in the schedule or in supporting documents such as an SPD to breakdown the required payment such that the payment required to fund infrastructure projects designed to reduce carbon emissions can be identified. Care will need to be taken in setting the schedule to ensure that developers are not deterred from promoting development in Cambridgeshire through excessively high requirements. CIL guidance on economic viability should be taken into account.

In exceptional circumstances developers may wish to negotiate reductions in this payment, for example, where a development proposed is carbon neutral and hence should not necessarily have to pay towards the provision of carbon infrastructure projects. The ability to apply discretionary relief for exceptional circumstances would need to be notified by way of a statement in line with the requirements of Section 56 of the CIL Regulations.

It will also be necessary to give consideration to the time at which CIL (and Section 106) payments must be paid. In most cases this will be on commencement of development although there may be situations, for example large developments that take several years to complete, where an alternative may be more appropriate.

It is our interpretation that it will not be possible to use Section 106 to take contributions to fund 'infrastructure' where a CIL charging schedule is not in place. Accordingly, where renewable energy or low carbon infrastructure projects have been identified or it is intended that such projects are funded through CIL, it will not be possible to seek contributions through Section 106 in the event that a local CIL charging schedule has not been put in place. This will encourage local planning authorities to adopt a charging schedule or miss out on collecting funds for infrastructure projects.

6.2 Development of appropriate local policy

6.2.1 Recommended policy documents

In order to generate funds from development within Cambridgeshire to put into a Carbon Offset Fund each local planning authority will need to set out within its LDF a range of policies and supporting text that provide the basis on which financial contributions can be sought.

Opportunities to collect funds will arise from a range of development but are expected to be mainly from medium and small-scale developments in the short to medium term, particularly given that planning permission has been granted for many of the larger developments. Small-scale development is likely to find it more difficult to achieve carbon savings on-site through the provision of on-site low carbon energy schemes or through renewable energy. The potential to offset their requirement to reduce carbon emissions through contributions to a Carbon Offset Fund may therefore be more viable and more attractive.

In order to be able to collect funds from a range of development types, policies across the LDF will be required. Table 7, section 14 (Appendix 3) sets out the range of policy and other related documents that local planning authorities in Cambridgeshire have or are preparing which are of relevance to the establishment of a Carbon Offset Fund. We suggest that the following are required:

- **Core Strategy** – should set out a high level policy that refers to the importance of carbon emissions reductions within the authority.
- **Development Control DPD** – should include more detailed policies related to requirements for carbon emissions reductions from development, and should include reference to a hierarchy including using less energy, supplying energy efficiently, the use of low carbon and renewable technologies, the use of Allowable Solutions and offsetting carbon emission through a Carbon Offset Fund. Reference should be made within policies on developer's contributions to requirements for contributions to reduce impacts on climate change.
- **Site Specific Allocations documents** – should include detailed policies for achieving carbon emissions reductions from specific development proposals, following the energy hierarchy and based on the site-specific circumstances. Such policies should include the potential for money to be paid into a Carbon Offset Fund, where this is deemed appropriate.
- **Area Action Plans** – should include detailed policies for achieving carbon emissions reductions from development envisaged for an area, following the energy hierarchy and based on the specific circumstances of the wider area. Such policies should include the potential for money to be paid into a Carbon Offset Fund, where this is deemed to be appropriate.

6.2.2 Other considerations

Policies will need to take account of the requirements of PPS12: Local Spatial Planning, PPS1 Supplement and the emerging PPS1 Supplement replacement, together with those policies currently set out in the East of England Plan (and any that are replaced). In many cases local planning authorities will also need to undertake specialist low carbon and renewable energy studies to provide a robust evidence base on which their policies can be based. Such studies will need to consider:

- the type of policies that are appropriate for that authority,
- the types of development that are affected by policies requiring carbon emissions reductions and low carbon and/or renewable energy,
- the thresholds above which the policy requirement is applicable,
- the level of carbon emissions reductions sought,
- any requirements to comply with an energy hierarchy,
- whether an on-site requirement should be set,
- the provision of contributions to a Carbon Offset Fund as means of achieving carbon emissions reductions.

In respect of the final bullet point, where planning policies come forward in advance of a Carbon Offset Fund being in place, the policies will need to be carefully drafted to ensure that once in place contributions can be sought or alternatively that a mechanism is put in place whereby contributions can be held by the council until such time as the fund is in place or be used on other similar projects in advance of the fund being in place.

In the majority of cases an Area Action Plan for the major areas/sites has been adopted or outline planning permission has been granted. In the case of some AAPs policies have been set that seek to reduce the carbon emissions arising from development. For example, in East Cambridge a reduction in carbon emissions of 10% beyond Building Regulations has been set. At North West Cambridge the AAP is seeking reductions beyond the Code for Sustainable Homes and a requirement for an element of low or zero carbon or renewable energy production.

Where planning permission has been granted for these major sites, the opportunity to reduce the carbon impact of development and seek contributions to a Carbon Offset Fund may be more limited. However, in some cases where reserved matters have yet to be submitted there remains an opportunity to seek carbon emissions reductions either directly through the development or through financial contributions into a Carbon Offset Fund, if appropriate planning policies and SPDs are put in place prior to further applications being made.

6.2.3 The role of SPDs

In order to provide adequate information to developers on how the above planning policies are intended to work it is recommended that they are supported by information contained in Supplementary Planning Documents (SPDs). In some cases this will be in a Sustainable Design and Construction SPD. Some of the planning authorities in Cambridgeshire already have a Sustainable Design and Construction SPD within which additional information on

requirements for funding to offset carbon emissions can sit. Existing examples of such SPDs are detailed in the section on examples of existing funds, section 12.

Consideration will need to be given within the SPD as to what constitutes an appropriate level of offset funding, based on the role of on-site versus off-site requirements and economic viability. The requirements set within policy and amplified within the SPD should not be set so high as to discourage development (this is more likely to occur in the more disadvantaged parts of the county) but equally should be sufficiently demanding so as to achieve an appropriate level of carbon emissions reductions. Consideration should be given in the SPD to viability issues.

Where funds are to be sought through Section 106 legal agreements, supplementary information may also need to be included within any SPD on Section 106 requirements, in accordance with Circular 05/05 and any subsequent legislation/guidance (see above). This should set out the thresholds above which contributions will be required and the level of contribution to be sought. A number of Councils (see section 12) are using the figures generated by a study carried out by Milton Keynes Council. Cambridgeshire Horizons and its member authorities will need to consider whether this is an appropriate way forward or whether it would be more appropriate for a further study to be undertaken which examines the level at which contributions should be sought in relation to the particular economic circumstances of individual authorities.

LPAs may wish to give consideration as to whether it would be appropriate to introduce a further SPD that deals with issues arising from the introduction of CIL within their authority. Alternatively, this could form part of an expanded SPD on contributions.

6.2.4 Planning policy documents and the Community Infrastructure Levy

In order that CIL can be used to take contributions from development to fund infrastructure projects in the County, which may include low carbon and/or renewable energy projects, it will be necessary for a similar but slightly different planning policy framework to be implemented to that outlined above. Local planning authorities will continue to need to put in place suitable carbon reduction and low carbon and renewable energy policies within the policy documents outlined above, but with reference either in policies and/or supporting text to the use of CIL. It is envisaged that a separate policy that specifically concerns the use of CIL may be necessary. This would be similar to existing policies used by some LPAs that concern developer contributions, currently collected through Section 106.

Details on the application of CIL may also need to be set out in an SPD, which could supplement the Council's charging schedule. As set out above, consideration may need to be given to whether differential rates for different zones or different intended uses of development should be set out and explained in more detail from that in the charging schedule. Where, in exceptional circumstances, and subject to the criteria under Section 55 of the CIL Regulations being met, a development would be rendered uneconomic if were required to meet the full cost of CIL, relief from liability to pay CIL may be given. This could potentially include the additional costs arising from a development being zero carbon rather than meeting reduced requirements set out either in planning policy or in building regulations.

In light of the above, in formulating the necessary framework to facilitate a Carbon Offset Fund it will be necessary to issue a statement giving notice that relief for exceptional circumstances is available within a local authority's area in line with Section 56 of the regulations. Guidance on CIL may provide further explanation as to the role of exceptional circumstances.

In addition to the suite of planning policy documents, it will be necessary for each local authority using CIL to produce an infrastructure framework document, which will not form part of the LDF, upon which a charging schedule can be based. Whilst it is not necessary to detail all individual infrastructure projects to be supported by CIL where low carbon or renewable energy projects have been identified it may be appropriate that these are specifically identified. Further consideration of CIL is detailed in section 6.1.3, above.

6.2.5 LDF progression

One of the key issues that must be dealt with if a Carbon Offset Fund is to generate funds is the creation of an appropriate policy framework. The Planning and Compulsory Purchase Act 2004 brought in a new system of plan-making which has resulted in a change from local plans to local development frameworks. As elsewhere, LPAs in Cambridgeshire are progressing their LDFs at varying rates (see Table 7 in appendix, section 14). These range from South Cambridgeshire District Council which has adopted the majority of its LDDs and East Cambridgeshire some of its LDD documents to Fenland District Council which will not have adopted its core LDDs until 2011/12.

There is an opportunity in those authorities that have not adopted LDDs to ensure that an appropriate policy framework is put in place that not only seeks to reduce carbon emissions through energy efficiency and on-site measures but also provides scope for developers to pay a contribution, whether through Section 106 or through CIL, to a Carbon Offset Fund, where this is considered appropriate. Such policies will not, of course, be in place for some time and therefore funds will not be generated in the short term. **All local authority planning policy teams in Cambridgeshire must be made aware of the potential for a Carbon Offset Fund to be put in place in the County so that this can be taken into account when formulating policy.**

Appropriate policies for carbon emissions reduction, low carbon and renewable energy generation should be backed up by a robust evidence base. This is best achieved through the commissioning of a specific low carbon and renewable energy study for each authority, or a group of authorities where this is deemed appropriate. Cambridge City Council has commissioned such a study to inform the preparation of its Core Strategy. It is noted that the Cambridge Sub-Regional Partners (comprising South Cambridgeshire, East Cambridgeshire and Huntingdonshire together with Cambridgeshire County Council) commissioned a study on 'Delivering Renewable Energy in Cambridge Sub-Region' in 2004. Whilst this study provides valuable background information, we consider that it would be necessary to provide an updated report, which considers not only renewable energy but also low carbon energy.

Where LDDs are already adopted these should be reviewed and updated at the earliest opportunity to enable updated policies to be put in place that will allow the collection of funds from development for a Carbon Offset Fund. If appropriate, and supported by existing planning policies within the LDF, SPDs could be used to provide details of the local planning authority's requirements to contribute to a Carbon Offset Fund. As SPDs do not have to undergo the

same level of public consultation and examination, this may be a reasonably quick way of providing details on a Carbon Offset Fund. This will only be appropriate where existing policies provide an adequate basis on which an SPD can be introduced or updated. As noted above an evidence base is likely to be required to support such changes.

Similar issues to those highlighted above arise in respect of Sustainable Design and Construction and Planning Obligations SPDs. Constituent LPAs range from having adopted SPDs to having no plans to provide such SPDs. It will therefore be necessary for a consistent approach to be adopted across all of the authorities if a robust basis for requiring carbon emissions reductions and the collection of contributions to a Carbon Offset Fund is to be put in place.

Adopting the approach outlined will ensure that it will be possible with most planning applications which fall above any thresholds set in policy to calculate the contribution required. However, where insufficient detail is available, for example, about the precise quantum of development, conditions may need to be used to require more detailed information about carbon emissions reductions and low and renewable energy generation to be submitted at a subsequent stage in the planning process. This could include reference to the potential for contributions to be sought in the event that planning policy requirements cannot be met.

6.2.6 Local Investment Frameworks

In respect of the use of CIL for the collection of contributions each of the local authorities in Cambridgeshire has a timetable for the preparation of a LIF. These will form the basis on which a charging schedule is prepared for CIL. It is essential that they are kept up to date and reviewed on a regular basis so that renewable and low carbon energy projects can be identified on an ongoing basis. This will form the justification for the allocation of part of the funds collected through CIL to be put into a Carbon Offset Fund to fund such projects. Officers developing LIFs must be made aware of the potential for a Carbon Offset Fund to be in place so that appropriate renewable and low carbon infrastructure projects may be highlighted in the LIF, if appropriate.

Guidance on the requirements under CIL in respect of infrastructure planning are set out in the ‘Charge setting and charging schedule procedures’ guide referred to above. LIFs will need to be submitted as background documentation on infrastructure planning and economic viability when submitting proposed charging schedules for examination.

6.2.7 Development Management

Planning officers involved in day to day development management decisions will need to familiarise themselves with any new planning policy framework that comes forward setting out requirements for carbon emissions reductions, including the provision of contributions to achieve these reductions, whether through Section 106 or through CIL. They will be at the ‘coal face’ of the implementation of policies and CIL and will be critical to its success. Given that many will not be familiar with how emissions calculations are made and the COF, training may be required to ensure that they fully understand the process and can provide advice to applicants on how their proposals are expected to meet the policy requirements and those of CIL. LPAs may wish to consider whether a specialist officer would be useful or whether the provision of specialist advice from consultants could meet their need for expert advice.

6.3 Implications of the change of Government

Following the formation of the Conservative – Liberal Democrat alliance the Coalition government published ‘Our Programme for Government’ in May 2010 which sets out the coalition’s agreement in respect of key policy areas. A number of the policy areas are of potential relevance to the COF, including those relating to devolution of power and financial autonomy to local government, creation of a green investment bank, creation of a presumption in favour of sustainable development in the planning system, increasing the target for energy from renewable sources, among others.

In most cases there is limited detail of the precise implication of the above policies for the COF and it will be necessary to wait until further details are published before further analysis can take place. Whilst the above document provides likely headline changes there may also be other changes as the two parties continue their policy discussions. In light of this a review of Conservative and Liberal Democrat policy in respect of planning and low carbon and renewable energy policy is of relevance.

6.3.1 Potential planning policy

The Conservative Party published its Policy Green Paper No.14 on planning in 2010. It proposed a radical change to the planning system, which the Conservatives consider does not function properly. Key policies included:

“a. we will eliminate large amounts of unnecessary bureaucracy by:

- *abolishing the entire bureaucratic and undemocratic tier of regional planning, including the Regional Spatial Strategies and national and regional building targets;*
- *abolishing the power of planning inspectors to rewrite local plans – so long as they comply with national standards, are sensibly related to neighbouring communities, and have been developed by a fair and proper process, they will be approved; and*

b. we will create a new system of collaborative planning by:

- *giving local people the power to engage in genuine local planning through collaborative democracy – designing a local plan from the “bottom up”, starting with the aspirations of neighbourhoods;*
- *encouraging upper-tier authorities (e.g. county councils and unitary authorities), which are responsible for infrastructure such as waste, roads etc., to compile infrastructure plans.”*

Whilst the Conservatives are unhappy with the current LDF process, it is unclear whether any significant changes will be made to the process under which they are prepared, although there is clearly an emphasis on local involvement. It was their intention to put in place legislation to ensure that new local plans are completed within a prescribed period. Where plans are not completed their policy establishes a presumption in favour of sustainable development, that is *“it will be deemed to have an entirely permissive planning approach, so all planning applications will be accepted automatically if they conform with national planning guidance”*.

During the transition period, the Conservatives proposed that existing plans continued in force with the ability to carry out a partial review of unwanted policies arising from existing Regional Spatial Strategies. Housing numbers would have been generated by local authorities and provided to neighbourhoods as part of the Conservative's collaborative approach to planning.

The Conservatives intended to legislate to ensure that all local planning authorities and other public authorities cooperate in the preparation of infrastructure plans.

The Conservatives believed that the principle of expecting developers to make a contribution towards the additional infrastructure needed to make their development viable is sound. However, they considered the Government's proposed twin-track approach is "*unnecessarily complicated and does nothing to address the uncertainty and delays that currently exist in agreeing planning obligations*". They intended to simplify the system by returning planning obligations to their original function by limiting their use to issues relating directly to site-specific remediation and adaptation. They intended to scrap CIL and non-site-specific planning obligations and instead introduce a single unified local tariff applicable to all residential and non-residential development (even a single dwelling), but at graded rates depending on the size of the development.

Each local planning authority would have been expected to set its own local tariff rates and publish them in its local plan. A percentage of the money raised by the tariff from each building constructed would be passed down to the community in which the development takes place. Affordable housing units would have been exempt from paying the tariff, as would all development by Local Housing Trusts and all self-build housing.

This was intended to give developers much greater certainty about how much a proposed development would cost and give councils a locally controlled source of funds to pay for the infrastructure needed to underpin the renewal of their areas.

At the national level it was intended that a single national planning framework document would be produced which would be put before Parliament for approval. Alongside this, existing PPSs and PPGs would be reviewed and revised.

Liberal Democrat planning policy focuses on ending what they view as the "*highly centralised approach to planning, reversing the loss of local control in the Planning Act*". They had intended to encourage local authorities to make full use of the Section 106 system and CIL to ensure that developers make a substantial contribution to providing a decent public transport system and rail access to ports.

6.3.2 Potential low carbon and renewable energy policy

In respect of low carbon and renewable energy development, the Conservatives Policy Green Paper considered that the creation of genuinely local plans would give communities and councils more freedom to set energy efficiency and renewable generation requirements for new developments, for instance by including requirements for Combined Heat and Power systems in plans for town centres.

Perhaps the most significant development in terms of the COF since the formation of the coalition government is the announcement by the Housing Minister Grant Shapps on the future form of the zero carbon homes policy. While upholding the commitment of the previous

government that new housing built post-2016 should make no net increase to carbon emissions, the proportion of emissions reduction that must be achieved on-site (i.e. the carbon compliance level, previously expected to be 70% of regulated emissions) is subject to review. Most significantly, the statement then expresses an intention to explore options for developers to meet their CO₂ reduction obligations through payments to fund local energy projects, possibly via an existing tariff mechanism, and emphasises the importance of local authorities playing a prominent role in the design and delivery of such funds.

6.3.3 Implications of the new Government: conclusions

Whilst the Conservative's Policy Green Paper suggests that radical reform will be undertaken, in light of the coalition government that has emerged following the election it remains unclear from the Programme for Government how exactly it is intended to change the planning system, other than those headline changes that are detailed above. Notwithstanding this it is clear that there is continuing support for measures to reduce the impacts of climate change.

Where details are available the policies do not appear to significantly change the processes that are currently in place, with the exception of the abolition of the regional level of planning which is not likely to have a significant impact on setting up a Carbon Offset Fund, although it will remove a level of support.

At the local level the process of plan making will currently remain but is likely to have a greater local emphasis. No details are currently available as to how this might be undertaken, although it is envisaged that the process of local engagement could lead to delays in adopting plans. This would impact on the need to get a series of policies in place for low carbon and renewable energy with provision for a Carbon Offset Fund.

Changes to Section 106 and CIL appear to be broadly in line with those emerging under the current Government although CIL will be given a different name. It should therefore be possible to seek funds through either route.

The coalition government has expressed support for introduction of zero carbon homes policy on the same timescales, i.e. for homes built post-2016. The definition of zero carbon is subject to review and early statements suggest that the coalition government may favour a policy that permits developers to meet an increased proportion of their CO₂ reduction obligation through investment in offsite projects. In line with the localism agenda, the coalition government has emphasised the importance of local authorities playing a role in the delivery of such funds and has expressed an intention to explore the use of existing tariff mechanisms for the collection of developer contributions. This thinking on the structure of zero carbon policy is clearly well-aligned with the COF concept, as outlined in this study.

7 Structure of the Fund

7.1 The Fund-holding body

There are two broad approaches to joint venture working between local authorities. The first is the contractual or “partnership” approach, whereby the rights and obligations of each local authority partner are set down in a written agreement. The second is the special purpose vehicle (“SPV”) approach, in which the local authorities would each have an interest in a corporate established to carry 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.

7.1.1 Contractual/partnership structures

7.1.1.1 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 |
|--|--|
| <ul style="list-style-type: none"> No administrative/regulatory burdens under the Companies Acts. | <ul style="list-style-type: none"> No independent legal status. Cannot hold property in its own right. Still need contractual documentation to regulate relationship between participating authorities. Requires one of the local authorities to take a “lead” role (e.g. on administration of the project). Voting membership restricted to local authority members (though this may not be an issue in the context of the COF as all members may be local authorities). |

7.1.1.2 Other contractual/partnership structures

Development/partnership schemes

Local authorities’ ability to combine with the private sector on development / partnership schemes has been recognised by the Courts. However, for partnership working where all the partners concerned are local authorities, the joint committee option is likely to be more suitable.

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.

7.1.2 SPVs

7.1.2.1 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 |
|--|--|
| <ul style="list-style-type: none"> • Separate legal personality and limited liability. • Board structure permits independent management, and can include external representatives. • Can be capitalised through shareholdings – i.e. subscribing for a premium on the shares. • Constitutional flexibility as regards comparative rights of shareholders and directors. • Dividends can be declared and paid (provided there are sufficient profits). | <ul style="list-style-type: none"> • 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. • Bureaucratic compliance in accordance with Companies Acts – e.g. filing of accounts and annual returns, and statutory directors’ duties. • Not a suitable structure for charitable purposes. |

7.1.2.2 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 |
|--|---|
| <ul style="list-style-type: none"> • Separate legal personality and limited liability – usually a nominal guarantee sum (e.g. £10). • Board structure permits independent management, and can include external representatives. • Changing members is easier than with a company limited by shares – new members can be introduced and existing | <ul style="list-style-type: none"> • Bureaucratic compliance in accordance with Companies Acts – e.g. filing of accounts and annual returns. |

| | |
|--|--|
| <p>members can resign.</p> <ul style="list-style-type: none"> • More suitable than a company limited by shares for charitable or not for profit purposes. • Constitutional flexibility as regards comparative rights of members and directors. • 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). | |
|--|--|

7.1.2.3 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 |
|--|---|
| <ul style="list-style-type: none"> • CIC “brand” indicates the community benefit of the entity, and may be useful in promoting the aims of the organisation. • Separate legal personality and limited liability (either as a company limited by guarantee or limited by shares). • “Asset lock” protects the assets of the CIC, which can be transferred below market value only if for the benefit of the community. • Board structure permits independent management, and can include external representatives. • If a company limited by guarantee, new members can be introduced and existing members can resign. • Constitutional flexibility as regards comparative rights of members and directors. | <ul style="list-style-type: none"> • Bureaucratic compliance in accordance with Companies Acts – e.g. filing of accounts and annual returns. • 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. |

7.1.3 Other structures

7.1.3.1 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 |
|---|---|
| <ul style="list-style-type: none"> • IPS “brand” may be useful in promoting the aims of the organisation. • Separate legal personality. • Can apply for sources of funding in its own right. | <ul style="list-style-type: none"> • Controlled by members equally (i.e. one vote per member), not according to financial interest. Less flexibility than a company. • Restrictions on dividend distributions. • Unfamiliar to the business community. |

7.1.3.2 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.

7.1.3.3 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.

7.1.4 Company Limited by Guarantee – rationale for preference

The company limited by guarantee (CLG) option appears to be the most suitable type of entity for the COF vehicle (as presently envisaged) in view of its limited liability status, the flexibility of its membership arrangements and relative constitutional flexibility. 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.

The Milton Keynes Carbon Offset Fund (see section 12.1) 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).

7.1.5 Governance and control

As mentioned previously, the CLG option affords a relative constitutional flexibility as regards the comparative rights of members and directors. The key constitutional documents that would be required are:

Memorandum of Association

Following the reforms contained in the Companies Act 2006, this is now a simple document stating only the initial members of the company and the extent of their guarantee.

Articles of Association

The Articles of Association set out the basic management and administrative structure of the company. The Articles will include provisions negotiated by the local authority partners in relation to:

- the company’s objects;
- 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.

Members’ Agreement

In addition to the Articles of Association – which is a public document – the members of a CLG which is operating on a “joint venture” basis may enter into a separate members’ agreement to regulate further the relationship between them and the nature of their control over the company. Unlike the Articles of Association, this would be a private contractual document that would not require registration at Companies House. Members’ agreements commonly include provisions dealing with “reserved matters” – i.e. those matters which the parties agree will require the consent of particular directors nominated by a member, or of particular members themselves, in advance of the board of directors making a decision. The need for a separate members’ agreement in the case of a CLG tends to be less pressing than in the case of a company limited by shares as there will be no requirement for provisions dealing with share subscriptions or transfers, and covenants restricting the activities of the members (e.g. from acting in competition with the CLG) tend not to be as relevant in a non-commercial context. It may be that the parties are happy for provisions such as reserved matters to be contained in the Articles of Associations.

7.1.6 Constitutional and statutory constraints: summary of potential issues

As indicated above, a CLG would be subject to UK companies legislation and would need to file an annual return and annual accounts as well as lodging notice of any changes to its officers with Companies House. The CLG's directors would be subject to the law relating to conduct and duties of directors (notably the statutory statement of directors' duties now set down in the Companies Act 2006) and directors can be personally liable if they fail to meet the required standard. 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.

8 Project investment methods

The primary focus of the Cambridgeshire COF would be as a vehicle to collect contributions from developers and to re-invest the proceeds into priority projects in Cambridgeshire. There are a range of potential methods for the application of COF investment into projects, as summarised in the table below.

| Funding mechanisms | |
|---|------------------------------|
| Capital grant | |
| Investment in Projects | Wholly owned projects |
| | Joint ventures |
| | Loan finance |
| Direct expenditure on existing public assets | |

The manner of application of COF investment will depend on a number of factors, such as the overall project value, finance required for a project to proceed, the potential for a financial return, project ownership, other partners etc. The method of application is likely to be determined on a case-by-case basis by the fund managers, although the fund may be subdivided to establish particular pots of funding for specific types of investment, for example a funding pot for provision of capital grants of less than a certain value (e.g. for household energy efficiency projects).

In the longer term it is hoped that the COF will invest substantial sums in developments of strategic low carbon infrastructure in Cambridgeshire and potentially beyond. The level of income flowing into the fund from developer contributions has been estimated in Section 5.4. As an upper bound, based on the most recent growth projections, development may provide an annual investment into the fund in the region of £20-25million. Although this is a substantial sum, in order for the COF to participate in delivery of major strategic infrastructure, it is likely to be alongside other financing partners, for example by way of a joint venture project delivery vehicle. Other investment in the project delivery vehicle could come from a range of potential investors, including institutional investors (such as pension funds), ESCOs, utilities or developers, among others. Further investment could also be drawn from public sector partners, such as the Local Authorities or the HCA.

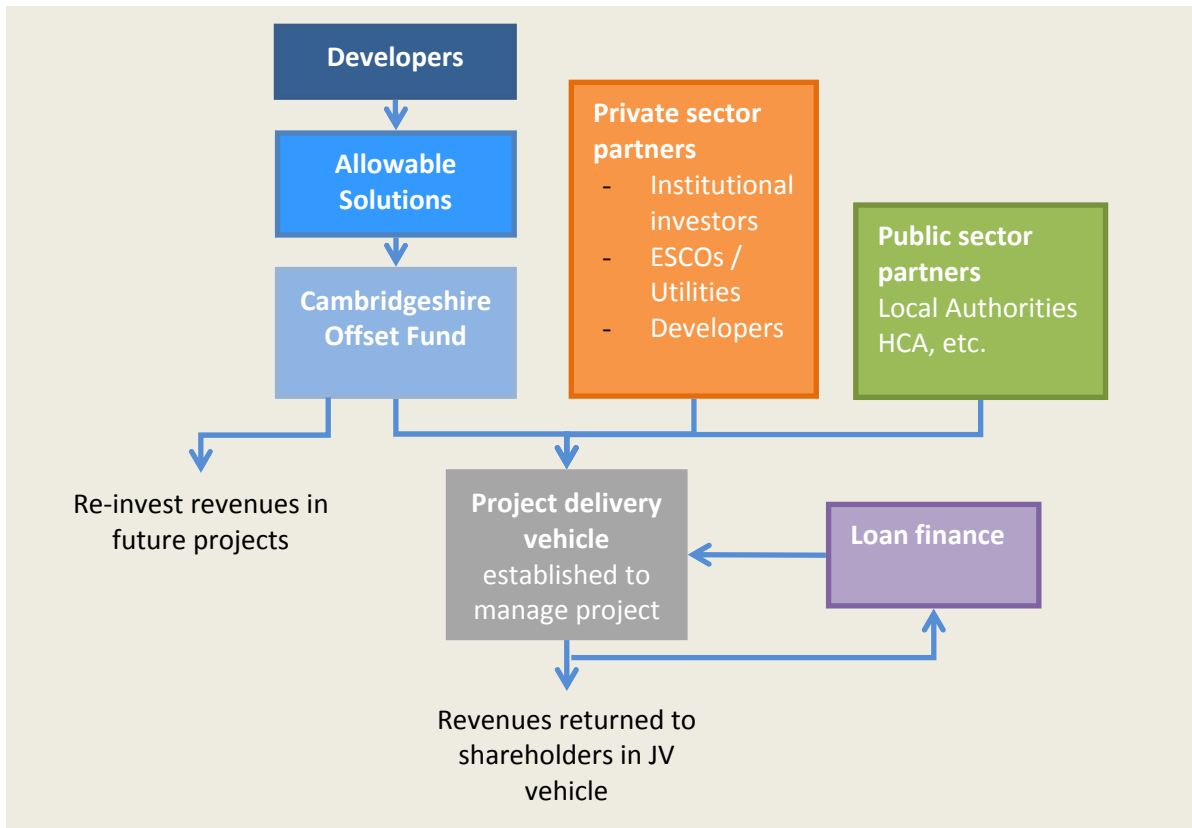


Figure 14, Schematic illustration of investment into the COF and investment at the project level.

8.1.1 Ability to participate in joint ventures

The ability for local authorities to enter into joint venture arrangements is subject to the legal requirements set out in local government legislation and the specific constitutions of each council. Section 2 of the Local Government Act 2000 (which sets out the “well being power”) offers the opportunity for innovative partnerships between local government and partners. Section 2 provides that

(1) “every local authority are to have the power to do anything which they consider is likely to achieve any one or more of the following objects –

- (a) the promotion or improvement of the economic well-being of their area,
- (b) the promotion or improvement of the social well-being of their area, and
- (c) the promotion or improvement of the environmental well-being of their area.” And

(3) “In determining whether or how to exercise the power under subsection (1), a local authority must have regard to their strategy under section 4”.

The strategy referred to in sub-section 3 is the sustainable community strategy relevant to each council. Each council will need, therefore, to ensure that its strategy document is aligned with the proposals for the COF in order to rely on the well-being powers in this context.

Acting in accordance with these powers, there is a range of partnership or joint venture arrangements that the councils could consider for implementation of COF projects.

Councils may decide for the COF to deliver projects in partnership with other public sector partners, (for instance, in furtherance of or to complement the ‘Total Place’ initiative) or with the private sector under commercial or corporate joint venture arrangements. The suitability of approach, whether corporate or contractual, will depend on the objectives of the joint venture and role of each partner.

One option is for the COF to contract with or joint venture with an Energy Services Company (ESCO). In the UK, ESCOs aim to provide services for procuring energy efficiency or reductions in energy use or carbon emissions. They take a variety of different forms and can be public or private sector driven and range from corporate entities to unincorporated associations. They can be:

- public sector driven with no (or very little) private sector involvement;
- public sector driven with private sector involvement in the design and build of projects;
- public sector driven, but procured and operated by the private sector, though not fully on energy performance contracting principles;
- public or private sector driven and operated on energy performance contracting principles; and
- private sector driven, with (or without) public sector encouragement.

Energy performance contracting is where the ESCo is under a performance incentive to achieve specified energy savings. The structure of an ESCo will be project specific and will depend upon costing, attitude of each local authority to risk, level of knowledge of co-operating bodies and the objectives of the project.

The new power for local authorities to sell electricity (as referred to above) may extend the options

8.1.2 The Low Carbon Development Initiative

In recognition of the barriers to development of low carbon energy projects by the private sector working alone, Renewables East, working with its public partners across the region, has developed the Low Carbon Development Initiative (LCDI) as a means of catalysing development of low carbon energy projects in the region.

The LCDI is a community interest company, currently funded by Cambridgeshire Horizons, Dacorum Borough Council and the European Regional Development Fund. The role of the LCDI is to identify low carbon energy projects and to undertake the early stage development,

until they are de-risked to the point at which industry is prepared to step-in to take opportunities forward.

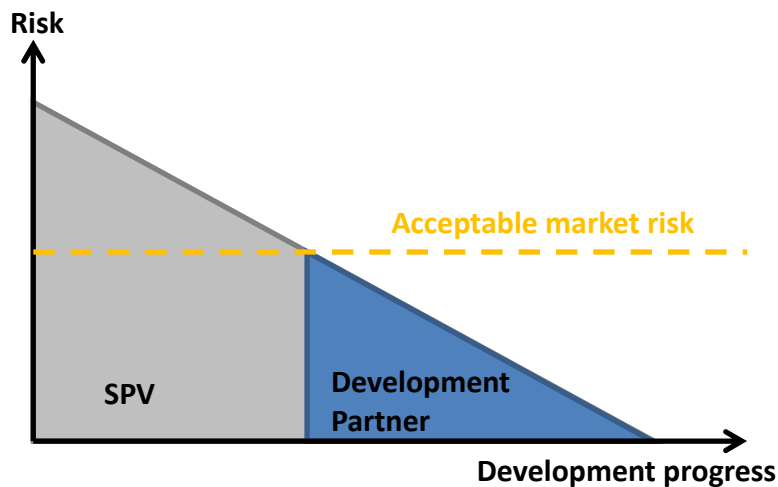


Figure 15, Schematic illustration of the role of LCDI finance in the development progress of low carbon energy projects.]

The activities of the LCDI may include provision of early seed-finance for projects and softer support, such as ensuring that relationships between potential partners in projects are effectively brokered. It is not intended that the LCDI will act as a commercial development vehicle, but rather that once project risk reaches a level acceptable to the private market, the LCDI will market the project to a development partner or long-term project owner (following an appropriate procurement process).

The LCDI could provide a number of useful functions, alongside the Cambridgeshire COF. In the first instance, the LCDI could identify low carbon energy projects to be taken forward with COF funding. The LCDI may be better placed to provide the early resources, financial and personnel, needed to develop projects through their early stages and to accept the early development risk than the COF itself, as the COF needs to balance the risks of its investments against the need to ensure delivery of sufficient carbon reductions. The COF would then invest in the projects at the point that the LCDI exits, potentially alongside other partners. The LCDI may play a continuing management role, overseeing the operation phase of projects that the COF owns or invests in.

8.2 Constraints on investment of funds

8.2.1 State-aid

If a public sector body provides assistance to certain undertakings or for the production of certain goods, so as to confer a potential advantage, this constitutes state aid. The question

will then be whether the arrangement falls within one of the block exemptions, or might receive a specific clearance after being notified to the EU Commission.

State aid is unlikely to arise where the public sector body is investing in an undertaking in circumstances where an ordinary market investor might do so and on terms which they might accept (the “market economy investor principle”). In applying this principle, any purely policy driven goals (such as carbon reduction for the County) should be ignored; there must be a commercial return. But the terms of the investment need not be the most commercially rewarding that would be available to an arm’s length investor who is only interested in maximising profit; they should be acceptable to the owner of a business, taking a long-term view of their capital investment.

Likewise, guarantees can be offered to undertakings as long as those undertakings could obtain them on the market, and they must be offered on market terms. However, the matters taken into account in determining whether a market price has been paid do not expressly include a profit for the provider.

Small values of aid, (falling within the ambit of the de minimis Regulation) are exempt from the general prohibition on state aid. The General Block Exemption Regulation (GBER) also allows member states to grant certain types of aid as long as they provide the Commission with information. The GBER includes aid for “investment to go beyond community standards for environmental protection; investing in energy saving measures; investing in high efficiency co-generation; environmental studies; the environment, in the form of tax reductions”. The extent to which the GBER may be relied upon in the context of individual investments that the COF may wish to make will need to be carefully evaluated.

The Department for Business, Innovation and Skills has referred to “helping companies invest in environmental projects” as a “less obvious” form of potential state aid. The danger is that intervention by the public sector body in a given market could make it unattractive to other businesses because they cannot compete with the terms offered by the state aid. For example, if the state offers loan guarantees on favourable terms, banks that might want to offer loan guarantees on commercial terms will be deterred from entering the market, damaging competition and trade.

If, having considered the specifics of the aid that the councils (via the COF) wish to make, it appears that there is a state aid question, it may be possible to bring the potential aid within the terms of one of the schemes for permissible aid or, alternatively, some minor restructuring may be needed to exclude or significantly reduce the risk of unlawful aid.

A state aid may arise in the context of the COF providing grant funding for project development or implementation. It could arise also in the context of joint venture arrangements where the COF entity enters into contracts on terms that are advantageous to a private sector entity and not market terms. This is a complex area of law which will need to be considered in relation to specific proposals.

Additional – and not dissimilar – issues arise in relation to the EU procurement law principles that apply to the award by public sector bodies of contracts for services, supplies and works. Contracts awarded by the COF entity will be subject to these rules. Compliance with the EU procurement regime may also mitigate the risk of a state aid insofar as undertaking

competitive tendering ensures that no unfair advantage is conferred on the private sector partner.

8.2.2 Project risk

The intention of the public sector partners in establishing a COF is that it should act as enabling fund that unlocks potential low carbon infrastructure and other carbon reduction projects. In particular, it may be the view of the public sector partners that the COF should only invest in projects that would not otherwise be taken forward by the private sector, due to insufficient rates of return, high up-front costs or high risks. This is the concept of additionality, i.e. that the projects brought forward due to COF funding should be additional to those that would have been developed had the COF not intervened.

Although providing additionality will be an important criteria in selection of COF investments, the overall level of risk across the COF’s investments will need to be controlled. The COF will be accountable in terms of the amount of carbon reduction its investments deliver, which ideally will be at least equivalent to the quantity of emissions on which the collection of developer contributions was based. As far as measuring the Fund’s performance is concerned, the clearest metric will be the quantity of carbon emissions reduction delivered per pound invested. The Fund’s managers will therefore need to manage risk across the portfolio of projects to ensure that fund delivers an adequate ‘return on investment’ in carbon reduction terms.

State Aid concerns, as discussed above, may also act to constrain the amount of investment risk the fund is able to accept, particularly in cases where it is acting as a development vehicle and providing low-cost finance.

8.2.3 Sub-division of the Fund

Application of and the need to sub-divide receipts into the COF will depend on 1) the mechanisms used to receive the funds (e.g. s.106 or external grant funding and conditions that apply to the grant) 2) constraints imposed by the constitutions of each council, and 3) the terms of any arrangements that may exist or be brought into existence to deal with cooperation between councils. Financial auditing will need to be undertaken in accordance with the constitutional arrangements of the councils, the COF itself and relevant legislation. More detailed consideration of these matters will need to be undertaken during the next phase of the project.

8.2.4 Geographic Constraints

The nature of the geographic constraint on investment opportunities is related to the membership of the COF and potentially to the means under which the developer contributions are collected. As discussed in Section 6.1.2, if the contribution were collected under a planning obligation, then a geographical link may have to be demonstrated between the development and the item being provided under the obligation. Before S106 agreements could be used as a means of collecting developer contributions into the fund, the meaning or relevance of a geographical link in the context of carbon reduction would need to be determined. This could provide a geographical constraint on the investments of the COF.

Whatever the route for collection of COF funds, it seems likely that the public sector partners will require investments to be limited to the participating local authority areas. A wider range of potential project opportunities offered by a county-wide fund would be more attractive to potential private sector investors.

The desire for the COF to capture increased investment over time, as part of a longer term vision, may provide a rationale for ensuring the principle of accession is established in the COF's governance structure. This would enable additional local authorities to join the COF as and when they have established the necessary local policy frameworks to enable participation. In the longer term, this principle could extend to local authorities outside of Cambridgeshire.

9 Management and accountability

Assuming a Company Limited by Guarantee is the structure chosen for the offset fund vehicle, the agreements on governance of the company will be set out in the articles of association and / or the Members agreement. A dedicated fund manager, reporting to the board of directors of the company, is likely to be appointed to manage the operations of the fund on a day-to-day basis.

The key roles of the fund manager are as follows:

- Develop an investment strategy for the COF in partnership with the local authority partners.
- Develop a pipeline of carbon reduction projects, aligned with the over-arching investment strategy. Ensure that the pipeline of investments represents an appropriate balance of risk and output targets (in terms of CO₂ reduction).
- Structure financial investments in viable carbon reduction projects and lead negotiation with project partners and relevant stakeholders. Ensure investments are within state aid rules.
- Monitor risks and compliance with the COF's performance targets
- Identify potential financial returns from investments and develop strategy for re-investment in further COF projects.
- Lead negotiation with JV partners on establishment of project level delivery vehicles, such as local ESCOs.
- Involvement in procurement of project level management and procurement teams
- Identify an exit strategy.

The performance of the fund will be the responsibility of the fund manager. A set of performance criteria will need to be agreed between the fund management and the board of directors of the CLG (representing the local authority partners). Recommended performance metrics are discussed below:

9.1 Performance metrics

The performance of the COF will be judged on its success in delivering carbon reduction in Cambridgeshire. The COF would need to publish its results in an annual report, detailing its activities in the year and an assessment of the performance of its investments. A detailed methodology for calculating the impact of investments, in terms of CO₂ saved per pound invested, will need to be developed and agreed. The key metrics that the fund's performance assessment should report include:

- *Annual CO₂ saving* as a result of fund investments in the year.
- *Annualised cost-effectiveness of CO₂ saved*, in terms of funds committed to-date divided by the annualised CO₂ saving.
- *Lifetime cost-effectiveness of CO₂ saving*, in terms of funds committed plus any ongoing financial commitments divided by a forecast of the total CO₂ saving over the lifetime of the measures invested in.

Under the current proposals for zero carbon policy, the Allowable Solutions contribution required from a developer will be calculated on the basis of a £/tCO₂ figure multiplied by a the CO₂ emissions expected from a development over a 30-year lifetime. Assuming the same methodology is applied by the COF, then it is the *lifetime cost-effectiveness of CO₂ saving* that provides the best metric to judge whether the fund is delivering the required CO₂ saving and whether the tariff being charged is appropriate.

The annual CO₂ saving and annual and lifetime cost-effectiveness figures are the key metrics for measuring the performance of the fund's investments. In recognition that CO₂ reduction is most beneficially achieved where there is also a financial benefit, to end-users, project partners and the local economy, the fund might also report on the overall cost-effectiveness of the portfolio of projects. This would require an analysis of the net present value of the fund's projects, including all capital and operating costs (including the fund's investment and costs to all other project participants) and all financial benefits, in terms of energy savings or the value of low carbon energy generated. This net present value can then be divided by lifetime CO₂ savings to generate an overall measure of the cost-effectiveness of CO₂ saving to the local economy.

Apart from carbon reduction and financial cost-benefit, the fund may also want to report on some of the associated benefits of its activities. For example; the activity of the fund would be expected to attract further investment into low carbon projects in the area, as JV partners in the fund's projects. It would be informative for the fund to report on how successful it has been in leveraging private sector investment. A further benefit of the fund's investments that would be of interest to the local authority partners is job creation in the low carbon economy. The fund could report on the number of FTE jobs created as a result of its investments.

Clearly as part of its annual report, the COF would be expected to provide a set of accounts, which would detail the fund's management and administration costs.

9.1.1 Equalisation

In principle, the COF should 'buy' an amount of CO₂ reduction that is at least equivalent to the amount of CO₂ offsets purchased by developers through their contribution to the Fund.

The COF investments will carry a certain risk, however, that they do not deliver the expected CO₂ reduction or that the CO₂ reduction is less cost-effective than expected. This could lead to delivery of less CO₂ reduction overall than the amount of offsets purchased.

Managing this risk is part of the job of the fund's management. The cost-effectiveness performance metrics will enable monitoring of whether CO₂ savings are matched to offsets purchased. Clearly the success of the fund will be judged on whether it is delivering the

expected CO₂ reductions and, if it consistently fails to achieve match CO₂ reductions to developer contributions, action will need to be taken to correct poor performance.

9.2 Carbon accounting

Local authorities are required to report on carbon emissions from their own activities and have targets for reduction of CO₂ in their areas. A potential concern of local authority partners regarding a fund that operates across local authority borders is that the CO₂ reduction required in relation to development occurring in their area might get exported to other local authority areas.

One of the advantages of a fund operating at a county-wide level is that the range of project opportunities is increased. To be most effective, the fund should look across all participating local authority areas and select project opportunities on the basis of potential for carbon reduction and the cost-effectiveness of those savings, without concern for how the investment is distributed across authorities. This could lead to an uneven distribution of investment and therefore CO₂ saving between the local authorities. This is illustrated schematically in the figure below. Local authority 'A' has provided a significant contribution to the fund on the basis of development in the area, but only a small part of the total CO₂ reduction has been delivered by investments in area 'A'. Local authority 'B' on the other hand has provided less investment, potentially due to lower levels of growth, but a large part of the COF's CO₂ reduction has been delivered in the area.

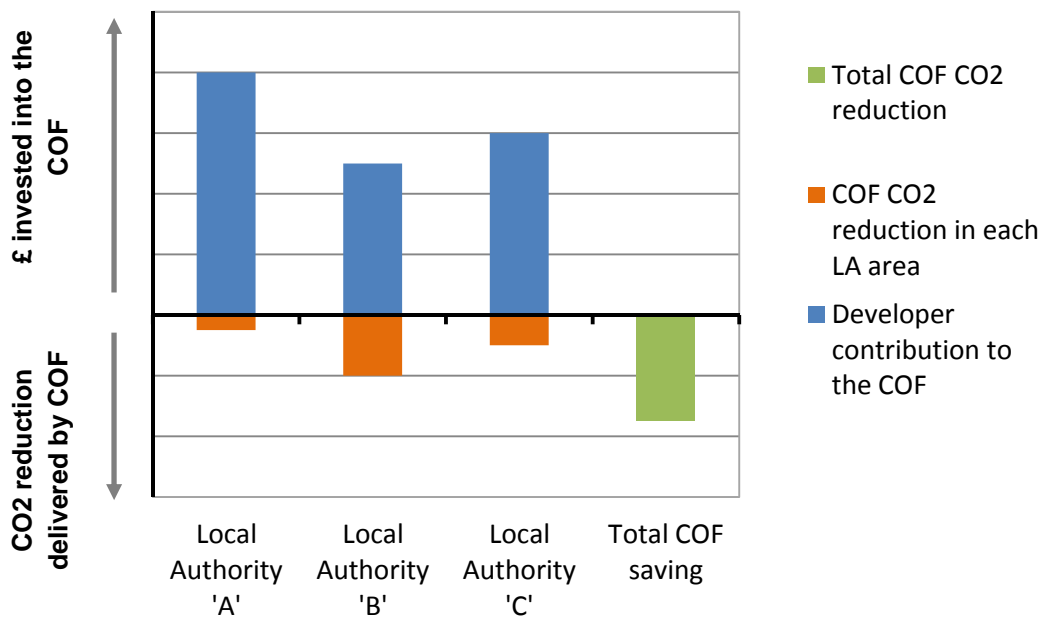


Figure 16, The distribution of COF investment and resulting carbon savings will not necessarily reflect the distribution of developer contribution into the COF, as illustrated above for three hypothetical local authorities.

Each local authority should share in the CO₂ saving delivered by the COF on the basis of the developer contributions provided from their area. This is most simply calculated by dividing the contribution of a local authority by the COF's annualised cost-effectiveness of CO₂ saving figure.

Each local authority can report their share of the COF's CO₂ reduction toward a local target. If a local authority is reporting on its CO₂ reduction activities, including the COF, then care should be taken to avoid double-counting. For example, if the local authority reports on the carbon reduction impacts of all low carbon projects undertaken in the area, including those funded by the COF, then clearly it should not also report its prorated share of COF CO₂ reductions as additional savings. The COF should report its actual CO₂ saving disaggregated between the local authorities. The difference between the prorated share of the COF's CO₂ reduction and the actual CO₂ reduction delivered in the area is then the additional saving that through the COF that each local authority should include in its CO₂ footprint analysis (note that this could be negative, i.e. additional CO₂ emissions, for example in the case of Local Authority 'B' in Figure 16 above).

10 Activities of the fund

The carbon savings that the Offset Fund could deliver depend on the projects that the Fund supports. This section considers the types of projects that could be delivered with support from the Fund, given the expected level of capital available

10.1 District heating

In areas where there is a substantial thermal load and a high heat density (i.e. the heat load is within a small geographic area), district heating systems can provide a relatively cost-effective means of delivering low carbon heat. The accumulation of heat load across the network enables the installation of larger-scale, more cost-effective and more efficient plant, particularly compared, for example, to installing technologies within individual buildings.

The most attractive opportunities for development of district heating systems will be presented by the large-scale new build developments, particularly where there is a diverse mix of uses. The costs of installing district heating pipework during the construction stage of a new site will be considerably lower than retrofitting within the existing stock. The business case for developing a district heating system as a part of the energy strategy of a new development is also much clearer than the case for investment in a retrofit project in an existing community.

The intention of the COF must be to assist in enabling the most cost-effective CO₂ reductions to be exploited. The fund should not provide a lower cost route for developers to comply with policy requirements, in preference to fully exploiting the cost-effective opportunities on site. It should not, therefore, be the intention to collect revenues into the fund from development of the large mixed-use sites, e.g. Northstowe or the urban extensions around Cambridge. Rather, these developments provide investment opportunities, where the involvement of the Fund can help to ensure that an optimal energy strategy is delivered.

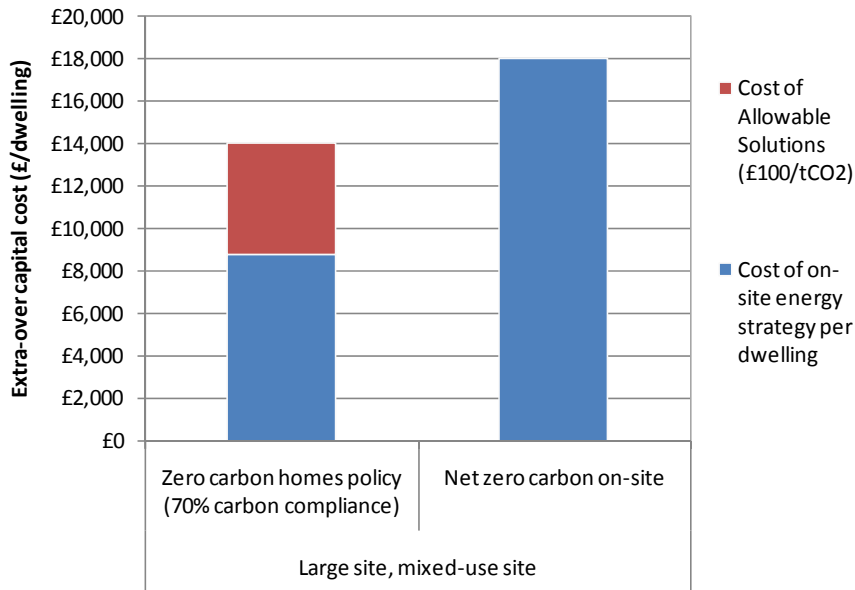


Figure 17, Comparison of the cost of complying with zero carbon policy (at an Allowable Solution price of £100/tCO₂) through dwelling scale technology (biomass boiler and PV) with the cost of achieving net zero carbon onsite with a biomass CHP based district heating solution. Cost estimates applicable to the average dwelling on a large scale site.

The changing Building Regulations and introduction of zero carbon policies will encourage developers to consider the installation of district heating systems and low carbon plant, such as biomass boilers or biomass CHP (applicability is currently limited by technology availability to large, i.e. multiple thousands of units, sites). There are a number of barriers to installation of these systems, however, that may hinder the uptake in practice. Key barriers to development of district heating systems include:

- **Capital intensive** – a large capital investment is required in the district heating infrastructure. Often this is required up-front, as it is necessary to get the infrastructure in the ground early in the development.
- **Phasing** – phasing of build programmes of large developments can lead to district heating assets being under-utilised for lengthy periods. There is also a revenue risk related to uncertainty of build-out of later phases of a project.
- **Revenue collection** – a mechanism is required for metering, billing and collection from the site occupants, which is outside the normal business activities of most builders.
- **Access to finance** – private sector investment can be difficult to attract, based on the relatively low returns generated.
- **Energy market** – uncertainties in the long-term energy market, regulation and policy can also deter private investment – perception that the economics of projects are highly sensitive to changes of government policy.

There are a number of ways that the COF could ameliorate these barriers, for example by providing low cost finance and de-risking investment in district heating infrastructure for the private sector.

The potential impact of the fund in exploiting opportunities for low carbon-based district heating systems is explored in the following, with reference to the particular opportunity at Northstowe.

10.1.1 Case study: Opportunity at Northstowe

Northstowe will be a significant new town in South Cambridgeshire, expected to deliver around 9,500 new homes together with a mix of employment uses, retail, leisure, community and health facilities.

The vision is to create an exemplar of sustainable development at Northstowe and, in particular, to ensure that the new town's energy requirements are derived from low carbon sources. To this end, Renewables East and Cambridgeshire Horizons have jointly commissioned a number of studies into the options for provision of low carbon energy at Northstowe, exceeding the requirements of zero carbon homes and non-domestic buildings policy in terms of carbon reduction delivered by onsite measures.

The 'Northstowe District Heating and Cooling Study', carried out by Camco, considered the technical and financial feasibility of a range of options for Northstowe, including microgeneration, large scale wind and biomass technologies. The study concluded that the optimum solution to delivering high levels of CO₂ reduction on site is a site-wide district heating system, fed by biomass CHP plant.

A further study by Camco, the 'Northstowe Feasibility Report', provided a detailed financial model of the Northstowe energy system. A biomass CHP and district heating energy system was considered, with a total biomass CHP capacity of 10 MW electrical output. This system is capable of delivering sufficient low carbon energy to deliver an overall net zero carbon site. The capital costs associated with the system were estimated at £127.5 million, of which £94.4 million was budgeted for the district heating infrastructure, with the remainder budgeted for the energy centre. The financial modelling assessed the connection cost that would need to be paid by the developer for connection of each dwelling to the system in order to provide a commercial rate of return on investment of the system¹⁵. This financial analysis forecast a connection cost of £14,200/dwelling (based on the average dwelling).

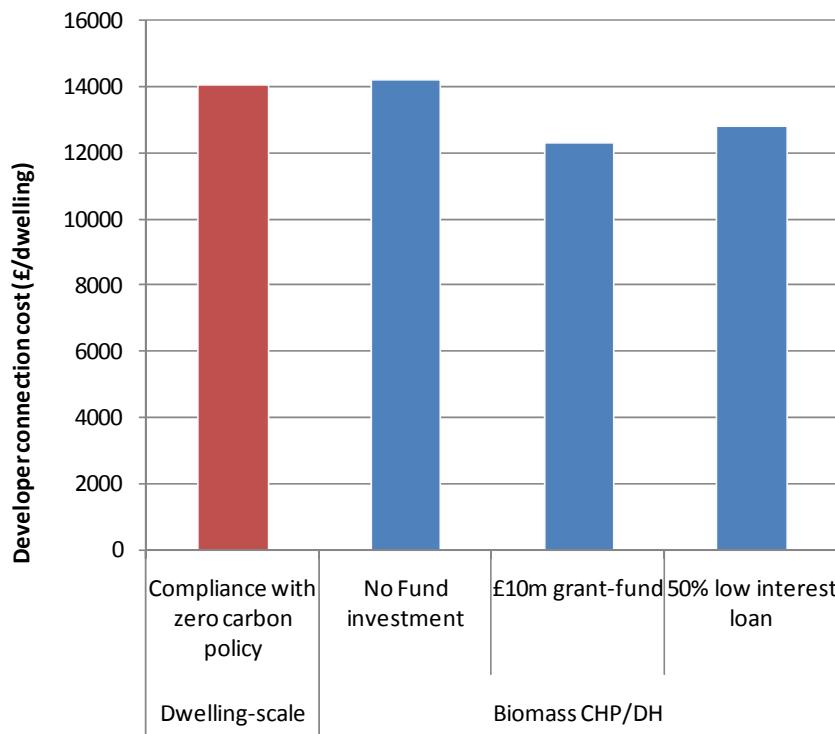
Comparison of the connection cost of £14,200 dwelling with the estimated cost of compliance with Zero Carbon policy, i.e. achieving a 70% carbon compliance level and investing in Allowable Solutions at £100/tCO₂, as shown in Figure 17, Comparison of the cost of complying with zero carbon policy (at an Allowable Solution price of £100/tCO₂) through dwelling scale technology (biomass boiler and PV) with the cost of achieving net zero carbon onsite with a biomass CHP based district heating solution. Cost estimates applicable to the average

¹⁵ The financial model considered the energy system as two separate businesses – generation and transmission/supply. The IRR on investment in the energy centre was set at 10%, while a 7.5% IRR was set for investment in the district heating system.

dwelling on a large scale site., suggests that additional cost to the developers of achieving zero carbon onsite are only marginally higher than complying with zero carbon policy. Given the barriers to development of district heating systems and risks associated with the scale of capital investment, however, a financial incentive may be required to ensure the more ambitious onsite system approach is adopted.

There are a number of ways in which the offset fund could provide investment into a scheme such as the development of a Northstowe energy system. In the most straightforward case, the fund could provide seed capital in the form of grant-funding, which could help to attract further investors into the district heating system by reducing the scale of additional investment required and potentially improving the rates of return. Alternatively the fund could provide finance in the form of a low-cost loan or as an equity investor. In the latter case the fund may provide initial investment, but seek to reduce its stake in the project over time as the revenues improve (i.e. as more heat customers connect) and the levels of risk become acceptable to commercial investors.

The potential impact of investment by the fund, in the form of grant-funding and low-cost debt, on the connection cost levied on developers has been assessed. In the case of seed-funding, it is assumed that the fund provides an up-front grant of £10 million toward the cost of the district heating system. The impact of provision of low-cost debt is more difficult to assess, without detailed knowledge of the assumptions made in the existing financial modeling, e.g. debt-equity ratio, cost of debt etc. As an illustration, it is assumed that the Fund provides a loan of 50% of the capital cost of the district heating infrastructure, at 3.5% over 15 years. In each case, it is assumed that the overall IRR of investment in the district heating system is maintained at 7.5% (the target IRR set in the original financial model).



The investment of the fund significantly reduces the developer connection cost, to a level below the anticipated cost of complying with zero carbon policy using dwelling-scale technology. Note that the initial financial modeling did not include a revenue from the Renewable Heat Incentive (RHI). The recent DECC consultation on the RHI has suggested that the level of tariff offered for large-scale biomass CHP technology could be 2.5 p/kWh. A simple model of the expected heat incentive revenue suggests that this could further reduce the connection charge to developers by ~ £1,000 per dwelling (assuming that the IRR of 7.5% is maintained).

The Camco report estimates that the total site emissions, including savings from energy efficiency will be 42,500 tCO₂/yr. In the case of the biomass CHP and district heating system, the site emissions are reduced to zero on a net basis. This increase in onsite CO₂ emissions reduction associated with development of the biomass CHP system compared to meeting zero carbon policy onsite can be estimated at around £25,000 tCO₂/yr.

10.1.2 Case Study: An opportunity at St Neots

Little Barford power station is located around 2 miles from the centre of St Neots. The quantity of waste heat generated at the power station, which houses a 600 MW combined cycle gas turbine plant, is theoretically sufficient to meet the thermal demands of the whole of St Neots. The close proximity of the power station to the town centre presents an excellent opportunity for supply of low carbon waste heat to the town.

Significant growth is planned for St Neots, focusing on an 'Eco-extension', expected to comprise 5,00 new homes and to be situated just to the east of the power station. Growth plans for the area include an anticipated further 2,000 homes at other sites in the town.

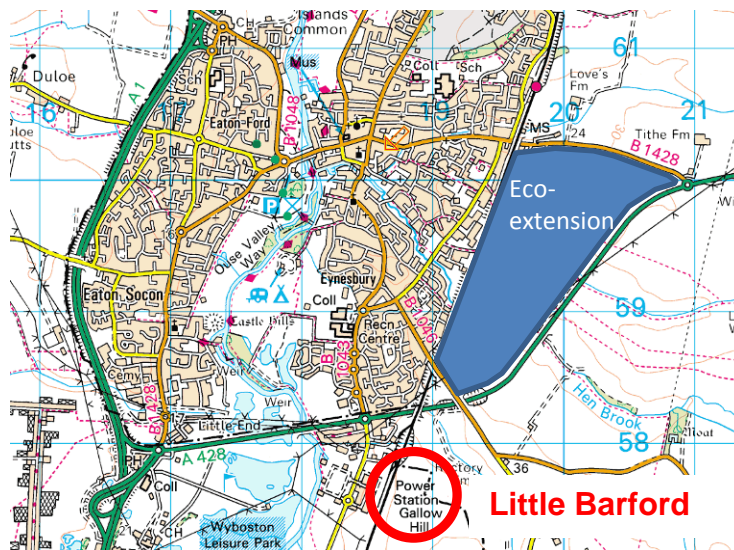


Figure 18, Map highlighting the proximity of Little Barford power station to St Neots town centre and the planned Eco-extension.

A detailed analysis of district heating opportunities in St Neots has been undertaken by Aecom¹⁶. This study analysed district heating systems ranging in scale from systems local to the power station, up to extended networks delivering heat to the eco-extensions and to existing properties in the town. The study assessed use of waste heat from the power station and other potential heat sources, including development of new biomass-based energy centres.

The potential for carbon saving from development of district heating systems in St Neots have been shown to be very significant, up to 60-70 ktonnes/yr depending on the scale of the system. Economic analysis has shown systems at various scales could be developed at a net present cost of less than £20 million. Capital costs for development of these systems are high, varying depending on the heat plant selected (connection to Little Barford tends to present the least capital intensive options), and would present a significant risk to potential investors. In addition to investment risk, other barriers to exploitation of the opportunities at St Neots exist, for example the need for collaboration between a wide-range of stakeholders, including the local authority, developers, businesses and the local community.

The largest opportunities for CO₂ reduction are likely to relate to retrofitting a district heating supply to the existing businesses and homes. The new developments, while substantial in size, will be required by regulation to be built to high fabric standards with greatly reduced heating requirements. These developments may connect into an existing local district heating network or may develop their own onsite networks (local planning policy could be used to encourage either option). Government incentives such as the feed-in tariff and, potentially, renewable heat incentive may, however, encourage developers to look at other forms of onsite renewable energy generation and delivery models that allow them to benefit from the incentives. In any event, the significant development in St Neots is likely to generate a large amount of allowable solutions contributions, which could be paid into a Cambridgeshire Offset Fund (the Aecom study estimated the allowable solutions contribution at around £17million).

Funding from the carbon offset fund can help to ensure the most cost-effective carbon saving opportunities in St Neots are captured. This could be in the form of initial investment, to de-risk opportunities that are economic in the long-run, for example small scale schemes providing heat from Little Barford to homes and businesses in the local area. The fund could also provide funding to extend the network to retrofit larger parts of the existing town. These schemes have a significant net present cost on the basis of current revenue forecasts (up to around £20million) but have potential to deliver large CO₂ savings.

10.2 Energy efficiency improvements in the existing stock

Discussions with Cambridgeshire stakeholders has identified improvement of the energy efficiency of the existing stock as a high priority potential application of the Fund. The ability of the fund to apply monies collected from new development to the existing stock requires careful examination, as improvement of the existing stock is not an infrastructure investment and the relationship to the new development is tenuous. Nonetheless, there are existing precedents for the use of contributions collected under planning obligations for subsidising stock improvements. This is discussed in more detail in Section 12 (Appendix 1).

¹⁶ St Neots Energy Study, Huntingdonshire District Council & Renewables East, November 2009

The type of measures that should be employed will vary from building to building and costs are sensitive to a range of issues. The analysis presented below is based on typical costs and gives an indication of the level of carbon saving that could be delivered.

10.2.1 House type and improvement measures: definition

The results in this section relate to a typical pre-1980 semi-detached house in relatively poor overall condition. Key features of the house are summarised in the following table.

Table 1: Definition of dwelling for fabric improvement analysis¹⁷

| Metric | Unit | Value |
|-------------------|----------------|---------------|
| House type | - | Semi-detached |
| Storey height | m | 2.5 |
| Number of floors | - | 2 |
| Total floor area | m ² | 110 |
| Roof area | m ² | 55 |
| Window area | m ² | 24 |
| Wall area | m ² | 102 |
| Boiler efficiency | - | 80% |

This analysis draws on house stock modelling work performed by Element Energy, in which the costs and effectiveness of a range of improvement measures were investigated. The measures considered in this analysis include:

- **Cavity wall insulation** – filling wall cavities with mineral wool insulation to lower U values and therefore reduce space heating demand.
- **Loft insulation** – installing 300mm of mineral wool insulation to reduce heat loss through the roof.
- **Draught proofing** – involves installing draught excluders on doors, windows and any large gaps.
- **Triple glazing** – improving the U value of windows by replacing existing windows with triple glazing.

10.2.2 Cost and performance of fabric improvement measures

The following table summarises the cost assumptions for the fabric improvement measures.

Table 2: Retrofit fabric improvement measures – cost assumptions

| Measure | Cost (£/dwelling) | Data source |
|---------|-------------------|-------------|
|---------|-------------------|-------------|

¹⁷ English House Condition Survey data suggest that this type of home accounts for around 17% of the housing stock.

| | | |
|------------------------|--------|--|
| Cavity wall insulation | 490 | Based on a cost of £4.75 per square metre of wall area (from field data and validated via SPONS). |
| Solid wall insulation | 10,974 | Average of manufacturer quotes applied to model house size |
| Loft insulation | 465 | Average of manufacturer quotes. |
| Draught proofing | 100 | Industry quotes. |
| Triple glazing | 8,500 | Consultation with retailers as part of Element Energy project for the Energy Saving Trust. ¹⁸ |

Results from SAP modelling have been used to assess the energy demand reduction and hence CO₂ saving that results from these measures. The results are summarised below.

Table 3: CO₂ saving from fabric improvement measures

| Measure | CO ₂ saving in dwelling considered (kgCO ₂ /yr) | Lifetime of measure (years) | Lifetime CO ₂ saving (tCO ₂ /dwelling) | Cost of carbon saving (£/tCO ₂) |
|------------------------|---|-----------------------------|--|---|
| Cavity wall insulation | 811 | 40 | 32.4 | 15 |
| Solid wall insulation | 2,440 | 40 | 97.6 | 112 |
| Loft insulation | 221 | 40 | 8.8 | 52 |
| Draught proofing | 81 | 20 | 1.6 | 63 |
| Triple glazing | 673 | 20 | 13.5 | 631 |

These results suggest that insulation measures such as cavity wall and loft insulation, and measures to reduce a dwelling's air permeability, represent cost effective means of saving carbon. Solid wall insulation is a more costly measure and triple glazing has a significantly higher cost of CO₂ saving.

Assuming an offset Fund tariff level of £100/tCO₂, the fund investment in basic energy efficiency measures should generate a greater carbon reduction impact than the impact of the developments from which the tariff was collected, i.e. a net reduction in overall CO₂ emissions.

¹⁸ *Energy Efficiency Measures, Willingness to Pay*, Element Energy for the Energy Saving Trust, October 2009.

This is the case even assuming that the offset fund provides a grant for the whole cost of the particular measure (at least in the case of measures such as cavity wall, loft insulation and draught-proofing).

In practice, the offset fund would be expected to stimulate uptake of these energy efficiency measures without providing a grant for the whole cost of the measure. The success of the Supplier Obligation and CERT schemes at stimulating uptake of insulation measures such as cavity wall and loft insulation can be considered as a proxy for this. These schemes have offered grants of around 50% of the capital cost of cavity wall and loft insulation measures to householders, with higher levels of subsidy, up to around 90%, offered to ‘priority group’ households (i.e. those receiving benefit or with elderly house-hold members). More expensive measures, with longer payback periods, such as solid-wall insulation will require higher levels of support in order to stimulate householders to invest in the measure. The Supplier Obligation / CERT schemes, for example, have not been particularly successful at generating uptake of solid wall insulation at a support level of 50%. Simple modeling of the payback of the measure and consumer attitudes toward investing in energy efficiency improvements suggests that a level of support of at least 80% of the capital cost would be required to incentivise uptake. At this level of support, the cost of carbon saved to the fund would be around £90/tCO₂ for solid wall insulation.

10.2.3 Scale of the opportunity: Cambridge City Council

Cambridge City Council has recently performed a housing condition survey, which has provided a wealth of information on the condition and scope for improvement of the housing stock. The survey found that of a total stock of 41,500 dwellings, there is scope for improvement in 95% (39,400 dwellings). The energy efficiency measures that could be carried out are tabulated below:

| Measure | Dwellings | Percent of stock |
|---------------------|-----------|------------------|
| Loft insulation | 37,100 | 89.5% |
| Wall insulation | 12,100 | 29.2% |
| Double glazing | 12,300 | 29.7% |
| Cylinder insulation | 20,000 | 48.2% |
| New boiler | 7,500 | 18.1% |
| New central heating | 500 | 1.2% |
| Any measures | 39,400 | 95.0% |

The Housing Condition Survey states that the total cost of all improvement measures tabulated above is estimated at £115million. Applying assumptions for the average CO2 reduction delivered by each measure (for the average measure), results in an estimated total

lifetime CO₂ saving of these measures of 625,000 tonnes. This implies a cost of CO₂ saving of £185/tCO₂.

The cost of CO₂ saving from energy efficiency measures across the stock is relatively expensive, compared to the cost of CO₂ saving for measures such as cavity wall and loft insulation. It is noted, however, that the measures tabulated above do not include any solid wall insulation, whereas it can also be seen from the house condition survey that some 19,300 dwellings do not have cavity walls and 18,800 of these are uninsulated.

The great majority of this improvement is in households that are not in fuel poverty - £110m of the total £115m. Based on the experience of the Supplier Obligation and extensive prior analysis of the willingness-to-pay of householders in energy efficiency measures, full funding of this amount by the offset fund would not be required to deliver the available CO₂ reduction. A more reasonable estimate of the level of grant funding required from the fund is 50 to 75% of the total cost of measures, which corresponds to £55m to £80m of funding from the fund.

According to the Cambridge Sub-region Strategic Housing Market Assessment, energy efficiency improvements valued at a further £140 million have been identified across the other Cambridgeshire local authorities. Assuming a similar cost of CO₂ saving across the county to that in Cambridge would imply an opportunity for a further CO₂ reduction of 750,000 tCO₂ across the other local authorities.

10.3 Investment in renewable energy projects

10.3.1 Wind farms

The specific capital cost of wind turbines (£/kW) varies with the scale of the machine. Small and micro turbines tend to be significantly more expensive on a £/kW basis than medium to large scale devices. For the purpose of this high-level analysis it is assumed that the Fund would provide capital funding for large scale wind turbines (in the megawatt size bracket). The installed capital costs of such turbines is of the order £1,000 per kW and the following example relates to a 2MW turbine, which would cost £2m based on this cost assumption. Given the expected level of investment in the Fund outlined in the previous section, providing this level of capital appears to be within the scope of what the Fund could achieve.

The following table summarises the expected carbon saving and associated cost of carbon saving from a large scale wind turbine under three scenarios to reflect different load factor assumptions. Load factor refers to the amount of electricity generated relative to what would be produced if the turbine were continuously operating at full output over the year.

Table 4: CO₂ saving expected from large wind turbine

| Variable | Data | | | Notes |
|----------------------|------|-----|-----|--|
| Load factor | 20% | 25% | 30% | Higher load factor is expected in areas of higher average wind speed |
| Turbine size (MW) | 2.0 | 2.0 | 2.0 | Assume investment is in a large turbine |
| Total installed cost | 2.0 | 2.0 | 2.0 | Based on £1,000/kW |

| (£m) | | | | |
|---|-------|-------|-------|--|
| Annual electricity produced (MWh) | 3,504 | 4,380 | 5,256 | Calculated from load factor and turbine size |
| Lifetime electricity production (GWh) | 70.1 | 87.6 | 105.1 | Based on a 20 year lifetime and assumption that load factor is constant over lifetime |
| Lifetime CO ₂ saved (ktCO ₂) | 37.1 | 46.3 | 55.6 | Based on credit for electricity from renewables of 0.529kgCO ₂ /kWh ¹⁹ |
| Cost of carbon saving (£/tCO ₂) | 54 | 43 | 36 | Capital £ per lifetime tonne of CO ₂ |

This simple analysis suggests that a 2MW wind turbine operating with an average load factor of 30% could save around 55ktCO₂ over its lifetime, at a capital cost of around £2m. To put this carbon saving into perspective it can be compared with average emissions from homes in the region. For example, average CO₂ emissions from homes in Cambridge in 2006 were 5.6tCO₂/dwelling.²⁰ The results above suggest that a 2MW wind turbine operating at 30% load factor saves around 2,780tCO₂/yr, sufficient to offset the emissions of around 500 average existing dwellings.

In practice the main barriers to development of wind turbines or wind farms may not be a lack of funding. Other issues include finding a suitable site, overcoming planning restrictions and appeasing any local opposition. With support through the Renewable Obligation or feed-in tariff renewable energy projects can in some cases represent an attractive commercial proposition (especially in favourable sites such as areas of high wind speed in this case). This suggests that the issue of additionality should be considered for any investment the Fund makes.

10.3.2 Solar PV

The options to reduce CO₂ emissions in the region through generation of low carbon electricity are relatively limited. Relative to other LZC technologies the restrictions on the use of solar photovoltaics are low. Provided that sufficient land or building roof area can be accessed solar PV represents a low risk, low maintenance means of generating renewable electricity. As an example this section shows the size of PV system that could be installed and the CO₂ savings possible from an investment of £100,000.

Table 5: CO₂ saving possible from investment in photovoltaics

| Metric | Unit | Value | Notes |
|------------------------------|------|---------|--|
| Capital investment from Fund | £ | 100,000 | Figure taken for illustrative purposes |

¹⁹ The carbon benefit of electricity fed into the grid is defined in the Government’s Standard Assessment Procedure (SAP). SAP is being revised and the latest version of the consultation version credits electricity at 0.529kgCO₂/kWh. However, this figure is sensitive to the mix of generating plant that supplies electricity to the national grid and is therefore subject to change over time.

²⁰ Based on 43,600 dwellings in Cambridge in 2006 and domestic CO₂ emissions of 244ktCO₂ (DEFRA data).

| | | | |
|---------------------------------|--------------------|-------|---|
| Size of PV system | kW _p | 25 | Based on an installed cost £4,000/kW _p , a reasonable assumption for a large system |
| Area of PV panels | m ² | 200 | Based on a panel power density of 0.125kW _p /m ² |
| Electricity produced | MWh/yr | 21.5 | Calculated according to the methodology set out in SAP (assuming south orientation, 30° incline and no overshadowing) |
| Lifetime electricity production | MWh | 536.5 | Assuming a 25 year lifetime (a relatively conservative assumption for this technology) |
| Lifetime CO ₂ saved | tCO ₂ | 284 | Based on credit for electricity from renewables of 0.529kgCO ₂ /kWh |
| Cost of carbon saving | £/tCO ₂ | 352 | Capital £ per lifetime tonne of CO ₂ |

Relative to other carbon saving measures such as energy demand reduction through improvements to the fabric of existing buildings investment in PV is an expensive option. Also, suitable sites for PV systems would have to be found, for example through leasing roof space of commercial or industrial buildings.

10.4 Further opportunities

Only a limited selection of the wide range of potential carbon saving opportunities that exist in Cambridgeshire have been identified here. Other opportunities might involve, for example, improving energy efficiency in the commercial building stock and public sector estate or addressing carbon emissions from process energy use in local industry. Encouraging the take-up of low carbon transport could be another area that the offset fund seeks to address. This might be, for example, by providing support for integrating low carbon vehicles into public sector fleets or investing in developing electric vehicle charging infrastructure. The offset fund may also have a role in developing biomass supply chains, for example supporting the planting of energy crops on local agricultural land.

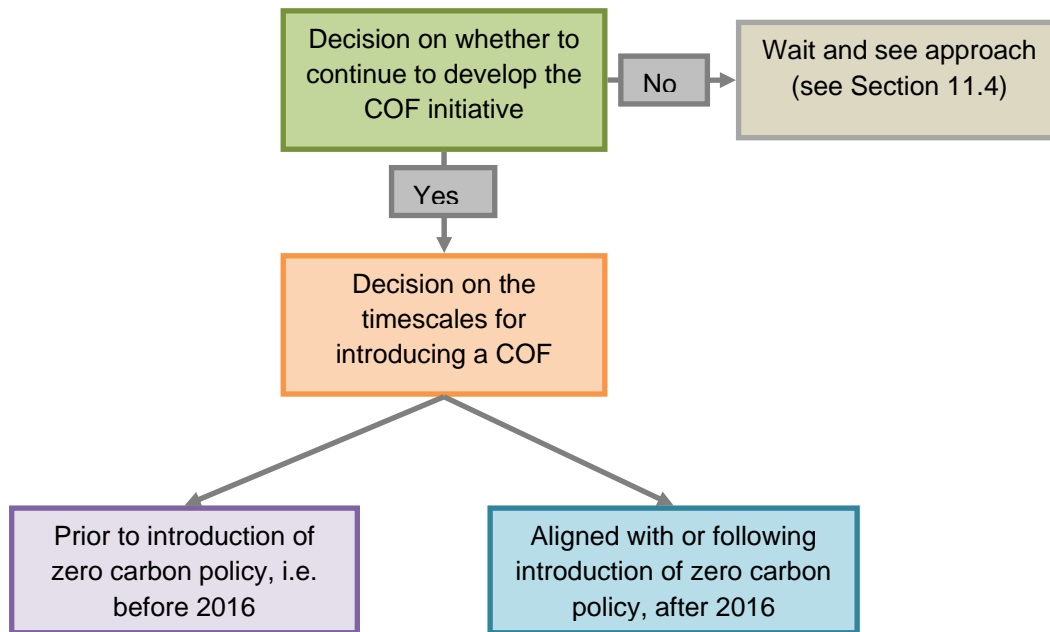
In developing the offset fund, the local authority partners will need to do work to identify potential carbon reduction opportunities. This will to some extent be influenced by national policy development, for example the definition of an allowable solution, and the structure of the local fund that emerges, for example the means of collecting funds from developers may have implications for how these funds are invested (as discussed in Section **Error! Reference source not found.**). The further work for local authority partners in shaping the offset fund is discussed further in the next section

11 Delivery Plan

The next steps in taking forward the Cambridgeshire Carbon Offset Fund are explored in this section.

11.1 Key decision on timescales

An early decision that the local authority partners will need to make concerns the timescales on which the COF would be implemented.



The implications of the decision on timescales are discussed below:

Implementation of a COF prior to 2016 and introduction of zero carbon policy:

- The means to impose collection of developer contributions into a fund must be created in local planning policy*
 Developers are obliged to meet the CO₂ emissions performance stipulated by the Building Regulations. In order for a COF to operate in the period up to 2016, a local planning policy would be required setting a higher target for CO₂ reduction. If the developer cannot meet the higher CO₂ reduction target, then a payment into the COF would be made instead.
- An existing mechanism would be required to collect the developer contributions*
 Either S106 or CIL would be used to collect the developer contributions, as discussed in Section 6.1.

- *A large amount of policy development work will be required before the COF can be launched*
The planning policy development work required is summarised in Section 11.3 below.
- *There is a risk of obsolescence*
Should zero carbon policy follow a different route, in terms of what is permitted as an allowable solutions investment, then there is a risk that the fund becomes redundant post-2016
- *The COF will impose an additional cost on developers until 2016*
This is a key point. In the period before zero carbon homes policy is introduced and it becomes mandatory for developers to reduce or offset all the emissions from their development, the COF does represent an additional cost on development. In this period, carbon reduction measures will compete for S106 or CIL investment alongside other priorities.

Implementation of a COF post-2016 and zero carbon policy

- *The COF does not impose an additional cost on developers*
Once zero carbon policy is in force (in the case of domestic development from 2016), then the COF is no longer an additional cost on developers. Once the minimum Carbon Compliance level has been met (i.e. onsite CO₂ reduction), developers can use Allowable Solutions to offset the remaining emissions. The COF becomes an Allowable Solution.
- *An existing tariff may still be used to collect the developer contributions*
If local offset funds are recognised as an Allowable Solution, then a mechanism will be required to collect developer contributions. This could be an existing tariff, as discussed in Section 6.1, or potentially a new system could be devised to handle allowable solutions.
- *The requirements for local planning policy work will still be required*
If an existing mechanism is to be used to collect developer contributions, then the planning policy development required will be similar to the case of adoption of the COF before 2016, although the timescales would be less tight. Even if a new collection mechanism is introduced for allowable solutions, evidence base work will be required to identify and assess carbon reduction project opportunities in each of the local authorities.

The decision on when to introduce the COF is clearly critical, the information that local authority partners will require to reach an informed view is summarised below:

Information required to decide on implementation timescales:

- *Confirmation that local offset funds will be a permitted Allowable Solution under zero carbon policy* – Recent statements by the housing minister have provided comfort that local funds are being seriously considered as part of the zero carbon legislation. A more definitive policy commitment, however, would help to inform a decision to proceed. This is somewhat out of the hands of local authority partners, although lobbying of government on the issue may help to form policy development.

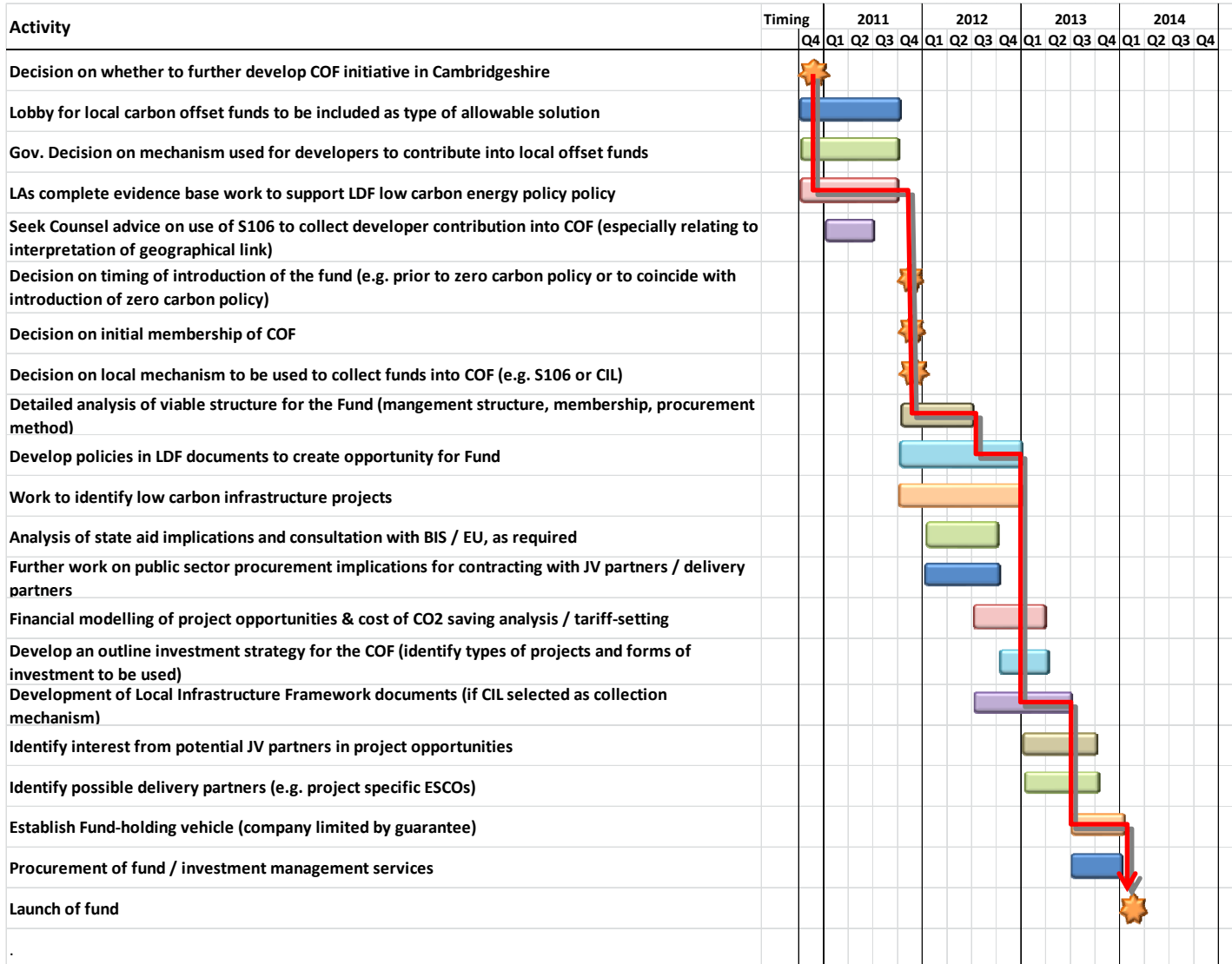
- *Growth Plans and timescales* – A decision by local authority partners on when to launch an offset fund will be informed by timescales on which major development is expected. If a large amount of growth is expected prior to 2016, then the argument for developing a COF in local planning policy is stronger.
- *Evidence base for setting local low carbon energy policy* – Ideally each local authority would have undertaken evidence base work to assess carbon reduction opportunities for new developments in the area. This evidence base would provide the justification for developing local planning policy that sets a target for CO₂ reduction that is more challenging than national regulation.
- *A realistic view of the timescales for implementation* – The work required to develop suitable policies in LDF documents is substantial and will be time-consuming. Public consultation periods will be required. Local authorities must take a view on what are realistic timescales for establishing appropriate planning policy (not all of Cambridgeshire’s local authorities need to be members from the outset),

11.2 Fund implementation – next steps

As discussed above, the work required to establish an offset fund will be significant. There are three key strands to the work, which will need to be progressed in parallel. These strands are:

- Evidence base development and low carbon project identification / assessment
- Planning policy development
- Development of fund structure and governance / legal work

Planning policy development involves numerous documents to be put in place, as discussed in more detail in Section 11.3. The other major tasks have been broken down and are shown on an implementation timeline in the figure below.



The timeline shown in the figure above is to some extent predicated on the assumption that government will have provided greater clarity on the role of local offset funds within zero carbon policy by the latter part of 2011. This would inform the local authority decisions on whether to proceed with the offset fund initiative. During this period, each local authority would work internally on developing the evidence to support a decision to become part of the offset fund and on what timescales.

According to the illustrative timeline shown in the figure above, work on development of the offset fund proceeds towards a launch in early 2014. This would coincide with the changes to the Building Regulations, with the introduction of Part L2013, which may be a convenient time to also introduce a change to the local planning requirements for carbon reduction in new developments.

Following the key decision points on whether to proceed, initial membership and the timing for introducing an offset fund, substantive work must then be undertaken to establish the fund. The critical path for an early launch of a fund is likely to be development of the required local planning policy framework, as highlighted by the red line on the timeline. The individual planning tasks are broken down in more detail below.

In parallel with policy development, work will need to be undertaken on the detail of the fund's structure and how it will operate. Work to identify suitable project opportunities and financial analysis of projects will inform development of an investments strategy and business plan for the fund. This project identification work could be done at a local authority level and may be drawn from the evidence base work required to support planning policy development, however, it may be more efficient for the authorities to work in partnership. The Cambridge Renewable Energy Infrastructure Project may feed into this work.

11.3 Key planning actions

Examination of existing examples and consideration of how the planning system currently works and will work following implementation of CIL suggests that the following will be required to be put in place in each local planning authority in Cambridgeshire:

1. The need for appropriate planning policies in LDFs including:
 - a. Core Strategy – should set out a high level policy that refers to the importance of carbon emissions reductions within the authority
 - b. Development Control DPD – should include more detailed policies related to requirements for carbon emissions reductions from development, and should include reference to a hierarchy including using less energy, supplying energy efficiently, the use of low carbon and renewable technologies, the use of Allowable Solutions including offsetting carbon emissions through a Carbon Offset Fund. Where appropriate thresholds should be set above which compliance will be required together with the requirement itself. Reference should be made within policies on developer's contributions to requirements for contributions to reduce impacts on climate change. Reference should also be made to CIL where this is to be used

- c. Site Specific Allocations documents – should include detailed policies for achieving carbon emissions reductions from specific development proposals, following the energy hierarchy and based on the site-specific circumstances. Such policies should include the potential for money to be paid into a Carbon Offset Fund, where this is deemed appropriate
 - d. Area Action Plans - should include detailed policies for achieving carbon emissions reductions from development envisaged for an area, following the energy hierarchy and based on the specific circumstances of the wider area. Such policies should include the potential for money to be paid into a Carbon Offset Fund, where this is deemed to be appropriate
 - e. Preparation of new or review of existing SPDs on Sustainable Design and Construction, planning obligations and CIL to provide more detailed information on the LPA's requirements for low carbon and renewable energy including the role of a Carbon Offset Fund. The SPDs should set out what is considered to be the appropriate level of funding required and how it will be sought, including the distinction between funds to be sought through Section 106 and those sought through CIL
2. Commissioning of up to date low carbon and renewable energy studies to provide a robust evidence base on which the above policies can be based. This should specifically consider opportunities presented by a Carbon Offset Fund
 3. Preparation of standard planning conditions where energy statements may be required or other further information is to be submitted in respect of energy management issues
 4. Preparation of standard Section 106 heads of terms / legal agreements including clauses related to funds for a Carbon Offset Fund

11.3.1 Actions required to support the use of CIL

The following key actions have been identified to support the use of the Community Infrastructure Levy as a delivery mechanism.

- Production of a Strategic Investment Framework for Cambridgeshire which highlights major infrastructure projects within the County, which may include low carbon and renewable energy projects
- Production of a local infrastructure framework document which provides details of individual infrastructure projects to be funded through CIL including low carbon and renewable energy projects. Additional information may need to be prepared that includes more generic information in respect of the types of projects that will be funded through CIL.

11.3.2 Other planning actions

Other planning actions that would assist are as follows:

- All relevant officers within each local authority will need to be made aware of the Carbon Offset Fund, including LDF teams, development management officers, officers involved in strategic and local infrastructure planning. Training may be required and/or the identification of a specialist officer to advise on carbon issues. Specialist expertise should be sought externally if considered appropriate.
- Cambridgeshire Horizons should submit representations to the current consultation on draft PPS1 Supplement to ensure that an appropriate national planning policy framework is in place to support carbon emissions reductions. This should encourage the use of Allowable Solutions, including the potential for financial contributions to be provided to offset carbon emissions from development
- Cambridgeshire Horizons should support the proposed amendments to the EEP but seek references to the offsetting of carbon reduction targets where appropriate through Allowable Solutions which should include financial contributions to a Carbon Offset Fund.
- Cambridgeshire Horizons should lobby Government to allow a broad range of Allowable Solutions including the potential for contributions to be sought towards offsetting carbon emissions whether through Section 106 or through CIL. Should this not be taken forward Cambridgeshire Horizons may wish to lobby Government for the introduction of an alternative mechanism by which funds could be sought.
- Cambridgeshire Horizons should seek Counsel's opinion on the interpretation of a geographic link required under Section 106

Key planning issues that are likely to arise include:

- The need for each local planning authority to have up to date planning policies and SPDs that make reference to the a Carbon Offset Fund
- The time taken for planning policies to be put in place due to requirements for a robust evidence base, public consultation and public examination prior to adoption (this can take a number of years)
- The need for background studies into renewable and low carbon energy studies to be commissioned and their findings translated into planning policies
- The need for local investment frameworks to be in place if CIL is to be used.

11.4 Alternative approach

The local authorities may decide not to take forward the Carbon Offset Fund, or to take a 'wait-and-see' approach while a clearer picture of zero carbon policy and the role for local offset funds as an allowable solution emerges.

In the event that the offset fund is not taken forward, there are still a range of measures that the local authorities can take or support, to assist the delivery of low carbon development in the area. These alternative approaches are briefly summarised below:

Planning Policy

Each local authority would be expected to put in place policies in their Development Plan Documents that are broadly supportive of renewable and low carbon energy projects, in line with national planning guidance. Planning policy may also identify priority sites or opportunity areas, where planning applications for certain technologies would be welcomed.

Local authorities could choose to go further by adopting policies that set specific targets for CO₂ reduction in new developments. These targets could be expressed as a requirement to meet a certain Code for Sustainable Homes or BREEAM target, or as a % CO₂ reduction requirement. An evidence base will be required to justify these targets.

Planning policies could also be put in place to promote certain technical solutions in certain areas. For example, planning policy could require new developments to consider establishing district heating systems or to connect to existing systems.

Allowable Solutions

Whatever the final form of zero carbon policy, it is likely that allowable solutions will play a significant role. Even in the absence of an offset fund, local authorities will still be keen to ensure that allowable solution investment is spent locally.

The mechanism for collecting and investing allowable solutions contributions is currently unclear and may provide a role for local authorities in determining how the money is spent. Planning policy that identifies priority projects or opportunity areas could be used to direct spending of allowable solutions.

CIL / S106

Local authorities could use CIL or S106 to fund carbon reduction projects outside of the offset fund. Once zero carbon policy is in force, this mechanism may be limited unless CIL or S106 are recognised as a means of providing allowable solutions contributions (it would be difficult to justify a CIL or S106 charge for a carbon reduction project in addition to the allowable solutions contribution developers will be required to make under zero carbon policy).

Low Carbon Development Initiative (LCDI)

As discussed in Section 8.1.2, the LCDI exists as a vehicle to initiate low carbon projects that the private sector is unlikely to bring forward acting alone. With adequate support, the LCDI could play a significant role in ensuring strategic low carbon infrastructure projects are developed.

Work alongside the Supplier Obligation

Energy efficiency improvement of the existing stock has been identified as a potential opportunity for fund investment. Substantial investment into energy efficiency measures and, increasingly, retrofit of microgeneration technologies is available through the Supplier Obligation (currently the CERT scheme, but this will be superseded in 2012/13). The local authorities could increase the effectiveness of the supplier obligation by providing further funding alongside the energy supplier. British Gas have entered into schemes with a number of local authorities, where the local authority contribution is provided as a council tax rebate.

Salix finance

Local authorities have access to low interest finance for energy efficiency and low carbon generation projects through the Salix scheme. This finance could be used by the local authority to retrofit renewable energy technologies such as photovoltaics to the existing stock, and use the feed-in tariff revenue to repay the loan.

12 Appendix 1: Examples of existing Carbon Offset Funds

A number of local planning authorities have implemented a Carbon Offset Fund. These include:

- Milton Keynes
- Ashford
- Aberdeen
- Reigate and Banstead
- Uttlesford

They are principally based around the inclusion of key text within planning policies that establish the requirement for provision of a financial contribution into a Carbon Offset Fund. Details of the approach of each authority are given below.

12.1 Milton Keynes

Milton Keynes Borough Council was the first local authority to establish a Carbon Offset Fund. It is supported by saved policies contained in the current Local Plan, which was adopted in 2005. These include:

| POLICY D4 Sustainable Construction |
|---|
| <p><i>All new development exceeding 5 dwellings (in the case of residential development) or incorporating gross floorspace in excess of 1000 sq m (in the case of other development) will be required to include the following:</i></p> <ol style="list-style-type: none"> <i>i. Energy efficiency by siting, design, layout and buildings' orientation to maximise sunlighting and daylighting, avoidance of overshadowing, passive ventilation;</i> <i>ii. Grouped building forms in order to minimise the external wall surface extent and exposure;</i> <i>iii. Landscape or planting design to optimise screening and individual buildings' thermal performance;</i> <i>iv. Renewable energy production e.g. external solar collectors, wind turbines or photovoltaic devices;</i> <i>v. Sustainable urban drainage systems, including rainwater and waste water collection and recycling;</i> <i>vi. Significant use of building materials that are renewable or recycled;</i> <i>vii. Waste reduction and recycling measures;</i> <i>viii. Carbon neutrality or financial contributions to a Carbon Offset Fund to enable carbon emissions to be offset elsewhere.</i> |

Supporting text to this policy refers to the need to achieve energy efficiency. It also refers to the use of renewable energy which should provide at least 10% of building energy use.

Policy D4 is supported by an SPD on Sustainable Construction adopted in 2007. It sets out requirements for the submission of a Sustainability Assessment for all full or reserved matters planning applications that exceed the thresholds. Where an application is submitted in outline a sustainability statement will be required at the reserved matters stage and a S106 agreement will provide for the carbon offset payment. The SPD refers to the need for applicants to demonstrate, where full policy compliance cannot be achieved, why this is the case, the proportion that is viable and the options explored.

The SPD sets out a checklist against which developments must be assessed (unless it is intended to achieve an Excellent Rating using Ecohomes/BREEAM). This sets out the minimum carbon reduction standards of 25% compared to current Building Regulations Part L standards (2006), as well as the generation of 10% of the development's energy requirements from on-site renewable energy technologies to achieve a 'pass'. Higher standards exist to achieve good and excellent.

To ensure that developments are carbon neutral, the council also operates an offset fund into which developers have to pay £200 for every tonne of carbon dioxide their development is predicted to emit in its first year. The SPD states that *"The Carbon Offset Fund will be managed by a The MK Energy Agency on behalf of and monitored by the Council & MK Partnership. The fund will be used elsewhere in MK to reduce carbon emissions by cutting energy use or producing renewable energy. The fund will be spent on carbon reduction measures with a lifespan of at least 20 yrs equivalent to the increased carbon output from new development"*.

Milton Keynes also operates a tariff system within its designated Urban Development Areas, which include the defined Expansion Areas for growth to 2016. The developers' Tariff contributions are currently £18,500 per residential dwelling and £260,000 per hectare of employment space which will be used to provide infrastructure required to support development. A contribution to carbon offset equivalent to £150 per dwelling has been built into the overall Tariff payment of £18,500 per dwelling. Where development achieves a higher construction performance standard than agreed in the Framework Section 106 developers are able to claim a rebate on this element of the Tariff.

The Milton Keynes Tariff is collected as a fixed payment made under the terms of a Section 106 Agreement as a condition of outline planning consent. It applies to all major development proposals (sites over 10 dwellings/1 hectare) granted outline-planning consent by MKPC in the UDA where it is the development control authority.

Contributions are index linked and will be collected in phased payments. Tariff contributions for residential development and employment land are made as follows:

12.1.1.1 Residential

- 10% upon implementable consent
- 15% before start on site
- 75% on a quarterly basis after the first completion is sold or rented. The payment size relating to the proportion of dwellings sold or rented.

12.1.1.1.2 Commercial

- 25% before start on site
- 25% before completion of each unit
- 50% prior to the occupation of each unit

Funds from the Tariff in respect of carbon offsetting are put into the Milton Keynes Carbon Offset Fund alongside contributions from development outside of the major development areas. Since the Milton Keynes Carbon Offset Fund was introduced in 2008 developers have paid some £485,000 into the Fund. So far this money has been used to insulate around 2500 existing older private homes, as well as sheltered housing across the city. The fund is currently managed by the United Sustainable Energy Agency, following the merger of the Milton Keynes Energy Agency and the Thames Valley Energy Centre.

Milton Keynes is currently bringing forward its LDF, which will replace the local plan. Due to the large number of dwellings to be built in the area, the council would like to develop an exemplar sustainability planning policy to minimise the increase in carbon emissions from the forecasted growth areas and to increase the amount of renewable energy generated across the Milton Keynes area. The council believes that the scale of growth in the area justifies setting standards of energy efficiency and renewable energy generation for particular development areas, through the economies of scale it brings. These principles were confirmed by Impetus Consulting during their initial meeting with Milton Keynes planning officers, which informed a study of energy efficiency and renewable energy potential in the Borough.

The Milton Keynes Core Strategy – Pre-submission publication version was published in January 2010. It sets out the following policies:

“Policy CS 14

Sustainable Construction

Developments of over 5 dwellings or 1,000 sq m of non-residential floorspace will be expected to achieve at least the following standards, or any new standards set out in a future DPD, unless the Local Planning Authority is satisfied that the application demonstrates the requirement would not be technically or financially viable.

| | <i>Area</i> | <i>Older Town Centres</i> | <i>City estates, including CMK</i> | <i>Strategic Development Areas</i> | <i>Rural Area</i> | <i>Conversion or alteration of existing buildings</i> |
|----------|-----------------------------------|---------------------------|------------------------------------|------------------------------------|---------------------|---|
| <i>A</i> | <i>Code for Sustainable Homes</i> | <i>Code Level 4</i> | <i>Code Level 4</i> | <i>Code Level 4</i> | <i>Code Level 4</i> | <i>EcoHomes Very Good</i> |
| <i>B</i> | <i>BREEAM</i> | <i>Very good</i> | <i>Excellent</i> | <i>Excellent</i> | <i>Very good</i> | <i>Very good</i> |

| | | | | | | |
|---|--|-----|-----|-----|-----|-----|
| <i>Minimum carbon dioxide reduction through renewable energy and/or low carbon technologies</i> | | | | | | |
| | | 10% | 20% | 20% | 10% | 10% |

To achieve the Council's objective of carbon neutrality, all developments over 5 dwellings or 1,000 sq m will be expected to make a contribution into the Milton Keynes Carbon Offset Fund."

Supporting text advises that supporting guidance on how Policy CS 14 'Sustainable Construction' will be delivered and managed is to be set out in a revised Sustainable Construction SPD. This will consider how the standard of construction will be maximised in cases of uncertain viability. There is an expectation that planning applications to which the policy applies must be accompanied by an early Code for Sustainable Homes design stage report or BREEAM Pre-assessment. Certification, showing how the required performance level has been achieved, will be required as evidence to discharge the planning condition. Carbon Offset contributions will be secured through the use of s106 agreements.

The draft Core Strategy confirms that where new national requirements exceed those set out in this Core Strategy, the national standards will take precedence.

Milton Keynes has a number of key expansion areas, each of which has its own SPD, which refer back to the requirements of the local plan.

12.2 Ashford

Ashford Borough Council is one of four growth areas established by the Government to tackle housing supply in the wider South East. Ashford Borough Council adopted its Core Strategy in 2008. The strategy includes:

- Policy CS8: Infrastructure Contributions;
- Policy CS10: Sustainable Design and Construction

Policy CS10 aims to deliver zero carbon growth in Ashford. It states that:

"All major developments (as defined in paragraphs 9.56 and 9.57) must incorporate sustainable design features to reduce the consumption of natural resources and to help deliver the aim of zero carbon growth in Ashford.

Unless it can be demonstrated that doing so is not technologically practicable, would make the scheme unviable or impose excessive costs on occupiers developments are expected to:

- A. *Achieve the standard set out below, or specified in a later DPD, or an equivalent quality assured scheme, with a strong emphasis on energy, water and materials. These requirements will be met through:*
 - a. *Energy and water efficiency,*
 - b. *Sustainable construction materials, and*

c. Waste reduction.

B. Reduce carbon dioxide emissions through on-site sustainable energy technologies at the percentage set out below or at such other level as may be specified in a subsequent DPD.

C. Be carbon neutral which can be met through a combination of (A) and (B) above, with any shortfall being met by financial contributions to enable residual carbon emissions to be offset elsewhere in the Borough.”

Within this policy the council has specified that particular levels of the Code for Sustainable Homes, Ecohomes (in the case of existing refurbishments) and BREEAM should be met, as set out below. Policy text advises that revised standards for 2015 onwards will be set in a review of the Core Strategy. It also states that sites that come forward in piecemeal fashion will be required to meet the targets in the plan, as if they had come forward as a single site.

Table 6: Ashford LDF, 2007–2014

| | | (CS3) Town Centre & (CS4) Brownfield Urban Sites | (CS5) Urban Extensions & (CS4) Greenfield Urban Sites | (CS6) Tenterden, The Villages | Existing and refurbishment |
|-----------------------------------|------------------|--|--|--|-------------------------------|
| BREEAM | Residential | Code Level 3 | Code Level 4 | Code Level 2 | EcoHomes 'Very Good' |
| | Overall level | Very Good | Excellent | Good | Very Good |
| | Energy Credits | Excellent | Excellent | Excellent | Excellent |
| | Water Credits | Maximum | Maximum | Excellent | Excellent |
| | Material Credits | Excellent | Excellent | Very Good | Very Good |
| Minimum CO ₂ reduction | | 20% | 30% | 10% | 10% |

Supporting text advises that standards have been set by development area to reflect the types of development expected to come forward within them. The level at which they are set is a balance between their economic viability, social acceptability and environmental impact.

The thresholds for which Policy CS10 is applicable are set out in the supporting text as follows:

Major developments

- Ten or more dwelling units or on residential sites of 0.5 hectares or more in area.
- For non-residential developments, any scheme of at least 1,000 sq m gross external floorspace or, any development on a site 1 hectare or more in area.

(These are the types of development likely to make up a large proportion of the housing growth in the LDF period, and are the suggested threshold for the inclusion of renewable energy in the draft South East Plan Policy EN1).

Development in Tenterden and the Villages, and the Countryside:

- Major development will be defined as five or more dwelling units.
- For non-residential units 500 sq m or sites of 0.5 hectares or more.

With regard to CO₂ reduction targets the Core Strategy states that *“the percentages set in Policy CS10 are based on a balance between economic viability, the Council’s ambitions to minimise the environmental impact of new development and the target for onsite renewables that is needed to deliver a reduction in carbon dioxide emissions if the UK as a whole is to move towards meeting the Energy White Paper target to reduce the UK’s emissions of Carbon Dioxide by 60% by 2050”* (paragraph 9.59). The percentages are a target through on-site renewables above that required by Building Regulations.

Supporting text to Policy CS10 recognises that energy efficiency is often the most cost effective route to reducing carbon emissions. It also states that sustainable energy will be delivered by reducing a percentage of the CO₂ emissions through on-site renewable energy, such as solar thermal and micro-wind. Major developments are expect to consider how the integration of Combined Heat and Power (CHP), including mini and micro-CHP, and district heating infrastructure in major developments could be used in meeting the policy requirement.

The Core Strategy makes specific reference to ‘C. Financial contributions or carbon offsetting to make developments carbon neutral’ stating that *“Any remaining emissions from a development will need to be offset in order to make developments carbon neutral. This will be through a financial contribution and/or off-site renewable energy facilities, energy efficiency schemes and tree planting as part of Ashford’s Green and Blue Grid”*. A Supplementary Planning Document is to be prepared that will set out how the carbon offsetting will be administered and delivered, which will be informed by a study assessing the opportunities in the Borough and the approach taken by Milton Keynes.

Two key documents were produced to justify and evidence the need for a strong prescriptive energy policy in Ashford. A Sustainable Design and Construction Background Paper explains the rationale behind each part of CS9 and CS10 and an analysis of legality and costs associated with higher sustainability standards. During development of the Core Strategy, the Code for Sustainable Homes was introduced. As a result a Topic Paper related to design sustainability details how the policy was modified to accommodate the change from the EcoHomes standard to the Code.

Ashford Borough Council has subsequently adopted a Sustainable Design and Construction SPD (2009). In respect of energy and carbon developers are advised to apply the energy hierarchy as follows when developing proposals:

- Reduce the need for energy.
- Use energy efficiently.
- Supply energy efficiently.
- Use renewable energy.

The SPD recognises that the opportunity for developments to contribute will vary as the potential for integrating sustainable energy technologies differs between different developments and sites. Applicants are expected to include design considerations of installing sustainable energy technologies within their Design and Access Statements.

Compliance with the requirements of Policy CS10 is expected to be demonstrated by applicants through the provision of appropriate documentation. It is recommended that a Sustainability Statement setting out the measures to be taken to achieve the required CSH/BREEAM is submitted in respect of full planning applications. Within this statement should be set out details of the proposed carbon reduction strategy, any residual carbon emissions and a commitment to Part C of the policy.

The SPD confirms that planning conditions will be used to ensure that any commitments in terms of sustainable design and construction standards, including sustainable energy commitments are implemented.

Technical feasibility and financial viability are addressed in the SPD. It recognises that there may be some sites where the standards required by Policy CS10 may not be achieved. Clear evidence and justification as to why a development cannot meet either in whole or in part the standards set out will be required. A high purchase price for development land will not be regarded as sufficient justification. The SPD clearly states that contributions into a fund through Part C of the policy will not be acceptable, and compliance with Parts A and B must be met in the first instance. If full policy compliance cannot be provided, contributions under Part C of the policy will be negotiated on an individual basis to ensure that development is a carbon neutral as possible. The SPD sets out the basis on which a one off contribution into the Ashford Carbon Fund will be sought on completion of a development. It will be managed and monitored by Ashford Borough Council with monies from the fund used to pay for carbon savings through energy efficiency schemes, and tree planting as part of Ashford's Blue and Green Grid. Energy efficiency schemes are favoured by the Council as they are the most cost effective method for reducing CO2 being released into the atmosphere, from energy use in existing dwellings.

Officers at Ashford Borough Council have advised that the requirement to contribute to the Ashford Carbon Fund is currently dealt with by planning condition, whilst the mechanism to deliver contributions is still being worked out. Officers have indicated that the mechanism will be separate from Section 106 and from the tariff approach that is being used within the growth area although no details are currently available. Policy CS8: Infrastructure Contributions sets out the requirement for a strategic tariff for this area as follows:

“A 'strategic tariff' will be used to secure contributions to help fund the strategic physical infrastructure and other facilities needed to support the sustainable growth of the Ashford Growth Area.

All residential development in the Ashford Growth Area will pay the tariff - including schemes on allocated LDF sites, in-fill sites and 'windfalls'. Residential development on brownfield sites will be encouraged by a reduction in the full residential tariff rate, as will changes of use of existing buildings or conversions of existing houses to create additional homes.

Employment and retail proposals will not be required to pay the strategic tariff. However, within the Town Centre contributions from such proposals will be sought to help provide for the

programme of major public realm improvements needed to regenerate the town. This approach will be set out in the Town Centre Area Action Plan and Infrastructure Contributions SPD.

The tariff will be payable in stages from commencement to completion of the development, related to the scale of development – details of which shall be set out in SPD.

The tariff will be set at a rate, currently envisaged to be about £14,000 per dwelling which should not undermine the viability of development. The rate will be reviewed at least every 3-5 years, following consultation with providers, landowners and developers. Where developers consider that paying the standard tariff would have serious implications for the viability of developments, the Council will encourage an ‘open book’ approach and where necessary will operate the policy flexibly.

The tariff rates, the processes involved and the levels of any reductions in the full tariff rate will be set out in a Supplementary Planning Document. Detailed specifications of the on-site contributions needed will be set out in site policies in the relevant site allocation DPDs.”

The Core Strategy describes the uses that strategic tariff contributions will be put as including “strategic renewable energy projects such as CHP and biomass”. In respect of site-specific provision (to be provided through conditions or a Section 106 agreement) the following are envisaged: renewable energy measures to meet the targets in Policy CS10. It goes on to say that where sites are too small for on-site provision to be practicable or efficient an ‘in lieu’ contribution to off-site provision may be acceptable. This is intended to be outside the tariff system.

12.3 Aberdeen City Council

Whilst clearly set within the context of the Scottish planning system there are some parallels with the planning framework established in Aberdeen, which aims to reduce carbon emissions in new development.

Aberdeen City Council adopted an interim policy in 2009, pending adoption of the local development plan, which states:

“Reducing Carbon Emissions in New Development

All applications proposing development with a total cumulative floor-space of 500sqm or more (excluding Change of Use or conversion within the envelope of existing buildings) should incorporate on-site zero and low carbon (LZC) equipment contributing at least an extra 15% reduction in CO₂ emissions beyond the 2007 building regulations carbon dioxide emissions standard. Where it has been demonstrated (to the satisfaction of Aberdeen City Council) that technical or planning policy constraints limit the application of LZC equipment on the application site, the provision of equivalent carbon savings elsewhere in the area will satisfy the requirements of this policy.”

Additional detail on the above policy is provided for in the Council’s supplementary planning guidance on ‘Reducing carbon emissions in new development’. It states that equivalent carbon savings elsewhere in the area will be taken to mean equivalent CO₂ emissions reductions reached through:

- the installation of LZC equipment elsewhere in Aberdeen or
- by a financial contribution to Aberdeen City Council's Carbon Offset Fund.

The financial contribution is a one-off payment calculated at a rate of £200 for each tonne of CO2 which would be emitted (annually) above that required by the policy, secured by legal or other appropriate means (such as a payment made prior to release of planning consent) The SPG advises that the £200 figure was established by the National Energy Foundation's Milton Keynes Carbon Offset Study, carried out in 2004. It was based on estimates of the most cost effective carbon reduction measures available.

The SPG confirms that the Carbon Offset Fund will be a ring fenced pot of money used solely to reduce carbon dioxide emissions in the city. This will, for example, include energy saving measures in the homes of people in Aberdeen who are in fuel poverty and Aberdeen City Council's Decentralised Energy programme.

An officer at the Council has advised that as yet no funds have been sought from proposed developments as all have provided on-site solutions with the exception of one development that proposes a link to a CHP schemes. At present the Council is examining ways of establishing a less legalistic framework for taking financial contributions than Section 75 (Scottish equivalent of S106) due to the envisaged cost and administration involved as against the level of contribution likely to be generated.

12.4 Reigate and Banstead

Reigate and Banstead Borough Council (RBBC) examined the potential for the establishment of a Local Carbon Offset Fund (LCOF) in 2007. Information obtained from a report prepared at this time advises that the emerging Core Strategy is proposing a Sustainable Construction policy which will require a financial contribution to the LCOF, proportionate to the difference in carbon emissions between the standard achieved in the new development and the zero carbon Code for Sustainable Homes Level 6 (also known as Balance Trading). RBBC was supported by the South East Centre for the Built Environment (SECBE) which provided technical expertise to support the further development of policies and the creation of a delivery vehicle to build on existing arrangements to create the capacity to accelerate the Borough's progress towards zero carbon housing through the delivery of Balance Trading.

Outputs from the scheme were envisaged as including:

- Insulation measures (walls, roofs and radiators)
- Domestic microgeneration (e.g. solar panels)
- Stand alone renewable energy projects (e.g. a wind turbine)
- Combined Heat and Power solutions
- The production and supply of renewable fuels e.g. wood chip; short rotation coppice

Arising from this the Core Strategy Submission Document 2008 includes the following policy:

"Core Strategy Policy 10

Sustainable Construction

1. *Development as outlined below will incorporate sustainable construction features, as identified in the Code for Sustainable Homes 39 and BREEAM standard, to reduce the consumption of natural resources and to help deliver the Community Plan's aims to promote zero and low carbon development and bring about environmental improvements in existing buildings.*
2. *Prior to 2011:*
 - *Every additional dwelling unit commenced will achieve the Code for Sustainable Homes Level 3;*
 - *Non-residential development (500m2 or more of net additional floorspace) will achieve a Building Research Establishment Environmental Assessment Method (BREEAM) assessment to a Good standard;*

From 2011 to and including 2013:

 - *Every additional dwelling unit commenced will achieve the Code for Sustainable Homes Level 4;*
 - *Non-residential development (500 m2 or more of net additional floorspace) will achieve a BREEAM, assessment to a Very Good Standard;*

From 2014 to and including 31 March 2016

 - *Every additional dwelling unit commenced will achieve the Code for Sustainable Homes Level 5;*
 - *Non-residential development (500 m2 or more of net additional floorspace) will achieve a BREEAM assessment to an Excellent Standard.*
3. *Every additional dwelling unit and non-residential development (500 m2 or more of net additional floorspace) will reduce carbon dioxide emissions through the use of on-site renewable energy technologies at no less than 10% for all new developments.*
4. *Development will be carbon neutral which can be met through a combination of 1) and 2) above; subject to negotiation and agreement by the Council, any residual carbon emissions may be offset by financial contributions to the Borough's Carbon Reduction Fund."*

Implementation is anticipated to be through the following:

- Further guidance provided as part of Supplementary Planning Documents;
- The Council's Carbon Reduction Fund and Strategy;
- Monitoring and enforcement of Building regulations and obligations as set out in binding legal planning agreements;
- Consideration and determination of planning applications and appeals;
- Implementation of NGP Programme of Development; and
- Facilitating the development of a local stand alone renewable energy scheme in Redhill and elsewhere as appropriate.

Examination of the Core Strategy took place in Jan/Feb 2010 and the Inspector's Report is expected in April 2010.

12.5 Uttlesford

Officers at Uttlesford District Council have advised that the Council intends to give further consideration to the provision of a Carbon Offset Fund as it progresses its Core Strategy. At present saved policies contained in the Uttlesford Local Plan, adopted in 2005, include Policies GEN2 and ENV15 which relate to design, including minimising energy use and renewable energy. These policies are supported by an Energy Efficiency SPD that provides additional information on measures that can be included in new development to reduce energy use. The SPD sets out the Council's requirements for development to meet various levels of the Code for Sustainable Homes over time. It also sets out an energy hierarchy which sets out in order of priority the ways in which energy use can be reduced. The Council expects developers to look at the higher levels first and only once these have been addressed to move down to the lower levels. The hierarchy is as follows:

- Avoiding unnecessary energy use – re-organise systems so that energy use can be reduced to the minimum, for example by designing buildings to be warmed by the sun, using natural light and ventilation, or enabling people to get access to the amenities they want with fewer and shorter car journeys.
- Use energy more efficiently - finding ways of getting more benefit per unit of energy, for example by using higher efficiency appliances, generating heat and power together or insulating buildings better to retain heat.
- Use renewable energy - switch to less damaging low-carbon energy sources, especially renewables, for example solar and wind power, energy crops or hydro.
- Offsetting emissions - the Council is proposing to seek developer contributions where development leads to increased emissions. The contributions will be used to provide grants and incentives for people to reduce greenhouse gas emissions from existing housing by investing in energy efficiency and renewable energy.

Whilst the Council's Environment Committee agreed in March 2007 to pursue a policy of requiring contributions by way of a S106 agreement for every tonne of projected annual CO2 emissions resulting from a new development, this has not yet been developed further. The SPD states that contributions will be used to fund grants and incentives to encourage householders to invest in energy saving and renewable energy measures to reduce greenhouse gases from existing homes in the district. It confirms that the policy framework for this approach will be developed through the Core Strategy and Development Control DPD although this has not yet taken place

12.6 Examples of Carbon Offset Funds: conclusions

It can be seen that the existing Carbon Offset Funds work on a similar basis, that is the establishment within DPDs of requirements for development to comply with policies concerned with the provision of low carbon and renewable energy. Where compliance is not possible and/or in order to achieve carbon neutrality there is provision for offsetting of the carbon emissions through a financial contribution to a Carbon Offset Fund.

Ashford Borough Council's policies seek to ensure that energy efficiency and sustainable energy technologies are prioritised before consideration is given to the provision of financial contributions. This is something that each of the local planning authorities within Cambridgeshire will need to consider to determine whether this is an approach that they wish to adopt.

A number of the LPAs identified above require development to meet targets that are ahead of current national requirements, in order to further reduce carbon emissions. Justification for these requirements is provided through the commissioning of detailed studies of low carbon and renewable energy potential. These include:

Milton Keynes – Targets for renewable energy generation and energy efficiency in new development in Milton Keynes, Impetus Consulting Ltd, Climate Works Ltd and South West Air Energy, 2008

Ashford – Ashford Local Development Framework: Design and sustainability background paper, July 2006

- Ashford sustainable energy feasibility study, Ove Arup, 2008

Reigate and Banstead – CS10 Implementation evidence document, 2009

Uttlesford – Low/Zero carbon renewable energy for Uttlesford, Altechnica, 2008

In the majority of cases financial contributions are provided through the existing Section 106 mechanism. In the case of Milton Keynes and Ashford there are two distinct planning regimes for the growth areas and the remaining parts of the towns. A tariff system operates in the growth areas, which in the case of Milton Keynes is collected by Section 106. In the remaining part of the Milton Keynes contributions are collected through Section 106 based on both Councils' SPD. Milton Keynes has provided the basis on which other local authorities have implemented their own requirements. Neither Ashford (for the remaining town) or Aberdeen has determined exactly how funds will be collected although officers have indicated that they do not intend to use Section 106 (or equivalent in Scotland).

It is noted that officers at Aberdeen City Council have expressed concern that the negotiation of individual legal agreements for many small developments will not be cost effective and hence an alternative mechanism is being sought. As noted above the use of standard legal agreements, which is encouraged by Government, can reduce the costs and administrative burden involved.

In terms of spending of funds the majority of authorities do not specify what contributions will be used for, merely that they will go into a Carbon Offset Fund. Ashford Borough Council's Sustainable Design and Construction SPD sets out how the Council intends to use funds collected, which will include energy efficiency schemes and tree planting. Aberdeen City Council's Reducing emissions in new development SPG states that contributions will be used solely to reduce emissions in the city, for example through energy saving measures in homes where fuel poverty exists or through the Council's Decentralised Energy programme.

Whilst the above policy and implementation frameworks have been put in place relatively recently they provide a good basis on which Cambridgeshire Horizons can encourage its constituent authorities to develop their own policy basis to enable a Carbon Offset Fund to be put in place.

13 Appendix 2: Definition of zero carbon homes and non-domestic buildings consultation, 2008

13.1 Overview

The potential for an offset fund to be put in place was explored through the Government's consultation paper on the definition of zero carbon homes and non-domestic buildings that took place in 2008/9.

The consultation sought views on what should be included in 'Allowable Solutions' which could be used to meet the zero carbon homes standard (following energy efficiency and carbon compliance). This included "a credit for S106 Planning Obligations paid by the developer towards local LZC energy infrastructure". It goes on to outline the following:

Section 106 Obligations

- The Planning Policy Statement: Planning and Climate Change expects new development to be planned to make good use of opportunities for decentralised and renewable or low-carbon energy. S106 Planning Obligations provides a potential mechanism through which such infrastructure might be delivered.
- Where such contributions are appropriate, it is right to include them in the Allowable Solutions. Otherwise developers would be required, in effect, to deal with the same residual emissions twice.
- Where such contributions apply, a method will be needed for calculating the amount of carbon to be attributed to the financial contribution made by the developer.
- Whether S106 will be a suitable vehicle for a particular allowable solution will depend on the facts and circumstances of the case, in particular the relevance of that solution to the housing development in question.

13.2 CIL as an allowable solution

In addition to using Section 106 obligations, the consultation document also sought views on whether the Community Infrastructure Levy (CIL) could be used as an allowable solution, for example where local authorities prioritise CIL spending on energy infrastructure such as a district heating scheme. It suggested that one approach might be "for the local authority to determine the impact of putting in a local energy scheme on emissions reductions, including from the new development expected to come forward in the area, and conclude that the scheme proposed would be enough to abate some or all of any residual emissions from new development. To the extent that CIL funds could be shown to be specifically allocated towards energy infrastructure, and bearing in mind that CIL funds might form only a part of the infrastructure funding mix, there might be a way of counting payment of the standard CIL charge as an allowable solution".

13.3 Consultation responses on Section 106

The Government's Summary of Responses advises in respect of Section 106 that the following comments were received:

- More detail needed on how it will operate (e.g. Environmental Perspectives).
- Monitoring and enforcement will be required to ensure funds are used appropriately (Lend Lease Corporation).
- There is a need to ensure additionality, i.e. that any obligation is truly additional to other S106 obligations already placed on the developer (EST).
- Support for their use but they must deliver long-term investment in local large scale LZC infrastructure that future new homes can connect to (e.g. G15 Group of London housing associations and others).
- Historically, affordable housing has been the main recipient of S106 contributions. If these are now going to fund LZC infrastructure, Government will need to increase grants to affordable housing (G15 Group of London housing associations).
- The scheme should be administered by a specialist body independent of the local authority (Gentoo Group).

The summary of responses document also confirms that a centrally-resourced and audited community energy fund (as recommended by the UK GBC) was favoured by a large number of developers and builders and could be well-received by the development/construction industry.

Respondents considered that *"several of the proposed Allowable Solutions require skills beyond those presently held by property developers, builders and local authority building control and planning officers to guarantee the carbon savings required. Most would also be relatively small scale projects which, in themselves, would be likely to have a lower impact on carbon emissions than projects funded from a pooled resource. A central fund could overcome these problems and provide transparency to the public showing that the carbon savings required are being delivered in the most cost-effective manner. The buy-out for such a community fund should be set at a level that clearly incentivises the installation of on- or near-site measures. The fund would provide developers with an easy mechanism to achieve zero carbon, minimising confusion and complexity. A centrally-held fund could also remove regional differences in the application of solutions, especially with regard to those that are driven by planning considerations. There were, however, some suggestions for these funding streams to be held regionally or even at a district level"*. (para 3.14)

13.4 Consultation responses on CIL

In respect of CIL the consultation response document advises as follows:

"3.17 Question 14 prompted divergent views on the suitability of the CIL as an allowable solution. Property developers and builders were particularly against its inclusion. Less than half of all respondents felt that there could be significant value in considering further how a ring-fenced part of the CIL could facilitate the funding of large-scale decentralised LZC infrastructure at a community scale. As noted by Devon County Council and Buro Happold, it

had the potential to help overcome current issues around infrastructure funding and avoid unnecessary retrofitting to achieve the zero carbon standard and it could bring together and co-ordinate the efforts of many developers. It could also be used to fund construction and post-occupancy monitoring and behavioural advice for occupants about their new homes (G15 Group of London housing associations).

3.18 However, as noted by the TCPA and others, it would require a more strategic approach by local authorities for it to work effectively. In particular, they would need to understand the importance of the role of ‘thermal masterplanning’ at the neighbourhood scale – spatially matching energy generation (specifically heat but also electricity) with demand in the lowest carbon way. Other issues that would need to be addressed included:

- developing a mechanism for auditing carbon dioxide emissions reductions
- (Renewables Advisory Board) increasing experience/skills among local authority planners (e.g. EST and others)
- avoiding potential confusion over a fund that seeks to reduce carbon dioxide emissions but also funds the construction of roads and transport infrastructure (e.g. Renewables Advisory Board and others)
- considering the potential overlap between a planning obligation and CIL to avoid duplication of liability (e.g. WWF)
- ensuring that local authorities could clearly demonstrate that the proceeds of the levy had been used to fund LZC infrastructure and the predicted resulting offset in carbon dioxide emissions (e.g. Salford City Council)

3.19 There were significant concerns, particularly among property developers and builders about the suitability of the CIL. It was pointed out by Places for People and many others that the CIL is primarily intended to help fund infrastructure requirements arising from the impact of new development on existing infrastructure capacity and related services in the wider local community and the demonstrable need to augment this. It is, therefore, not an appropriate mechanism to include as an allowable solution. There were also concerns that it would be difficult to ensure a valid quantifiable relationship between CIL payments and investment in suitable energy facilities that equated to the energy requirements of particular new homes (e.g. Home Builders’ Federation). In addition, CIL is an optional charge and local authorities can choose not to implement it, resulting in regional differences in implementation (Fulcrum Consulting). There were also particular concerns about the capacity and capability of local authorities to cost infrastructure plans against which any levy is payable, and to identify, cost and procure the necessary infrastructure (e.g. EDF Energy). For these reasons, it was suggested by Gentoo Group and several other respondents that a specialist body, independent of local authorities and adhering to the local authority boundaries, should administer the Levy.”

13.5 Consultation responses on geographical scope of Allowable Solutions spending

Of interest to how funds from a Carbon Offset Fund might be spent are responses to questions on what emphasis Allowable Solutions should have on measures undertaken in the locality of a development. A further question asked “Should there be a further distinction

between reductions achieved in the same Government office region as the zero carbon home versus reductions achieved elsewhere in the UK?” Responses were as follows.

The majority of respondents agreed that the approach set out in the consultation provided sufficient emphasis on local measures. However, a number queried the definition of ‘local’, with various suggestions made. Several others questioned how the system would ensure that the measures directly benefited the local community and occupiers. In addition, most felt that while on-site and local activities should be the preferred option, they should not be pursued at the expense of technical and financial practicality and that there should be greater flexibility over this. For example, it was noted that the smaller, more local in scale the solution, the more expensive it is likely to be – and the higher the cost per tonne of carbon saved. In addition, for schemes of regional significance (e.g. over 1,000 units), it may be more appropriate for Allowable Solutions to be sought at a regional or national rather than local scale, while for urban developments, local measures may be impracticable or too expensive.

A significant number of respondents went further, adding that too much emphasis was being placed on local measures at the expense of cost-effectiveness and also that carbon dioxide emissions and climate change are not local issues and therefore cost-effective mitigation and adaptation strategies should be encouraged locally, nationally and even globally. Electricity North West Limited suggested that these problems could be avoided if a buy-out fund was created and managed within the region. Similarly, Sponge Sustainability Network felt that carbon compliance should be achieved locally but Allowable Solutions should be administered at an authority-wide area via a community energy fund.

A smaller number of respondents disagreed that local measures were given sufficient emphasis, with some suggesting that more could be done to prioritise local over regional or national solutions. The LGA echoed the views of several regional and local authorities, commenting that: “Those communities that pay a premium for zero carbon homes should also reap some of the benefits by keeping Allowable Solutions local.” They added: “Council planners must have the flexibility to identify what is suitable for an area and steer developers towards suitable projects in their locality.” The Renewable Energy Association agreed that “measures should be limited to either on-site or near-site energy/heat generation”, adding that, where this was not possible, payment should be made into a specific energy fund.

There were also divergent views on whether retrofitting of existing properties should be prioritised on a local basis or, indeed, whether it should be included in the list of Allowable Solutions at all.

The majority of respondents did not favour any further prioritisation of local measures. Supporting comments made included:

- prioritisation should be driven by the value concept and the maximisation of carbon abatement – in some cases, greater carbon abatement economies of scale could be achieved by taking larger scale off-site action
- a centrally mandated but locally administered carbon reduction fund similar to that proposed by the UK GBC could give local authorities greater certainty and a strategic say in the solutions delivered in an area (Fulcrum Consulting)
- if payment is made into a fund, it should not be tied to the locality but used in a way where carbon savings and social benefits are maximised

- proposed Allowable Solutions are generally local and further prioritisation may prohibitively restrict developers. It may also affect areas of low housing development such as rural areas more than urban areas (e.g. in terms of their ability to deliver new LZC infrastructure) thus disadvantaging those locations

Most respondents felt that there should not be a further distinction between reductions achieved in the same Government office region and those achieved elsewhere, with many commenting that the process will be complicated enough without requiring regional versus local distinctions. This policy could have unintended consequences for developments on or close to regional boundaries, for example, the most effective measures may be across the boundary but still close to the site. The HCA also commented that it is important that target reductions are the same across all regions to ensure a level playing field for developers.

Few respondents agreed with the idea of a regional/national distinction.

14 Appendix 3: Local Development Framework Programmes

Table 7: Current Local Plan/Local Development Framework programme

| 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 | Submission draft May - July 2011 Submission Aug 2011 Adoption April 2011 | (incorporates development control policies) Submission draft Oct – Dec 2011 Submission Dec 2011 Adoption July - Oct 2012 | See site specific policies DPD | Cambridge East AAP – adopted Feb 2008 North West Cambridge AAP – adopted Oct 2009 Northern Fringe East AAP (joint with South Cambs) Submission draft Feb-March 2011 Submission June 2011 Adoption July 2012 | Adopted March 2009 | Adopted June 2007 | Scoping a joint framework with SCDC |

| | | | | | | | |
|---------------------------------------|--------------------------|-------------------------|--|--|--|--|---|
| <p>South Cambridge shire District</p> | <p>Adopted Jan 2007</p> | <p>Adopted Jan 2010</p> | <p>Adopted July 2007</p> | <p>Cambridge East AAP – Adopted Feb 2008 Cambridge Southern Fringe AAP – Adopted Feb 2008 North West Cambridge AAP – Adopted Oct 2009 Northern Fringe East AAP (joint with Cambridge City) Submission draft Feb-March 2011 Submission June 2011 Adoption July 2012</p> | <p>Draft SPD Jan-Feb 2011 Revised SPD July 2011 Public examination Sept 2011 Adoption Dec 2011</p> | <p>Due to be adopted on the 2 March 2010</p> | <p>(Intended to be Obligations SPD) Draft SPD Jan-Feb 2011 Revised SPD July 2011 Public examination Sept 2011 Adoption Dec 2011</p> |
| <p>Huntingdon shire District</p> | <p>Adopted Sept 2009</p> | <p>Not proposed</p> | <p>Publication March 2010 Submission Oct 2011 Adoption July 2011</p> | <p>Huntingdon West AAP – Publication Dec 2009 Submission April 2010 Adoption Jan 2011 St Neots AAP Publication Feb 2012 Submission Sept 2012 Adoption June 2013</p> | <p>Currently on hold pending outcome of CIL proposals</p> | <p>Not currently proposed</p> | <p>Completed Jan 2009</p> |

| | | | | | | | |
|-------------------------------|---|--|---|--|---|--|--|
| Fenland District | <p>Consultation Jan-March 2011</p> <p>Submission Autumn 2011</p> <p>Adoption Spring/summer 2012</p> | <p>To follow 6 months after Core Strategy</p> <p>Adoption Winter 2012</p> | <p>Consultation Jan-March 2011</p> <p>Submission Autumn 2011</p> <p>Adoption Spring/summer 2012</p> | None proposed | No timetable | No timetable | Preparing through 'Shaping Fenland' Due August 2010 |
| East Cambridge shire District | <p>Adopted October 2009</p> | <p>Options consultation July/Aug 2010</p> <p>Submission consultation – Dec 2010</p> <p>Submission – July 2011</p> <p>Adoption 2012</p> | <p>Adopted October 2009</p> | <p>Ely AAP – Options consultation July/Aug 2010</p> <p>Submission consultation – Dec 2010</p> <p>Submission – July 2011</p> <p>Adoption 2012</p> | <p>Options consultation Summer 2010</p> <p>No further timetable</p> | <p>Options consultation Oct 2010</p> <p>No further timetable</p> | <p>Consultation Summer 2010</p> <p>Adoption October 2010 (May be subject to delay)</p> |

Note: Information correct as at end February 2010.

15 Appendix 4: Fund size estimation – key assumptions

15.1 Build projections – data sources

The build projections presented in section 5.1, which form the basis of estimating the potential Fund size, are taken from the following published reports:

15.1.1.1 Annual Monitoring Reports

Cambridgeshire Annual Monitoring Report 2008

Cambridge City Council Annual Monitoring Report, December 2009

East Cambridgeshire District Council Annual Monitoring Report 2008/09, December 2009

Fenland District Council Annual Monitoring Report 2008 – 2009, December 2009

Huntingdonshire District Council Annual Monitoring Report, December 2009

South Cambridgeshire Annual Monitoring Report 2008 – 2009, December 2009

15.1.1.2 Retail Capacity Studies

Cambridge Sub-Region Retail Study 2008, GVA Grimley, October 2008 (Amended September 2009)

East Cambridgeshire District Council Retail Study 2005 – Updated Partial Review, Roger Tym & Partners, April 2009

Fenland District Retail Study, Roger Tym & Partners, August 2006

Update of the Huntingdonshire Retail Assessment Study 2005, Roger Tym & Partners, April 2007

15.1.1.3 Employment Land reviews

Cambridge City and South Cambridgeshire Employment Land Review, July 2008

Partial Review of the 2005 East Cambridgeshire Employment Land and Labour Market study, SQW consulting, March 2008

Fenland District Council Employment Land Review, July 2007

Huntingdonshire District Council Employment Land Review, October 2007

15.2 CO₂ emission data

The CO₂ impact of new development in Cambridgeshire was estimated based on the build trajectories (from data sources outlined in the previous section) and assumptions on average emission by building type, as summarised below.

Table 8: CO₂ emissions of Part L 2006 compliant building designs

| Building type | Part L 2006 CO ₂ emissions (kgCO ₂ /dwelling.yr for residential, kgCO ₂ /m ² .yr for non-residential) | | Data source |
|---------------------|--|-------------|--|
| | Regulated | Unregulated | |
| Residential | 2,275 | 1,075 | SAP modelling for typical house |
| Office | 53 | 26 | Typical figures from consultation on zero carbon for non-domestic buildings (Table 6, p.67). ²¹ |
| Retail: convenience | 136 | 13 | |
| Retail: comparison | 136 | 13 | |
| School | 33 | 15 | |

Building Regulations will require a certain level of CO₂ reduction through on-site measures and the Fund may provide a mechanism for further savings (e.g. as a way to meet the zero carbon homes standard post 2016). The table below summarises the assumptions made on the level of CO₂ reduction that would have to be achieved on-site.

Table 9: Assumptions regarding on-site improvement in regulated CO₂ emissions required by Building Regulation revisions

| Building type | On-site improvement on Part L 2006 regulated emissions by Part L revision | | | |
|---------------------|---|------|------|------|
| | 2010 | 2013 | 2016 | 2019 |
| Residential | 25% | 44% | 70% | 70% |
| Office | 27% | 44% | 44% | 44% |
| Retail: convenience | 11% | 44% | 44% | 44% |
| Retail: comparison | 33% | 44% | 44% | 44% |
| School | 23% | 44% | 44% | 44% |

The improvements required in non-domestic buildings in 2010 are based on the DCLG consultation on changes to Part L of the Building Regulations.²² The on-site carbon compliance levels for non-domestic development for 2013 and beyond are not currently known and a consistent assumption of 44% was made for the purposes of this study.

²¹ www.communities.gov.uk/documents/planningandbuilding/pdf/1101177.pdf.

²² DCLG consultation: *Proposed Changes to Part L and Part F of the Building Regulations: A Consultation Paper*, Volume 1, Table 9, p.112.