



# ALLOWABLE SOLUTIONS FOR TOMORROW'S NEW HOMES

TOWARDS A WORKABLE FRAMEWORK

July 2011



### Zero Carbon Hub

The Zero Carbon Hub was established in the summer of 2008 to support the delivery of zero carbon homes from 2016. It is a public/private partnership drawing support from both Government and the Industry and reports directly to the 2016 Taskforce.

The Zero Carbon Hub has developed five workstreams to provide a focus for industry engagement with key issues and challenges:

- Energy Efficiency
- Energy Supply
- Examples and Scale Up
- Skills and Training
- Consumer Engagement

To find out more about these workstreams, please visit [www.zerocarbonhub.org](http://www.zerocarbonhub.org)

If you would like to contribute to the work of the Zero Carbon Hub, please contact [info@zerocarbonhub.org](mailto:info@zerocarbonhub.org)

This report is available as a PDF Download from [www.zerocarbonhub.org](http://www.zerocarbonhub.org)

Copyright 2011 Zero Carbon Hub  
July 2011

#### London Office

62-68 Rosebery Avenue  
London EC1R 4RR

#### Milton Keynes Office

NHBC House, Davy Avenue  
Milton Keynes MK5 8FP  
T 0845 888 7620  
F 0871 813 0569

[info@zerocarbonhub.org](mailto:info@zerocarbonhub.org)  
[www.zerocarbonhub.org](http://www.zerocarbonhub.org)

The framework proposals for Allowable Solutions presented in this report are the views of the Zero Carbon Hub. Every effort has been made to objectively represent a broad range of input from collaborating individuals and organisations.



*Housing research in partnership with BRE Trust*

### NHBC Foundation

The NHBC Foundation was established in 2006 by NHBC in partnership with the BRE Trust. Its purpose is to deliver high-quality research and practical guidance to help the industry meet its considerable challenges.

Since its inception, the NHBC Foundation's work has focused primarily on the sustainability agenda and the challenges of Government's 2016 zero carbon homes target. Research has included a review of microgeneration and renewable energy techniques and the groundbreaking research on zero carbon and what it means to homeowners and housebuilders.

The Zero Carbon Hub is grateful to the NHBC Foundation for its support in the dissemination of the guidance arising from this consultation.

Further details of the latest output from the NHBC Foundation can be found at [www.nhbcfoundation.org](http://www.nhbcfoundation.org)



### E.ON

E.ON's Energy Solutions business supplies power and gas to over 5 million domestic, small and medium-sized enterprise and industrial customers across the country.

With customers at its heart, Energy Solutions also offers innovative energy services and technologies tailored to meet its customers' needs. The business is designed to help customers become energy fit by encouraging them to insulate their homes, moderate their energy usage and even to generate their own power through microgeneration systems such as ground source heat pumps and solar panels for both homes and businesses. E.ON's Energy Solutions business also provides sustainable energy solutions for house builders to support them in meeting various levels of the Code for Sustainable Homes.

E.ON has been actively engaged in the Zero Carbon Homes agenda from its outset and represented the UK energy industry as a member of the UK Green Building Council's Zero Carbon Task Group as well as being actively engaged with the work of the Zero Carbon Hub. E.ON directly supported this Allowable Solutions work through the generous secondment of Marco Marijewycz to the Zero Carbon Hub. The Zero Carbon Hub is grateful for this support and for the effective strategic lead that Marco provided.

# Foreword

The Zero Carbon Hub has been centrally involved in developing a workable definition for zero carbon new homes which will become part of the Building Regulations in 2016. The Hub has completed work on two of the three tiers of the Zero Carbon policy hierarchy, recommending minimum on-site requirements for Carbon Compliance achieved through the energy efficiency of the fabric and the performance of heating, cooling, lighting and low or zero carbon technologies. These recommendations have been supported by Government and, in the case of recommendations for a Fabric Energy Efficiency Standard, have already been incorporated into the Code for Sustainable Homes.

The top tier of the triangular hierarchy, known as 'Allowable Solutions', will account for the carbon emissions that are not expected to be abated on site. This is a new concept, and to achieve Building Control approval, evidence of compliance with all parts of the zero carbon hierarchy will need to be submitted, checked and verified by the Building Control body.

This report aims to ensure that the third part of the Zero Carbon hierarchy, Allowable Solutions, are operated within a practical framework that provides verifiable carbon emission savings, encourages innovation and supports localism wherever possible. It is the Zero Carbon Hub's view, developed in close collaboration with the industry, of an Allowable Solutions framework which could deliver that goal.

The report describes how building on existing processes and structures will be central to success. It also recognises the value of Allowable Solutions as a powerful lever for attracting private funding from a wide range of potential investors who want to play their part in delivering the low carbon projects of the future.

It is acknowledged that this framework must give confidence to a range of influencers, facilitators and funders. For this reason, we are circulating this report widely, welcoming feedback from organisations and individuals not only in housing, but also from the energy, environmental and financial sectors.

I would like to thank collaborators and colleagues for their commitment and enthusiasm during the investigative part of this work and to congratulate them on the development of the strategic guidance which has emerged.

**Neil Jefferson**

Chief Executive Zero Carbon Hub

July 2011





# Contents

	Foreword	<b>1</b>
	Acknowledgements	<b>4</b>
<b>1</b>	Executive summary	<b>6</b>
<b>2</b>	Introduction and purpose of the report	<b>8</b>
<b>3</b>	Projects that might be categorised as Allowable Solutions	<b>10</b>
<b>4</b>	The high level opportunities created by Allowable Solutions	<b>12</b>
<b>5</b>	Risks that an Allowable Solutions framework must minimise	<b>14</b>
<b>6</b>	Framework purpose and underpinning principles	<b>16</b>
<b>7</b>	The proposed framework model	<b>19</b>
	7.1. Framework Delivery Route A - Local Planning Authority prescribed Allowable Solutions	<b>20</b>
	7.2. Framework Delivery Route B - Allowable Solutions through Private Energy Funds	<b>22</b>
<b>8</b>	Fund management aspects of the framework	<b>24</b>
<b>9</b>	Verification and certification	<b>30</b>
<b>10</b>	Engagement with the framework	<b>36</b>
	10.1. Developers	<b>36</b>
	10.2. Local government and planning	<b>38</b>
	10.3. Suppliers of Allowable Solutions projects	<b>44</b>
	10.4. Building Control	<b>46</b>
	10.5. How central Government might be involved	<b>47</b>
<b>11</b>	Conclusions and recommendations	<b>48</b>
	Glossary	<b>52</b>

# Acknowledgements

It is a great pleasure to thank all participants in this work and to express gratitude for sound and thoughtful advice that I have received at every stage. Together we have worked to explore and unravel a complex topic, and have now offered, in a timely way, a robust reassembly of key suggestions and insights. These will not only inform Government thinking but will also help stimulate a wider appreciation of the social and financial significance of the Allowable Solutions agenda.

**Marco Marijewycz**  
Project Lead



The following collaborators contributed to:

(B) Bilateral consultations

(W) Workshop development of the framework proposal

<b>Sam Archer</b>	AECOM (W)
<b>Kirk Archibald</b>	Fairview Homes (BW)
<b>Dave Baker</b>	Robust Details Ltd (BW)
<b>Guy Battle</b>	Deloitte (W)
<b>Michael Black</b>	Bovis Homes (B)
<b>Scott Black</b>	Crest Nicholson (B)
<b>Thomas Briault</b>	Arup (W)
<b>Daniel Cordon</b>	Cheshire East Council (B)
<b>Andrew Cormie</b>	Department of Energy and Climate Change (W)
<b>David Craine</b>	Department for Communities and Local Government (BW)
<b>Neil Cutland</b>	Cutland Consulting (W)
<b>Andrew Day</b>	Countryside Properties (BW)
<b>Andy Deacon</b>	Energy Saving Trust (B)
<b>Jonathan d'Este-Hoare</b>	BRE (W)
<b>Mark Dickens</b>	St Helens Council (B)
<b>Clare Dudeney</b>	UK Business Council for Sustainable Energy (B)
<b>Peter Dutton</b>	Cheshire West and Chester Council (B)
<b>Peter Ellis</b>	Department for Communities and Local Government (BW)
<b>Paul Everall</b>	Local Authority Building Control (B)
<b>Olivia Finch</b>	Environmental Perspectives (BW)
<b>Andrew Fraser</b>	Wirral Council (B)
<b>Sheryl French</b>	Cambridgeshire Horizons (B)
<b>Julie Glaister</b>	Fylde Borough Council (B)
<b>Laura Gorst</b>	Blackburn Council (B)
<b>Kate Henderson</b>	Town and Country Planning Association (B)
<b>David Hodcroft</b>	Association of Greater Manchester Authorities (B)
<b>Ross Holleron</b>	BRE (W)
<b>Ingrid Holmes</b>	E3G (B)
<b>Will Horsfall</b>	Salford City Council (B)
<b>Roger Humber</b>	House Builders Association (BW)
<b>Anna Keyes</b>	Cambridgeshire Horizons (W)
<b>Janet Kidner</b>	Lend Lease (BW)
<b>Bob Ledsome</b>	Department for Communities and Local Government (BW)
<b>Liz Laine</b>	Consumer Focus (BW)
<b>Zoe Leader</b>	WWF (B)
<b>Clarissa Lough</b>	Lake District National Park Authority (B)
<b>Ian Manders</b>	Combined Heat and Power Association (BW)
<b>Brian Mark</b>	Mott MacDonald Fulcrum (W)
<b>Tom Marshall</b>	Deloitte (W)
<b>Paul McGrath</b>	Oldham MBC (B)
<b>Chris Mountain</b>	Department for Communities and Local Government (BW)
<b>Andrea O'Connell</b>	Sefton MBC (B)

Peter O'Connell	Federation of Master Builders (B)
John Parsons	British Electrotechnical and Allied Manufacturers Association (W)
Ian Pegg	Buro Happold (B)
Emyr Poole	Homes and Communities Agency (W)
Wendy Pringle	SSE (Scottish and Southern Energy) (W)
Liz Reason	Green Gauge Trust (W)
Russell Reefer	Local Government Association (W)
Sean Rendall	Energy Centre for Sustainable Communities (BW)
Jules Saunderson	Mott MacDonald Fulcrum (BW)
Rob Shaw	LDA Design (W)
John Silvester	Planning Officers Society (B)
John Slaughter	Home Builders Federation (BW)
Paul Slinn	Merseyside Environmental Advisory Service (B)
Nick Small	Appletree Homes (B)
Adrian Smith	Rosendale Borough Council (B)
Fran Smith	Bury Council (B)
Neil Smith	NHBC (W)
Willa Straker-Smith	Buro Happold (B)
Claire Stubbs	EDF Energy (W)
John Tebbit	Construction Products Association (BW)
Robert Tudway	London Development Agency/Combined Heat and Power Association (BW)
Barry Turner	Local Authority Building Control (W)
Kevin Usher	Warrington Council (B)
David Weatherall	Energy Saving Trust (B)
Jo Wheeler	UK Green Building Council (BW)
Rob White	NJL Consulting (W)
Gillian Whitfield	West Lancashire Borough Council (B)
Patrick Whitter	London Borough of Sutton (W)
Peter Whittington	Department of Business, Innovation and Skills (W)
Richard Wilcox	The Co-operative Bank (B)
Neil Witney	Department of Energy and Climate Change (B)
Lorayne Woodend	South Lakeland District Council (B)
Dave Worthington	Camco Global (BW)

#### Zero Carbon Hub team

Marco Marijewycz	Project Lead
Neil Jefferson	Advisor (BW)
Clive Turner	Information Advisor (W)
Sarah Downes	(W)
Madeline Logan	(W)
Robert Macdonald	(W)
Rob Pannell	(W)
Alex Uregian	(W)

The following Trade Association forums were also engaged during the development of the proposals in this report:

House Builders Association	Code Reform Group (B)
Home Builders Federation	Sustainability Group (B)
UK Business Council for Sustainable Energy	Zero Carbon Homes Group (B)
Combined Heat and Power Association	Buildings Forum (B)

The Zero Carbon Hub is grateful to the Department for Communities and Local Government for hosting the Framework Workshop on the 11 May.



Framework proposals being reviewed and developed by workshop participants on 11 May 2011.

# 1 Executive summary

- To comply with the 2016 Building Regulations, new zero carbon homes will have to meet on-site requirements for **Carbon Compliance** (achieved through the energy efficiency of the fabric, the performance of heating, cooling and lighting systems, and low and zero carbon technologies). In addition, through **Allowable Solutions**, they will need to account for the carbon emissions that are not expected to be achieved on site through Carbon Compliance. Carbon Compliance and Allowable Solutions measures will both be needed to meet the zero carbon Building Regulations in 2016, and each will need to be submitted, checked and verified as part of Building Control approval.
- Even after the March Budget announcement, which revised the definition of zero carbon to not include emissions from unregulated energy use, Allowable Solutions will need (from 2016) to account for a significant amount of the emissions from a typical new home: for flats in the order of 56% and for detached homes about 40%.
- Allowable Solutions are a new concept. The developer will make a payment to an Allowable Solutions provider, who will take the responsibility and liability for ensuring that Allowable Solutions, which may be small, medium or large scale carbon-saving projects, deliver the required emissions reductions. Allowable Solutions are central to the overall policy of ensuring that achieving zero carbon is affordable, hence per unit of carbon saved, they must (initially at least) be cheaper than Carbon Compliance measures. However it is also recognised that the right framework for Allowable Solutions provides a platform for wider engagement with business and community, and presents opportunities for strong connections with both sustainability and localism.
- In February this year, the Minister for Housing and Local Government invited the industry to investigate what a workable framework for Allowable Solutions might look like. The Zero Carbon Hub had already carried out some evaluation work on Allowable Solutions and was in bilateral discussions with a range of collaborators. This work was accelerated to become a focus for industry consultation on the topic and a stakeholder workshop on an initial framework proposal was held in May. The feedback from those activities has now been taken on board to form the consolidated framework recommendations presented in this report. It is important to note that these recommendations have been primarily drawn up to inform Government policy and that further consultation with industry will be required.
- The key parts of the consolidated framework proposal presented in this Report are:
  - 1 A Choice for Local Planning Authorities to develop a policy on Allowable Solutions (**Route A**);
  - 2 The opportunity, when working to **Route A** (ie to local plans), for housing developers to seek out best value for Allowable Solutions: via **Community Energy Fund** or by **Private** contract with a **Third Party** Provider;
  - 3 The option of purchasing Allowable Solutions from a **Private Energy Fund (Route B)** when the Local Planning Authority does not have an Allowable Solutions policy;
  - 4 A **Verification and Certification Scheme** to show that an investment will achieve the required carbon emissions reductions. The scheme will monitor Allowable Solutions delivery and release **credits, certificates** and **funds** in a timely way to facilitate Allowable Solutions project development and Building Regulations Approval;
  - 5 A single **Allowable Solutions Fund Holding** to provide a secure 'Bank' for the Allowable Solutions investment flow.

- This report presents evidence to support the appropriate development of these main parts of the proposed framework and explains how it would work for Developers, Local Planning Authorities, potential Suppliers of Allowable Solutions and Building Control.
- For **Developers** the framework acknowledges that the housebuilding process must not be tied to the delivery time of an Allowable Solutions project, which may be long term. The verification process allows the early release of an Allowable Solutions Certificate, so that Building Control approval (to Part L 2016) should never be delayed by the use of Allowable Solutions.
- For **Local Planning Authorities** the framework provides the opportunity to steer the selection of local Allowable Solutions projects towards those that maximise benefits to local communities and constituents. Additionally there is the option of developing a Community Energy Fund which may provide a magnet for local investment in carbon saving projects. This will further increase the opportunities for developing more significant local carbon-saving projects and the possibility of linking with other Local Planning Authorities to further increase the scale of future projects. To take this opportunity, however, Local Planning Authorities will need to develop policies related to Allowable Solutions delivery and this is recognised as a major commitment.
- For **Suppliers** of Allowable Solutions projects, the framework proposal provides the basis for a transparent business environment in which there is fair competition and clear rules of engagement.
- For **Building Control** the framework will provide simplicity. A verifiable certificate showing carbon abated will be issued as evidence that the Allowable Solutions part of the zero carbon requirements in Part L 2016 has been met. It is recognised that there are some training implications for Building Control Staff in understanding the context of Allowable Solutions within the overall 'Carbon' performance of a development.
- Further consultation is proposed in three key areas:
  - 1 To test the appetite within the finance communities for the concepts of 'Community Energy Funds' and 'Private Energy Funds'. In particular to check the strength of their inclination to provide debt finance to either and the risks they would perceive;
  - 2 To establish the terms of reference and an operational model for the proposed Verification and Certification Scheme – developing a scheme that is low in complexity and high in assurance is vital;
  - 3 To consider the development of the Fund Holding body and how this is integrated with the financial sector, and particularly the Green Investment Bank.
- How the framework is developed is critical. The right framework for Allowable Solutions could stimulate innovation and create huge opportunities for leveraging secondary funding from businesses, debt financiers and private investors that are looking to invest in carbon-reduction projects. These and other medium and long term benefits could play a major role in helping to balance the economy and building a high level of skills and knowledge in low carbon technologies.

## 2 Introduction and purpose of the report

### Why Allowable Solutions are needed

The idea of Allowable Solutions was first proposed by the Department of Communities and Local Government during 2008 as a way of providing flexibility for delivering zero carbon new homes. Prior to that time, the industry was facing a definition (Code for Sustainable Homes Level 6) which required all carbon emissions to be mitigated on site. Although some Code 6 houses have been built, the cost of building to that definition and its impracticability on many sites, has reinforced earlier conclusions made by the UK Green Building Council and others, that delivering zero carbon through an entirely 'on-site' strategy was not the right approach for mainstream housing production. Allowable Solutions offers a way out of that conundrum.

### Describing Allowable Solutions

'Allowable Solutions' has been a useful catch-all term for any approved carbon-saving measures that would be available to developers from 2016 to allow for the carbon that they would not normally be required to mitigate on site through Carbon Compliance (Figure 1). The expectations that have become associated with Allowable Solutions are:

- 1 that the developer would make a payment to secure emissions reductions through (largely) near-site or off-site, carbon-saving (Allowable Solutions) projects;
- 2 that, independent of the developer, there would be an opportunity to aggregate a number of Allowable Solutions payments to deliver larger scale carbon-emission reduction projects;
- 3 that Allowable Solutions would be affordable and (per unit of carbon) would cost, at least initially, less than Carbon Compliance;
- 4 that wherever possible, Allowable Solutions would be linked with local projects that would bring local benefits.

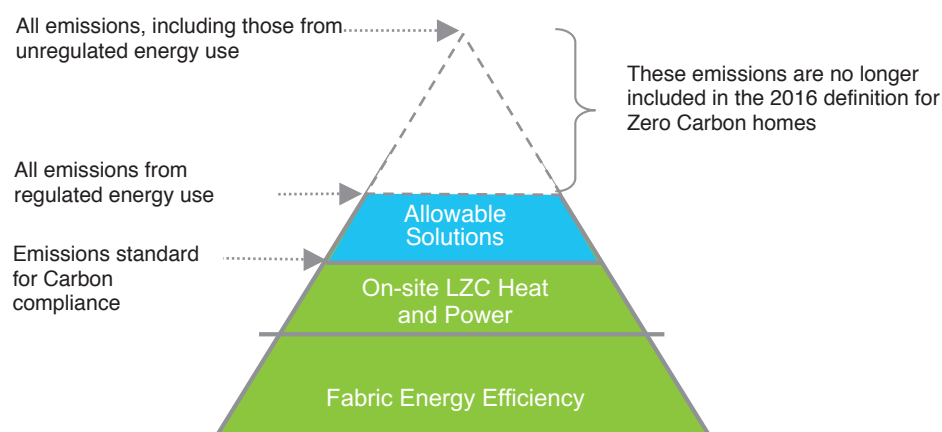


Figure 1 The Zero Carbon Policy 'Triangle', showing the post-Budget 2011 extent of Allowable Solutions and its relationship with Carbon Compliance.

### Establishing an Allowable Solutions framework

Although there has been some investigative work on the practicalities of delivery, and a keen interest in cost, the Allowable Solutions agenda did not receive urgent attention until Spring 2011. At the Zero Carbon Hub's Annual Conference in February, the Minister for Housing and Local Government, the Rt. Hon. Grant Shapps MP, invited the industry to propose a workable framework for Allowable Solutions. Shortly afterwards the Hub published its recommendations for Carbon Compliance, indicating the scale of Allowable Solutions that would be required. In the March Budget, the landscape was changed by the removal from the zero carbon definition of the emissions from unregulated energy use. Figure 2 summarises the evolution of the definition and shows, significantly, that from 2016, Allowable Solutions will still be required, though at a lower level than originally anticipated.

By pooling feedback from its earlier collaborative work with the industry on a number of Allowable Solution options (and additional evidence gathered from bilateral conversations with stakeholders in 2010/11) the Zero Carbon Hub was able to provide a focus for a rapid industry response, and put forward an outline Allowable Solutions framework for wider review at a workshop in May. The workshop was very well attended by a range of stakeholders who offered valuable additional insights and proposals, while being highly supportive of the essential components of the framework model proposed. All consultation participants are listed on page 4.

### Role of this report

In this Report are presented the main features of the Allowable Solutions framework that has emerged from the Zero Carbon Hub's exchanges with the Industry, Non-Government Organisations, Trade Associations and Government officials. It is offered primarily to policy advisors in Government as a consolidated proposal for future consultation and development. However a wide range of observers will have an immediate interest in these proposals and any constructive feedback on the 'workability' of the proposed framework would be welcomed by the Zero Carbon Hub.

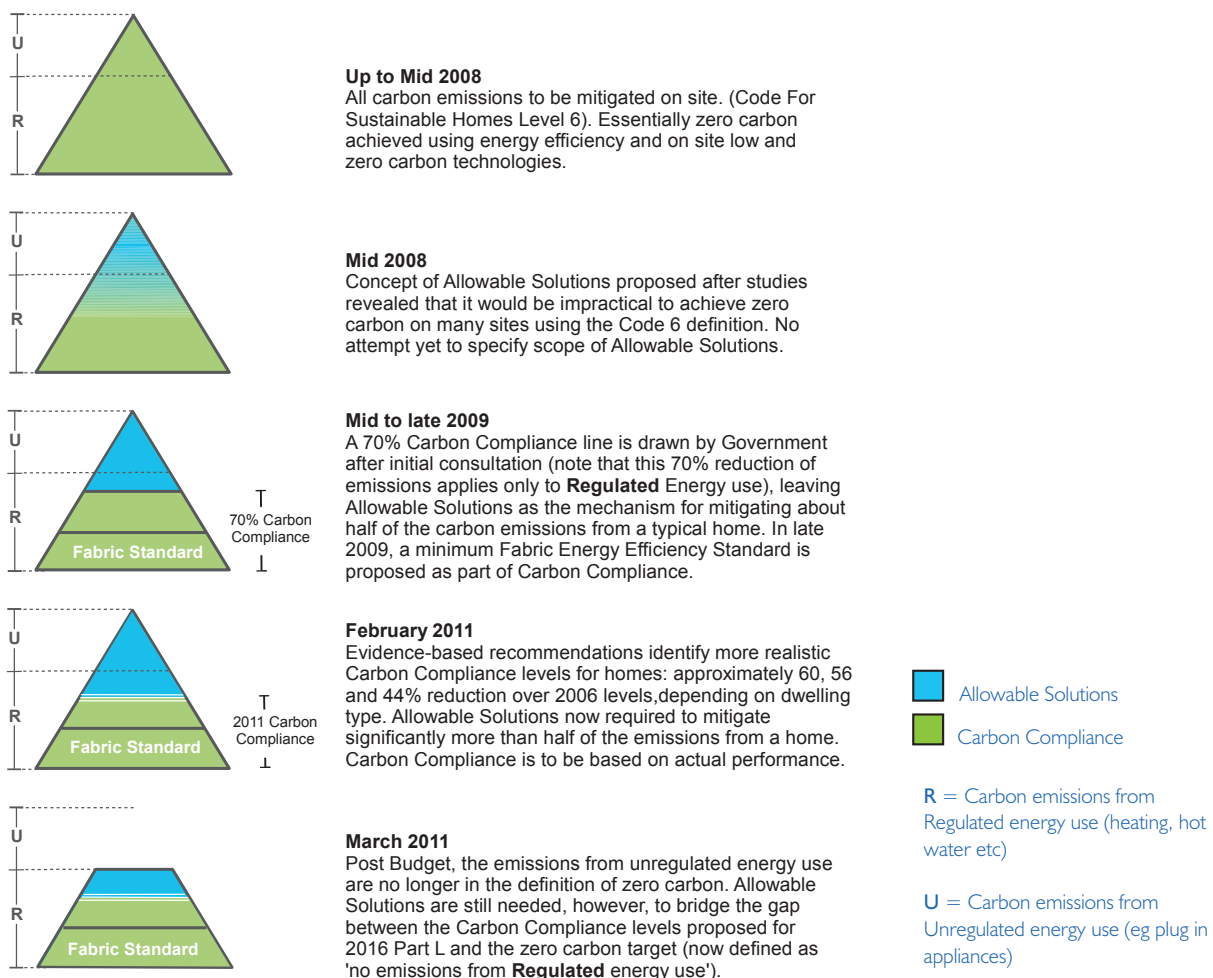


Figure 2 Evolution of Allowable Solutions

## 3 Projects that might be categorised as Allowable Solutions

While the objective of this report is to present how Allowable Solutions might be delivered, parts of the proposed framework might be hard to envisage without a mental picture of the types of carbon-saving projects that might be included. The first insights into possible Allowable Solutions project types were published by the Government in their December 2008 Consultation on the definition of Zero Carbon Homes and Non-domestic Buildings (Figure 3). There are a range of project types, some of which have been reviewed in some detail since 2008.

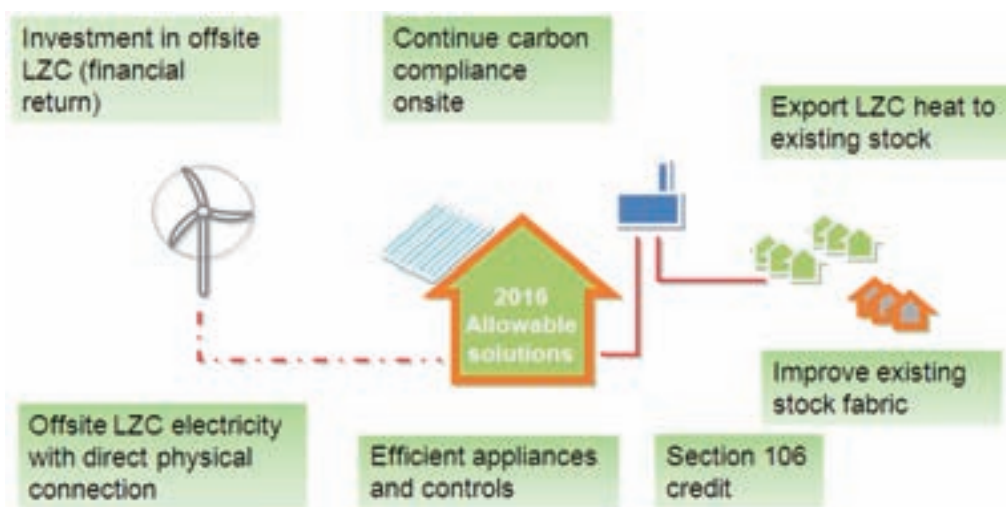


Figure 3 Allowable Solutions project types originally set out by Government in 2008

It is now acknowledged that the 2008 Allowable Solutions list could be only a small fraction of the possible project types that could be included. While at this stage the current Government has made no formal announcements on what will constitute an acceptable 'Allowable Solution', the visual opposite illustrates some possible options/projects that could qualify as credible, cost-effective, carbon-saving initiatives. These have been clustered within three core Allowable Solutions project families:

**On-site** (but not duplicating Carbon Compliance measures)

**Near-site** (within the Local Planning Authority area in which a specific development is built)

**Off-site** (outside the Local Planning Authority area in which a specific development is built).

Projects that might be included in each of these categories are shown in Figure 4.

**Caution:** In developing the framework, the types of projects shown in Figure 4 have been kept in mind and have helped inform discussion and debate. However at this stage it is important to stress that these are only indicative of the types of projects that might be included in the Government's list of acceptable Allowable Solutions. At this point none of the project types listed should be used as a basis for future business decisions. Conversely the absence of a project type from this chart does not mean that it could not emerge as an acceptable Allowable Solution.

It is important to note that in the absence, at this time, of both a 'universal' carbon accounting methodology for Allowable Solutions and a clear definition of additionality, it is difficult to reflect the carbon-abatement cost effectiveness of these different project types.

### 'On-site' options

- ◆ Installation of smart appliances
- ◆ Application of 'flexible demand' systems (supporting demand side management)
- ◆ Use of grid-injected biomethane linked to the site by Green Gas Certificates
- ◆ Installation of communal heat accumulator (site based heat storage)
- ◆ Home electric vehicle charging
- ◆ Electricity storage for the home (to store electricity generated from PV panels)
- ◆ On-site waste management (Vacuum waste collection systems)
- ◆ LED street lights for the site

### 'Near-site' options

- ◆ Export of low carbon heat from site based district heating scheme (i.e. support for cost of pipe-work)
- ◆ Retro-fitting of low/zero carbon technologies to local communal buildings
- ◆ Investment in creation or expansion of locally planned sustainable energy infrastructure (e.g. district heating or on-site wind turbines)
- ◆ Investment in local electric vehicle charging infrastructure
- ◆ Investment in low carbon street lighting for local area
- ◆ Local micro-hydro schemes
- ◆ Communal waste management solutions
- ◆ Local energy storage solutions

### 'Off-site' options

- ◆ Investment in Energy-from-Waste plants (e.g. Anaerobic Digestion and Pyrolysis/Gasification plants)
- ◆ Investment in low carbon electricity generation assets up to a maximum determined scale eg excluding large scale off shore generation
- ◆ Investment in district heating pipe-work to connect new loads to existing schemes or support new schemes
- ◆ Investment in retro-fitting of low carbon technologies to communal buildings
- ◆ Investment in embodied carbon reduction initiative
- ◆ Investment in low carbon cooling
- ◆ Investments in energy storage and demand-side management/flexible demand projects to counter intermittent renewables

Figure 4 A range of project types that have the potential to be listed as Allowable Solutions. See Caution on page 10

## 4 The high level opportunities created by Allowable Solutions

The countdown to Zero Carbon Homes in 2016 has already brought about a radical realignment of the relationship between the house-building and energy sectors. The Zero Carbon policy hierarchy, which many across the industry are now familiar with, has the potential to foster collaboration between energy companies, the construction products supply chain and developers in a way never seen previously. Of the three elements of the hierarchy, Allowable Solutions, has the most potential to catalyse the attainment of community-wide carbon savings, green wealth creation for local communities, social change and the rebalancing of the economy. These and other high level opportunities which can be associated with a successful Allowable Solutions delivery framework, are highlighted below.

### **Making zero carbon affordable**

If configured carefully there is the potential for the Allowable Solutions framework to deliver cost effective carbon savings for both developers and society alike. By enabling 'larger than local' initiatives to be funded, there is the potential to lower the cost of Allowable Solutions through the greater inherent carbon savings per £ that the larger-scale solutions possess.

### **A catalyst for scale**

Within the Carbon Compliance component of the Zero Carbon hierarchy, the focus is very much on ensuring that the most energy efficient dwelling is constructed, which harnesses sources of energy which are low carbon/renewable and accessible from the site itself. The Allowable Solutions framework has the potential to be the 'catalyst for scale' within the Zero Carbon hierarchy, unlocking larger scale carbon-saving opportunities that would not have otherwise occurred.

### **Delivering flexibility and encouraging innovation**

Allowable Solutions offer flexibility to developers, providing them with an outlet to resolve remaining emissions, where all other technically and commercially feasible on-site options have been exhausted. But the policy hierarchy also creates the opportunity, where cost effective, for developers to 'push the envelope' through on-site technologies, before employing Allowable Solutions. The 'positive downward pressure' of Allowable Solutions could also encourage the development of optimised fabric and microgeneration packages which could be transferable into the retro-fit sector. To some extent the presence of Allowable Solutions could in fact 'pump prime' the market for optimised bivalent and trivalent microgeneration systems which enable a number of microgeneration technologies to work together to deliver, cleaner and better energy to the home.

### **Delivering local aspiration**

If designed in the right way, there is the opportunity for Local Planning Authorities to grasp Allowable Solutions as a vehicle through which to deliver a range of carbon saving local-centric aspirations. This could involve identifying and funding innovative projects to save carbon from the existing stock or bring forward a new community-wide energy infrastructure that could provide cleaner energy for constituents. Such projects could harness local sources of energy and could be delivered by local businesses partnering with larger businesses. The design and delivery of Allowable Solutions could also be aligned to the economic aspirations of the locality and provide new business opportunities for existing and new business ventures.

### **Providing a capital magnet**

Although following the 2011 Budget announcement the potential of Allowable Solutions in capital terms has been reduced, Allowable Solutions still possess the ability to lever additional private finance which could fund new carbon saving projects or enhance others in the pipeline. In this way Allowable Solutions could act as a 'magnet' through which to attract a range of sources of capital, such as project sponsor equity and debt finance. There is a very clear opportunity for Allowable Solutions to provide 'mezzanine finance' to carbon saving initiatives, particularly those which lack the scale to leverage debt finance and which might otherwise have not got off the drawing board.

### **Enabling the Big Society**

Second only to the Coalition Government's deficit reduction programme is the goal to enable the 'Big Society' through the localism agenda. Both coalition partners are seeking to put more power and opportunity into people's hands. The Government wants to give citizens, communities and local government the power and the information they need to come together, solve problems and build a stronger nation. A well designed framework for Allowable Solutions has the potential to galvanise and unite communities around the common issue of climate change and give them a genuine stake in the benefits and rewards that would arise from their investments so as to counteract the threat it poses.

### **Achieving a triple bottom line<sup>1</sup>**

The phrase 'the triple bottom line' was first coined in 1994 by John Elkington, the founder of a British consultancy called SustainAbility. His argument was that companies should be preparing three different (and quite separate) bottom lines. The triple bottom line (TBL) itself consists of three Ps, namely: profit, people and planet. It aims to measure the financial, social and environmental performance of the corporation over a period of time. It is therefore claimed by Elkington that only a company that produces a TBL is taking account of the full cost involved in doing business. If designed in the right way, an Allowable Solutions framework could provide an opportunity for both developers, investors and suppliers to demonstrate business behaviour which is consistent with the TBL approach, especially where the Allowable Solutions deployed provided communities with a share of the rewards.

### **Placing business at the heart of communities**

The Government has signalled in the 2011 Budget the important role that SMEs need to play in the rejuvenation and reinvention of the UK economy. The framework for Allowable Solutions has the potential to stimulate SMEs to develop products and services which can cost-effectively save money for developers and communities. If designed in the right way, a framework for Allowable Solutions could foster grass roots green wealth creation, and the development of the British 'blue chip' global energy solution providers of tomorrow.

<sup>1</sup>Elkington, J. *Cannibals with Forks: the Triple Bottom Line of 21st Century Business*, Capstone, 1997

## 5 Risks that an Allowable Solutions framework must minimise

While the Allowable Solutions concept presents major opportunities for addressing the energy 'trilemma' of ensuring affordable, clean and secure energy, and could undoubtedly contribute to the overall rebalancing of our economy, there are a number of risks which could arise if we don't get the framework right.

### **Risk of high costs**

If the framework is not designed in a way which encourages competition, there is a danger that developers may end up paying more for the carbon emissions savings they are required to achieve through the Allowable Solutions route. Whilst setting a cap or ceiling on the price of CO<sub>2</sub> initially may help developers to plan, in the long-term not having a competitive driver within the framework that lowers the market price ceiling for Allowable Solutions could result in cost ineffective projects being adopted.

### **Increased risk of missing Government's climate change targets**

The UK Government has recently accepted the recommendations of the Climate Change Committee and signed up to the fourth carbon budget. This will require the halving of carbon emissions by 2025, from 1990 levels. The acceptance of these recommendations places additional pressure on bringing forward the structural and technological changes required to the UK energy system to enable these targets to be met. Whilst an Allowable Solutions framework possesses real potential in relation to pump priming the market for 'additional' carbon saving projects at a variety of scales, getting it wrong could undermine this potential thus increase the risk of missing this challenging and transformational milestone.

### **Losing hearts and minds**

If the framework for Allowable Solutions does not possess a 'local focus' wherever possible, communities and individual consumers may not be able to see the benefits of their investments and may feel that they have not received the product they paid for. As well as losing the hearts and minds of local communities towards the Allowable Solutions concept, consumer-focused risk like this could also have an impact on the brand strength and credibility of developers.

### **Credibility loss for zero carbon homes**

If the framework for Allowable Solutions does not:

- a) facilitate the delivery of tangible, cost-effective carbon-saving projects and
- b) does not have an audit trail in place allowing developers, Government and other stakeholders to link a payment with auditable actions that have reduced emissions – then the credibility of the Zero Carbon Homes policy is put under risk.

### **Process barrier**

If the Allowable Solutions framework imposes complicated, impractical or inconsistent processes which add to administrative burdens or cause delays at key process stages, for example during building control, there is a risk to sector output.

### **Innovation declines**

The announcement of the Zero Carbon Homes policy back in 2006 has led to a step change in innovation throughout the construction product supply chain as design responds to the key drivers, such as the Code for Sustainable Homes and the requirements set out in Part L of the Building Regulations. The policy has also 'pump primed' the market for microgeneration technologies as well as community energy solutions. If designed appropriately, the framework for Allowable Solutions has the potential to further boost innovation beyond the dwelling and site scale and encourage innovation across the whole low carbon sector. Designing the framework poorly could jeopardise this opportunity and instead lead to a decline or stagnation of both technical and financial innovation in this area.

### **Loss of potential 'green jobs' and 'green growth'**

Allowable Solutions could play an important role in helping to rebalance the overall economy by increasing manufacturing output and exports through supporting green innovation. However, if not designed correctly, the framework could lead to society missing out on potential green jobs and green growth which could have been stimulated by investment of Allowable Solutions capital.

### **International competitiveness**

The right kind of framework could stimulate a rapid accumulation of knowledge and expertise with huge potential for exporting understanding and technical leadership overseas. This will not be gained if the framework fails to attract the right level of direct and indirect funding to support new green businesses.

### **Loss of a potentially highly competitive market for sustainable energy**

While initiatives like the Green Deal, Feed in Tariff and the Renewable Heat Incentive will each play a vital role, the right Allowable Solutions framework could be hugely important in stimulating the fledgling (but largely unsupported) 'mid-stream' sustainable-energy market, which delivers, for example, community scale sustainable energy solutions.

A framework that fails to embrace such an opportunity would risk losing a potentially highly competitive, tax revenue generating market for sustainable energy solutions in the UK.

### **No recognisable handle for investment**

Many small-scale low-carbon energy projects currently struggle to get off the drawing board. This is because, whilst they may be commercially robust, they lack the inherent 'economies of scale' which are attractive to providers of debt finance. Investors also tend to be attracted to larger-scale low-carbon energy projects as they are more straightforward to securitise against. Therefore, for smaller-scale projects there is a growing equity gap with no investment handle to hold. There is a risk that such an equity gap will continue to exist if the Allowable Solution framework is not designed to provide a recognisable handle for investment, and consequential lack of investment and opportunity for communities and citizens to engage with the wider climate change challenge.

## 6 Framework purpose and underpinning principles

The design of any framework should start with a clear understanding of its purpose and what process it is to support. In relation to the **purpose** of the Allowable Solutions framework, the Government offered the Zero Carbon Hub the following guidance. The framework should:

- **Incentivise developers to explore all cost-effective options to exceed the minimum (on-site) Carbon Compliance level** before opting to engage with Allowable Solutions
- **Enable developers to reach zero carbon** where they are not able to do so solely through on-site Carbon Compliance measures
- **Deliver additional and verifiable carbon savings** in a cost-effective manner
- **Reduce emissions from energy used by the development**, where appropriate
- **Promote innovation** in a low carbon built environment
- **Encourage Local Planning Authorities to reduce emissions** by looking at their area's built environment and energy supply holistically.

The fundamental **process** which the Allowable Solution framework should support is **the transformation of payments from developers into auditable and measurable 'real' carbon saving outcomes**. To achieve that transformation in a way that is workable it is necessary to consider the requirements of different interest groups and how they might interact with the process. In its bilateral consultations with stakeholders the Zero Carbon Hub was able to establish a set of eight framework principles (Table 1) that could be used to evaluate the 'workability' of an emerging framework and steer its development objectively.

Key Principle	Rationale
Simplicity	A simple (in relative terms) framework that is easy to engage with is considered critical to success.
Flexibility	Many stakeholders felt that an Allowable Solutions framework that sets only one course of action and is narrow in scope from both a choice and delivery option perspective is undesirable.
Transparency	All stakeholders felt that the credibility of the Allowable Solutions concept rests on the need for a transparent link between what was paid and what was achieved in carbon emissions savings.
Additionality	Eliminating double counting of carbon savings, and ensuring genuine 'additionality' of the carbon savings from an Allowable Solution was recognised as a key responsibility of the framework.
Cost effective CO <sub>2</sub> savings	Developers in particular felt strongly about the need for cost effective carbon savings to be achieved through the framework. It was argued that it is not in industry's or society's best interests for carbon savings to be realised at a higher cost than absolutely necessary.
Deliver local CO <sub>2</sub> savings wherever possible	Many stakeholders felt that wherever possible local carbon saving opportunities should be pursued. The rationale for this was that both from a consumer and wider community-acceptance perspective, visibility of local carbon saving outcomes, from Allowable Solution payments, would provide more credibility to the overall zero carbon homes proposition.
Viable pricing	Ensuring that Allowable Solutions are priced affordably and realistically was a principle that the developer community felt particularly strongly about. Other groups recognised that 'un-viable' pricing of Allowable Solutions could lead to no development taking place, and therefore, no capital would be available to be spend on achieving additional carbon savings.
Support Innovation	Since its announcement the Zero Carbon Homes policy has catalysed innovation across both the construction products and decentralised energy technology supply chains. It was felt that an Allowable Solution framework should support and further enhance existing and future innovation.

**Table 1** The eight principles established for the Allowable Solutions framework

## How the Workshop rated the overall framework against the key principles

Figure 5 is a much reduced version of a full A1 sized poster that was distributed at the Zero Carbon Hub's workshop held in May 2011 to illustrate the main features of the proposed Allowable Solutions framework, and facilitate discussion and debate. For those that had contributed their thoughts during bilateral consultations this was a tangible output that they could critically evaluate against their understanding, and many thoughts were registered on the feedback sheets provided at different stages of the workshop.

One exercise involved asking participant groups to rate the framework in its proposed state (Figure 5) against the guiding principles established during the preceding bilateral consultations. Not all groups felt able to gauge the framework's alignment with all the principles, however all nine groups were able to provide ratings on 'Simplicity', 'Transparency' and 'Flexibility' and seven groups felt able to gauge 'Support innovation'. The median ratings from the workshop, on a simple 1-4 scale are shown in Figure 6. It should be stressed that these ratings were those given on the proposal as it stood then, and may not be a fair reflection of the framework as it now stands after some work to modify it for the better.

While the feedback on Transparency and Flexibility is encouraging, the feedback on Simplicity indicated the need for some reconsideration. The groups recognised that the proposed framework graphic was attempting to display all processes and that it was not representative of the kind of interface or interaction that any particular participant would have with the framework in reality. There were however some substantive observations that have been addressed since the workshop. The main things reviewed were the language used, clarification of the flow and timing of credits, certificates and funds, and reducing the complexity of funding pools.

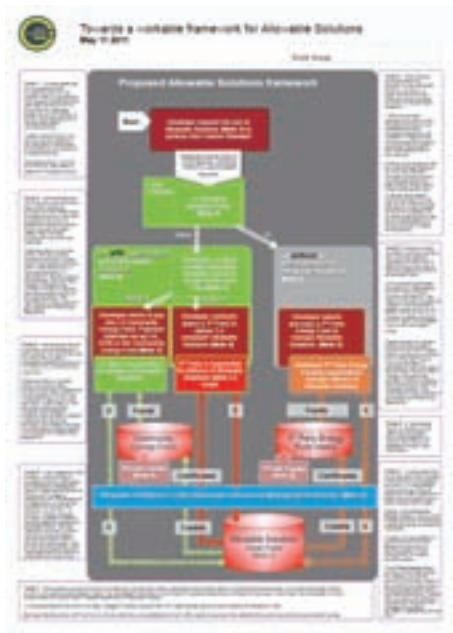


Figure 5. A greatly reduced image of the poster used to facilitate discussion of the framework at the May 2011 Workshop

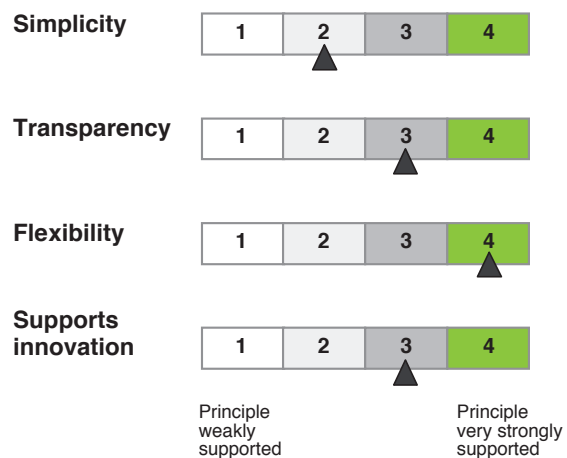


Figure 6 Workshop delegates' ratings of how well the pre-determined guiding principles were met by the framework proposal tabled. The median ratings from all groups that were able to vote (arrow) is shown against the four point scale used



## 7 The proposed framework model

The Allowable Solutions framework, as modified in the light of the Workshop feedback, is shown in Figure 7. This is greatly simplified graphic to emphasise the main features and should be looked at in combination with the more detailed presentations of Routes A and B that follow in this section. It is a synthesis of the review and consultation work carried out to date by the Zero Carbon Hub, and although it has the status of a consolidated proposal, more consultation is needed on aspects of the framework. Next steps in the development of the framework are identified in the Conclusions and recommendations section (page 48).

Key elements of the framework are:

- 1 A Choice for Local Planning Authorities to develop a policy on Allowable Solutions (**Route A**);
- 2 The opportunity, when working to **Route A** (i.e. to local plans), for housing developers to seek out best value for Allowable Solutions: via **Community Energy Fund** or by **Private contract** with a **Third Party Provider**;
- 3 The option of purchasing Allowable Solutions from **Private Energy Funds (Route B)** when the Local Planning Authority does not have an Allowable Solutions policy;
- 4 **A Verification and Certification Scheme** to show that an investment will achieve the required carbon emission reduction. The scheme will monitor Allowable Solutions delivery and release **credits, certificates** and **funds** in a timely way to facilitate Allowable Solutions project development and Building Regulations Approval;
- 5 A single **Allowable Solutions Fund Holding** provides a secure 'Bank' for the Allowable Solutions investment flow.

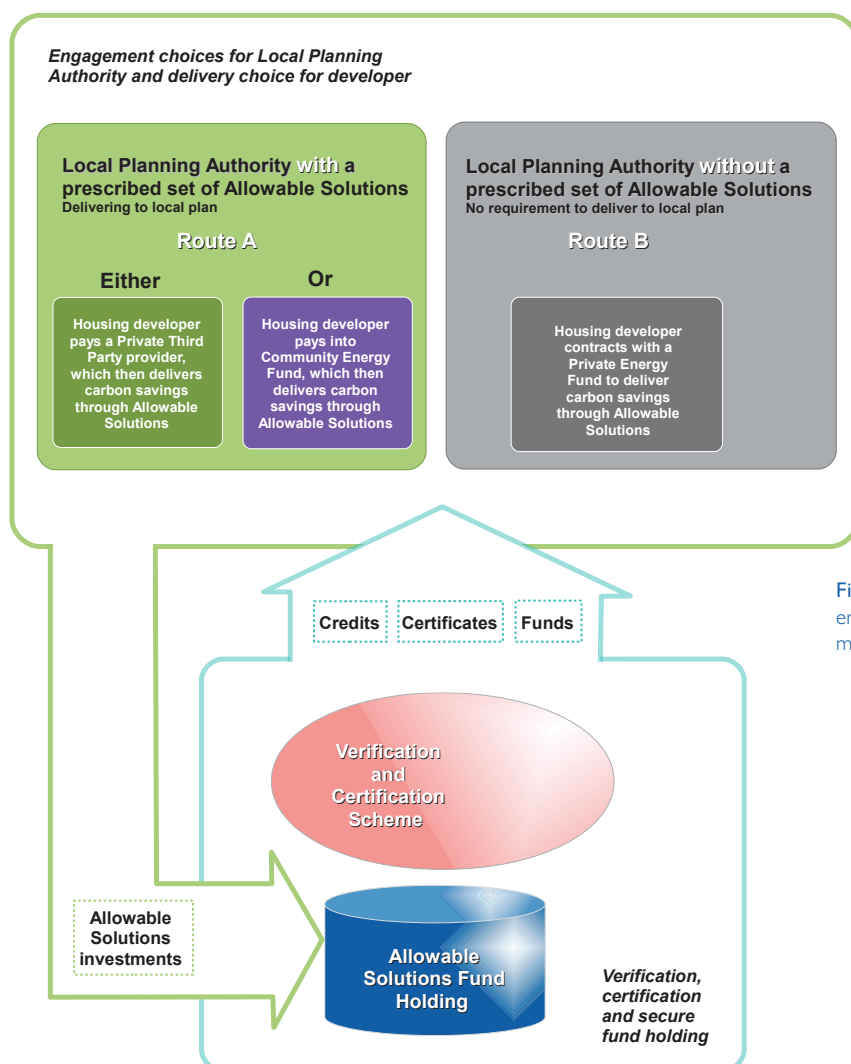


Figure 7 Simplified overview of the framework which emerged from bilateral and workshop inputs, showing the main features and objectives

## 7.1 Framework Delivery Route A - Local Planning Authority prescribed Allowable Solutions

### Overview

Delivery **Route A** (Figure 8) is a proposal for channelling investment into locally prescribed Allowable Solutions for the benefit of local communities. It is a response to feedback from a range of different stakeholders who felt it was crucial that the framework encouraged a 'local focus' whenever possible.

Route A provides the opportunity for Local Planning Authorities to position themselves so that they are able to specify the particular Allowable Solutions projects which best align with their strategic energy and climate change mitigation vision for their area, as determined within their local plan. To achieve this position, where they essentially have the first bite of the cherry, Local Planning Authorities will need to have developed an Allowable Solutions policy, which should include:

A mechanism for approving particular Allowable Solutions within the overall local plan:

Evidence that Allowable Solutions included in the local plan represent the most cost effective ways of delivering carbon emissions reduction in the Local Planning Authority area.

A clearly stated pricing policy for Allowable Solutions (Local Planning Authorities should not be able to charge any more than the national price ceiling for carbon).

It is anticipated that Route A will increasingly be used, as the number of Local Planning Authorities creating Allowable Solutions policies increases. Though the pace of change will be influenced by Chief Executives and the priority they attach to Allowable Solutions as a strategic lever for local investment and growth.

### Key steps

**1 Extent of Allowable Solutions required** The process starts with the developer (who in most cases will need to invest in Allowable Solutions to achieve zero carbon as defined in Part L 2016). Before construction starts, the developer's as-designed SAP calculations will identify the amount of carbon abatement required through Allowable Solutions. When these are submitted, through the normal procedure, to Building Control, this will trigger a requirement for the developer to commit to a particular Allowable Solutions route.

**2 Selection of Route** In Route A, where approved policies are in place, developers will be able to see a prescribed list of Allowable Solutions and a local guide price (in £ per tonne for carbon to be abated via the Local Planning Authority). Determination of this price may be informed by the price guide set for a possible National list of Allowable Solutions. The choice will then be:

**Either** To contract with a **Third Party provider** who will deliver carbon savings from a list of Allowable Solutions projects prescribed by the Local Planning Authority (**Route A1**). Note that this Third Party may be an Allowable Solutions provider or may be a specific project identified from the National Allowable Solutions Database (see page 27).

**Or** To pay into a **Community Energy Fund**, giving responsibility to the Local Planning Authority to deliver carbon savings from its list of Allowable Solutions projects (**Route A2**).

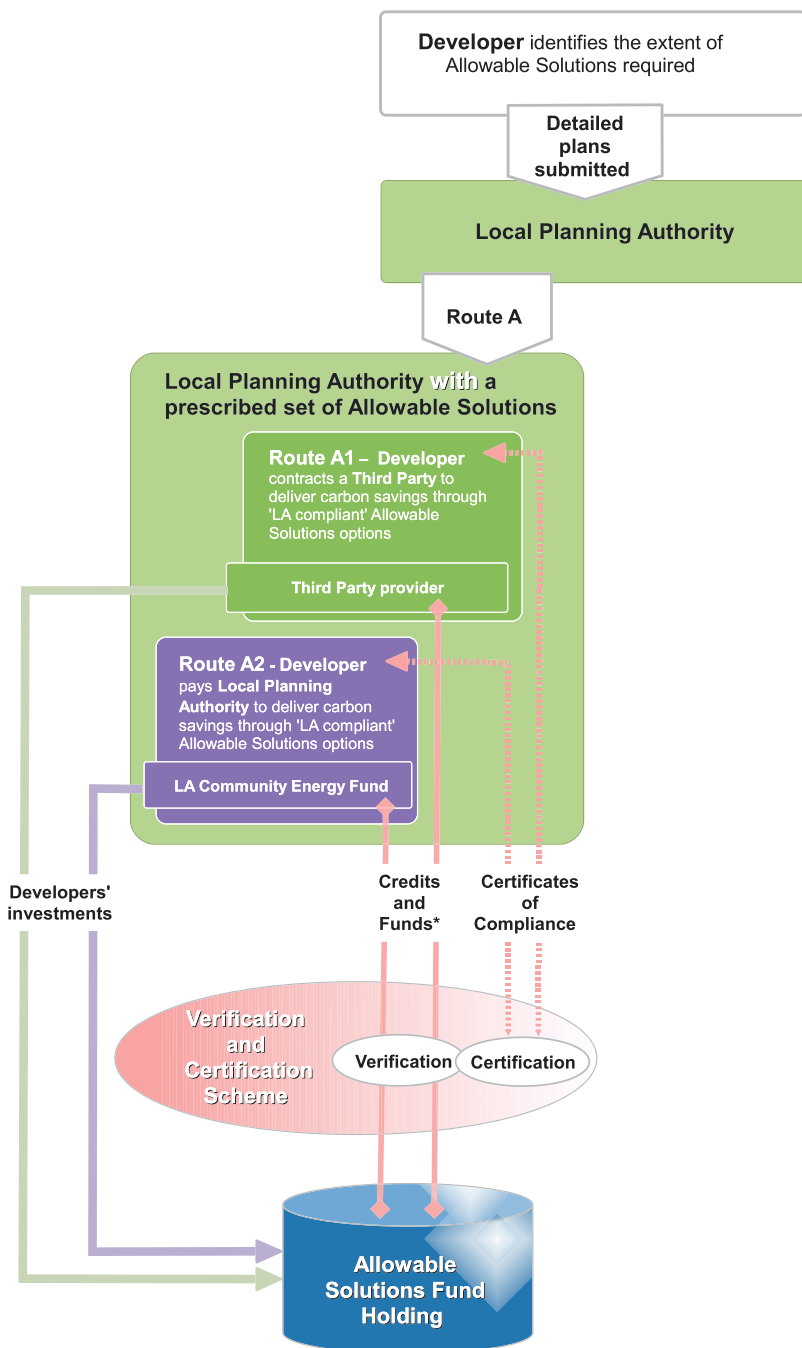
Third Party providers will compete for business on price, but within a **national carbon price** ceiling. Choice of Route A1 or A2 may be influenced by the Local Planning Authority's policy. In Route A1 it might be attractive if the list allowed selection from projects on the National Database of projects that were being developed locally. Also, the Community Energy Fund might provide innovative opportunities to invest in major projects which have multiple backers.

**3 Registration, payment and certification** Once a project is registered with a provider, and agreement or contract signed between parties, both the provider and the developer should advise the Allowable Solution **Verification and Certification Scheme (ASVCS)** - see page 33. In this exchange, the provider must indicate the type of Allowable Solution which is proposed and its expected performance in terms of carbon emissions reduction over the 30 year<sup>2</sup> period that has been suggested by Government. On making an agreement or contract, developers may be asked to pay a deposit for their Allowable Solutions by Third Party Providers.

<sup>2</sup> Note, the 30 year timeframe for Allowable Solutions is drawn from the May 2011 Zero Carbon Homes Impact Assessment

After **registering** the project (and notifying the provider and developer), the ASVCS will then **verify the carbon emissions savings** from any proposed Allowable Solution project and forward an Allowable Solution **Credit Note** to the Provider. The role of Credit Notes is important, giving confidence that payment will be forthcoming and giving providers evidence of income potential which can be used to leverage other investment (for larger strategic projects), or working capital to deliver a 'quick win' smaller scale project. While this is progressing the developer will move forward with construction and on completion, make the final payment to the Allowable Solutions provider, based on the actual rather than designed performance of the home. The developer's final Allowable Solutions payment will be made directly to the **Allowable Solutions Fund Holding** (see page 28). This final payment will need to trigger a rapid release to the developer, via the Fund Holding and through the ASVCS, of a **Certificate of Compliance** for the carbon abated through Allowable Solutions.

Once it is established that an Allowable Solution has been delivered (or partially delivered, if a staged payment has been agreed) **funds** are released from the Fund Holding to the Allowable Solutions Provider. To ensure no interruption with Building Control approval, Allowable Solutions Certificates of Compliance are likely (in most scenarios) to be issued to developers ahead of completion of the associated Allowable Solutions project. **Importantly the verification of delivery and performance of an Allowable Solution is de-coupled (in terms of timing) from the developer's housebuilding delivery process.**



**Figure 8** Delivery Route A for Allowable Solutions

\*released (possibly staged) on verification of completion of Allowable Solutions Project

Note: For clarity, Allowable Solutions Suppliers (those delivering Allowable Solutions Projects) are not highlighted in this chart. They will have commercial arrangements (and may overlap in responsibility) with Allowable Solutions Providers (see Glossary of terms, page 52)

## 7.2 Framework Delivery Route B - Allowable Solutions through Private Energy Funds

### Overview

While it might be anticipated that front running, 'early adopter' Local Planning Authorities may have developed Allowable Solutions policies and be able to offer Delivery Route A within their local plan from 2016, it is thought unlikely that the majority will be in that position. Therefore, a second route by which developers can secure Allowable Solutions is likely to be required, and Delivery Route B is proposed as a viable default approach in the absence of an established Local Planning Authority policy. The success of Route B is linked to the establishment of **Private Energy Funds** who will compete for developers' payments and in return deliver back to them cost-effective carbon-saving Allowable Solutions (as in Route A at a price not exceeding the national market price ceiling). The Private Energy Funds themselves will, in principle, operate in the same way as a Community Energy Fund but **without any geographical constraint** over the location of the carbon-saving Allowable Solutions that they could fund. How both fund types could work is discussed later in this Report (see page 26).

In practice, where a given Local Planning Authority does not have an approved set of Allowable Solution policies, but where it wants to bring housing development forward, it would not have the right to control how Allowable Solution payments from a developer are invested. Instead the developer will be able to make payments to their selected Private Energy Fund(s).

Developers will enter into a contract with their chosen Private Energy Fund, who will then take ownership of the responsibility and liability for delivering in a verifiable way, the carbon savings required by the developer (ie over and above the Carbon Compliance level on the development) to reach the zero carbon standard.

To attract payments from developers and to support particular projects in the pipeline, Private Energy Fund managers may decide to charge a lower price of CO<sub>2</sub> than the national ceiling. A Private Energy Fund could be established by any entity that meets a set of **Fund Management criteria**, possibly set down by the Financial Services Authority, which may simply reflect existing regulations around investment bodies. Therefore, in practice, there would be nothing stopping larger developers from setting up their own Private Energy Fund.

### Key steps

**1 Extent of Allowable Solutions required** As in Route A, the developer will need to quantify the amount of Allowable Solutions required (via submission of the as-designed SAP calculations to Building Control). This will trigger a response from the Local Planning Authority, indicating that the developer is free to approach a Private Energy Fund for Allowable Solutions.

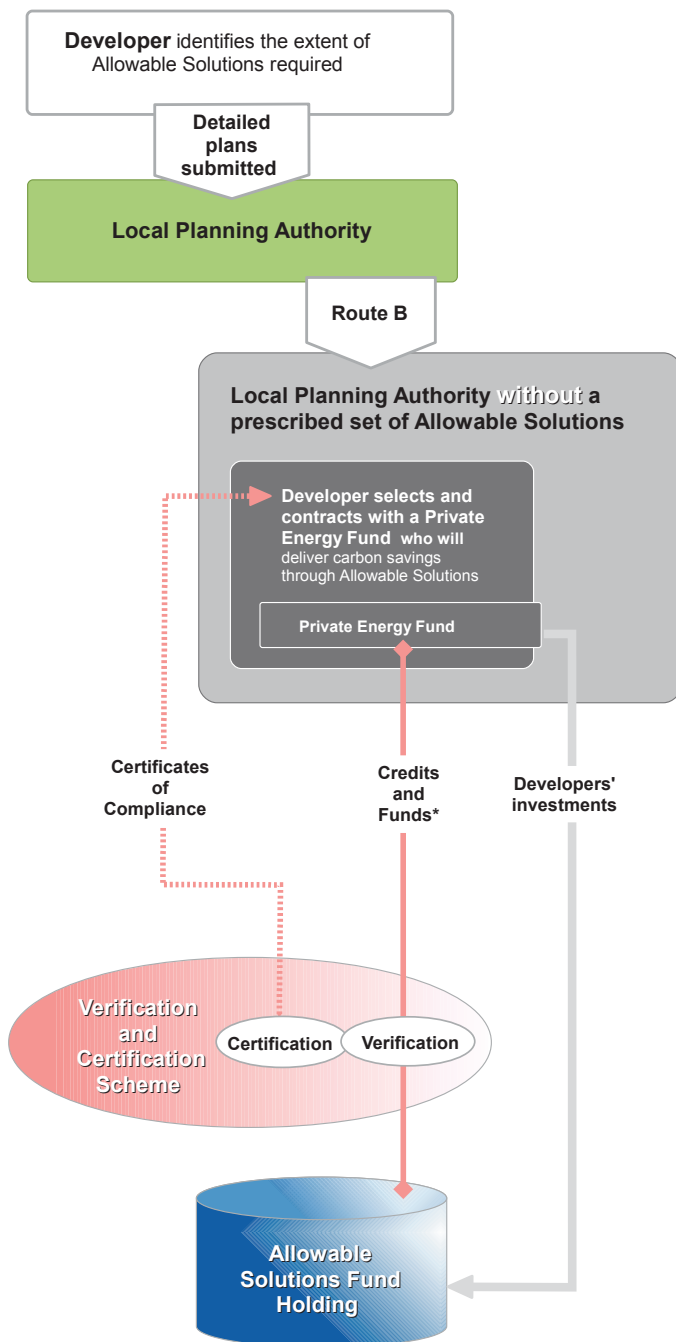
**2 Selection** The developer would then be in a position to compare/negotiate prices from a range of Private Energy Funds and enter into a contract with their preferred Fund.

**3 Registration, payment and certification** (this essentially replicates the process for Route A). Once a development has been registered with a Private Energy Fund, and agreement or contract signed between the parties, both the Private Energy Fund and the developer should advise the Allowable Solution **Verification and Certification Scheme (ASVCS)** (see page 33). In this exchange, the Energy Fund must indicate the type of Allowable Solution projects which it intends to fund, and its contribution to carbon emissions reduction. On making an agreement or contract, the Energy Fund manager may require that developers pay a deposit for their Allowable Solutions.

After **registering** the development in question (and notifying the Energy Fund and the developer of registration), the ASVCS will then **verify the carbon emissions savings** from any proposed Allowable Solution and forward an Allowable Solution **Credit Note** to the Private Energy Fund. The role of Credit Notes is important, giving confidence that payment will be forthcoming and giving Energy Fund managers evidence of income potential which can be used to leverage other investment. While this is progressing the developer will move forward with construction and on completion, make the final payment to the Allowable Solutions Fund Holding (see page 34), based on the actual rather than designed performance of the home.

This final payment will need to trigger a rapid release to the developer, via the Fund Holding and through the ASVCS, of an Allowable Solutions **Certificate of Compliance**.

Once it is established that an Allowable Solution has been delivered (or partially delivered, if a staged payment has been agreed for a project) **funds** are released from the Fund Holding to the Private Energy Fund. As with Route A, and to ensure no interruption with Building Control approval, Allowable Solutions Certificates of Compliance are likely (in practice) to be issued to developers ahead of completion of the associated Allowable Solutions project.



**Figure 9** Delivery Route B for Allowable Solutions

\*released (possibly staged) on verification of completion of Allowable Solutions Project

Note: For clarity, Allowable Solutions Suppliers (those delivering Allowable Solutions Projects) are not highlighted in this chart. They will have commercial arrangements (and may overlap in responsibility) with Allowable Solutions Providers (see Glossary of terms, page 52)

## 8 Fund management aspects of the framework

### What role might 'funds' play within the proposed framework?

The concept of **Community Energy Funds** as a component part of the Zero Carbon definition is not new. In fact, the UK Green Building Council's Zero Carbon Task Group first proposed the idea in their May 2008 report on the Definition of Zero Carbon<sup>3</sup>. In February 2011, the Minister for Housing and Local Government informed delegates at the Zero Carbon Hub's Annual Conference of Government interest in Community Energy Funds.

Throughout the series of bilateral discussions held during the course of this exercise, those having Local Planning Authority interest welcomed the idea of setting up Community Energy Funds. It was recognised that these would have the ability to secure capital from different sources, expand the size of a local pot and thus be in a position to fund larger scale, more strategic carbon saving initiatives – essentially giving a Local Planning Authority control of its own carbon saving agenda. However, it was also recognised that not all Local Planning Authorities may wish to follow this route - some may simply want new homes without the burden or complication of having to deal with carbon emissions that a developer was not able to achieve on-site. Therefore, an alternative Plan B, or 'Route B' was clearly required (page 22). Route B proposes the use of **Private Energy Funds**, but it appears that the working principles of Community Energy Funds could be applied to these privately managed funds as well. If private funds had the autonomy to invest in projects in geographically diverse locations, then it may be possible to generate very good 'carbon value' for developers and society as a whole.

Therefore, within the proposed framework for Allowable Solutions the intention is for two different families of 'funds' to be present, namely: Community Energy Funds, which are steered by Local Planning Authorities and, Private Energy Funds which are steered and operated by private fund managers. However, the rules of the game governing these funds will be consistent across both types as will the principles which underpin their operation.

### What principles underpin how the 'funds' within the framework should work?

One of the key principles which underpin the proposed framework, is the need for capital to go further. The recent refinement made to the definition of Zero Carbon has also modified the scope of Allowable Solutions, and therefore has meant that less capital will be available to 'seed' the Allowable Solutions market place. However, the change in the emission coverage of the definition has not really altered the need for whatever capital was to be made available by Allowable Solution payments to 'go further'. Put this another way, there is still a need for Allowable Solutions capital to be partnered with other capital by leveraging in debt finance in order to fund larger scale, strategic community projects, for example. The concept of 'leveraging' is at the heart of most investment decisions in one form or another and therefore is not new. However, the relevance of this in the context of small- to medium-scale carbon saving initiatives can be evidenced by The Co-operative Financial Services and accountancy firm Grant Thornton's May 2011 report 'Funding Small Scale Green Energy Projects through the Green Investment Bank (GIB)<sup>4</sup>.

In this report it is suggested that potentially an initial sum of £190m GIB equity investment would result in total investment of £1,180m, including £908m of private debt. The GIB equity mixing with project sponsor equity to form a bridging loan or 'mezzanine finance' to tip the viabilities of smaller-scale projects (Note: in many situations the business cases for these projects are also based on access to revenue streams from incentive mechanisms, such as the Feed in Tariff). The report's economic analysis suggested by investing a total of £200m (£190m invested in specific small scale installations of technologies such as wind, solar, hydro power, anaerobic digestion and biomass and £10m held in reserve for immature technologies), around 6,512 jobs could be created, £56m of taxes to HMRC generated per annum and generation of 2,940GWh of renewable power, which would equate to 37% of the DECC target for generation from small (less than 5MW) renewables. If we were to

<sup>3</sup> <http://www.ukgbc.org/site/taskgroups/info?id=4>

<sup>4</sup> Funding Small Scale Green Projects through the Green Investment Bank, The Co-operative Financial Services and Grant Thornton, May 2011

replace GIB equity with Allowable Solutions equity, and make a crude assumption that annually £200m of Allowable Solutions payments were flowing in, it may be possible to achieve overall funds of over £1.1bn which could be invested in carbon saving initiatives, through investments made by either Community Energy Funds or Private Energy Funds leveraging senior debt. However, this sum could be even greater if new Zero Carbon non-domestic buildings constructed from 2018 (for public sector) have access to the same Allowable Solutions market place.

Depending on the type of options and projects that this sum were invested in across the UK (see additionality discussion on page 31), the CO<sub>2</sub> displacement from an overall Allowable Solutions project portfolio could be substantial and relatively swift, given the short development timeframe for smaller scale projects. This could therefore present Government with an opportunity to secure some 'quick wins' and if required the portfolio could be refinanced relatively quickly as soon as revenue begins to flow.

It should be noted, however, that unlocking the potential for these savings means in practice overcoming the equity gap and a number of other barriers facing small scale carbon saving projects. As the June 2010 Report by the Green Investment Bank Commission<sup>5</sup> points out: "More mature low carbon technologies, such as large scale on and offshore wind, require large amounts of long-term debt and equity finance. Long-term, reasonably priced debt, in particular, is required to provide equity investors with the necessary returns and to lower the cost of electricity to the consumer".

This attitude exhibited by large, debt-financing institutions means that financing flows of capital to small and medium-sized projects is challenging – often investments are too small for project finance or they are too big, either individually (in the case of building new CHP plant for example) or too big cumulatively (in the case of energy efficiency retrofit investments). Yet this represents a significant proportion of both the EU and UK's requirements for investment. Small investments such as these need to be aggregated together to a size suitable for bond issuances in a volume that provides a sufficiently high level of liquidity to attract institutional investors. Appropriate structures need to be created to facilitate this.

This means that achieving the necessary scale and liquidity, will require a high number of such projects from a range of different sources. Without such a pipeline of investments they will not cumulatively reach an aggregated scale suitable for securitisation. Following discussions with Ingrid Homes from E3G, a member to the advisory panel for the Green Investment Bank Commissions, it became clear that it is much harder to design effective policies to drive demand for relatively small-scale projects such as community energy or energy efficiency retrofits, compared to investment in large scale power plant. This is because there are a bigger set of barriers to be addressed, including providing access to finance at a reasonable cost, and because success is contingent on incentivising action by millions of individuals – not just the relative 'handful' required to drive action by large-scale utilities for example.

The Co-operative Financial Services and Grant Thornton in their report also endorse this interpretation of the reality of financing small scale projects today and point to a key role which could be played by the Green Investment Bank in establishing a Sustainable Energy Fund (SEF) under an 'arms length' arrangement to provide financial support to the small scale low carbon sector, tied to an effective commercial framework which ensure that projects could be refinanced and aggregated later if appropriate. In principle, it is argued, the "SEF should finance projects that are commercially robust and are capable of generating adequate cash to repay senior and mezzanine finance".

Therefore, the basic philosophy behind how both the Community Energy Funds and Private Energy Funds should work, follows the same logic and principles as the SEF - plugging the equity gap faced by small scale, embedded energy projects which are economically viable but cannot attract senior debt finance because they lack the necessary economies of scale. Therefore it is proposed that Allowable Solution capital collected by each fund from developers is used as 'mezzanine finance' or a 'bridging loan' which the fund then uses to partner project sponsor equity with debt finance (Note: it is proposed that the definition of 'additionality' applied here reflects the 'shared benefit' approach (Table 2, page 32). In simple terms the 'equity share' of the project attributable to the mezzanine finance (i.e. Allowable Solutions capital) is equal to their proportionate share of carbon savings which can then be sub-divided amongst the developers who have contracted with the fund in question.

<sup>5</sup> Unlocking investment to deliver Britain's low carbon future, Report by the Green Investment Bank Commission, June 2010

## How Community Energy Funds and Private Energy Funds differ

The main difference between the proposed Community and Private Energy Funds is that the former can only invest in projects and initiatives which are local or 'near local' (which may be the case if a number of Local Planning Authorities club together to pool Allowable Solution capital in a 'larger than local' fund) and are consistent with the Allowable Solutions policies outlined in their respective local plans. However, Private Energy Funds, have the autonomy to invest in any project across the UK, subject to it meeting a set of rules (to be set down by Government) relating to what project types can qualify as Allowable Solutions. While Community Energy Funds, can only be sponsored by a Local Planning Authority, a Private Energy Fund could be sponsored by a range of organisations - possibly a group of major housebuilders, a bank, an existing fund manager or even a utility. To ensure consistency and fair competition, all fund operators will be required to meet a set of requirements possibly designed and administered by the Financial Services Authority or another suitably qualified regulator. It is not expected that these will be significantly different from existing rules covering funding bodies.

There are possibly two ways that each fund may seek to identify and fund projects:

### A Community Energy Fund may wish to fund:

- **A strategically planned project which aligns to an aspiration set out within the Local Planning Authority's local plan** – for example a district heating network which the Fund may be prepared to put its own equity into (and thus take a share of the future revenue as an equity owner);
- **A project selected from the National Allowable Solutions Project Database located in their area** – for example a community in the local area may have submitted a 'shovel ready' project to the Allowable Solutions project database (discussed later).

### A Private Energy Fund may wish to fund:

- **A cost effective carbon saving project which has successfully won a tendering process for funding.** This project could be located anywhere and at a scale consistent with the aims of the policy;
- **A project from the National Allowable Solutions project database** – the Private Fund operator could interrogate the national database for projects that deliver the carbon savings that they need to ensure are abated.

One fundamental requirement that both funds will need to adhere to is that they will not be able to charge a developer a price of CO<sub>2</sub> which exceeds the national CO<sub>2</sub> price ceiling. However, Private Energy Funds in particular may be willing to charge a lower price of CO<sub>2</sub> in order to attract payments through which debt finance can be attracted.

## What rules should govern what a fund could invest in?

Feedback from the stakeholder workshop clearly pointed to the need for both a clear set of rules and guidance to underpin how funds will operate in practice. The following suggested rules are intended to illustrate some of the ingredients that may be required within them.

- They are genuinely additional – and therefore pass Government's 'additionality' test. It is important to note that in the context of the framework proposed in this report, for the fund model to operate effectively it is suggested that a 'shared benefit' approach to additionality is adopted in order to provide 'full flexibility' for cost effective carbon savings. Other possible definitions of additionality are evaluated on page 32.
- Where the project is funded by a Community Energy Fund that the project is consistent with Allowable Solution policies outlined in their respective local plan.
- That the project sponsor (i.e. the entity seeking capital) passes a set of criteria ensuring that they are in a 'fit state' to deliver the project.
- Carbon savings have been calculated using the national Allowable Solutions Carbon Reporting Methodology (which may harness an existing universal approach to CO<sub>2</sub> reporting).
- The project has the ability to empower individuals and communities and encourages social responsibility and thus is consistent with Government's 'Big Society' aims.
- The project is consistent with a National Allowable Solutions Guidance (which may prescribe additional critical success factors/rules).

## What is the National Allowable Solutions Project Database and how will it work?

The concept of a National Allowable Solutions Database could build on some principles established by BRE on their UK Carbon Reduction Project<sup>6</sup>. Research undertaken by BRE, supported anecdotally by Forum for the Future's conversations with its corporate partners, suggests that there is a healthy appetite among UK-based companies to support carbon reduction projects in the UK. At the same time, many carbon reduction projects (or potential project developers) would like to tap into external sources of funding to get their projects started. However, uncertainty about what can (and cannot) be claimed as a result of such support has stifled investment. Once developed, a national Allowable Solutions database could provide a mechanism through which organisations wishing to financially support UK-based carbon reduction projects can:

- 1 Find the projects they wish to support;
- 2 Report on the benefits their support realises with confidence.

It will also enable carbon-reduction project developers to attract financial support for their specific projects. It is proposed that project developers (ie Allowable Solutions Suppliers) complete three key documents about their projects:

- 1 The **Project Methodology** – a short questionnaire which identifies any potential 'complicating' factors associated with the carbon-reduction project (such as overlapping regulation; or the potential for more than one party to claim carbon reductions);
- 2 A **Carbon Accounting Methodology** – Project developers will be expected to use a credible carbon accounting methodology to calculate the carbon reductions associated with their project. Existing methodologies will need to be embraced or, in their absence, new ones developed;
- 3 A **Financial Accounting Methodology** – Project developers will be expected to complete a financial accounting methodology to calculate the cost-effectiveness of the carbon reductions achieved by their project. This methodology is currently under development by BRE.

As BRE suggest, this project documentation will provide:

- Comparable information on project 'quality';
- Consistency in the way in which the carbon reductions associated with any project are calculated;
- Consistency in the way the cost per tonne of carbon is calculated.

Such an approach could possibly be adapted to form the basis of an Allowable Solutions project database, operated as a not-for-profit organisation, where carbon-reduction project developers could register 'shovel ready' schemes which they are in need of funding for. The associated documentation could also form the basis for standardised methodologies and templates through which to develop Local Planning Authority sponsored projects (e.g. a district energy project) or for bidders in Private Energy Funds to use. However, a small registration fee could be charged in order to fund the assessment of the project which, subject to the project meeting guidance set out by Government in relation to what constitutes an acceptable Allowable Solution, can then be posted onto the database.

Both Community Energy Fund managers and Private Energy Fund managers will then be free to interrogate the database or 'compare the market' to identify suitable projects that meet both their carbon and locational needs. For carbon-reduction project developers this could represent a simple way of advertising their proposed project and access the funding they need to get it off the ground.

<sup>6</sup> <http://www.ukcarbonreporting.org>

### What could investment models look like in practice?

The following example is drawn from The Co-operative Financial Services/Grant Thornton May 2011 report, and illustrates how either a Community Energy Fund or Private Energy Fund could break down the investment in a project. Unlike in the Grant Thornton report, mezzanine debt would be from the Allowable Capital raised by the fund and equity refers to the project sponsor's equity or stake (although in some instances there may be no project sponsor equity and therefore financing of the project is simply Allowable Solution capital and senior debt).

#### Illustrative wind project<sup>7</sup>

Capacity 1.5MW

#### Funding:

Debt	£2,610,000
Mezzanine Debt	£489,375
Equity	£163,125
Total	£3,262,500
Gross Revenue pa	£508,520
% equity + mezz./ total funding	20%
Sponsor equity IRR	21.3%
Power generated per annum	3,942,000 kWh

On the basis that 1 MW of wind power displaces around 1,400 t CO<sub>2</sub> per annum (and around 35,000 t CO<sub>2</sub> over an example 25 year project life), this project would save just under 140,000 t CO<sub>2</sub> over its lifetime. This presents an interesting policy question in terms of what should happen when:

- Allowable Solution mezzanine finance has been paid back by project revenues and who should lay claim to them and
- A project over performs, i.e. exceeds the required amount of carbon saved – should the paying developer receive a carbon credit which they can use instead of making an Allowable Solution payment on another site which they build?

Nonetheless, the fund management models introduced in this section of the report aim to not only offer a competitive pressure on CO<sub>2</sub> price reduction from the Private Energy Fund sector of the overall market, but fundamentally seek to address the known barriers at the small end of the low carbon market.

#### Role of the Allowable Solution Fund Holding

A clear theme that emerged from the framework workshop held in May was the desire that Allowable Solution capital has a time limit on it. This was considered to be an important 'nudge' to ensure that for project sponsors or fund holders there is no option, when a project has been verified, to sit on capital that should be being put to work.

In order to provide this motivating agent within the framework, a proposition evolved around the possibility of directing all Allowable Solution payments to a single location, where it could be ring fenced and held securely. The proposition was based on the principle that money from this single, central 'fund holding' could not be released to an Allowable Solution Provider until verifiable action has been taken in relation to the project identified to deliver a required amount of carbon savings. This would therefore apply a pressure to deliver, as no delivery = no cash. Therefore the intention in the proposed framework is that the 'fund holding' is inextricably linked to the Verification and Certification Scheme. The Verification and Certification Scheme would be the brain of the framework, sending messages to the fund holding to provide Allowable Solution Credit notes, which corresponded to a sum invested in the fund holding for the purpose of being spent on an approved course of carbon saving action, a sort of IOU; and releasing capital to the holder of the credit note, when the project has been delivered or certain verification milestones have been realised.

<sup>7</sup> Funding Small Scale Green Projects through the Green Investment Bank, The Co-operative Financial Services and Grant Thornton, May 2011, see also page 24

The principle of having a single fund holding received broad support at the framework workshop, with the 'pressure to deliver' aspect very much welcomed. Where questions did arise they focused on who should manage the fund holding. Whilst, the option of the Green Investment Bank performing this role was suggested by a number of delegates as 'logical', its involvement in this context opens up a number of policy related questions, which were outside the scope of this consultation. However, the merits of having the GIB handle the Fund Holding could be:

- 1 Reduction in overheads – as GIB will already be up and running; proper scrutiny of spending through overall GIB scrutiny process;
- 2 Acting to build up a hub of UK low carbon expertise; sends strong signals showing Government being joined-up and coherent in its low carbon policy drive.

Whichever option is ultimately selected (i.e. a 'privately managed' Fund Holding or the GIB as the Fund Holding), a further key aspect of this proposition needs to be highlighted. That is the intention that the interest accumulated by the fund holding could be used to cover the cost of administering the fund itself as well as the transaction costs within the Allowable Solutions framework. This is important as it will help to ensure that the sum and carbon saving potential of Allowable Solution payments is not eroded by the cost of transactions within the framework. This principle also received broad support from the Workshop delegates.

Finally, the Allowable Solution Fund Holding also has an important role to play as a 'back stop' for ensuring that Allowable Solutions capital is invested in actual carbon saving projects. To some extent it also has the potential as the final allocator of capital to alternative projects, where planned courses of actions are not delivered, or if either Community Energy Funds or Private Energy Funds go into liquidation. It is therefore proposed that when either planned action is cancelled or capital is not spend within an agreed timeframe that an Expert Panel employed by the Allowable Solution Fund Holding are able to instead invest the capital in alternative cost-effective carbon-saving projects. This may be either through selection of projects from the national Allowable Solutions database or from a process of receiving bids in the form of a 'call for projects'. Any projects funded will still be subject to the rules and requirements of the Allowable Solutions Verification and Certification Scheme. Furthermore, the audit trail identifying where the capital originally arose from, provides the traceability which could be used to give developers the opportunity to reinvest.

## 9 Verification and certification

### How should carbon savings be verified and certified?

One possible starting point for exploring how carbon savings could be assessed within an Allowable Solutions framework is the United Nations Framework Convention on Climate Change (UNFCCC)<sup>8</sup>. Established in support of the UNFCCC was the Clean Development Mechanism (CDM), which is designed to facilitate the deployment of carbon-reduction projects in developing countries which in turn earn certified emission reduction (CER) credits. Each credit is equivalent to one tonne of CO<sub>2</sub>. These CERs can be then traded and sold to industrialised countries, which use them to meet part of their carbon emission reduction targets under the Kyoto Protocol.

While the proposed framework for Allowable Solutions does not intend to include the purchase of carbon offsets from outside of the UK, some of the mechanisms developed to underpin verification and monitoring within CDM could be usefully considered and perhaps adapted in an Allowable Solutions Verification and Certification Scheme. One of the initial interesting aspects of the CDM is that it was established as a fund to finance adaptation projects within developing countries party to the Kyoto Protocol. The fund itself is financed by a 2% levy on the CERs issued by the CDM.

In the context of the proposed Allowable Solutions framework, the intention is that Allowable Solution payments will be directed to the Allowable Solution Fund Holding and held there securely until specific project verification milestones are reached. At these points, cash will be released in line with an Allowable Solution Credit Schedule. However, interest accrued while the money is awaiting use in the Fund Holding, could be used to fund the majority of the transaction and administration costs of the Allowable Solution Verification and Certification Scheme. In addition it may be necessary for a small fee to be charged to other parties who engage with the certification scheme – i.e. Local Planning Authority backed Community Energy Funds, Private Energy Funds, Developers, Allowable Solution Providers etc.

The CDM also has an Executive Board which is committed to productively engaging, collaborating and consulting with stakeholders to identify and improve upon existing standards, procedures and guidelines documenting the requirements under the CDM. The model could be an interesting one to consider in the context of certification scheme for Allowable Solutions, as establishing a similar governance group, preferably independent, could provide the credibility and continuous improvement culture that some stakeholders have called for throughout this consultation process. The CDM Executive Board, third party verifiers in the certification and management of project methodologies and individual project registrations are key ingredients which the Allowable Solutions framework should aim to replicate where applicable.

The regulations for the carbon project (CDM) approval process are anchored in the Marrakech Accords approved by Conference of Parties (COP) to the UNFCCC. The approval process is highly complex, but dynamic allowing for changes proposed internally, by NGOs, project developers, auditors, and in general anyone involved in the market.

Creating something as complex as the CDM for the Allowable Solutions Verification and Certification Scheme would not pass the 'simplicity' requirement that many stakeholders support, but it may be possible to borrow and simplify some of the key components<sup>9</sup> of the CDM to form the basis of a scheme. Furthermore, the CDM Accreditation Standard for Operational Entities<sup>10</sup> could be a useful starting point in determining the scope, rules and roles within the overall Certification process for Allowable Solutions.

<sup>8</sup> <http://unfccc.int>

<sup>9</sup> <http://cdm.unfccc.int/EB/governance.html>

<sup>10</sup> [http://cdm.unfccc.int/Reference/Manuals/accr\\_stan01.pdf](http://cdm.unfccc.int/Reference/Manuals/accr_stan01.pdf)

## **Additionality – a key principle to underpin verification – how can it be assured?**

One of the key principles that many stakeholders agree should underpin a framework for Allowable Solutions is the need to ensure 'additionality' i.e. to ensure that the projects that are funded through Allowable Solutions capital would not otherwise have happened. However, defining 'additionality' is not simple.

So, for example the UNFCCC CDM additionality tool is a multi-step process, which though providing a sound basis for evaluating a project's viability for carbon financing, will add to the administrative burden and will require the development of additional capabilities that will disadvantage in particular the smaller builder. While the CDM tool does give a sound basis for project managers and auditors to judge additionality it is worth summarising its 4 steps to give a flavour of the extent of work that those using this tool have to engage with:

- Step 1. **Identification of realistic alternatives to the project** activity consistent with mandatory laws and regulations
- Step 2. **Investment analysis:** Does sensitivity analysis conclude that the proposed CDM project activity is unlikely to be the most financially attractive or is unlikely to be financially attractive?
- Step 3. **Barrier analysis:**
  - (1) Is there at least one barrier preventing the implementation of the proposed project activity without the carbon financing; and
  - (2) Is at least one alternative scenario, other than proposed project activity, not prevented by any of the identified barriers?
- Step 4. **Common practice analysis:**
  - (1) No similar activities can be observed?
  - (2) If similar activities are observed, are they essential distinctions between the proposed project activity and similar activities that can reasonably be explained?

'Step 2' **investment analysis** is by far the most challenging, rigorous and time consuming. It's important to show and exhibit with all these steps why the project has not been implemented in the past and it is the carbon financing that is currently helping the project activity to be implemented.

The **barrier analysis** includes establishing that there are realistic and credible barriers that would prevent the implementation of the proposed project activity from being carried out if the project activity was not registered as a carbon activity. Such barriers include:

- Investment barriers, other than the economic/financial barriers other than in Step 2;
- Technological barriers, such as skilled and/or properly trained labour to operate and maintain the technology is not available in the relevant region and/or lack of infrastructure for implementation and logistics for maintenance of the technology;
- Barriers due to prevailing practice: The project activity is the "first of its kind".

While additionality tests ensure that deserving and well-justified projects receive carbon financing there are some challenges. The difficulties are with making the procedures extremely complex and too difficult for the average project developer to use. They are quite onerous and therefore a market of consultants and companies which specialise in such documentation has sprung up. Thus, actually going through the procedures to justify a project for carbon financing has a cost risk element for the developer and, importantly, the time it takes to register a project or justify its need for carbon financing is extremely time consuming and adds further risks for the developer.

Stakeholder feedback to the Zero Carbon Hub in this exercise indicates a need for a clear, single definition of additionality. Nonetheless, in developing a definition of additionality for Allowable Solutions there may be elements of the CDM approach that could be usefully incorporated. The table on the next page, produced by Camco, indicates some options that could be used to define additionality for Allowable Solutions in a more pragmatic way.

Additionality Option	Description	Pros	Cons
Avoid double counting at international level	This option would take account of existing international carbon trading mechanisms acting on the UK such as the EU ETS. To avoid double counting at an EU-level, measures which reduce 'traded' carbon emissions in sectors covered by EU ETS such as the power sector and heavy industry would be excluded from the Allowable Solutions framework. This would exclude all measures which reduce or displace electricity consumption leaving 'non-traded' heat and transport related opportunities.	Consistent with UNFCCC approach to international carbon accounting. Funding would be diverted away from electricity generation measures which already have a complex framework of incentives.	Measures which result in multi-fuel carbon reductions e.g. CHP may also need to be excluded to avoid complex arrangements for stripping out the 'traded' carbon savings. Non traded opportunities are typically more expensive than traded leaving less margin for project developers. Would not address double counting of carbon reduction at UK policy level. Potential loss of value to UK economy from traded projects.
Avoid double counting at national policy level	This option would prevent funding from the Allowable Solutions framework being used for measures financed by other carbon reduction policies e.g. FITs / RHI / Green Deal. This was a characteristic of an early version of the Zero Carbon Homes policy where renewable energy tariff incentives such as ROCs and FITs could not be claimed for Zero Carbon Homes due to this double counting issue. The double counting issue in this instance was resolved by allowing home owners to claim FIT/RHI revenue and downgrading the carbon savings expected at a national level from the Zero Carbon Homes policy accordingly.	No need to adjust savings expected from existing policies in Government Carbon Plan.	Projects at the margins of viability with existing support mechanisms would not be taken forward. Opportunities available for Allowable Solutions funding outside of existing policy incentives would be extremely limited.
Criteria-based approach	Drawing on existing approaches to additionality in International Carbon Markets, projects would be approved for Allowable Solutions funding if they satisfied a number of pre-determined criteria. This could involve a viability test to determine whether the project would proceed without AS funding. There are UK-based precedents for this approach such as the Community Energy Programme which required projects to report the level of return achieved over a 'do nothing' base case using a discounted cashflow proforma and standard Treasury Green Book assumptions. Projects that generated too high a return were not awarded a grant.	Finance could be channelled towards projects that met other policy goals such as innovation, removing barriers, local impact etc. Criteria could be adjusted over time providing flexibility Viability criteria should prevent double counting issue.	Transaction costs likely to be high due to complexity of viability test.
Shared benefit approach	All incentives are available to a project, subject to standard State Aid rules but the carbon savings expected from individual policies are adjusted accordingly at a national level. Top-up funding from Allowable Solutions would still have to deliver carbon reductions at the ceiling price or lower and could only claim savings in proportion to the funding provided e.g. if £50,000 of finance if provided from Allowable Solutions and £50,000 from FITs for a project then the carbon benefit would be split 50:50 between the two policies and carbon savings from the project would have to be at least 2,000 tCO <sub>2</sub> assuming developer payment at a ceiling price of £50/tCO <sub>2</sub> .	Provides full flexibility for project developers on how they chose to finance a given project.	Complex to administer at a national level, requiring high level assumptions on the uptake of various Allowable Solutions options and the level of top-up funding required.

Table 2 Showing the main considerations in developing a pragmatic approach to additionality. Courtesy of Camco

## How could the Allowable Solution Certification Scheme work under the proposed framework?

Under the proposed framework, the Allowable Solutions Verification and Certification Scheme (ASVCS) is the central 'brain' of the system. It is essentially the gatekeeper that verifies action, controls the flow of capital within the framework, and issues credits and certificates. Without it the framework cannot function. While it would be too early to define exactly the details of operation of the Scheme, the table below proposes the interactions which would be likely to take place.

	Responsibility	Receives
Developer	<b>Registers</b> with ASCVS details of entity to which the obligation for required sum of remaining carbon emissions is to be transferred.	Confirmation of registration. Upon payment – a Certificate confirming that liability for their remaining emission has been transferred to another entity. This certificate can be provided to the Building Control Officer as evidence of Allowable Solutions compliance (as part of Part L compliance).
Local Planning Authority	<b>Submits</b> details of the projects that they wish to fund using Allowable Solution Capital collected from developers.	A credit note, referring to the sum of Allowable Solution capital that is being securely held in the Allowable Solutions Fund Holding, will be released to the appropriate entity* when agreed project milestones are reached. <i>*Possibly the Local Planning Authority themselves or a Third Party Allowable Solution Provider they have contracted with. Alternatively it could be a particular project sponsor that they have agreed to provide capital to, identified from the National Allowable Solution Project Database.</i>
Private Energy Fund	<b>Submits</b> details of the projects that they wish to fund using Allowable Solution Capital collected from developers.	A credit note, referring to the sum of Allowable Solution capital that is being securely held in the Allowable Solutions Fund Holding, will be released to the appropriate entity* when agreed project milestones are reached. <i>*i.e. a project sponsor that they have agreed to provide capital to, which may have identified from the National Allowable Solution Project Database.</i>
Allowable Solution Provider	<b>Submits</b> project details, including, project type (for verification) amount of carbon to be saved, Allowable Solutions capital to be supplied on behalf of the liability owner (possibly a housebuilder, Local Planning Authority or Private Energy Fund). Proof that a verification milestone has been reached, e.g. for a CHP project proof that CHPQA has been achieved.	A verification check list (drawn down from a standardised template) and aligned to 'key project milestones'. Cash payments when key milestones are verified and evidence is submitted.
Allowable Solutions Fund Holding	<b>Produces</b> Credit notes in place of Allowable Solution payments received by developers and sends to the entity that now owns the carbon liability and thus the responsibility for spending the capital.	Instruction from the ASVCS as to when project milestones have been verified and what portion of capital can be released in relation to the capital ring fenced for the project in question.

**Table 3** How different participants might engage with the Allowable Solutions Verification and Certification Scheme

In this proposal the ASVCS is proposed as a single over-arching body, rather than a collection of independent agencies. While there might be an alternative model where a number of bodies competed to provide certification services, a significant number of stakeholders rejected such an approach as likely to be overly complex, unnecessary and confusing. In terms of verification, attention focused on the need to utilise the approaches and systems already available or planned: such existing scheme could include the Microgeneration Certification Scheme (MCS), any forthcoming Green Deal based certification and CHPQA to name but a few.

One of the key underlying principles around certification advocated by a number of stakeholders is the need to ensure that we 'keep things simple' and do not re-invent the wheel, so to borrow as much as we can from existing certification processes. Therefore it is proposed that a verification check list is assembled for each Allowable Solution project family. This check list where possible should seek to use existing and directly relevant certification and standards processes to provide the basis for verifying a project and confirming to the Allowable Solution Fund Holding that a specific verification milestone has been reached. Upon receiving this signal, the Fund Holding will be able to release the capital.

### **What is the role of the Allowable Solution Fund Holding?**

The Allowable Solutions Fund Holding is a repository for payments made by developers, ensuring that capital is ring fenced and held securely until projects have been verified, at which point credits can be released. Capital may be released incrementally (at verification milestones) depending on the nature of the project. Credit notes may be released for whole projects where this can be helpful in attracting additional private sector funding.

For the purposes of this report it is suggested that the Allowable Solutions Fund Holding is privately managed on behalf of government, with interest earned paying for administration and transaction costs. Each payment received by the Fund Holding will be provided with a unique reference number (URN) establishing an audit trail between the source of payment and actual carbon savings. However, a number of stakeholders argued that the Green Investment Bank could possibly fulfil this role. Nonetheless, given the time delay between when payments for Allowable Solutions will be eventually made and when carbon saving projects required capital, it is likely to be necessary that the Allowable Solutions Fund Holding be primed with capital. This capital could take the form of a 0% loan from Government paid back incrementally as Allowable Solution payments are made.

To instil a sense of urgency in relation to the delivery of projects which receive Allowable Solution funding, it was suggested by one group at the stakeholder workshop that credits 'banked' in the Allowable Solutions Fund Holding should be time-limited, possibly for 3 years (however, there may be a need to assign different time limits to different project types depending on their nature). It was suggested that if the receiver of the credit does not deliver the agreed carbon saving project in that time, or has not achieved some core milestones (in the case of a larger infrastructure project) then the money should remain in the Fund Holding. It was then proposed that an 'expert panel' from the Fund Holding decides on a new Allowable Solution project to support, either selected from the National Allowable Solution Project Database or by submitting a 'call for projects' and then running a short tendering process (aligned to the same rules applied for both Community Energy Funds and Private Energy Funds in relation to the types of projects that can qualify as Allowable Solutions). Therefore, when the replacement project is identified the audit trail, associated with the payments from the original project, will get transferred to the new project and a new record will be created. The view was that including such a 'fall back' mechanism will stop grandiose and speculative plans taking money and not delivering.



# 10 Engagement with the framework

## 10.1 Developers

Overall the Allowable Solutions framework must support developers in achieving zero carbon in a cost effective way. Initially, Allowable Solutions should be less costly (per unit of carbon) than the work done by the developer on site to achieve Carbon Compliance standards.

- It must be simple to use and transparent, with clear guidance on the choices available and with a national carbon price ceiling.
- The framework should ensure that developers have access to a competitive market for Allowable Solutions, while providing simple 'pay and comply' routes for those preferring an off-the-shelf solution.
- It must provide evidence of the emissions reductions achieved (with an audit trail to the developers investment), and provide the developer with a certificate as part of compliance to the 2016 'zero carbon' Building Regulations.
- Developers' commitments and investments must be securely managed within the framework and certificates of compliance released in a timely way to ensure that the granting of Building Regulations approval is not delayed by the administration (or delivery) of Allowable Solutions.

### How would developers engage with the proposed Allowable Solutions framework?

#### Scale of Allowable Solutions required for a project

The developer would first need to establish a figure for the carbon emissions which are to be covered by Allowable Solutions. This figure - the difference between the Carbon Compliance level achieved and zero carbon (100% of all regulated emissions) - would need to be included in a development plan submission to the Local Planning Authority.

#### Selecting an Allowable Solution Provider

Once the development plan is submitted, the developer will encounter two possible scenarios:

- 1 **The situation where a Local Planning Authority has determined its Allowable Solutions policy and has an established suite of local Allowable Solutions options** (see page 20, Route A). In this case, the developer can view the local Allowable Solutions options and how much it would cost to secure them through the Local Planning Authority (i.e. paying into a Community Energy Fund). The developer can then compare the Community Energy Fund price with prices offered by other (Third Party) providers which are available to deliver the local Allowable Solutions suite. Developers may also be able to select to pay (via a Third Party provider) to support low carbon projects from the National Allowable Solutions Project Database which are located in the same area as the development. (These alternative procurement routes are set out in more detail as Routes A1 and A2 on page 20.) In all these cases the Allowable Solution Provider, whether Local Planning Authority, or Third Party Provider, takes responsibility for the administration and delivery of the required carbon savings through the Allowable Solutions projects that they fund.

No Allowable Solutions provider will be able to charge above a national price ceiling for carbon. While Third Party Providers may be able to offer lower prices than a Local Planning Authority, developers will need to evaluate the administrative costs associated with searching out best value. In the end the developer makes a decision on which procurement route to use, based on value. Other parts of the Allowable Solutions framework provide the guarantee that a developer's investment will result in Building Regulations approval (for the carbon emissions reductions they are seeking).

## 2 The situation where a Local Planning Authority does not yet have Allowable

**Solutions as a policy within its local plan** (see page 22, Route B). Here, in the absence of local arrangements, the developer will be advised that it is free to select an accredited Private Energy Fund. These Funding bodies will manage delivery of carbon savings for an agreed cost (again, no higher than the National ceiling price for carbon). The projects funded via this route are likely to be regional or national and may not have a local significance.

In Scenarios 1 and 2 the developer contracts with the Allowable Solutions Provider for the amount of carbon savings they need to make through Allowable Solutions (based on initial SAP calculations). Developers will need to inform their provider of any changes to this amount in line with their final SAP calculation, prior to receiving an Allowable Solutions Certificate confirming that the correct amount of carbon has been abated. This Certificate will be required by Building Control as part of the evidence to show that the Part L zero carbon standard has been achieved.

### Payment for Allowable Solutions

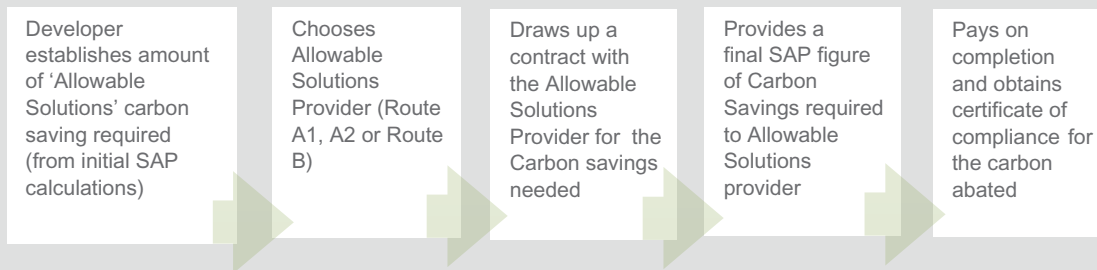
For simplicity it is suggested that the payment process should be linked closely with the existing Building Control procedure and, for fairness to all parties, makes a clear distinction between the **point of contract** and the **point of payment**.

Currently it is a regulatory requirement that an as-designed SAP calculation is submitted to Building Control before the dwelling is started, at which point the magnitude of carbon to be abated by Allowable Solutions will be known. At this point it is suggested that the developer should contractually commit to buy Allowable Solutions. Whether the Allowable Solutions provider requires any cash at this point should be left to normal commercial credit risk assessment between the parties.

When the final SAP calculation is submitted to the Local Planning Authority, according to Building Regulations (clause 27) within five days of completion, the cash payment for Allowable Solutions becomes immediately due. This amount may be different to the original as-designed SAP amount, for example because of design changes or actual airtightness test results.

The Allowable Solutions payment should be made within an agreed time after which, non-payment would result in the dwelling being declared non-compliant with Part L. It is suggested that checking Allowable Solutions payment is made part of the conveyancing procedures.

### Summary of a developer's interaction with the framework



## 10.2 Local government and planning

### Overview

One of the main objectives of the proposed Allowable Solutions framework is to provide local choice and flexibility so that carbon-saving projects with the greatest local benefit can be selected. For this reason the framework is designed to ensure that local authorities can have 'first option' on how Allowable Solutions monies are spent. To secure this opportunity, however, Local Planning Authorities will need to have developed robust policies for the delivery of Allowable Solutions projects.

For Local Planning Authorities the key initial decision is whether or not to engage with the Allowable Solutions agenda (and hence whether to commit to the development of an Allowable Solutions policy). This decision will depend on whether the Local Planning Authority does recognise the strategic opportunities and benefits that delivering Allowable Solution projects locally could yield for their communities and constituents.

Many local authorities will recognise the benefits of being able to define the kinds of projects suitable for their area and will recognise the wider opportunities created by the Allowable Solutions agenda, with tangible links with sustainability, localism and a number of other broad priorities (see page 12).

The availability of capital, from developers' Allowable Solutions payments, and the potential for this to act as a magnet for wider secondary investment will clearly be seen as a major opportunity – opening up the possibility of being able to fund significant, medium- and large-scale projects, possibly in partnership with other Local Planning Authorities. In terms of the financial business case, opportunities to collect Allowable Solutions payments will arise from a range of developments, but the current short- to medium-term business environment points to medium and small-scale developments initially making up a high proportion of the Zero Carbon Homes from 2016. This is due in part to the fact that across the country, planning permission has been granted for many of the larger developments (that will be built, from 2016, under either 2010 or 2013 Building Regulations). Additionally, small-scale development is likely to find it more difficult to achieve carbon savings through the provision of on-site low/zero carbon energy schemes as they will be spatially constrained. Therefore from 2016, the early demand for Allowable Solutions can be projected to be proportionately high in the likely smaller developer delivery profile, but with a lower demand from the major housing developers.

If, after consideration of the pros and cons, a Local Planning Authority is verging in favour of establishing an Allowable Solutions policy there would then need to be substantive guidance available in a number of policy development areas to support final decision making over engagement. Such guidance, including support mechanisms, would need to include the following:

- How to establish an Allowable Solutions policy which provides rigour in the selection of carbon-saving projects and consistency in the price of carbon;
- When and how to set up a Community Energy Fund;
- How to establish and partner with Third Party Providers who would manage carbon-savings, but which could be either in competition with the Local Planning Authority's Community Energy Fund or an alternative to it;
- How Allowable Solutions policy should be dovetailed, subsumed or operate alongside existing energy policy, and particularly that related to energy infrastructure, and existing carbon offsetting initiatives;
- How to secure, partner and manage secondary funding (e.g. debt finance) from business or community sources;
- The legal framework that would need to surround the liability that the Local Planning Authority would be accepting for the delivery of carbon savings.

As discussed below, guidance and support methodologies in these areas (and possibly others) would need to be fast-tracked to ensure they are in place in time to allow local authorities time to establish policies and compete fairly from 2016.

Local authorities that decide not to engage with the Allowable Solutions agenda, or who were still developing policies in 2016, when Allowable Solutions will be required as part of Building Regulations approval, will not be in a position to direct developer's choice of Allowable Solutions. Instead, a developer will be able to approach a Private Energy Fund who will invest the developer's Allowable Solutions payments into their own portfolio of carbon-saving projects which, it should be emphasised, may have no benefit or significance to the Local Planning Authority area where the development is located.

### **How Local Government and Planning might work with the framework**

This section is giving more detail on how a Local Planning Authority could engage with **Route A** (page 20). Here, a Local Planning Authority wants to set out a 'menu' of local Allowable Solution project options, but to do so, is required to set out robust Allowable Solutions policies within their Local Plan. The policy could be contained within a Supplementary Planning Document, such as a Local Sustainable Energy Development Plan Document (DPD). These plans will be required to pass a 'soundness test' as part of the overall examination of the Local Plan; this would need to have a mechanism for assuring the performance of included Allowable Solutions projects, based on the cost effectiveness (in £/tonne of carbon saved).

**Policy development timeframe** The normal timescales for the systematic process of adopting local planning policy tools may cause delay in the development of Allowable Solutions policy development and the prescription of local Allowable Solutions. This could result in local choice being overtaken by third-party Private Energy Funds that, generally, may be better positioned to offer Allowable Solutions in readiness for 2016. Additionally, there is a further risk that the lead gained by Private Energy Funds will enable them to win competitive advantage (over any locally prescribed routes) by securing early a large share of secondary investment streams that might be available.

In terms of timing, therefore, the mechanisms for establishing a local Allowable Solution policy will need to be bought forward in a way that reduces the risk of delay. Whilst it is reasonable that the requirement for local Allowable Solution should be evidence based, there is a strong likelihood that few emerging Core Strategies will have defined these requirements, and therefore the opportunities for their inclusion in Local Plan policies will be limited and dependent on their date of review, which may be some years away. Ambition is that every Local Planning Authority that wishes to have a prescribed set of Allowable Solutions would have this in place by 2016, but their chance of inclusion in a Core Strategy or Local Plan DPD by that date is remote. Hence, an alternative policy tool will be required.

The use of Supplementary Planning Documents (SPDs) is a well established means of providing detail on specific matters covered by policy elsewhere. SPDs are quicker and simpler to prepare (and update) than Development Plan Documents and do not require examination by an inspector. Although, on this point concern has been raised by some stakeholders in the house building sector in relation to the proliferation of SPDs which have not been subjected to a soundness test. However SPDs must be subject to local consultation and should be informed by evidence of need (which may have been prepared to support DPD policies). SPDs must also relate to an adopted policy and in the absence of a specific policy hook in a DPD, this could be provided in the forthcoming National Planning Policy framework (NPPF). Therefore, the inclusion of an enabling policy within the NPPF would overcome the risk of delay. This can provide the policy hook whilst also stipulating that local Allowable Solutions must be based on clearly defined need and reflect local circumstances. Much of the evidence for this will already exist in work carried out by local authorities to support their emerging DPDs, along with other locally relevant data (such as NI 186 reporting) and it should be possible to fill in gaps in the evidence base without significant cost or delay. In some cases, cross-boundary and multi-agency evidence has been prepared and this can be used to inform the preparation of sub-regional/joint Local Planning Authority prescribed Allowable Solutions. These will be of particular value where large community energy infrastructure projects are being considered and/or for small/less well resourced Local Planning Authorities that risk being excluded from the process.

Finally, Local Planning Authorities should be encouraged to engage with potential third party Allowable Solution Providers and form new partnerships and joint ventures to deliver Allowable Solutions within a local community. This process will be facilitated through the preparation of evidence and consultation on proposed local Allowable Solutions projects. The identification of prospective local Allowable Solution Provider partners could be facilitated by the national Allowable Solution project database, discussed earlier. The existence of such a database coupled with an evidenced plan could enable 'project dating' or 'match-making' to deliver locally-beneficial carbon savings and local enterprise.

**Choices** The framework attempts to give local authorities a number of choices, depending on circumstances and particular scenarios. In all cases a national ceiling price for carbon will apply, but managers of Allowable Solutions Providers (whether Community Energy Fund or Third Party Providers) set their own price at or under that ceiling. All Allowable Solutions providers will be required to adhere to processes set out by the Allowable Solutions Verification and Certification Scheme (see page 30).

### **Choice 1, Route A1**

Here the Local Planning Authority has a list of approved list of **Allowable Solutions projects**, and an approved list of Third Party **Allowable Solutions Providers**, who are able to take responsibility for delivering the carbon savings paid for by developers (such providers may have been appointed as a result of a local tendering process adhering to OJEU rules).

**Variation 1:** An Allowable Solutions project may be included which is local but on the National Database of Allowable Solutions Projects (but not on the local authority's approved list).

**Variation 2** An Allowable Solutions project may be included which is local but new, and made possible by the availability of new funding streams. Such projects may typically be strategic in scale.

### **Choice 2 Route A2**

Here the Local Planning Authority has an approved list of **Allowable Solutions projects** and has established a **Community Energy Fund** which takes responsibility for delivering the carbon savings paid for by developers.

**Variation 1:** An Allowable Solutions project may be included which is local but on the National Database of Allowable Solutions Projects (but not on the Local Planning Authority's approved list).

**Variation 2** An Allowable Solutions project may be included which is local but new, and made possible by the availability of new funding streams, such as debt finance which has been possible by the presence of Allowable Solutions capital which acts as Mezzanine funding or an equity cushion. Such projects may typically be strategic in scale.

**Variation 3** The Local Planning Authority also might wish to pool their Community Energy Fund with one or more other local authorities within their region to allow delivery of 'larger than local' Allowable Solution projects.

### **Notes on choices 1 and 2**

**Guiding principles** All projects, including possible new entrants to a prescribed list, would need to meet a set of 'guiding principles' specified by Government<sup>11</sup>.

**Price** Price cannot exceed the market ceiling price for Allowable Solutions<sup>12</sup>. Some Local Planning Authorities may seek to charge a lower price for Allowable Solutions recognising the viability constraints that may exist in their local area. However, the price set for Allowable Solutions may as a consequence dictate which Allowable Solution options can be deployed – i.e. the more expensive, but strategic Allowable Solution options may be unviable at lower local CO<sub>2</sub> prices. Therefore it is a question of local priorities.

<sup>11</sup> **Note:** Guiding Principles for Allowable Solutions options will need to be determined by Government. These will represent 'rules of the game' governing what new options can be classed as acceptable Allowable Solution options

<sup>12</sup> National price ceiling for Allowable Solutions is assumed to be an illustrative £46 per tonne of carbon dioxide equivalent in present value terms (£97/tonne in undiscounted terms) as detailed within the May 2011 Zero Carbon Homes Policy Impact Assessment

**Strategic-scale projects** Where local allowable solution options selected are more strategic in nature, for example centre around the organic growth of a district energy infrastructure, capital from Allowable Solution payments made by developers may not be sufficient to totally fund delivery. In such an instance the delivery of such an option may be contingent on the Local Planning Authority being able to leverage in debt finance. In this respect Allowable Solutions capital will represent mezzanine finance partnered with debt finance and possibly a small amount of project sponsor equity which may be from the Local Planning Authority itself. Therefore, the Local Planning Authority has a choice on how they may use a Community Energy Fund (seeded by Allowable Solution capital) to bring forward more strategic options. In doing so, the Local Planning Authority will assume the liability for resolving the carbon emissions proportionate to seed funding and alternative, additional funding.

Where Allowable Solutions capital from more than one Community Energy Fund is pooled to deliver projects which are 'larger than local', the carbon abated and revenue benefits should be apportioned to each Local Planning Authority partner in accordance to the size of their Allowable Solution payment contribution. However local authorities will need to make provision for such schemes and provide guidelines in their Allowable Solutions policy.

**Link with CIL and S106** Where a Local Planning Authority has decided to establish a Community Energy Fund, it may wish to use the Community Infrastructure Levy (CIL) or Section 106 (S106) to collect and pool payments. This would mean that the Local Planning Authority would need to incorporate into the CIL charging schedule for a component which referred to the locally set price of CO<sub>2</sub> (note, which must be below the market ceiling price) as stated within their Local Plan.

It is important to note that where CIL includes a funding component which relates to collection of Allowable Solution payments, that funding will be required to be channelled to the Allowable Solutions Fund Holding, where capital will be held. A credit note will be supplied to the Local Planning Authority stating the sum of capital that is ring fenced and available for release when verifiable milestones have been reached in the delivery of an Allowable Solution project. This approach may require changes to the regulations associated with CIL.

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. Furthermore, CIL regulations more narrowly define how Section 106 can be used, and 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. 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.

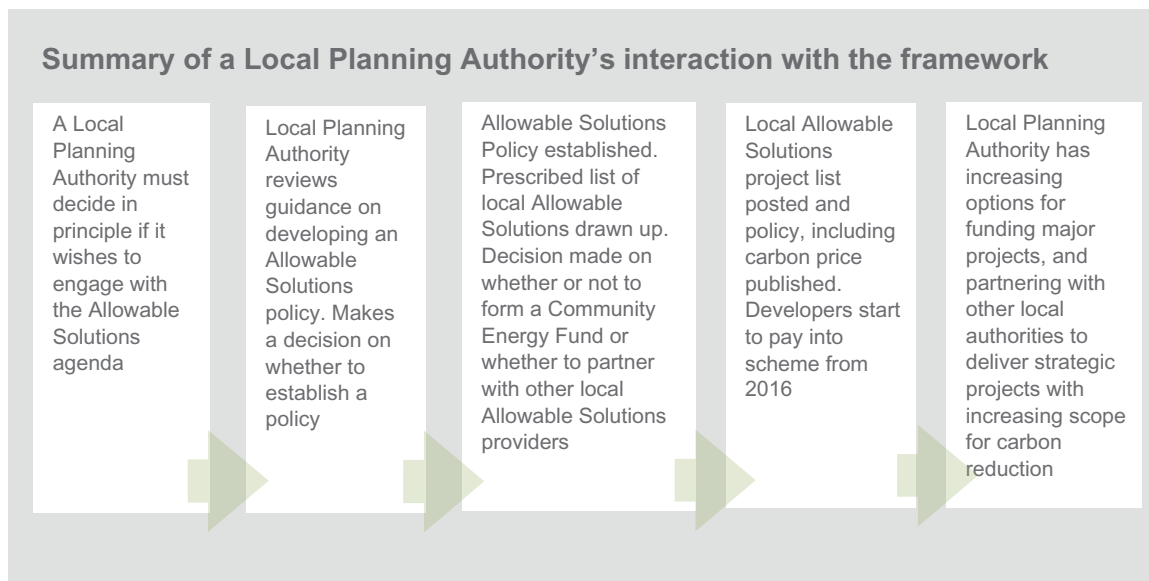
Finally it should be noted that some concerns have been expressed over the use of S106 particularly on limitation of the use of planning obligations following the introduction of CIL. One of the concerns relating to the use of S106 as a mechanism to collect funds is the requirement that planning obligations 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 CO<sub>2</sub> terms, and the purpose of the fund to reduce CO<sub>2</sub> 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 reductions in CO<sub>2</sub> emissions.

**Community Energy Funds** Where the Local Planning Authority establishes a Community Energy Fund, it is in effect removing the opportunity for a developer to shop around to deliver 'quick win' tactical projects - the creation of Community Energy Fund could be seen as an indication that the Local Planning Authority had decided to focus on deploying 'strategic' Allowable Solution options.

### Choice 3

Here the Local Planning Authority chooses not to establish Allowable Solution related policies within the Local Plan. In this situation, developers are able to seek a suitable Private Energy Fund through which to pay for Allowable Solutions.

In this scenario, the Local Planning Authority does not have control over the Allowable Solutions projects that are funded. However, Allowable Solution payments made by developers bringing forward new homes in a given local area will be registered and associated with the Local Planning Authority area. This means that a record will be kept by the Allowable Solution Fund Holding of how much Allowable Solution capital has been spent, but not harnessed by a given Local Planning Authority. Such a record could be used to provide these Local Planning Authorities with a preference when they may in the future bid for capital from accredited Private Energy Funds to fund a 'bankable' project which they have developed for their area<sup>13</sup>.



<sup>13</sup> **Note**, in the period of time whilst a Local Planning Authority is developing local Allowable Solution policies and an associated evidence base they may still have bankable projects in their area. Therefore, the framework seeks to provide Local Authorities with the opportunity to access capital for their projects by seeking funding from Private Energy Funds. It may be necessary to instruct Private Energy Funds to give priority to bids from Local Authorities, where the proposed project meets the criteria set down by Government for funding under the Allowable Solution framework



CHP plant  
E.ON



CHP plant  
Combined Heat and Power Association

## 10.3 Suppliers of Allowable Solutions projects.

For company managers, who will be competing to supply cost-effective carbon-saving (Allowable Solutions) projects on the ground, the framework must do its part to create and maintain an ongoing and secure business environment in which there is fair competition. For suppliers, how the framework deals with the following, for example, will be important:

- Clarity over what constitutes an Allowable Solution. How they are defined and deemed acceptable. How related families of projects are treated and how they might be aggregated or clustered to deliver carbon savings;
- Providing open and clear methods of assessing the carbon performance of projects in cost terms, enabling project managers to present and promote their projects on an established cost per tonne of CO<sub>2</sub> basis, and allowing fair comparison and selection;
- Simple and consistent ways of dealing with selection criteria that might be introduced, on say 'additionality' (see page 31).

### **How would Allowable Solutions Suppliers engage with the proposed framework?**

Allowable Solutions suppliers (and also project sponsors) would need to ensure first of all that any planned projects were within the defined scope of Allowable Solutions. The project manager would then need to check if in-scope projects met specific acceptance criteria, including an assessment of its carbon-saving performance. That process would lead to a supplier being able to offer one or more Allowable Solutions projects for the consideration of Allowable Solutions providers (with the aim of securing funding to support their project).

In all cases the carbon performance quoted by the Allowable Solutions supplier would be independently verified by the Allowable Solutions Verification and Certification scheme as part of either Route A or B, after which it would be eligible for inclusion on the National Database of projects. Once verified, carbon savings can be sold to Allowable Solutions Providers (i.e. either a Community or Private Energy Fund) and indirectly secure income from the Allowable Solutions Fund Holding, and possibly attract capital from other investors.

A number of types of organisations could become Allowable Solutions suppliers, including charities, energy companies, ESCOs or housebuilders, who could deliver carbon savings by extending energy infrastructure of energy saving measures to local existing buildings for example. It is likely that suppliers will want to establish portfolios of Allowable Solutions projects, with quick-win projects (maybe an array of solar panels on a school roof) which might attract 100% funding from either a Community or Private Energy Fund, and more ambitious longer-term larger-scale projects for which they seek additional partnership funding from the community or local business.

In simple terms the proposed Allowable Solutions framework should build a market place for viable or 'near viable' projects which are cost effective in carbon-saving potential, and which can be advertised to possible funders (i.e. Allowable Solutions Providers) in particular local authorities (via a Community Energy Fund), Private Energy Funds and developers who have established an energy fund status.

### **How the suppliers secure funding**

Allowable Solutions suppliers will receive funds from the Allowable Solution Fund Holding. Capital instalments will be released and debited from the credit held in the bank account of the Allowable Solutions Provider in question. Depending on the type of project, the verification schedule may refer to specific project milestones that certify project delivery against national standards.

A unique reference number will be allocated to each Allowable Solutions project and retained throughout its development, from the point it is registered with the Allowable Solutions Verification and Certification Scheme, right through to the completion of the project, which may be some years later.

Note 1 Submitting the project for initial assessment will require a non-refundable sum to be paid to the administrator of the National Allowable Solutions project database.

Note 2 The Allowable Solution Supplier will have to specify how much capital they will be seeking from an Allowable Solutions Provider (funder), recognising that this will mean that they cannot claim grants or subsidies from elsewhere.

Note 3 The Allowable Solution supplier would either need to ensure that they are themselves certified to deliver the project in question or that they have identified and chosen a certified third party to deliver the project on their behalf. For example, if an Allowable Solution project required the installation of microgeneration equipment, the installer would need to be MCS accredited.

### Summary of an Allowable Solution Supplier's interaction with the framework



## 10.4 Building Control

### What the proposed Allowable Solutions framework provides

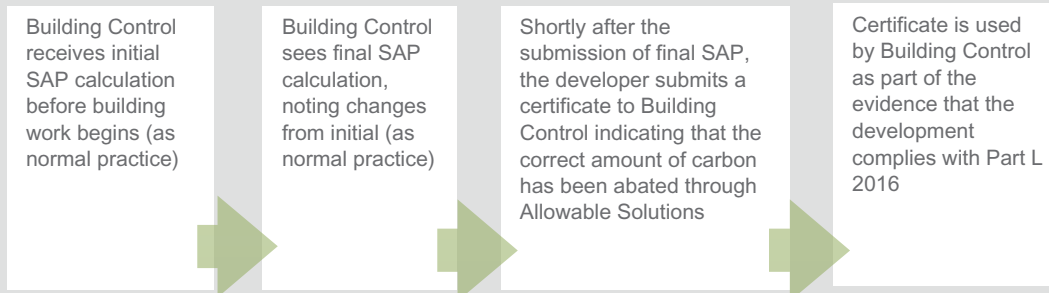
The Allowable Solutions framework aims to minimise impact on the operations of both private and local authority Building Control. It is anticipated that the Allowable Solutions framework will be underpinned by a high degree of system based automation meaning that certain groups involved, and particularly those in Building Control, will simply be engaging with the framework from a 'transactional' perspective. The framework will provide Building Control with assurance, through certificates produced by the Allowable Solution Verification and Certification Scheme, that a developer has invested suitably in carbon abatement. These certificates, which housebuilders will receive once they have made an Allowable Solutions payment, will be needed by Building Control as part of the evidence to grant Building Regulations approval for zero carbon performance in Part L 2016.

### How would Building Control work with the proposed Allowable Solutions framework?

The extent to which Building Control would need to work with the proposed Allowable Solutions framework would be limited. The proposed framework's 'back office' processing and administration functions will release an Allowable Solutions Certificate which will be the evidence required for approval of this element of Part L.

If the development complies with all other requirements, but fails to have demonstrated (through an Allowable Solutions Certificate) that it has accounted for carbon savings emissions required by Allowable Solutions, the building will, within a certain time-limited period, be deemed as having not complied with Building Regulations. It is recognised that there is a complication surrounding the variable extent of Allowable Solutions likely to be needed for different dwelling types and also in situations where the full amount of Allowable Solutions are not required. Hence there could be training issues to address in these areas, though overall the impact on 'business as usual' is expected to be light.

#### Summary of Building Control interaction with the framework



## 10.5 How central Government might be involved

In order for the proposed Allowable Solution framework to work successfully in practice the role of Government could be significant.

### **Setting and enforcing the 'rules of the game'**

Like any market, the Allowable Solutions framework will require a clear set of rules, including a clear definition of additionality, which are both widely understood and enforced. These rules could be contained within an Allowable Solutions Guidance Document which could act as a single reference point for all market participants. As well as giving guidance on the overall rules, Government may also want to take a lead in considerations over how the Allowable Solutions market is regulated, what kind of independent market regulator would be most appropriate, and whether regulation could be achieved by a new body or by expanding the remit of an existing organisation.

### **Setting a price for Allowable Solutions and defining a national menu of acceptable options**

A clear, single price for Allowable Solutions is believed to lie at the heart of a workable framework. Without a national price, developers will not be able to plan for further development and this will destabilise the future deliverability of new homes. The proposed framework requires a universal market price ceiling across Routes A and B which could be based on the price of CO<sub>2</sub> modelled within the May 2011 recent Zero Carbon Homes Impact Assessment. Government may wish to reserve the right to alter this price in time, however, market participants will require early warning as to when such a price change may occur, perhaps in line with each Carbon Budget period (see 2008 Climate Change Act).

Setting the parameters of what could constitute an Allowable Solution as well as providing a 'default' list which can be selected from by those Local Planning Authorities developing Allowable Solution policies, are both key areas where a number of the stakeholder groups engaged feel that Government has a role to play. As Government policies to reduce carbon emissions tend to be typically split between traded emissions (for the domestic sector this is emissions from electricity), and non-traded (gas and other fuel use). Some of the sectors which are currently excluded from the EU ETS include:

- Small emitters (installations where emissions of CO<sub>2</sub> are less than 25,000 tonnes per year and they have a rated thermal input of below 35MW)
- Hospitals
- Installations using 97 per cent or more biomass (fossil fuels may be used for start-up and shut-down)

These therefore remain possible options for Allowable Solutions without double counting of emissions reduction under the EU ETS. In addition, district heating pipework, energy storage, demand side management interventions, road and rail transport and embodied carbon is not included either. So, alongside improving housing stock to increase efficiency, a range of Allowable Solutions funding could also be used for projects in a local authority area, including greening transportation of local municipal fleets or public transportation. Therefore, whilst Government may not wish to prescribe specific options, it may be helpful to prospective market participants for Government to suggest some 'Allowable Solution' families that are deemed as acceptable. In addition, prescribing a consistent carbon reporting methodology will also be a key intervention that Government could make.

### **Guidance for Local Planning Authorities on determining Allowable Solutions policies**

Another role that Government may be required to play is in providing guidance to Local Planning Authorities on how best to develop Allowable Solutions policies. A steer on how Local Planning Authorities can effectively relate their developing policies to the forthcoming National Planning Policy framework would be an example of the kind of guidance that might be needed.

# 11 Conclusions and recommendations

## 1 Key processes and structural elements of the framework

This framework, which has been generated and refined at bilateral meetings with stakeholders, and which was widely supported at the Framework Development Workshop in May 2011, is offered as a synthesis of currently accepted views on what would constitute a robust framework for the delivery of Allowable Solutions. Overall it was judged to incorporate all the essential process steps and to meet the key principles that were thought by stakeholders to underpin a successful framework.

To be successful, the following key framework processes and structural elements were considered essential.

**1.1** Local Planning Authorities should have choices for establishing a policy within their local plan which would set out local priorities for carbon emissions reductions, possibly with associated Allowable Solutions projects.

**1.2** Where Local Planning Authorities **have** developed an Allowable Solutions policy, they can invite developers to contribute to the local Community Energy Fund and leave the liability for delivery of Allowable Solutions to the Local Planning Authority. However, to ensure a competitive market, developers will also be free to contract with Third Party Allowable Solutions Providers to deliver their Allowable Solutions, though projects must match up to a list approved by the Local Planning Authority (which may draw inspiration from a nationally approved list of 'default' Allowable Solutions options).

**1.3** Where Local Planning Authorities **have not yet developed** an Allowable Solutions policy **or have opted out** of developing one, developers will be able to secure Allowable Solutions competitively via a Private Energy Fund. These Allowable Solutions may not have a local context.

**1.4** An independent Verification and Certification Scheme must be established. This scheme will ensure that Allowable Solutions projects are robust in terms of their ability to deliver particular carbon emissions savings and that they are physically delivered on the ground. This Scheme will be core to the framework, issuing credits in advance of completion of an Allowable Solution project and approving the release of funds at agreed points. It will also release Allowable Solutions Certificates of Compliance to support Building Regulations Part L compliance.

**1.5** An independent and secure Allowable Solutions Fund Holding must be established. Via the Allowable Solutions providers, the Fund Holding would receive the payments from developers. Funds would be released when key delivery milestones are reached as determined and identified by the Verification and Certification Scheme.

## 2 Completion of this Consultation - Urgent

The framework, which has been consolidated and simplified in response to the industry consultations so far, should be reviewed more widely, in particular by the Planning, Developer and Building Control communities, to ensure that there is wide acceptance of the recommendations and that any residual issues related to the workability of the framework are identified, and any appropriate amendments to the framework given due attention. Such a consultation should be conducted urgently, perhaps aiming to complete this by Autumn this year, as part of the further development of Government policy in this area.

## 3 Further Consultation

Subject to there being no significant un-resolvable concerns about the broad structure of the framework, a number of key additional consultations will also need to take place, starting towards the end of 2011.

**3.1** It is important to further test the appetite within the finance communities for the concepts of both 'Community Energy Funds' and 'Private Energy Funds' which are set out in this report. In particular to check the strength of their inclination to provide debt finance to either and the risks they would perceive. However a recent discussion with the Co-operative Bank's Head of Social Banking indicated that such an appetite may exist. Early engagement with the Financial Services Authority would be required to establish which body might be best placed to regulate the establishment, ethical behaviour and performance of both types of funds.

**3.2** Also important is the establishment of terms of reference and operational management of the proposed Verification and Certification Scheme. Various models exist, however developing a scheme that is low in complexity and high in assurance will be vital and will be key in the credibility of the Allowable Solutions market.

**3.3** Finally the development of the Fund Holding organisation and how this is integrated with the Financial Sector, and particularly the Green Investment Bank, needs to be examined.

#### **4 Timing**

In the light of the proposals in this framework, the Zero Carbon Hub and its collaborators should review the Allowable Solutions Timeline as soon as possible and make recommendations for the timing of work to consolidate the framework and put the sequence of key events and stages on a formal basis.

#### **5 Simplicity**

When the framework proposition was presented to the Workshop participants in May, the principle that achieved the least highest (but significant) scores was 'Simplicity'. The Zero Carbon Hub has reviewed feedback in this area and has responded by clarifying further the language used, the graphics showing the process and has also streamlined and clarified the process in terms of information flow between parties and across the funding mechanism. It is recommended that evaluating the clarity of the framework is given particular attention during any ongoing review process.

#### **6 Further questions for consideration**

A number of questions emerged during bilateral exchanges and the May Workshop. It is recommended that each of these merits consideration in future consultation exercises.

##### **6.1 What price of CO<sub>2</sub> should be set for Allowable Solutions and should it be a maximum price**

The recently published impact assessment which sets out the evidence and argument for the implementation of a new definition of zero carbon homes<sup>14</sup> adopts the average discounted abatement cost of non-traded carbon which is £46 per tonne per year based on current figures from the Department of Energy and Climate Change as a price for Allowable Solutions. This will be set as an upfront cost for the cumulative value of the carbon emitted from a house in present value terms over 30 years.

Feedback received from those within the developer community point to the importance of setting an affordable, defensible price of CO<sub>2</sub> which is fixed and therefore represents a 'price ceiling'. The rationale offered as to why this would be necessary is that a 'variable' price of CO<sub>2</sub> will make it impossible for developers to plan their strategic land purchases and determine the most appropriate mix of dwellings for land already acquired, and it is argued that the uncertainty created by a variable price does risk destabilising the whole development process. Therefore, the proposed Allowable Solutions framework explored in this report functions under the premise that a national fixed ceiling price of CO<sub>2</sub> is set which governs both 'Route A' – the Local Planning Authority route and 'Route B' – the private market route.

Setting a fixed market ceiling price not only provides certainty to all market participants, but it also, subject to early warning being provided to the market, provides Government with a 'marker they can move' subject to macroeconomic influences on national or even global carbon prices in the future. However, a key question remains as to **whether the market will need a floor price**. In relation to this question, a clear answer did not emerge from either the bilateral discussions nor the stakeholder workshop. Nonetheless, the rationale for this could be to avoid the price of carbon being lowered to a point in some local areas where it does not reflect its 'true' cost to society. This is clearly a decision that would need to be made with context of the broader direction of travel for energy and climate change policy.

<sup>14</sup> <http://www.communities.gov.uk/documents/planningandbuilding/pdf/1905485.pdf>

## **6.2 What should constitute an Allowable Solution and what definition of ‘additionality’ should be applied?**

During this report the subject of what should constitute an Allowable Solution and what definition of ‘additionality’ should be applied has been discussed at length. The proposed framework would very much depend on some guidance being provided as to what constitutes an Allowable Solution, primarily to ensure that funds are always invested in suitable projects. Within such guidance a clear, consistently-applied definition of ‘additionality’ will be crucial and to some extent this definition would actually set the scope for what could count as an ‘Allowable Solution’. This is a critical area where market guidance is required and where the Government might wish to take an active role.

## **6.3 Who should verify the amount of CO<sub>2</sub> unabated, should it be Building Control, the Local Planning Authority or another body?**

The proposed framework for Allowable Solutions introduces the notion of an Allowable Solutions Verification and Certification Scheme as a co-ordination hub for certification, verification and assurance for all participants. The intention is not for this scheme to reinvent the wheel, nor redefine existing interfaces which have become part of the ‘business as usual’ process of designing, constructing and approving new homes – the expectation is that it will be built around existing schemes. However a decision is needed over **who** verifies that the amount of CO<sub>2</sub> required to be abated through Allowable Solutions has actually been achieved.

The proposed framework seeks a way forward for this by providing certification to developers upon receipt of payment, which can therefore be submitted to Building Control (and form part of the array of documents required for the post completion assessment and approval of the dwelling). For simplicity, the proposed framework ‘de-couples’ the building control process from the verification of actual carbon savings delivered through Allowable Solution payments. Nonetheless, the proposed framework is centred on the production of an audit trail linking a payment with resulting action. To do this, a unique payment reference number will be generated (which will live with the ‘certificate’ provided to the developer) to provide a link to the action taken forward using that payment. Whilst on the face of it this might sound complex to achieve, in information system terms this could be fairly straightforward to achieve as it is just a question of tagging future action with the unique payment reference number, and the process could be operated within a single database managing payment transactions and carbon reporting, operated through the Allowable Solutions Verification and Certification Scheme. Nonetheless, it is clear that further work, starting with the development of a requirements specification would be required, which will very much be influenced by possible policy decisions regarding the certification and verification of Allowable Solution funded projects.

## **6.4 When will Allowable Solutions have to be paid?**

For simplicity it is suggested that the payment process should be linked closely with the existing Building Control procedure and, for fairness to all parties, makes a clear distinction between the point of contract and the point of payment. It is therefore suggested that when the final SAP calculation is submitted to the Local Planning Authority, according to Building Regulations (clause 27) within five days of completion, the cash payment for Allowable Solutions becomes immediately due. This amount may be different to the original as-designed SAP amount, for example because of design changes or actual airtightness test results.

The Allowable Solutions payment should be made within an agreed time after which, non-payment would result in the dwelling being declared non-compliant with Part L. It is suggested that checking Allowable Solutions payment is made part of the conveyancing procedures.

However, a key issue that would need to be addressed relates to the 'synchronisation' issue of when payments are made by developers versus when payments are required by Allowable Solution Providers. Whilst, as proposed in the framework introduction, the Allowable Solution Credit notes could partially overcome this issue, there may be a need for the Allowable Solution Fund Holding to be primed with capital that could be paid back over time when 'real money' is paid. There are a number of possible options that related to how the Fund Holding could be capitalised upfront to allow the market to function and be paid back over time.

#### **6.5 Should developers be able to recover Allowable Solution payments if they have overprovided or the projects that they fund 'over deliver'?**

The proposed framework has been designed in such a way to positively encourage the funding of cost effective carbon saving projects which could over-perform during lifetime, therefore exceeding the initial carbon emission abatement obligation which they were deployed to resolve. Therefore, a key policy question arises here in relation to how and if developers who's investment in Allowable Solutions have created a 'carbon emission windfall' can claim these surplus emissions as credits to use on other sites. Furthermore, where a developer contracts with a Private Energy Fund which takes on the liability of providing Allowable Solutions, and the project investment decisions made by the Private Energy Fund yields profits, should the developer be awarded a 'carbon dividend' which relates to the size of their payments to the fund, i.e. should they be able to lay claim to a % share of the profits generated from an investment, in a way similar to preference shares?

A further related question concerns how to deal with variable performance of Allowable Solutions allocated to different sites built by the same developer. Would they be able to claim 'carbon credits' when emissions reductions are better than anticipated? This leads to an additional question which relates to possible instances where a developer, courtesy of a site's characteristics, is able to outperform Building regulations in carbon abatement terms and whether a developer can claim credits for a particular site's over-performance? Such 'Carbon Credits' could be usefully deployed on other sites within their portfolio.

#### **6.6 Should Allowable Solution Credits be time-barred and what should happen if they are not spent?**

This is a key question that arose through the bilateral discussions and within a number of groups at the stakeholder workshop. There was some consensus around the need to set a time limit for the life of Credit Notes issued to either Community Energy Funds or Private Energy Funds: opinion ranged from between 3 and 5 years after issue, with the rationale being that this would provide a motivation for funds to quickly deploy resources to realise carbon savings. However, in the event that credits were not cashed it was suggested that the capital could be reassigned to new projects by an Allowable Solutions Fund Holding 'Expert Panel' and administered through a tendering or 'bidding' process. Nevertheless, key policy questions exist around this particular subject.

#### **6.7 What should happen if either a Community Energy Fund or Private Energy Fund went into administration? Who is liable?**

This is a challenging question, however in theory and in the context of the proposal on which this report is based, the ultimate back stop could be the Allowable Solutions Fund Holding, which would have the ability to re-invest the capital which has been ring fenced for particular projects. Possible reallocation of these funds could be made by an 'Expert Panel' via a tendering process.

# Glossary

**Additionality** A key concept in carbon accounting, which assesses whether a carbon-saving project or scheme is truly additional and would not otherwise have happened – it's thought likely to be a key criteria in the acceptance of Allowable Solutions.

**Allowable Solutions** A project or scheme which will deliver verifiable carbon savings and meet additional national acceptance criteria. On-site, near-site and off-site projects may qualify for inclusion on Government and National lists.

**Allowable Solutions Certificate of Compliance** A certificate that will be issued by the Allowable Solutions Verification and Certification Scheme to the developer/housebuilder. It will show how much carbon the developer has abated through investment in Allowable Solutions. This certificate will be part of the evidence needed for Part L 2016 (Zero Carbon) Building Regulations approval.

**Allowable Solutions Fund Holding** A secure repository for all Allowable Solutions payments. Funds for particular Allowable Solutions projects will be ring-fenced and released when key verifiable stages are reached in the development of an Allowable Solutions project.

**Allowable Solutions Project Database** A National project database, operated as a not-for-profit organisation, where carbon-reduction project developers could register 'shovel ready' schemes which they are in need of funding for. There would be a small fee charged for assessment of a project against Government acceptance criteria for Allowable Solutions.

**Allowable Solutions Provider/Funder** An organisation that will enter into an agreement with a developer and, for an agreed price, take liability for the specific amount of carbon emissions that the developer specifies. May be a Community Energy Fund, a Third-Party Provider or a Private Energy Fund.

**Allowable Solutions Supplier** A company with management responsibility for the establishment, maintenance, ongoing performance and administrative management of one or more Allowable Solutions projects.

**Allowable Solutions Verification and Certification Scheme** This will provide coordinating administration of the Allowable Solutions framework. The Scheme will validate carbon-savings for particular Allowable Solutions, release Allowable Solutions Credits and Allowable Solutions Certificates of Compliance, and authorise, at verifiable points, the release of funds from the Allowable Solutions Fund Holding.

**Community Energy Fund** A fund that will sponsor projects included in a list prescribed by the Local Planning Authority. It would be set up under a series of Nationally-agreed operational and financial rules. It would be able to accumulate Allowable Solutions payments to enable the funding of larger projects, and would be able to pool funds with other Community Energy Funds to deliver 'larger than local' projects. These funding bodies would be aiming to secure additional investment funds from senior debt providers.

**Credits** These will be released to Allowable Solution Providers as assurance that funding for a project will be forthcoming. Their role is to give Providers evidence of funding in the pipeline, which can be used to give confidence to others that might want to provide partnership investment in a particular Allowable Solution project or project family.

**Mezzanine finance** Generally subordinated to debt and provided by senior lenders such as banks and venture capital companies, and is usually unsecured debt or preference shares offering a high return with a high risk and ranked behind secured debt but ahead of equity. It may act as an 'equity cushion' to attract other forms of financing to a project such as senior debt, which is the role Allowable Solutions payments play within this framework.

**Private Energy Fund** A privately managed fund that will sponsor projects not constrained by geography. It would be set up under a series of Nationally-agreed operational and financial rules. It would be able to accumulate Allowable Solutions payments to enable the funding of larger projects, possibly identified via a tendering process or selected directly from the National Allowable Solutions Database. These funding bodies would be aiming to secure additional investment funds from senior debt providers.



**ZERO CARBON HUB**

**LONDON OFFICE**

62-68 Rosebery Avenue  
London EC1R 4RR

**MILTON KEYNES OFFICE**

NHBC House, Davy Avenue  
Milton Keynes MK5 8FP

T 0845 888 7620

F 0871 813 0569

[info@zerocarbonhub.org](mailto:info@zerocarbonhub.org)

[www.zerocarbonhub.org](http://www.zerocarbonhub.org)