

Mapping of current activities

Draft 3, June 2009

Aim & objectives

To identify and examine existing programmes that are working towards low carbon communities, covering research, guidance & implementation tools and building projects that are underway or already built.

The objectives of the mapping were:

1. To search for clear, strong visions of low carbon communities and a plan of how to achieve these, either as a newly-built development or an adaption of an existing community.
2. To find evidence from buildings and from existing communities, especially about carbon targets and to see if and how this evidence was disseminated and used.
3. To seek schemes that took quantified targets and offered a means to developers or community leaders to replicate this success in their community.
4. Finally we sought Learning networks, toolkits, design guides or route maps and other learning tools and guides.

Approach

Our intention was to categorise the projects in two ways:

1. Research, guidance, tools, policy and other activities
2. Projects that involve building (buildings that have been, are being, will be or might be built)

For the research/guidance activities, these were then further divided between the headings

- A. *vision*,
- B. *evidence base*
- C. *implementation tools/ guidance*

The description of each research/guidance project (over), begins with an indication of whether that project involves the collection of evidence, production of guidance and the passing on of learning. In terms of evidence, we were looking for quantitative measures of the success of the project in achieving a low carbon community. An initial carbon footprinting exercise, though producing measurable results has not been included here unless the process was repeated in order to judge the success of the project.

The building projects have been divided between the headings of *new* and *existing*. Those labelled *existing* is concerned with attempts to take existing communities and changing those to produce lower CO₂ emissions.

Summary findings – research & guidance

Research & guidance activities fall into 3 categories:

A. vision	B. evidence base	C. implementation tool/ guidance/ learning
<p>Transition Pathways to a Low Carbon Economy</p> <p>Forum for the Future – Low Carbon Living 2022</p> <p>One Planet Living – WWF + BioRegional (specifically Sustainability Action Plan for Sutton)</p>	<p>CHaMSpaM</p> <p>CityForm</p> <p>Community Energy Initiatives: Embedding Sustainable Technology at a Local Level</p> <p>Carbon Reduction in Buildings (CaRB)</p> <p>Local Government Association Climate Change Commission final report</p>	<p>Cornwall Sustainable Energy Partnership</p> <p>BRE/ASC – Low Carbon Development Guide Documents</p> <p>Government Planning Documents, especially Planning Policy Statement – Planning and Climate Change – Supplement to PPS1 environment’</p> <p>CABE + TCPA – ‘Sustainable energy by design’</p> <p>Carbon Trust – Low Carbon Cities Programme (LCCP)</p> <p>CABE – ‘Sustainable design, climate change and the built environment’</p> <p>London Climate Change Action Plan + Mayor’s Energy Strategy</p> <p>Ecotowns</p> <p>Urban Buzz – CLOVIS</p> <p>ASC – Demystifying Climate Change – Practical Responses</p> <p>Sustainable Cities website – CABE</p> <p>Vivacity 2020</p> <p>Carbon Reduction Action Group/ Carbon Rationing Action Group</p> <p>Sustainability Checklist South West</p> <p>SUSTAIN</p>

Summary findings – building projects

We found 6 existing building or community projects and 14 concerned with new building.

New Build	Existing buildings
Carbon Challenge	Transition Towns (400 places!)
Millennium Communities	Ashton Hayes – going Carbon Neutral
Thames Gateway	Manchester is my Planet
Northstowe	Marches Energy Agency
Bedzed	Global Action Plan
One Brighton	Low Carbon Communities Network
Hammarby	
Dongtan	
Freiburg	
Hanham Hall	
Sherwood Energy Village	
Helionix Village	
Rackheath Eco Town	

For each of these projects we tried to ascertain whether they were measuring actual performance, and/or producing guidance, and/or encouraging learning/ implementation/ knowledge transfer. In most cases, it seems that capturing actual performance data is not a high priority, with Global Action Plan projects being the main exception to this.

Section 1: Research & Guidance

A. Vision activities

Transition Pathways to a Low Carbon Economy

<http://www.lowcarbonpathways.org.uk/>

This is EPSRC-funded project being carried about by a number of universities: Universities of Bath, East Anglia, Leeds, Loughborough, Strathclyde, Surrey, Imperial College London and Kings College London. This concerns community on a wider scale, a low carbon society and the delivery of its energy supply, and how the economy, infrastructure and institutions would reach this state. There is nothing on buildings and people.

One Planet Living – WWF + BioRegional

www.oneplanetliving.org

There are 10 goals to be reached to help reach one planet living.

- Zero Carbon
- Zero Waste
- Sustainable Transport
- Local and Sustainable Materials
- Local and Sustainable Food
- Sustainable Water
- Natural Habitats and Wildlife
- Culture and Heritage
- Equity and Fair Trade
- Health and Happiness

These are accompanied by strategies to reach them, on the WWF website

(http://www.panda.org/about_wwf/what_we_do/policy/one_planet_living/about_opl/principles/index.cfm)

One Brighton and One Gallions are two projects with partners BioRegional where the principles are put into practice. One Planet Sutton, through BioRegional and London Borough of Sutton -

<http://www.oneplanetsutton.org/sap> - has a sustainability action plan to promote the 10 goals of One Planet Living. It is an evolving process.

Forum for the Future – Low Carbon Living 2022

<http://www.forumforthefuture.org/lowcarbonliving2022/visions>

Ideas of how we might live in a low carbon society in 2022 are presented to illustrate the change. There is nothing about how we get to this state, except to say that the potential changes in policy, regulations and readily-available technology have been taken into account.

B. Evidence base activities

CHaMSpaM

Looking at governance, culture and space, this is a research network, funded by EPSRC. The studies are based on eco-cities in China and the UK. It is one of EPSRC's Dongtan Sustainable City Networks

www.dongtanepsrc.org.

Ian Cooper is involved in this project.

www.space.bartlett.ucl.ac.uk/chamspam

City Form

www.city-form.org

The work measures the urban form – metrics include typologies and connectivity indicators. 15 case studies are being used. These are in Edinburgh, Glasgow, Leicester, Oxford and Sheffield. The urban form is looked at against various measures of sustainability. For example, an existing output is [a](#) report on how energy use is related to number of bedrooms of a room, home-working and the use of advanced heating controls.

A goal of the project is to produce guidance but none is yet evident.

Community Energy Initiatives: Embedding Sustainable Technology at a Local Level.

<http://geography.lancs.ac.uk/cei/communityenergyproject.htm>

This project is part of the ESRC Sustainable Technologies Programme (STP). It is academic research concerned with how energy is delivered to communities. It does not deal with the wider questions of a low carbon community.

Carbon Reduction in Buildings (CaRB): A socio-technical, longitudinal study of carbon use in buildings

CaRB is a research programme aiming to reduce the emissions from building stock in the UK. Megan McMichael delivered a presentation called "Think global, act local: social capital and the diffusion of energy efficiency innovations within communities" at The International Social Capital and Networks of Trust Congress (ISOCA), University of Jyväskylä, Jyväskylä, Finland, 18-20 October 2007. This seems to be concerned with communities addressing carbon dioxide emissions. Unable to find a related publication. The rest of the programme seems to be concentrated on buildings

Local Government Association Climate Change Commission final report

www.lga.gov.uk/lga/publications/publication-display.do?id=20630

This evaluates the behaviour of local government, and makes recommendations to help act against climate change and instigate adaption to climate change.

C. Implementation tools/guidance/ learning

Cornwall Sustainable Energy Partnership

<http://www.csep.co.uk/>, www.ascskills.org.uk/pages/awards08/low-carbon-development

CSEP has a strategic steering group that has written an Energy Strategy for Cornwall, including 32 actions

Vivacity 2020

www.vivacity2020.eu

The result of this 5-year project is a set of case studies and a toolkit for sustainable urban design. There is no mention of minimising the carbon footprint of the community or improving the energy efficiency of the buildings and infrastructure.

Urban Buzz – CLOVIS (Closing the gap between Vision and Implementing Sustainable Communities)

<http://www.urbanbuzz.org/scommunities/showFundedProject.do?id=4>

www.aylesburyregeneration.org.uk, www.bathwesternriverside.co.uk

CLOVIS project seeks to share information between two regeneration projects with sustainability aims and provide useful lessons to similar future projects. The projects are the regeneration of a brownfield site in Bath, and one in Southwark, which is the improvement of an existing housing estate. The latter seems to have energy efficiency as a goal and this is progress of this is reported on. There is no mention of monitoring post occupancy. The Bath project is being built by Crest Nicolson with advice from Camco: <http://www.camcoglobal.com/>.

Ecotowns

www.communities.gov.uk/housing/housingsupply/ecotowns/

This document describes the Government's concept of an eco-town and the standards it would have to meet: 'eco-towns: Sustainability Appraisal and Habitats Regulations Assessment of the Draft Eco-towns Planning Policy Statement':

<http://www.communities.gov.uk/documents/planningandbuilding/pdf/ppssustainabilityappraisal.pdf>

There are no details of how to design the towns to meet the standards; no technology recommended or detailed either.

CABE + TCPA – 'Sustainable energy by design'

www.tcpa.org.uk/downloads/TCPA_SustEnergy.pdf

This is a design guide for putting sustainable energy into a development. There are case studies and recommendations, for design at different scales: homes, street, district, city. Information included is on increasing energy efficiency and introducing renewable energy generation. There is a lot of practical advice and case studies.

CABE – 'Sustainable design, climate change and the built environment'

<http://www.cabe.org.uk/publications/sustainable-design-and-climate-change>

This document describes what CABE will do to achieve the incorporation of sustainability into new plans. It is a document for key players in design and planning. It is an expression of policy and expectation

London Climate Change Action Plan + Mayor's Energy Strategy

<http://www.londonclimatechange.co.uk>

Reporting, for progression in London will include

- Annual review of progress against Mayor's Energy Strategy
- London Sustainability Development Commission annual performance indicators
- TfL annual Environment Report, monitoring performance against TfL's environmental performance indicators

The London Climate Change project does not deal with a community approach to reducing carbon dioxide emissions though it offers help to a variety of individuals and organisations.

Government Planning Documents, especially Planning Policy Statement – Planning and Climate Change – Supplement to PPS1 environment'

www.communities.gov.uk/planningandbuilding/planning/planningpolicyguidance/planningpolicystatements/planningpolicystatements/ppscclimatechange/

This Planning Policy Statement (PPS) sets out how planning, in providing for the new homes, jobs and infrastructure needed by communities, should help shape places with lower carbon emissions and resilient to the climate change now accepted as inevitable

BRE/ASC – Low Carbon Development Guide

www.goeast.gov.uk

'Low Carbon Development in the East of England - An Introductory Guide for Planners and Councillors'

This is a publication that outlines what sustainable development is and provides link to other pieces of information and advice, including a toolkit, the Inspire East Excellence Framework: <http://www.inspire-east.org.uk/welcome.aspx> The emphasis on low carbon character is in the Development Guide and not in the Excellence Framework.

ASC – Demystifying Climate Change – Practical Responses

<http://climatechange.hcaacademy.co.uk/home/practical-responses>

This is a website offering practical advice to reduce carbon dioxide emissions in a community. There are a lot of links to other organisations but there is not a lot of detail here.

Sustainable Cities – CABE

www.sustainablecities.org.uk/

Carbon Trust – Low Carbon Cities Programme (LCCP)

www.lowcarboncities.co.uk

This is a project funded by Defra and delivered by the Energy Saving Trust and Carbon Trust. The programme is to help cities to reduce carbon emissions. There is a LCCP toolkit to aid participants to set-up and achieve their goals.

Carbon Reduction Action Group/ Carbon Rationing Action Group

www.carbonrationing.org.uk

This is a network of local group promoting carbon reductions and lobbying government for measures at a national level. They use carbon calculators to map their progress and promote awareness. Members also pay for their 'carbon debt' at the end of the year.

Sustainability Checklist South West

www.checklistsouthwest.co.uk/

This is an online tool designed to help developers, local authorities and any other interested parties to build a development. Anyone can register and answer questions that will assess the sustainability of a development. Questions are asked under the following headings:

- Climate Change and Energy
- Community
- Place Making
- Transport and Movement
- Ecology
- Resources
- Business
- Buildings

SUSTAIN

www.dongtanepsrc.org/networks_sustain.html

Also part of EPSRC Dongtan Sustainable City Networks, this team looks at the changes in infrastructure required to support the behaviour adaption that will lead to sustainable living. Particularly, it is concerned with how implementation of this can be transferred between cities. Workshops have been held and other activities used to share information, particularly between the UK and China.

Section 2: Building Projects

A. New Buildings

Carbon Challenge, Homes and Communities Agency, (since 01/12/08, previously English Partner)

www.englishpartnerships.co.uk/carbonchallenge.htm

www.homesandcommunities.co.uk/carbon_challenge

collecting evidence	
producing guidance & tools	
learning transfer	

The homes in each project must achieve Code for Sustainable Homes level 6. There will be integrated infrastructure.

Millennium Communities Project, English Partnerships/ Communities and Local Government

www.englishpartnerships.co.uk/millcomms.htm

collecting evidence	
producing guidance & tools	
learning transfer	

The goal of this project was to create 7 exemplar sustainable communities. Each is individually master-planned and designed.

Performance requirements:

- BRE EcoHomes 'Excellent' and BREEAM 'Excellent'
- Reduced energy consumption and embodied energy
- Renewable energy
- Reduced water consumption
- Reduced domestic and construction waste
- Lower defects and snagging items
- Improved noise reduction
- Better space standards in line with Scheme Design Standards
- Affordable housing
- 'A' rated white goods
- Car clubs and cycle facilities
- Sustainable building materials
- Lifetime Homes and Secure By Design
- Improved site health and safety
- IT enabling

According to Stephen Hill, these were not identified as low carbon communities. However, this project is now part of the Carbon Challenge.

The projects underway are, and some of them have a particular theme that they are to highlight:

- Greenwich Millennium Village, London
- Allerton Bywater Millennium Community, near Leeds
- New Islington Millennium Community, Manchester – urban design
- South Lynn Millennium Community, King’s Lynn - high quality in public realm + community integration
- Telford Millennium Community – life-long learning
- Oakgrove Millennium Community, Milton Keynes
- Hastings Millennium Community – integrated transport

Thames Gateway Eco-Region

<http://www.communities.gov.uk/thamesgateway/crossgovernmentpriorities/ecoregion/>

collecting evidence	
producing guidance & tools	
learning transfer	

The prospectus describes a vision for this area to be redeveloped.

Northstowe - Gallagher Estates, English Partnerships, CABE, Arup Associates

www.northstowe.uk.com, www.cabe.org.uk/default.aspx?contentitemid=2374,
www.englishpartnerships.co.uk/northstowe.htm

collecting evidence	
producing guidance & tools	
learning transfer	

There are energy efficiency targets, improved energy efficiency through CHP+cooling, possibly local generation and community-owned energy provider company. Plans for transport include space designed around public transport availability, neighbourhood provision of shops, services and employment areas.

One Brighton - BioRegional Quintain

www.onebrighton.co.uk

collecting evidence	✓
producing guidance & tools	
learning transfer	

A development designed to aid sustainable living, including a car club and gardens.

BedZED – BioRegional, Bill Dunster, Peabody Trust

www.bioregional.com/bedzed

collecting evidence	✓
producing guidance & tools	
learning transfer	✓

This is an eco-village built in south London. It consists of 100 homes, community facilities and workplaces and has had residents since March 2002. There is a car club and a CHP system was built though it does not work as planned.

Hammarby, Stockholm, Sweden

www.hammarbysjostad.se

collecting evidence	✓
producing guidance & tools	✓
learning transfer	✓

Hammarby is a suburb of Stockholm. It is designed to work by the Hammarby Model. This is an integrated model to deal with energy, water and waste. There are strategies to change habits. For example, beautiful cycle paths, car pools and high quality public transport are provided to encourage less use of private cars. There is a policy for all materials used, including recycled, restricted use of copper, limited use of newly extracted sand and gravel. There is also campaigning on issues. For example, inhabitants were encouraged to stop using toothpaste containing triclosan. Measurements of its concentration in the used water were made later to find it had decreased.

To optimise energy consumption, there is solar energy, district heating and cooling, and use of combustible waste to generate. The collection of waste is automated with chutes directly to the processing facility.

The houses are smart houses, with double-glazing.

Dongtan, China

<http://www.dongtan.biz/english/> www.arup.com/eastasia/project.cfm?pageid=7047

collecting evidence	✓
producing guidance & tools	✓
learning transfer	✓

The Chinese government has announced that it will built a number of eco-cities. As the name implies, there are much larger than any ecotowns that exist or are planned for Europe. Dongtan is the first of these and planned to provide for 500,000 inhabitants. The plans for Dongtan include local power generation through solar, wind, bio fuel and recycled waste. There will be car parks on the edge of the city where residents will leave the cars while in the city and able to use the public transport provided there.

There is a provision of farmland in order to provide local food.

Transport solutions include a network of cycle- and footpaths

Freiburg, Germany

showcase.hcaacademy.co.uk/case-study/ecotowns-freiburg-germany.html
www.guardian.co.uk/environment/2008/mar/23/freiburg-germany-greenest-city

collecting evidence	✓
producing guidance & tools	✓
learning transfer	

Two areas of Freiburg were regenerated. One, Vauban, was army barracks; the other, Rieselfeld, is built on the site of sewage works. Both projects emphasised energy efficiency and a reduction in car usage. The whole of Freiburg was rebuilt following great damage in the Second World War and there had been a tendency towards environmentally conscious building there since the 1970's. The two developments proceeded with great commonality but the focus of each was different. Vauban was built to use as little non-renewable energy as possible; Rieselfeld was to provide better neighbourhoods for families. At Vauban, there is some **measuring** as part of a project from the Öko Institut, Germany (www.oeko.de/service/cities)

Hanham Hall, Bristol

www.englishpartnerships.co.uk/hanhamhall.htm

collecting evidence	
producing guidance & tools	
learning transfer	

This is the first of the Carbon Challenge winners. There is an existing, listed building that is Hanham Hall itself. This will be redeveloped for businesses. Around this, the new development will be built. There seems to be strong emphasis on measuring the results. All properties will have meter readings collected remotely for energy and water usage. Some properties will temporarily be fitted with metering for separate internal temperature and humidity in various rooms. Water usage in these houses will be distinct for bathrooms, the kitchen and outside use. Hot water and heating will be monitored separately also. The split of electricity use between lighting and small appliances will also be measured. In the Hanham Hall businesses, power usage for lighting, small appliances, pumps and fans will be recorded distinctly.

These Carbon Challenge programmes are at an earlier stage:
 South Bank Phase One, Peterborough
 Brodsworth, Doncaster
 Bickershaw, Wigan

Sherwood Energy Village

www.sev.org.uk/

showcase.ascskills.org.uk/CaseStudies/Manchester/Reference/Default.aspx

collecting evidence	
producing guidance & tools	
learning transfer	

This was a project established to revitalise a closed mining village. A brownfield site has been regenerated with new low carbon homes and business space. Both were built with 'green technologies', including ground source heat pumps, wind turbines, solar power supplies.

Upton Sustainable Urban Extension

showcase.ascskills.org.uk/CaseStudies/Upton/Overview/Default.aspx

collecting evidence	
producing guidance & tools	
learning transfer	

This is a housing project for Northampton. It includes a community hall and primary school, and a few commercial properties for local shops and cafe. The homes were built to EcoHomes Excellent in early stages and Code for Sustainable Homes 3-4 in later stages. Public transport links to the town centre and train station are provided.

Helionix Designs, Vision Innovations Village Design

www.helionixdesigns.co.uk

collecting evidence	
producing guidance & tools	
learning transfer	

According to Stephen Hill, Helionix are designing a low carbon village.

Vision Innovations is also a founding member of Carbon Free Group: www.carbonfreegroup.co.uk.

Useful contact for this project was suggested by Stephen Hill as Alistair Gould

alistair@helionixdesigns.co.uk. He suggests there will be building of negative carbon homes in which carbon is sequestered.

Rackheath Eco-Community

www.rackheatheco-community.com

collecting evidence	
producing guidance & tools	
learning transfer	

This is one of the proposed eco-communities. It has been awarded Grade A status by the Government.

The intention is that it is a low carbon community, built to highest environmental standards and it will act as an example of best practice for future developments.

Friends of the Earth Get Serious Campaign

www.foe.co.uk/campaigns/climate/get_serious/info.html

collecting evidence	
producing guidance & tools	✓
learning transfer	

Friends of the Earth are encouraging councils to reduce their carbon dioxide emissions by 40% by 2020, suggesting that this would further benefit their citizens by creating local jobs, cutting fuel bills and boosting the local economy. There is an online petition. The campaign is supported by the following organisations: Chartered Institute of Environmental Health, Environmental Protection UK, and Unison. They have published *Create jobs, save cash, cut carbon - A guide for local government* and a longer report *Getting serious about climate change -how local government can cut carbon, create jobs and save cash*.

B. Existing Buildings

Transition Towns

www.transitiontowns.org

collecting evidence	
producing guidance & tools	
learning transfer	✓

The organisation provides a way of acting to become a low carbon community. These are the '12 Key Steps':

1. Set up a steering group and design its demise from the outset
2. Awareness raising
3. Lay the foundations
4. Organise a Great Unleashing
5. Form sub groups
6. Use Open Space
7. Develop visible practical manifestations of the project
8. Facilitate the Great Reskilling
9. Build a bridge to Local Government
10. Honour the elders
11. Let it go where it wants to go...
12. Create an Energy Descent Plan

There is also training and information available to aid the process.

Ashton Hayes – Going Carbon Neutral project

www.goingcarbonneutral.co.uk

showcase.ascskills.org.uk/CaseStudies/AshtonHayes/Reference/Default.aspx

collecting evidence	
producing guidance & tools	
learning transfer	

This is a local project to make a small village carbon neutral. The activities have included a survey to measure household emissions and tree planting to offset. Funding has been received to spread the method to other communities in the UK.

Manchester is my Planet

www.manchesterismyplanet.com

showcase.ascskills.org.uk/CaseStudies/Manchester/Reference/Default.aspx

collecting evidence	
producing guidance & tools	
learning transfer	

The scheme asks residents to pledge to help reduce the emissions of Greater Manchester by 20% by 2010. The local council and businesses are working on various schemes to reduce carbon dioxide emissions, including the 'Circle of Wind' which is a number of wind turbines surrounding the conurbation.

Marches Energy Agency in partnership with Shropshire Country Council

lowcarboncommunity.org/

collecting evidence	✓
producing guidance & tools	
learning transfer	✓

The project has three bases, one in Ellesmere, one in Cleobury Mortimer and the third is the "Floodplain Community", which is a collection of small villages and farmsteads near to Oswestry. There was an aim to reduce carbon dioxide emissions by 5.88% by April 2009. All members of the community could be involved as energy efficiency plans were drawn up for householders, businesses and community buildings, and small renewable energy schemes put in place. A league table is kept to compare the carbon dioxide savings in the different locations and in different sectors of the community. It not clear how the figures in this league table are obtained. However, the document here: <http://lowcarboncommunity.org/involved/>, suggests that Wattsons were used and monthly monitoring was undertaken.

Global Action Plan

<http://www.globalactionplan.org.uk/>

collecting evidence	✓
producing guidance & tools	
learning transfer	✓

The Global Action Plan promotes local 'Ecoteams' who act to improve behaviour and spread behavioural improvements in the local community. Surveys are carried out at the start of a project and then later on. The surveys are used to establish changes in behaviour and attitude, and written with the New Economics Foundation. The behaviour aspect covers transport use and switching appliances off, for example. There is an emphasis on quantifying improvements by measuring. This includes web-based data collection from EcoTeams, producing household reports. For energy, this is made up of meter readings for gas and electricity, usually on a monthly basis. Results are published for electricity consumption, overall heating consumption, and carbon dioxide emissions from direct household energy consumption.

There has been an academic study undertaken by the University of East Anglia – ‘PROMOTING DURABLE CHANGE IN HOUSEHOLD WASTE AND ENERGY USE BEHAVIOUR’, by Dr Michael Nye and Professor Jacquie Burgess and published in February 2008.

Low Carbon Communities Network - Eco-Renovate Project

<http://lowcarboncommunities.net>

collecting evidence	
producing guidance & tools	
learning transfer	✓

This is an organisation formed to link and support communities trying to become low carbon. They are currently promoting eco-renovate through. This aims to encourage individuals to lower the carbon footprint of their own homes by improving their make-up and using microgeneration. They are planning on using their network to organise events, disseminate information, and run open-house events.