LOW CARBON LIVING

POWER TO MAKE IT POSSIBLE

LOW CARBON WEST OXFORD

Low Carbon West Oxford is a company limited by guarantee,
incorporated in England and Wales, registration no. 06907815,
and a registered charity, incorporated in England and Wales, registration no. 1135225
Registered address: 22 Oatlands Road, Oxford OX2 0ET

West Oxford Community Renewables Limited is an Industrial and Provident Society for the Benefit of the Community, registered in England and Wales, registration no. 30711R
VAT Registration no. 994 8081 66
Registered address: 16 Mill Street, Oxford OX2 0AJ

About this publication

This publication is produced by Low Carbon West Oxford (LCWO) and West Oxford Community Renewables (WOCR). [www.lowcarbonwestoxford.org.uk and www.wocr.org.uk] and with input from the law firm Blake Lapthorn [www.bllaw.co.uk].

It's purpose is to share our approach to low carbon living with other communities, practitioners, and policy-makers. We are still at the beginning of our story, with various aspects of our work not fully implemented or tested, but we hope reading our story will be helpful to those starting on a similar journey.

Acknowledgements

Our achievements to date have been possible because of the inspiration, drive, dedicated work, and support of the following people and organisations:

WOCR Board

- John Boyle, Ruth Finar, Barbara Hammond, Saskya Huggins, Malcolm McCulloch, Lois Muddiman.

LCWO Board

- Hugo Crombie, Ruth Finar, Saskya Huggins, Richard Mann, Ruth Mayne, Fran Melvin, Lois Muddiman, Anthony O' Rourke, Flora de Ospina, Helen Reid, Ruth Stavris, Susan Hutchinson (and previous committee members: Sarah Dyer, Sue Moore and Bob Summers).

Project Lead for Big Green Challenge (BGC) and the Low Carbon Communities Challenge (LCCN) – Barbara Hammond.

Advisors – Becky Buell, Barbara Hammond, David Hammond, Susanna Pressel, Paul Robinson, Athene Reiss.

West Oxford residents – project participants, volunteers, members, and supporters, and shareholders.

In January 2010 the West Oxford model came fourth out of 350 entrants in The Big Green Challenge national climate change competition run by the National Endowment for Science, Technology and the Arts (NESTA) and received an award of £100,000 which was shared between WOCR and LCWO. The model was also one of 22 winners in a grant programme run by DECC (Department for Energy and Climate Change). WOCR received an award of £803,000 in 2010.

We are very grateful to both NESTA and DECC for this funding and see this publication as contributing to the wider public good from the money we have received.

We would also like to thank:

- WOCR's shareholders;
- Our other funders or sponsors – Mid-Counties Cooperative, Oxford City Council, Community Action Groups (CAG) Oxfordshire, Oxfordshire Community Foundation, SEEDA, West Oxford Community Association;
- Our partner organisations – Aldi, Corpus Christi College, 2Degrees, Environmental Resources Management, Environment Agency, Forest of Oxford, The Kings Centre, Matthew Arnold School, Oxford City and County Councils, West Oxford School.

Finally, we would like to thank Low Carbon Wolvercote for inspiring us with the idea of creating a low carbon community in the first place.

Climate change

There is scientific consensus that the world is warming and that it is very likely (meaning a greater than 90% chance) that it is caused by human activity. While there is not complete certainty about the speed or extent of climate change, it is expected that as global temperatures rise, increasingly extreme and erratic weather will result in increased flooding, droughts, and disruptions to food supplies. Energy security is also predicted to become an increasing problem dwindling stocks of fossil fuels are depleted, and energy prices rise. According to the Stern Review (HM Treasury, 2006), the scientific evidence shows that a 50% global reduction, and a 60% to 80% reduction in rich countries' greenhouse gas emissions, are needed by 2050 to reduce the risk of the world suffering the most serious consequences of climate change. Poor countries and people tend to contribute least to climate change because of their low consumption patterns, but often suffer the worse consequences. In the UK, for example, the poorest communities emit less than half the CO_2 per capita of richer communities[1] yet suffer some of worst impacts in terms of higher fuel bills, colder homes and worse health.[2]

[1] Hard to Reach: Diversity and the Environment: Maria Adebowale and Chris Church, Capacity Global, www.capacity.org.uk
[2] Stop Climate Chaos, 2010 Lobby Pack

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Summary

Many people are concerned about climate change but feel powerless to do anything about it. They may wonder whether their individual actions will make a difference, or feel confused about what action to take. Our community set up Low Carbon West Oxford (LCWO) and West Oxford Community Renewables (WOCR) to make low carbon living possible.

We have developed the following ways to encourage people to take action on climate change:

- *Productive giving* – shareholders money is invested in renewable energy projects and then used over and over again for community benefit, as well as providing a modest financial return;
- *Practical action* - our Low Carbon Living programme, Quicksilver Carbon Footprinting tool and other community projects, offer practical, easy and fun ways for people to reduce their carbon emissions and energy bills;
- *Shared learning* – we share our learning with other communities through mentoring and training programmes.

Our approach:

- *Generates a double carbon cut:* firstly from the generation of renewable energy; and secondly by using the revenue stream from the renewables to fund further low carbon living and behaviour change projects in the community;
- *Creates community benefit* - by energizing people to work together to reduce their carbon emissions, creating community assets and income and generating other social and economic benefits such as reduced energy bills;
- *Supports low carbon living beyond West Oxford* –by sharing our learning with other communities and policy makers.

Our community has been able to make relatively quick progress in West Oxford. Not everyone will want to do everything we have done or act on the same scale, and it is important that communities carefully assess their own resources and capacities for action. But there are some general lessons that we think might help others in the early stages of setting up a community low carbon project. These include:

- *A focus on practical action:* many people in our community were already environmentally aware so we have focused primarily on enabling practical action, rather than simply awareness-raising. We support and encourage people to reduce their carbon emissions but let them decide what actions they will take. We have been surprised by how motivated and energized people become when they have an opportunity to take practical action.
- *Mobilising community resources:* We have drawn together and built on the existing social, intellectual and financial resources in our community, and channeled them towards the goal of low carbon living. We were fortunate to have a relatively active community, with strong leaders, and local experts who were prepared to give generously of their time. We issued our own share offer to mobilize finance. All these types of resource have helped; none would be sufficient on their own.
- *Engaging the whole community:* We have a positive vision and see climate change not just as a threat but also an opportunity to build a more sustainable and cohesive

community. We seek to engage the whole community, and share the socio-economic benefits throughout the community, rather than focusing on specific groups such as households with high emissions or the 'already green'. We let people decide the extent and nature of their involvement. We have been surprised how much people value taking action as part of a community initiative.

- *External support and partnership:* we couldn't have done what we have all on our own. We have enrolled expertise and funding from, and worked in partnership with, the local council, local business and national government, and others to supplement local resources. We also had a huge slice of luck by being in the right place at the right time to benefit from funding from NESTA's Big Green Challenge and the Department of Energy and Climate Change's Low Carbon Communities Challenge. We believe it is very important that other communities are able to receive the external support they need to develop their projects regardless of the economic climate.

Three major floods in our community between 2001 and 2007 provided an added impetus for action in our community. But you don't need this to mobilize people to take action. We are just one of hundreds of communities that have started on the path to low carbon living in the UK, and around the world. We are just beginning to realize the power we generate when we act together to combat climate change. We hope our efforts, captured in this document, will encourage and support other communities to take action as part of the wider movement to combat climate change.

Residents protesting during 2007 floods.

'Much of our energy for action comes from our passionate conviction that climate change is the most pressing issue facing the world today and that we must all work together to tackle it; rich and poor, north and south together'.

Barbara Hammond, Chair of WOCR

1. Our model

An overview

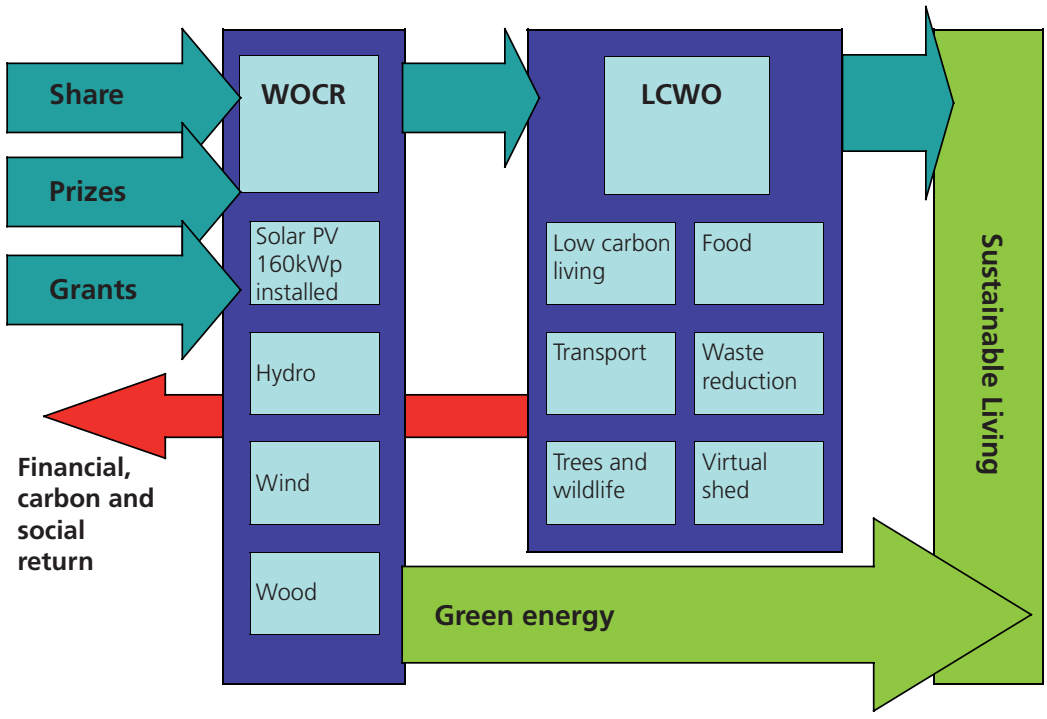
How we operate

We have set up two organisations that share the same overall aim and work closely together to reduce the West Oxford community's carbon footprint by 80% by 2050. These are:

- West Oxford Community Renewables (WOCR), which is an Industrial and Provident Society for the Benefit of the Community which produces renewable energy. (www.wocr.org.uk)
- Low Carbon West Oxford, which is a registered charity, and runs carbon reduction and behaviour change projects in the community. (www.lowcarbonwestoxford.org.uk).

Our model operates in the following way:

- WOCR raises money from a share offer and a mix of government grants and prize money;
- It invests the money in community renewable energy projects based on the natural resources of our area – solar photovoltaic (PV) panels[3] on large roofs, a micro-hydro scheme on the Thames, and small wind turbine projects on surrounding hills;
- It leases the roofs or the land – so far at a peppercorn rent;
- It sells the electricity to the owners of the roof or the land, exports the excess to the Grid and claims the Feed-in Tariff (FiT) for the total amount of energy generated;
- It donates its surplus income to Low Carbon West Oxford (LCWO) to run further low carbon living and behaviour change projects in the community. These include our Low



[3] Solar photovoltaics (PV) are the solar panels that generate electricity. Solar thermal panels heat water for heating and hot water.

'The incredible paradox about climate change is that it simultaneously poses a terrible threat but also an unprecedented opportunity to create a more sustainable and equitable society, and a more fulfilling way of life.'

Ruth Mayne, Chair of LCWO

Carbon Living Programme and Quicksilver Carbon Footprinting Programme for households, and our community food, waste reduction, transport, and tree and wildlife projects.

This model generates a double carbon cut, once through the generation of renewable energy, and then again through community low carbon living projects. This reduces the financial cost of carbon abatement from £300-£400 per tonne to under £20 per tonne. [See supporting document:'Lowering the costs of carbon abatement: calculations showing the benefit of the double carbon cut'].

Generating a double carbon cut

WOCR's current and planned renewable energy includes:

- 220kWp of solar PVs on five large roofs;
- A 49kWe micro hydro (Archimedes Screw) on the Thames at Osney Weir;
- Possible small-scale wind turbines (6kWe) on Cumnor Hill.

These projects will generate around 400,000kWh of electricity and save over 200 tonnes of CO_2 a year.

During 2009-10 LCWO;

- Helped 36 households cut over 140 tonnes of CO_2 through behaviour-change and retrofitting – a 36 % reduction on the previous year's emissions;
- Introduced two Streetcars (a car club) and a Streetvan into the community, which are used by 170 people, cutting 80 tonnes of CO_2 per annum;
- Planted 640 new trees, which will cut 64 tonnes of CO_2 over their lifetime.

Strengthening our community

While our main aim is to reduce West Oxford's carbon footprint, our projects also build community assets and income and generate various social and economic benefits. These benefits are important in themselves, but they also provide an important additional incentive for people to take practical action and change their behaviour:

- Since their inception LCWO has engaged 270 volunteers, members and supporters, and 95 households in its Low Carbon Living Programme and WOCR has attracted 90 shareholders;
- WOCR's installation of solar PVs on local council housing will mean low income households benefit directly from discounted green energy;
- LCWO's projects help local households save money through reduced energy bills and get access to council and government grants – in 2009 some households cut their year's bills by around £200.
- Between them WOCR and LCWO are increasing local skills – by providing training to local people e.g. in carbon foot-printing; have created two part time jobs; and are increasing demand for local builders and installers.

We try and ensure that all the residents in the community have a chance to participate in and benefit from our projects.

Enabling low carbon living beyond West Oxford

As well as making change happen in our community we are:

- Helping other communities to take action (as we have learnt from them);
- Influencing government policy by helping identify practical and policy barriers to action and offering practical and innovative solutions to climate change.
- Helping create a public mandate for government action, alongside the hundreds of other low carbon communities.

Our Governance

We considered various governance options, including becoming a Community Interest Company (CIC). (See Annex 2 on alternative legal forms). We eventually decided to set up two separate organizations. Although this adds an extra administrative burden it allows WOCR to offer anyone in the world a chance to invest in its renewable energy projects, while allowing LCWO to focus on working with, and for, the benefit of, West Oxford community.

The links between LCWO and WOCR are fundamental to our model and to our working. However, the separation between the two organisations is very important for the bodies who regulate us. We have a Board of Trustees running LCWO under the regulation of the Charity Commission, and a Board of Directors running the WOCR Industrial and Provident Society under the regulation of the Financial Services Authority.

We balance these competing requirements in three ways:

- We have two posts linking the Board of Trustees of LCWO and the Board of Directors of WOCR;
- We have a Commercial Participators' Agreement governing the way WOCR may use the LCWO name in marketing its share offer, and the royalties it will pay LCWO in return;
- We have a Memorandum of Understanding governing the size and timing of donations from WOCR to LCWO.

Representatives from the two Boards have regular coordination meetings to discuss operational issues, with any substantive issues referred to the respective Boards.

LCWO – the charity

LCWO started as a community association governed by written constitution. However, as its income grew we realised we would need to obtain limited liability. We chose to do this by transforming it into a charity because:

- This would help build and maintain the community's trust in LCWO – this is important to us because we want people to participate in, and volunteer on, our projects:

- It would mean we were exempt from income, corporation, investment and other taxes (as long as the proceeds are applied to charitable purposes), and would be able to reclaim tax back on donations from WOCR and through gift aid and on tax paid on bank account or building society income.

Some of the benefits and restrictions that we have experienced of being a charity are outlined in the box below.

LCWO supporters posing for press photo.

Benefits

- Limited liability for Trustees as against third parties
- Strict rules on public benefit increases public trust
- Enables access to a wide range of government and other grants and income such as lottery funding
- Tax exemptions and reliefs available to charity including tax free trading activities related to charitable aims
- Tax incentives available to individual donors using gift aid, salary sacrificing or leaving gifts by will and corporate donors through corporation tax relief
- Creates a separate legal entity which can hold property and enter into contracts in own name

Restrictions

- Can be time-consuming and onerous to register
- Heavier reporting requirements than some other legal forms
- Must comply with Companies Act and Charity law
- Activities must not generate private benefits, and trustees must not benefit materially
- No share capital so can not raise funds through equity issue
- Campaigning activities must adhere to certain criteria

Source: Blake Lapthorn

WOCR – the IPS

In 2009 Low Carbon West Oxford set up WOCR as a separate Industrial and Provident Society for the benefit of the community to raise money and develop the renewable energy projects.

We decided to set up an IPS because it would:

- enable us to issue a share offer to raise finance for the renewable projects and apply for public grants and grants from charitable trusts;
- allow LCWO to remain a community-owned organisation: LCWO membership is free and open to anyone living in West Oxford, whereas the WOCR share offer is open to anyone whether or not they live in West Oxford, and membership is available only to those who can afford to buy shares (although the minimum block of shares is currently set very low at £10).

We chose to become an IPS for the benefit of the community, rather than for shareholders because:

- more of the income from renewables could be reinvested in LCWO's projects, rather than flowing out to external shareholders:
- it has a democratic membership structure – based on one member one vote, rather than the size of shares;
- it requires light touch regulation and verification of our share offer involving minimal time and expense - although it **must** be verified to be legal.

Features of an IPS for the benefit of the community

- democratic membership structure – based on one member one vote
- asset lock: if it is wound up and its assets are sold, the profits are not shared out amongst the shareholders but must be given to a charity or organisation with similar objectives
- the maximum investment by any individual is £20,000
- share capital is not transferable, only withdrawable: this means that shares cannot be traded or increase in value; shareholders can only take out the money they put in
- no dividend can be paid, only an annual payment that is like the interest payable on a loan. This payment must be in line with current interest rates

Our rules

Our specific IPS Rules are based on those developed by the Wessex Re-Investment Trust, but other models are available. Wessex offers a service where it does the registration process on your behalf for a very reasonable fee (www.wessexrt.co.uk).

Our share offer

We are trying to break new ground with the West Oxford model by balancing the profit motive with community benefit in a new way.

Our share offer provides financial, social and environmental, returns.[4] Investing in WOCR therefore involves both a philanthropic and commercial reward.

- The financial returns are modest: WOCR is not expected to make interest payments for the first five years. Thereafter, it is expected that a rate of up to 5% will be paid depending on WOCR's performance.
- The environmental and social benefits will be achieved through WOCR making donations to advance LCWO projects (see section on LCWO projects).

We have used the phrase 'productive giving' to describe the offer; a single investment in WOCR will result in at least 25 separate donations to the LCWO charity over the lifetime of the renewable energy installations. Shareholders' money therefore works really hard, giving a continuous benefit to the community and a small annual financial return to the shareholder.

We have managed to raise £30,000 from the share offer to date, with minimal effort and marketing (see section on Finance below). But the feedback on the share offer to date has been mixed.

Balancing the benefits

It has been not been easy balancing the financial, social, and environmental benefits of the share offer. Negotiating the offer was a difficult but constructive process. Some people involved in the planning wanted a purely commercial offer which would be attractive to potential shareholders on economic grounds alone. Others wanted a purely philanthropic offer offering only environmental and social returns, with no financial return. We ended up by offering a modest financial return alongside promised social and environmental returns.

The offer has not been fully tested as we have not yet had time to market it properly. But the feedback on the compromise we have reached to date has been mixed – and we are currently reviewing our share offer to see what, if any, revisions it might need to help communities like ours raise larger sums of money.

This issue is covered in more detail in the section on Finance below. We are still working through how to account for the carbon and social returns to investors, i.e. to make explicit to them what 'profit' their investment has achieved in each of the three areas.

[4] The content of our share offer is based on a number of other offers we found when trawling the Web, including one produced by H_2OPE for the Torrs New Mill hydro project and others produced by Wessex.

Structure and ways of working

LCWO and WOCR have different structures and ways of working.

LCWO's structure

Overall structure	• A flat, bottom-up structure to encourage participation, ideas and innovation from local residents, and to provide a coordinating mechanism for various community environmental initiatives
Governance	• A 12-person Co-ordinating Committee which meets bi-monthly • A small executive group to ensure smooth day-to-day running of the organisation which meets weekly • Individual project working groups which decide how often they meet
Board composition	• A coordinating committee consisting of seven Trustees and normal officers, the convenors of the 5 project working groups, an external communication officer and a volunteer coordinator • Two of the Trustees are also directors of WOCR • Some Trustees play both an executive and non-executive role
Supporters and members	• 240 voting members and supporters • 20-30 active volunteers

WOCR's structure

Board	• A Board of 6 directors, two of which are also trustees of LCWO
Board composition	• The Board includes people with relevant expertise ranging across: technical and research; business development; fund-raising; finance; renewables and community development. It has a Chair and a Treasurer but as yet no other named positions. We are reviewing this to make it fit for purpose as we grow. • WOCR is developing a clear distinction between executive and non-executive roles with contracts and service agreements governing each respectively. This will both protect the postholders as they will know what they are signing up to, and shareholders because it will enable them to hold postholders to account more easily.
Membership	• 90 voting shareholders

Getting organised

Underpinning every successful organisation are sound administrative and financial systems, procedures and policies (and of course the people to carry out the functions). The work may not be as glamorous as the front-line activities but is really crucial. The issues that LCWO and/or WOCR have had to consider include:

- Ethos and ways of working e.g. for LCWO this included, inclusiveness, learning culture, valuing different contributions, delivering on commitments, etc;
- Governing documents;
- Group and management structure;
- Roles and responsibilities;
- Volunteer recruitment, management and support;
- Policies, e.g. ethical and reputational policy, project approval, procurement policy, conflict of interest policy;
- Annual planning, budget/business planning, and periodic strategic reviews;
- Accounting, cash flow forecasting, bank account; co-signatories; petty cash;
- External communication, e.g. website, telephone number, updates and newsletters;
- Internal communication, e.g. email protocol, distribution of meeting minutes;
- Public liability insurance, property insurance, officers insurance, employers insurance;
- Management and administration of shareholders, supporters, membership (and data protection policy), mailing-lists.

Our Finance

Generating a sustainable income

We recognised early on that in order to achieve a significant and sustained impact, the community would need a predictable source of revenue to support our work over the next 40 years. This would also let us concentrate our efforts on cutting carbon emissions rather than fundraising, help reduce reliance on unreliable sources of grant income, and help us avoid the volunteer burn-out so common to many community groups.

Developing renewable energy projects seemed like a good way to achieve this because it would enable us to earn revenue and achieve a double carbon reduction from generating renewable energy and then from investing the profits in further carbon-reducing projects in the community.

Our original financing plan was developed before the introduction of the Feed-in Tariff. We had planned to raise finance for renewables from government grant programmes – in particular the Low Carbon Building Programme and the Community Sustainable Energy Programme (CSEP). In that context, our revenue stream would have come from selling the electricity and from the Renewables Obligation[5]. But State Aid rules were restricting our access to government grants, and the credit crunch meant public funding was going to become even scarcer.

On the positive side, in 2010 the government introduced a legally binding carbon reduction target and a commitment to introduce a Feed-in Tariff. It was at this point that we saw the possibility of developing a 'social' business model – financed in part by a share offer – to generate clean energy helped by the financial incentive provided by the Feed-in Tariff.

The feed-in tariff

As from 1st April 2010, the Department of Energy and Climate Change (DECC) introduced a system of feed-in tariffs (FiTs) to encourage small-scale (less than 5MW), low carbon electricity generation, including Wind; Solar Photovoltaic (PV); Hydro; Anaerobic digestion; Biomass and biomass combined heat and power (CHP); and Non-renewable micro-CHP.

The FiT works by putting a legal obligation on utilities and energy companies to purchase electricity from renewable energy producers at a premium price per unit.

The tariff rates are a set at a level which guarantees investors an approximate rate of return of between 5-9% over 25 years for well-sited installations.

The favourable tariffs, plus the guaranteed access to the grid, make renewable energy production a secure investment for the producers, manufacturers, investors and suppliers. The cost of the tariff is paid

[5] The Renewables Obligation pays a premium on renewable electricity through certificates that energy suppliers obtain to show that renewable electricity has formed a given percentage of the electricity they have supplied. The percentage is set periodically by Government and the Renewable Obligation Certificates are traded and so the price varies according to the market. This incentive is really intended for very large installations, such as offshore wind, and the price generators get per kWh is much lower than that offered by the FiT.

for by consumers through higher energy bills. A Renewable Heat Incentive (RHI) to encourage deployment of renewable heat technologies is also under consideration.

Capital

At the time of writing – September 2010 – we have raised nearly £1m from a mix of:

- **Low cost bridging loans** – from a local benefactor and from the council to help with cash flow;
- **The IPS Share Offer** – we issued our share offer on 12th July 2009 and we now have nearly 90 shareholders and have raised more than £30,000;
- **Government grants** – against the odds our major funding turned out to be grant of £800,000 from the Low Carbon Communities Challenge (LCCC), a programme run by the Department of Energy and Climate Change (DECC), which we received in January 2010. The Government also gave the LCCC communities a special dispensation in terms of State Aid, allowing them to benefit from both the grant and the FiT. This is possible because we are a research project and because the revenue we receive is spent on additional carbon reduction projects;
- **Prize money** – we were a runner up in NESTA's Big Green Challenge competition and won £100,000 in early 2010.

The government grant enabled us to get up and running more quickly, and on a much bigger scale, than would have been possible otherwise.

Revenue stream

We are using this capital to develop over 230kWp of solar PV and wind projects (see section on Generating Renewable Energy). The revenue is generated by:

- Selling electricity generated by renewable energy installations to local landowners/ landlords with the excess exported to the grid. (See section on WOCR's Renewable Energy Projects);
- Claiming the Feed-in Tariff (F¡T) for total energy generated (see box below).

Return

The box on the next page shows the possible financial return on a 50 kWp solar PV.

Local shops in West Oxford.

Possible return from a 50kWp PV on a Commercial building

	Energy	Cost
Performance per year	850 kWh/kWp [1]	
Reduction for downtime	0%	
Total annual generation	42500 kWh	
Capital Expenditure		
PV system	50 kWp	
Price per kWp ex-VAT		£3500
Professional fees		
– legal		£3000
– planning [2]		£500
– building regulations [3]		£500
Total		**£179, 000**
Price per kWp		£3580
Income per year		
UK FiT 2010/11		£0.314 [4]
Sale of electricity [5]		£0.100
Total income		**£ 17595**
Operational Expenditure		
Insurance		£500 [6]
Maintenance		£500
Total per year		**£1000**
Surplus		**£16595** [7]

Table notes:

(1) This performance is the figure we expect in Oxfordshire. It will be less as you travel north and more as you travel south. It is dependent on the weather in any particular year, for example August 2010 was a very cloudy month and generation was down against forecast by about 20% for that month.

(2) The General Permitted Development Order may be revised soon so that non-domestic buildings no longer require planning permission.

(3) Some Local Authorities require this and some do not.

(4) The FiT rate is linked to the Retail Price Index so it will increase every year – a conservative rule of thumb is 2%. So, the 31.4p/kWh is guaranteed for 25 years and it will increase by RPI every year.

(5) We are assuming a commercial warehouse building where all the generation is used on-plot and loads are such that no electricity is exported.

(6) Much the cheapest option is for the building owner to add the installation to their insurance. Otherwise, quotes should be sought early because the insurance industry is not yet well-prepared for projects where the roof is leased rather than owned.

(7) The financing cost of loans or equity will need to be paid back from the surplus, unless the money to pay for the installation is all raised at no cost. Equity of at least 30% is needed to make the project generate enough surplus to reinvest in community projects.

We now also have a good understanding of start-up costs for the WOCR IPS. [See supporting document: Financial model and start up costs]. We also have an emerging understanding of what level of donations LCWO needs from WOCR to support its on-going work in the community. [See supporting document: Outline LCWO budget]. To reduce overheads we operate virtually rather than through a physical office and hold meetings at the local community centre or in people's houses.

Our resources

We have built our model by joining together and building on the resources within our community and by enrolling external support where needed.

Social resources

Our most important resource has been people. LCWO and WOCR have been almost totally reliant on volunteers in the initial years. Crucially, we have a core group of around six people who have been willing and able to put significant amounts of voluntary time into the projects on a regular basis. Interestingly, they have been mainly women, some employed, some self-employed and some full-time carers. The voluntary time given by LCWO's coordinating committee and WOCR's Board, and those of a wider group of active volunteers in the community, has also been crucial. Although many of our projects will continue to rely on volunteers, both LCWO and WOCR have employed a part-time Executive Officer to take some of the burden off core volunteers and free them up to focus on project development.

Volunteers

We want to ensure we make the most of our volunteers, and support them so LCWO is seeking to:

- Develop a database of volunteers' interests and skills;
- Develop a volunteer charter which outlines LCWO and volunteer expectations;
- Offer training where needed and possible e.g. in carbon footprinting;
- Offer support and feedback to volunteers where appropriate.

It was very helpful that we already had a pretty good community spirit and strong local leaders. This gave us a head start in terms of community engagement. One person had spent ten years as Chair of the Local Community Association helping to build community interaction. Another had been the driving force behind Osney Island Sustainable Group which had generated much of the thinking behind our overall model. Another had been Treasurer of another local environmental group called Waste Watchers which had 60 members; and another had been Chair of the Parent-Teachers Association of the local school.

The establishment of LCWO provided a way for these and other groups to join together to create real critical mass and momentum These social resources are critical to our success and we try to keep broadening our relationships and networks (see section on Community Engagement).

Intellectual resources

Oxford is clearly a place where you would expect to find a dense crop of experts and we probably have more than our fair share in West Oxford, who have contributed generously to both WOCR and LCWO. Our core team includes people with strong and complementary skills and experience in such areas as low carbon housing, renewable energy, finance and administration, communications, community engagement, design, marketing, etc. More widely we draw on a whole range of other skills in the community including: waste reduction, transport, planning regulations, food, architecture, tax law, business experience and so on. We would not have been able to develop our model without the generous contributions of local experts, but we hope that other communities will now be able to benefit from this expertise through this publication and the web resources supporting it.

External support

Where necessary, we have supplemented local resources with external support. This was particularly true in the area of finance (see section on Our Financial Model above), but also in some specialist technical areas. We have also collaborated with a range of individuals and organisations at local and national level on various aspects of our work including: local charities, local schools, Oxford university, our local councillor and MP, the City and County Council, Environment Agency, local business (including the local Co-operative store, local legal, accountancy, and PR firms); national government and NESTA.

LCWO and WOCR partners and sponsors.

Individual projects have been obvious candidates for partnership working. For example, our local tree-planting project drew on volunteers from Low Carbon West Oxford, the local primary school and the Woodcraft Folk. Financial support and help with design was given by the Forest of Oxford. The City Council made sure that agreements for planting on council land were quickly forthcoming.

Making use of existing advice and support

In Oxfordshire, we have a thriving network of community action groups with a green/sustainable living agenda. There is a central (very small) team of officers who give information and support, organise training and guide new groups called Community Action Groups(CAGs). They are funded by the County Council, and each member group can get an annual maintenance grant of £200, very cheap public liability insurance plus the opportunity to bid for special project funding. (www.cagoxfordshire.org.uk/).

Learning

In sum the following things have been helpful in developing our overall model:

- Having a core group of people who:
  - have the time, expertise, and enthusiasm to drive the initiative forward
  - are able to form a good working team;
  - already have strong links to local networks and involvement in different aspects of the community;
- Building on and joining together the social, intellectual and financial capital in our community;
- Enrolling additional external support where we needed it – whether financial, or technical. – We have been surprised how much free help people have been prepared to give;
- Having a clear governance structure;
- Having a clear business plan and financial model to support our work in the future.

We are still working through the following issues:

- Having two organisations makes it difficult to describe the overall model and tell our story simply.
- We need to be very clear about the balance of benefit between different stakeholders. If we offer too much of a financial return to shareholders, LCWO will not receive as much revenue to support its work and building owners might well start to expect us to pay some rent for their roof or land. We also need to make sure that our work truly benefits the whole community and keep reaching out to those sections of the population, particularly those in fuel poverty.
- We will need to consider the balance of benefit as we think about scaling up our social enterprise. Should we develop lots more renewable energy projects in West Oxford and grow our income stream using a mix of equity and debt finance to do so? Or should we be satisfied with the renewable projects we have already installed and put all of our effort into using the income to achieve our objective of sustainable living by 2050 in West Oxford? And if we do decide to develop more projects, what is the mix of finance we should go for?
- We are very aware that a slight downside of getting our big grant from the LCCC and the work involved in spending it has meant that our focus has been taken away from properly marketing and testing our share offer which we are now focussing on doing.

What we wish we'd known before we started:

- The pros and cons of different possible legal forms, and combinations of different forms;
- The need for a clear separation of executive and non-executive roles, particularly in the Charity so that people can get paid for their work where necessary and appropriate;
- Getting the IPS VAT-registered very early – it's a slow and complicated process and creates cash flow problems;

- The need to plan cash flow very carefully and get an overdraft in place, although banks won't lend unless you've been trading for three years;
- How difficult it is to find out about sources and cost of insurance. Our PVs were placed on other people's buildings. Ideally, owners would insure the installations themselves but they're not always keen to do this because of the complexities and the cost. To our knowledge, the Kings Centre was the first example in the country of 3rd party insurance, so there was no guidance and we spent a great deal of time sorting it out ourselves;
- That things take much longer than you think they will, and the worst sometimes does happen;
- It is possible to get pro bono advice but you need to be prepared to pay for really specialised help.

Electricity pylon in West Oxford

2. Our projects in West Oxford

People need both compelling reasons and opportunities to take action.[6] In our community there was already quite a high awareness and concern about climate change, in part because of local flooding. Wider opinion polls also suggest that the majority of people – around 70% – are concerned about climate change: but that a significant group – 30-50% – feel there is little or nothing they can do about it.[7] So rather than focussing primarily on awareness-raising we have developed a range of practical community projects to make carbon living easy and fun for people.

WOCR's renewable energy projects

Introduction

The Feed-In Tariff (FiT) offers an important opportunity for communities to generate clean green electricity because it pays a favourable and guaranteed price for the renewable electricity generated. This increases the return on investment, reduces the payback period, and allows a business case to be developed that is attractive to investors and lenders. And if the income is re-invested in further community climate change projects, it can produce a double carbon cut from a single investment, as well as other social benefits.

However, one downside of the FiT is that it has a regressive impact on low-income groups.[8] We all pay for it through slightly higher energy bills and this has a bigger impact the lower someone's income is. For us, this means that the community approach is even more important, because we can try and ensure that benefits from the FiT are shared among different sections of the community, including those living in fuel poverty. We try and do this by installing PVs on social housing and providing tenants with discounted electricity, and by reinvesting the FiT income in LCWO's community projects.

The combination of the double carbon cut and our ability to spread the benefit right across the community means that our approach is much better value for all our money than the increasing numbers of schemes offered by commercial companies. These offer free electricity at no up-front cost for the householder – which seems like a great deal

> *'Being involved with WOCR and LCWO has meant I can address global climate change by acting locally, take action rather than just talk about it, and feel a part of the community'*
> Ruth Finar, WOCR and LCWO linking director

[6] Marilyn Taylor & Dianne Warburton, (2002), Legitimacy and the role of the UK Third Sector Organisations in the Policy Process, International Journal of Voluntary and Nonprofit Organisations, Vol 14, no 3.

[7] An Ipsos Mori poll surveyed 1,822 people across England, Scotland and Wales. from January to March 2010. It showed showed that most people (71%) remain fairly or very concerned about climate change, but between 30-50% felt there was little or nothing they could do about it.

[8] Another criticism sometimes levied at the FITs is that electricity generated from renewable energy is very expensive compared to fossil fuels. However, electricity from fossil fuels does not include the high costs of pollution and climate change, and are often subsidized. Moreover, the price of renewables is expected to come down as bigger markets drive technological innovations.

until you realise that the company gains far more than it has given away, paid for by consumers, for many years after the initial 10-year payback period. [For further detail and a calculator to make sure you go for the right deal see the Centre for Sustainable Energy's website at www.cse.org.uk].

As well as increasing the impact of investment, a community-led approach can sometimes also help people to accept new renewable energy projects because they can have a stake in them.

Our approach

WOCR's aim is to use as many of our local resources as possible to generate renewable energy.

Assessing our natural resources

Our choice of renewable energy projects was based on an assessment of the resources we have in our area. You can see a detailed step-by-step descriptions of the project development stages and the business cases on our website. [See supporting document: Renewables step-by-step project planners].

Site on river Thames for micro hydro

- The river Thames runs through our area, with Osney Lock, where there is a weir with a change of level. A site assessment showed that the head height was just enough to make a micro hydro scheme viable. The photograph shows the site where the micro hydro will be developed. We are aiming for construction of the micro hydro and associated development in the summer of 2011.
- We have an industrial estate and a retail estate with big, simple roofs, many of which face south. We are installing 220kWp of solar PVs:
  - 100kWp on three roofs at Matthew Arnold School – the largest PV array on a school in the country;
  - 52kWp on the Aldi store in the Botley Road retail estate;
  - 42kWp on The King's Centre, Osney Mead Industrial Estate;
  - 10kWp on social housing owned by Oxford City Council;
  - 10kWp on a local church
- There is a ridge to the west where the National Wind Energy Database shows that wind speeds are enough for wind energy to be viable. We are working through the planning processes to install two 6kW wind turbines there. These are classified as small wind, being 15m tall to hub height.
- West Oxford is strung out across the flood plain of the River Thames and much of our area is still farmland or public open space. Being on a flood plain, the area is good at growing willow and poplar and so we are looking at developing biomass coppice for renewable heat projects.

PVs on local school building.

Raising finance

We raised money to develop the solar PV and wind projects through a combination of prize money from the NESTA Big Green Challenge, the Low Carbon Communities Challenge (LCCC) and our share offer. In total we have raised nearly £1m and are developing over 230kWp of solar PV and wind projects. (See section on Our Finance for further information).

Reducing cost and risk

We concentrated on developing solar PV projects in the first instance because the planning and feasibility stages for solar PV are much shorter and less risky than for other technologies. PV installers will generally do site assessment and scheme design as part of their overall service and there is generally no public objection to planning applications.

Spreading the benefits

We have used the large LCCC grant to pilot solar PV projects on a range of buildings, so that we could see how we might spread the benefit across the community and also develop experience that we could share with other communities:

- The 'not for profit' sector is covered by The King's Centre roofs;
- The commercial sector is covered by the Aldi roof;
- The social rented sector is covered by Oxford City Council housing;
- The education sector is covered by Matthew Arnold School;

These projects are all written up as case studies and available on our website. [See supporting document: Solar PV case studies].

Developing a 'Green Lease'

We worked with Blake Lapthorn solicitors to develop a lease governing the relationship between WOCR and building owners. Key issues covered include:

- Cost of renting the roof (a peppercorn);
- Length of the lease (normally 25 years to cover the guaranteed life of the PVs);
- Electricity price to be charged to the building owner;
- Notice periods;
- Compensation if the lease is terminated early;
- How to deal with damage to the roof during installation of the PVs.

The Green Lease

As the arrangements have to last for 25 years it was necessary to have an arrangement which commits the parties without the need for additional paperwork on each occasion that a property might change hands. Leases were chosen as they are very effective at establishing the basis of relationships between occupiers and owners of buildings and the sharing of risk over extensive periods of time. Each lease has been the subject of separate negotiations and new issues have been identified with each project. In particular issues of compensation for early determination and what to do if there are problems with the roof have had to be considered on each installation. The leases deal with installation and removal at the end of the term of the lease and include rights to connect to the grid and deal with the financial arrangements between the parties. (*Source: Blake Lapthorn*)

Learning from our renewables projects

In sum we think the following factors have been helpful in developing WOCR's renewable projects:

- **Mapping the natural resources in our area** – you can use Google maps to do this;
- **Developing a portfolio of technologies as well as projects:** This is important both to spread risk and to make sure we are covering all seasons of the year. It would be very easy to concentrate on just solar PV, but our long-term aspiration is to balance energy generation and energy use in West Oxford, and so we need technologies that generate during the winter half of the year as well as the summer half;
- **Enabling low income groups to benefit directly or indirectly from renewable projects** – as the FIT is paid for through higher energy prices it is important that some of the income accrues to lower income groups to minimise its regressive impact;
- **Making sure that partners are fully informed about their right to access the FIT themselves:** Our offer to building and land owners, and tenants, sets out clearly what the cost of the installation will be and what the return from the FiT will be so that partners can decide whether to develop projects on their own;
- **Maintaining a clear balance of benefits between different stakeholders:** Building owners understand that our aim is to benefit the community and so they are willing to negotiate terms on the lease that recognise a benefit balanced between their reduced energy costs and our need to generate income for LCWO. Part of the benefit to building owners is also the marketing collateral they get from supporting a community project and greening their own operations;
- **Raising enough money to cover legal and planning issues properly:** There has been much interest in the lease we have developed with Blake Lapthorn – the interest appearing to be based on the presumption

that there is a single pro-forma lease that can be used to cover all eventualities at no further cost. We have experience of working on five different projects now. No lease is identical with any other; the proforma just gives us a common starting-point with each project that reduces the cost of each new contract;

- **Ensuring that roofs are suitable for PVs:** The roofs of commercial buildings are quite often unsuitable for solar PVs even if the orientation is good. This can be because the roof only has a guaranteed life of 25 years or less and may be near the end of its useful life. It is also often because the structure of the roof is not adequate to support the extra weight of the PVs, or because it is made of a material that will not survive being penetrated for the PV fixing. We are increasingly looking for new-build projects, or those where old roofs are being replaced, so that the life of the PVs and the roof will be the same. Tiled roofs are generally likely to last longer than 'crinkly tin' ones;
- **Community ownership and engagement:** Our experience is that many people are very excited by the opportunity to be involved in the development of community-scale renewable energy projects. However, you cannot assume support so it's important to consult early on. Living with them once they are in place is also an important part of starting to understand what a world powered by renewable electricity might be like. Our experience has been that PV and hydro projects are very easily accepted but wind projects are not. We hope that the work we are doing with schoolchildren as part of their science curriculum might provide a model for helping communities to work through issues on wind.

LCWO's Low Carbon Living Programme

As individuals – and households – we all contribute to climate change, yet we often feel powerless to do anything about it. LCWO's Low Carbon Living Programme was created to enable people to take practical action to reduce their greenhouse gas emissions, rather than just feel negative and guilty about it.

27% (144 million tonnes) of CO_2 emissions in the UK result from the energy we use to heat, light and power our homes.

(Source : Energy Saving Trust)

The average per capita CO_2 emission in the UK is around 11 tonnes a year – double the global average.

(Source : LCWO Quicksilver methodology)

Programme objectives

The objectives of our Low Carbon Living Programme are to:

- Increase carbon consciousness – we want to help people become as savvy at making decisions based on carbon costs as financial costs;
- Change behaviour – we want to enable households to turn good intentions into concrete actions that result in a significant and sustained reduction in CO_2 emissions;
- Encourage a lasting commitment - we want householders to see the reduction of their

domestic greenhouse gas emissions as a life-long journey, rather than a quick fix.

Our approach

We provide practical help and support for households to reduce their CO_2 emissions, in a way that matches their interests, needs and resources. We give people the flexibility to participate in a way that fits with their busy lives and need not necessarily require significant financial investment. We also want to demonstrate that the pursuit of lower carbon living can be a positive, financially rewarding and enjoyable experience.

We seek to do this by providing:

- Access to a local trusted source of advice and support;
- Opportunities for people to learn from peers and provide mutual encouragement and support to each other;
- A free choice of what to do based on their own resources of time, money and expertise;
- Expertise from outside the community when it is needed and in a way which puts people in control.

Programme delivery

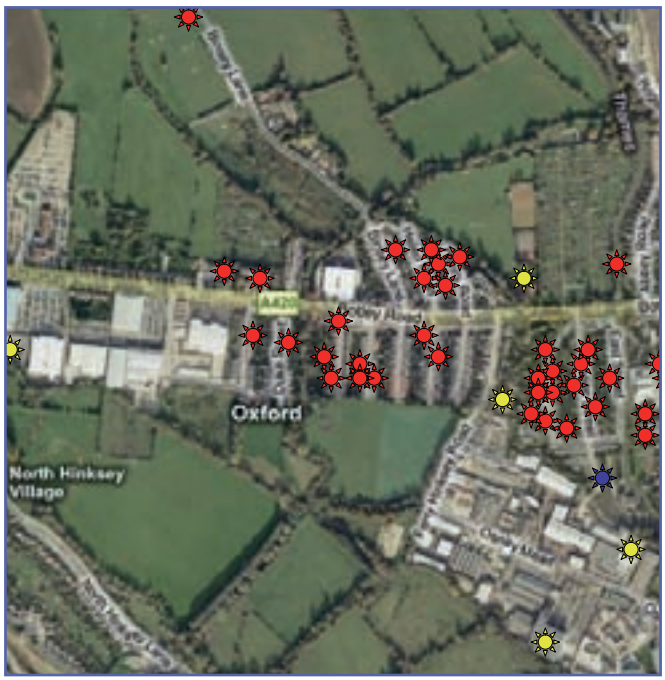
The programme has three key elements:

Measurement

- Carbon Footprints: an in-depth carbon footprint using the LCWO Quicksilver Carbon Calculator is carried out at the beginning of the year to provide a baseline measure for the household. This is then repeated at the of the year.
- Smart Meters: each household is given a smart meter to provide real-time information about the household's energy usage;
- Regular Meter Readings: households take monthly fuel and mileage readings to help them become aware of variations over the year.

'Through my involvement in LCWO and WOCR I have learnt to weigh up the choices I make in my every day life based on their cost in terms of climate change. From our annual holiday destination, to what we're having for dinner - I can now better calculate the true cost of my options in climate terms - and so begin to take control of my family's impact on climate change.'

Saskya Huggins, Low Carbon Living Programme Lead. WOCR Director



Location of the first LCL households

The Quicksilver Carbon Footprinter

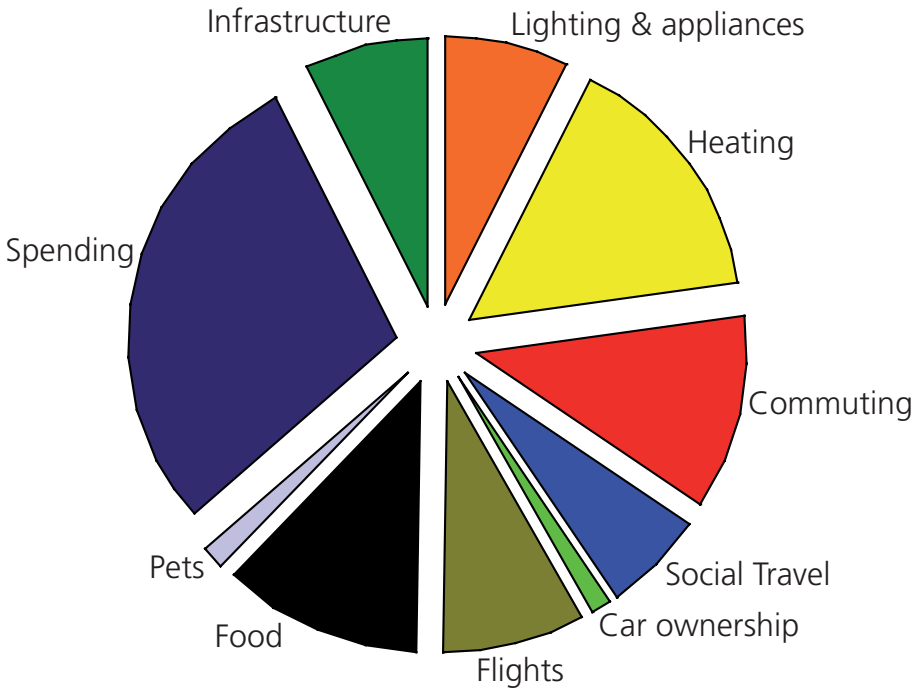
We feel it is important for people to understand the impact that different areas of their life have on their overall footprint, so with financial support from the Oxfordshire Community Foundation, we developed the Quicksilver Carbon Calculator.

This carbon footprinting tool measures the household's total CO_2 emissions - both direct and indirect - as it looks at all aspects of daily life including domestic energy use and travel, as well as dietary and purchasing choices.

A key feature of the calculator is the detailed way in which it presents the results, helping households understand the relative impact of different areas of their life. This in turn makes it easier for people to know where to focus their efforts to reduce their carbon footprint.

As part of the Low Carbon Living Programme, a household's annual carbon footprint is taken at the beginning and end of the year, so the impact of carbon cutting changes made by the household can be seen.

A sample household carbon footprint showing breakdown by activity



'Total household carbon footprint: 23.5 tonnes.

Goal-setting

- Householders set their own goals, pledging to undertake a number of carbon-reducing activities over the year. We provide a list of suggested actions, but which actions they choose to take is entirely down to the household.
- Suggestions actions focus on:
  - o Reducing waste via behavioural changes e.g. short term actions such as switching off lights and appliances, or long term commitments such as stopping flying;
  - o Using energy efficiently via structural changes e.g. switching to energy-efficient light-bulbs, insulating your loft or double glazing.
- Householders are given feedback as to the possible impact their chosen actions might have on their carbon footprint, to encourage energies to be focused on the big wins.
- Throughout the programme, we emphasise the importance of the twin-track approach of preventing energy being wasted and then ensuring what energy we use is used efficiently.

Support

- For each programme we run a series of six 'Carbon-busting' sessions where participants can learn from local experts and share ideas and experiences on appliances and electricity, heating and insulation, travel, waste reduction and composting, food and cooking, and renewable energy.
- We provide an information leaflet on each topic, focusing on queries raised by participants and local support available for West Oxford residents.
- We provide regular communication by email and face to face including meter reading reminders, energy saving tips, footprinting sessions, goal setting, checking on progress, and celebrating successes.
- We keep participants regularly updated about other LCWO activities and support available in the community such as our eco and light-bulb libraries. [See box on Shared Resources on page 35].

Key Resources used to support the delivery of the Programme

Carbon Calculators:	LCWO Quicksilver Carbon Calculator Act on CO_2 calculator
Smart meters:	Eco-eye mini
Books:	*Carbon Counter*, Mark Lynas, Collins Gem
	Carbon Detox, George Marshall, Gaia, Octopus Publishing
	How Bad are Bananas? Mike Berners-Lee, Profile Books
	How to Live a Low Carbon Life Chris Goodall, Earthscan
	Sustainable Energy Without the Hot Air, David MacKay, UIT Cambridge Ltd
Websites:	The Energy Savings Trust www.energysavingtrust.org.uk BBC website "Bloom" microsite

Initial results

CO_2 reductions:

Participants in the first year of the programme achieved a 36% reduction in their carbon emissions – a combined saving of around 140 tonnes of CO_2. Given that many of the structural changes made to houses as a result of the programme were put in place partway through the year, we believe the full impact of the programme on these households to be even more significant.

In addition, we are monitoring changes in the longer term to gauge whether these reductions are sustainable. We are hopeful that this is the case, as 91% of households participating in the Low Carbon Living Programme in 2009 said that they would not otherwise be taking the actions they did, or would be taking only some of them, if they had not been involved in the programme. And 100% of participants said they saw this as a long-term commitment.[9]

The way reductions were achieved varied widely between different households, as these two tables, showing the estimated annual tonnes of CO_2 emissions for two different household, show.

Household A

Table showing estimated annual CO_2 emissions in tonnes

	Gas	Electric	Car	Air	Train/Bus	Food/shopping	Total
2007-8	2.9	1.3	1.46	0.76	0.197	2.6	9.2
2008-9	2.34	1.1	0.37	1.14	0	2.6	7.55

Household A – a single-parent with one child – reduced their gas and electricity usage significantly. They have sold their 'old banger' and are members of a car-sharing scheme. They had a new condensing boiler fitted, plus insulation and thermostatic radiator valves. They undertook 14 different pledges in year one and want to go on next year to do more work to the house with LCWO advice, including fitting solar water heating.

Household B

Table showing estimated annual CO_2 emissions in tonnes

	Gas	Electric	Car	Air	Train/Bus	Food/shopping	Total
2007-8	3.07	2.3	2.64	2.85	0.2	8.0	19.06
2008-9	1.83	1.8	1.66	0	0	5.2	10.49

Household B – two parents and two children- reduced their carbon emissions in all areas significantly by a series of behaviour changes and small changes to their house. They installed secondary glazing with the help of a grant from LCWO. They would have liked to do more but have been adversely affected by the recession so were unable to invest financially in home improvements at this stage. They have changed to a 50% vegetarian diet, started growing their own food and composting their organic waste.

[9] LCWO's winter 2009 survey of LCLP households

What previous programme participants said about the programme:

"I've finally had the chance to put into action all the things I've been meaning to do for so long."

"It was great fun, the whole family got stuck in."

"I originally got involved because I felt it was something I ought to do – I never expected to get so much back from the experience."

"I've saved over £200 simply by changing some of my energy wasting habits round the home."

"I thought I was already quite green, but I've discovered lots of new ways to tread more lightly in the planet."

"I was worried I wouldn't be able to do much, but they let me set my own goals and make changes at my own pace, and I've been amazed how its all added up."

"It's helped me see my lifestyle choices through completely new eyes. It made me realise I can take control of the way my life impacts on climate change."

Social and economic benefits

As well as leading to significant carbon savings, there have been other positive outcomes from the project:

- Significant savings on fuel bills;
- Helping people access Council or Warm Front grants;
- Motivation derived from being part of a successful community initiative;
- Neighbourly support being strengthened as a result of participation in the programme with people getting involved in other community activities, helping each other access jobs and medical help;
- Enhancing volunteers knowledge and skills such as conducting carbon footprints.

Maximising participation

Recruiting participants

In our pilot year, recruitment on the programme was through a mix of general communications, informal networks such as at the school gate, and specifically targeting people to ensure a representative demographic spread of households (social rented/private rented/owner-occupied, white/Asian families/ single people, elderly/young). We aimed for and recruited a total of 36 households in the first year.

In the second year, we delivered a leaflet to every household in the area, followed up by active doorstep canvassing. We also targeted specific sections of the community again. The interest was so high we had to run the programme twice. By the end of year two, over

6% of local households from our community of 1,600 households will have participated.

Reducing barriers to participation

Through consultations with participants and questionnaires we became aware of a number of possible barriers to participation and behaviour change, the most important of which were time and cost. We address these in the following way:

- We offer all households a small grant which they can spend on a wide range of carbon-reducing items or activities, and we highlight the availability of other subsidised services or sources of financial support in the area, e.g. Warm Front or local council grants;
- We also offer small grants for child-care so people are able to attend workshops;
- We offer one-off carbon footprints for people who don't wish to or have the time to sign up to the full Low Carbon Living programme;
- We are flexible with participants who don't have time to attend workshops by spending more time with them during home visits, and providing information through leaflets.

A number of participants predicted that the *biggest* challenge that would prevent them changing behaviour was 'giving up things':

- 'Not being able to buy what we want to when we want';
- 'Getting rid of the car';
- 'Cutting down on car journeys';
- 'Giving up on flights, giving up holidays in the sun'.

We therefore encourage people to choose actions that will have a positive impact. One participant started taking the family on holiday in England instead of flying abroad and found that they were far less stressful as a result. The same participant gave up bathing her children every night and also said that considerably reduced stress levels.

We are also aware that language, shyness or lack of confidence may prevent some people signing up or getting fully involved in the programme in the first place. So we offer help with translation, to visit them in their home, or to call on them to accompany them to meetings if they don't know other people.

Learning from the Low Carbon Living Programme

In sum we think the following factors have been helpful in helping people change people their behaviour[10]:

- Providing the means to action alongside the call to action – awareness raising on its own is often not enough to change behaviour;
- Making low carbon living easy and fun for people;
- Enabling people to take action together as part of a community initiative, rather than on their own;
- Providing advice and support from a local, trusted source– rather than impersonal distant advice –as this gives people more influence over the service;
- Enabling people to learn from their peers as well as from experts;

[10] LCWO 2009 and 2010 questionnaires and 2009 mid term review

- Addressing practical barriers to action– such as time, cost, conflicting information, language;
- Letting people decide the actions they can take in a non-judgemental, supportive and fun environment for people.

We are still working through the following issues:

- Whether the new cohorts of households will be as motivated to change their behaviour as the pilot group given that they are not part of a national competition;
- Whether and how to put more effort into awareness raising with the unconcerned high emitters, or people with other priorities;
- How to make it easier for people who are concerned about climate change but too busy to take action;
- How to sustain and measure behaviour change and carbon reductions after people complete the year's programme;
- How to involve larger number of households given our limited resources e.g. whether we should aim to employ a project worker for this purpose;
- Where to direct households to for low- or no-cost loans for retrofitting.

Community bag loan scheme in local shops

LCWO's other community projects

LCWOs runs a number of other community projects to enable practical action and promote behaviour change. These include: waste reduction, food, transport, tree and wildlife and sharing resources. [See supporting document: Details of LCWO's projects].

> *'Despite an increasing sense of frustration at the lack of action by the powers that be, working with LCWO has made me feel genuinely hopeful and excited.'*
> Helen Reid, secretary, LCWO'

Waste reduction

The goods we buy and throw away all generate CO_2 and other greenhouse gas (GHG) emissions and other forms of pollution. LCWO's waste reduction group encourages and supports people to reduce buy/consume less, re-use things and recycle them – in that order. Its activities involve:

- Education: providing people with information on the impact of everyday choices; signposting what people can recycle, and how and where; providing advice and information to participants in LCWO's Low Carbon Living Programme; and encouraging shoppers to choose goods with no or little packaging;
- Encouraging behaviour change: arranging Bring & Take events (one person's junk is another person's treasure); showing people how they can reuse scrap; producing stickers to remind people to take bags with them when they set out on their shopping trips, and setting up a community bag loan scheme for people who forget;

- Lobbying: lobbying the Council to provide more recycling facilities, and encouraging local shops to use fewer plastic bags.

Resource-sharing

There is a direct correlation between the amount we consume and GHG emissions. LCWO promotes resource-sharing as a way of reducing unnecessary consumption and subsequent waste by:

- Providing an eco-library to enable people to borrow and try-out different energy-saving devices before purchasing them;
- Providing a light bulb library, shared with Oxford University Climate-X-Change, and advice on what low energy bulbs can be best used to replace traditional incandescent bulbs;
- Using Ecomodo.com and Liftshare.com on our web site to facilitate sharing of consumer goods car sharing respectively.

'Most people are interested in saving energy but often don't know which of the wide range of products available might be suitable for them. The ecolibrary helps West Oxford residents by providing advice and access to a wide range of energy saving devices. Members of the community can test out different products to see which fit best with their circumstances and lifestyle, without the up-front costs. I try to make it easy by researching the options available, sourcing the products and when needed bring the library to people's houses, and help them use or install the device. Anthony O'Rourke, Shared Resources lead, LCWO

'For me, the issue of waste raises the key questions of not only where does stuff come from and where does it end up, but also how much stuff do we really need? Are we happier the more we buy? Or can we gain a lot more from having less? We do have a choice, and for me the best things in life aren't 'things' at all'.
Ruth Stavris, waste reduction lead, LCWO.

Transport

Transport accounts for about a quarter of the average household UK CO_2 emissions. It also has a major impact on the health and wellbeing of local communities. LCWO's Transport group promotes the use of low carbon means of transport, and in particular a reduction in the number of car journeys passing through West Oxford. Its activities include:

- Education – providing information and advice to participants on the Low Carbon Living Programme about the CO_2 emissions from people's transport choices. For example, many people will reduce, or find alternatives to flying, once they know how much CO_2 it produces;
- Encouraging behaviour change – identifying and promoting small improvements to support cycling and walking and public transport use such as cycle routes, cycling proficiency training at the school, improved pavements, lobbying for lower speed limits, advertising car-share schemes;
- Community projects – such as setting up a local car club – our local scheme now has three diesel cars and a van in the area. 170 people have become members of the scheme and at least three families have given up

"A large part of low carbon travel is all about making it easier to get about without a car, and this often depends on little details that no-one has noticed or done something about. There's huge support for change, and it's tremendously satisfying to see a problem and get it fixed."

Richard Mann, transport lead, LCWO

owning a car as a result. It is estimated that membership of Streetcar reduces car travel by 20% – so the scheme is saving around 80 tonnes of CO_2 per annum.

Food

Food accounts for around 30% of household greenhouse gas (GHG) emissions[11] and around 20% of national GHG emissions[12]. LCWO's Food Group encourages and supports people to eat local, seasonal and sustainably-produced food. Its activities include:

- Increasing understanding – through education and myth busting about the GHG emissions from food
- Enabling practical action – by identifying and publicising local and organic food producers; locations of farmers' markets; using photographs taken on local allotments of fruit and vegetables together and recipes to promote the use of seasonal and locally grown produce. We are also exploring the idea of promoting a meat- and cheese-free day in the community and running workshops on topics such as "Using a pressure cooker" and "Making jam from locally picked soft fruit". (There is a Pick Your Own farm in the area.)
- Community projects – with WOCR's acquisition of a former sports ground, leased to it by Corpus Christi College for a peppercorn rent, we are now planning to establish a beehive allotment, community orchard and demonstration plot for local residents to learn about sustainable food production methods.

Myth busting on food miles

Many people assume that buying locally-produced food is the best way of reducing GHG emissions. However, although the GHG emissions from transporting food are significant – transport accounts for around 12% of overall GHG emissions in the food supply chain[13] – nearly 90% of emissions actually come from production, processing, packaging, retailing, and disposing of waste. A more accurate rough guide[14] to reducing GHG emissions from food is to:

- To reduce emissions in production: reduce the amount of meat and dairy products you consume, and buy field-grown and organic food;
- To reduce emissions in storage: choose seasonal foods;

[11] Act on CO_2 [Government-led campaign] http://actonco2.direct.gov.uk/home/what-you-can-do/Out-shopping/buying-food-and-drink.html says "

[12] Tara Garnett, Cooking up a Storm, p4, Food Climate Research Network, Centre for Environmental Strategy, University of Surrey. [Accessed 12 July 2010]

[13] Tara Garnett, ibid. p4

[14] Various sources including Mike Berners-Lee, *How Bad are Bananas?* p182, and *Carbon Conversations*, Cambridge Carbon Footprint

- To reduce emissions from waste: plan menus and use leftovers;
- To reduce emissions from transport: choose local and/or Fair Trade products.

Trees and wildlife

Trees play a very important part in sequestering CO_2. They also suck up water and hence help reduce local flooding, and attract wildlife. LCWO's Tree and Wildlife programme promotes tree planting and greater biodiversity in the area. Its activities include:

- Tree planting – during 2009/2010 LCWO volunteers, local schoolchildren and Woodcraft Folk planted 640 trees with the support of the Forest of Oxford Charity which will save 64 tonnes of CO_2 over their lifetime;
- Creating wildlife areas – the group also set up a new wildlife area, with support from the Forest of Oxford, and agreement of the local council, on the site of the former playground in the local park. The site has been planted with many varieties of native trees, wild flowers and shrubs, and has been named Kingfisher Corner. There are plans to place owl and bat boxes there and other measures to encourage wildlife;
- Future possible projects including coppicing and the sale of firewood.

Learning from our other community projects

In sum we think the following factors have been helpful in engaging people in our low carbon community projects:

- We encourage residents to help design, create, and implement, projects that motivate them;
- We work out ways to make it easier and cheaper for people to reduce their CO_2 emissions e.g Bring and Takes, swishing parties, tree planting, car clubs, signposting, etc;
- We run events which are fun and where people can feel part of the community.

Issues we are still addressing:

Because our projects are run by volunteers, we have not yet had the time or capacity to develop them all to their full potential. Neither do we yet have the capacity to provide regular volunteering opportunities, or consistent support and feedback to volunteers.

"Much of the food we consume now is highly processed and packaged and is transported long distances before it reaches our plates. This approach is very damaging to the planet in terms of GHG emissions. We have lost the joy of seasonal variety and our connection to the farmers and the land that produce our food."
Susan Hutchinson, food lead, LCWO

3. Engaging the community

Introduction

We have been surprised and inspired by the strong appetite for action on climate change. LCWO now has 270 members and supporters, WOCR has 90 shareholders and we have engaged many more people through our wider community events and by leafleting and knocking on doors. 95 households have actively participated in our Low Carbon Living Programme (see below), which represents around 6% of the 1,600 households in our community. We are not doing badly in aggregate terms: research into community involvement in the UK shows that while 82% of people say they support more community involvement, only 26% want to be personally involved, and in practice only 2% actually are![15] But we don't take community involvement for granted. We are continually working out new ways to engage and motivate all sections of our community in what we do, whether residents, other local groups, schools, businesses and so on.

'As a community, we've been able to make a bigger impact on reducing our carbon emissions than the sum of our parts. And by working together, to find local solutions, our community has been made stronger'.

Lois Muddiman, External Communications and linking director for LCWO and WOCR

Community demographics

West Oxford consists of some 1,600 households, a local school,160 businesses and retail outlets, including an industrial and retail estate, a farm, and a number of churches of different denominations. Most of the households are owner-occupied but there is also a number of social (council and housing association) and private rented accommodation (flats and houses). West Oxford is classified as an area of medium deprivation but there are pockets of deprivation, and the high cost of property in Oxford means that some households are asset rich but cash poor. Most people in the area are White British but there are also a number of Black & Minority Ethnic (BME) groups –the most numerically significant being of Pakistani origin. About a third of the population was below 15 or of pensionable age in 2005. The 2001 census shows that between 10 and 18 % of the population were full-time students.

Our approach

Engaging the whole community

We try to engage everyone who lives and works in West Oxford, rather than just certain groups such as the high emitters or the already green[16]. To achieve this we use a mix of general and targeted communication and engagement methods. Wherever possible we approach people personally with a specific request to take part, rather just issuing general information or requests.

[15] Power Commissioners (2006): Power to the People: The Report of Power: An Independent Inquiry into Britain's Democracy (2006)
[16] Subject to our ethical and reputational policy

Our general engagement methods include regular communications through the local community association newsletter (which is distributed to every household), the local school newsletter, posters, leafleting households, local press, website and supporters/members' email mailing-list. We also hold regular open drop-in sessions to get ideas and feedback. We avoid large traditional-style meetings, which can be boring and intimidating. Instead we have drop in sessions where we encourage people to chat to us and/or write ideas on flipcharts around the room. We try to make the events welcoming and fun. We also have a presence at other community events so people can talk and give feedback to us.

Combining carbon reduction with community benefit

We are aware that engaging high-income groups with the largest CO_2 emissions, or people who were already 'green', could offer a relatively quick short-term route to cutting CO_2; however we decided it was important to try and engage all sectors of the community in order to:

- Spread the benefits from our projects (e.g. from reduced energy bills or access to grants fairly) across all different sections of the community and thereby gradually help reduce existing inequalities;
- Help mainstream low carbon living, and prevent our projects being typecast as fringe activities for certain types of people;
- Help make our projects more relevant to a range of other communities and hence increase their potential for dissemination.

Our targeted methods include talking to people at the school gate, holding small focus groups, setting up meetings with different groups of people in the community, and/or with key individuals within those groups, and having a presence at other organisations' events. A lot of this is just about getting to know a wider range of people and making them feel welcome.

In 2010, we decided to try leafleting all the households in our community followed by knocking on people's doors, as another way of widening our engagement. 18 volunteers signed up to help. This approach produced a surprisingly positive and large response from residents.

Our bottom line is to keep the community informed about what we are doing and give everyone a chance to help shape and/or benefit from our projects. Or, if people don't want to get involved, at least they know how to contact us and feedback on our projects.

A positive vision

We realised quite early on that as well as posing a threat to our community, climate change also offers an opportunity to build a a more cohesive and sustainable community. This positive vision has shaped our approach from early on.

Many of the participants in LCWO's Low Carbon Living projects said they got involved because they wanted to be part of a community initiative. In fact, this was the second most important reason that people gave, after wanting to reduce their contribution to climate change.[17] We need to explore the reasons behind this, but we suspect it is because people feel they will have a bigger impact if they take

[17] LCWO's winter 2009 questionnaire with LCLP households

action as part of a group, rather than on their own. We also think that a community initiative offers many of the things people enjoy and value in life. Our involvement in LCWO and WOCR has certainly motivated and inspired many of us, as well as being fulfilling and fun.

As our funding stream becomes established and we have more time to devote to developing a model for sustainable living in West Oxford, we think our creativity will be unleashed and we will find a whole range of new ways to do things. [See supporting document: West Oxford Commons].

Demonstrating and communicating impact

We suspect people are also motivated to participate in our projects because they have a measurable and demonstrable impact on CO_2 emissions. We take care to communicate and celebrate our achievements and impact - both within and beyond our community. We also emphasise the community's contribution, rather than just the contributions of the core volunteers, and recognise less visible contributions such as administrative support.

Involving people in project design and delivery

We think that involving people in project design, as well as delivery, creates a sense of ownership, which in turn can increase people's motivation and commitment. We started out by holding open meetings to gauge interest, and to get people's suggestions for what we should do. This resulted in residents setting up a number of working groups and projects. Many of the original people have subsequently stayed centrally involved. We hold periodic meetings and workshops to refresh our ideas and projects.

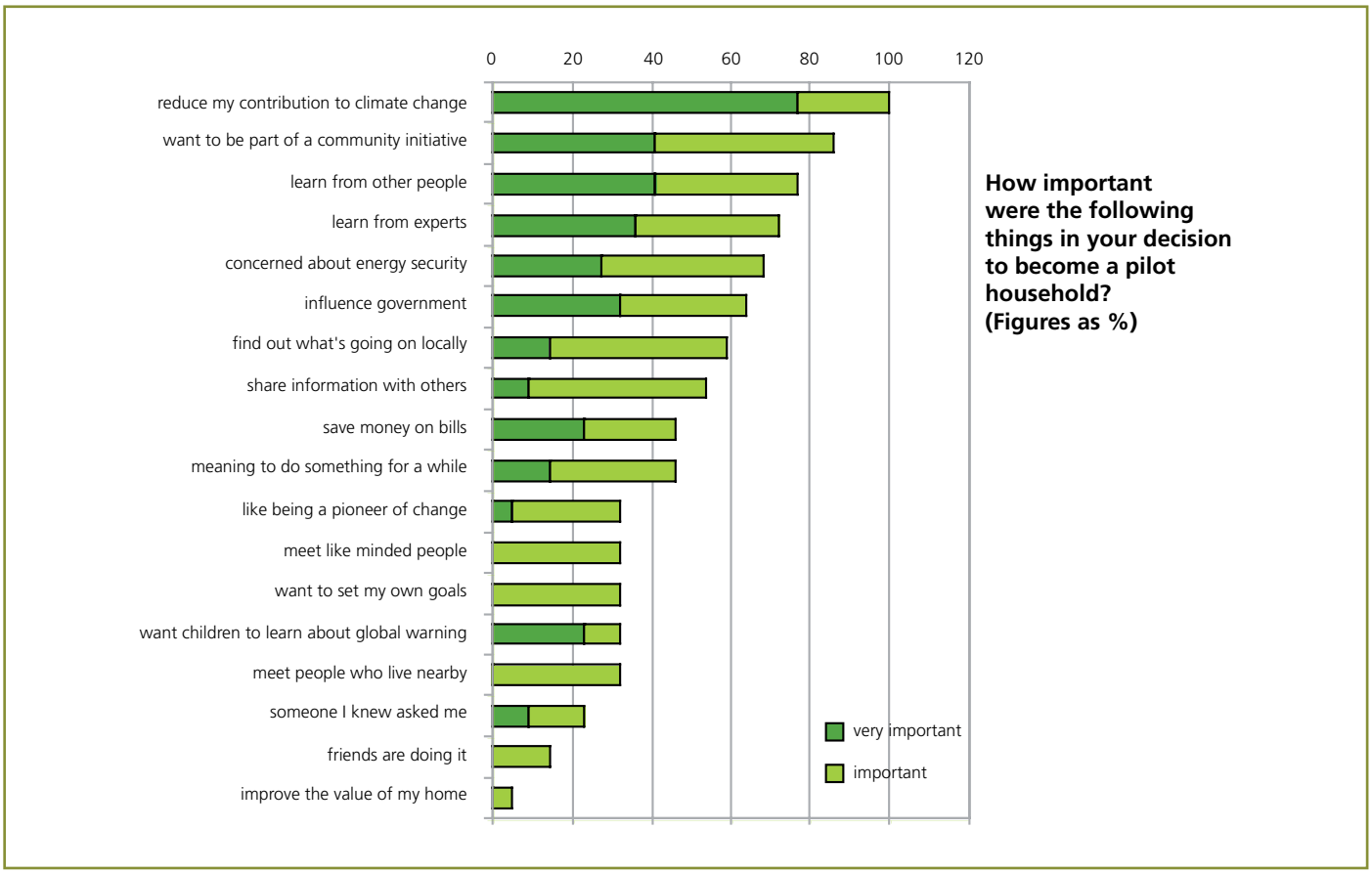
Tailoring messages

Our general communication messages tend to focus on offering people the opportunity to participate in our community or household low carbon living projects. However, our surveys with project participants have made us aware that people are motivated to take action for a range of different reasons. (See box Motivations on page 41). We haven't had the time or resources to produce targeted communications, but this awareness has been useful when we are talking to, and trying to engage, people in our projects. For example, financial benefits from reduced energy bills may be more important to low income or cash strapped households than to others.

Addressing practical barriers to practical action

From conversations with local residents it's clear that some people are not interested in taking action because they are sceptical about climate change. But for others it may be because they face practical barriers to action. A commonly cited problem is lack of time. This may sometimes be a polite excuse but it often also reflects people's hectic lives, competing priorities, long working hours or child-care commitments. Other people may not get involved because they feel excluded, lack confidence, have language difficulties or face other difficulties. So we try and address these barriers and provide extra support to people where needed. [See section on Low Carbon Living Programme above].

Motivations



(Participants in LCWO Low Carbon Living Programme, Winter 2009)

Learning from community engagement

In sum, we think the following factors have been helpful in engaging and motivating people:

- Engaging people from all parts of the community, rather than only focussing on the high emitters or people who are already green;
- Using a mix of general and targeted engagement methods, and approaching people personally to participate in our projects or help with specific activities or tasks, wherever possible.
- Having a positive vision and approach centred on creating not just a low carbon community, but also a stronger, and more cohesive one;
- Demonstrating, communicating and celebrating impact;
- Enabling people to get involved in designing as well as delivering projects;
- Being aware that people get involved for different reasons and reflecting this in our personal communications with people;
- Trying to address the practical barriers that prevent people taking practical action, where possible.

We are still working through the following issues:

Although we have achieved some diversity in LCWO's Low Carbon Living Programme, overall many of our members, volunteers and project participants remain white owner-occupiers with families. This reflects the demographics of our area, but also constitutes a challenge to us to keep reaching out and finding ways of making our projects relevant to everyone. We are discovering that building trust, confidence and relationships beyond our existing networks is a long-term process which requires more time and effort than we have been able to put in so far. Also because we still mainly rely on volunteers, we are not always able to provide regular or consistent ways for people to engage in our projects, nor do we always support volunteers adequately or respond to people's requests for information or offers of help.

Children's activities at Bring and Take event.

4. Our hopes for the future

Early evidence suggests that communities play a critical role in achieving to a low carbon economy.[18] They can help:

- Develop innovative approaches and practical solutions to reduce CO2 emissions;
- Engage and secure attitude- and behaviour-change to adopt low carbon lifestyles;
- Tackle fuel poverty by reducing fuel bills and helping people access grants;
- Generate a range of related social and economic benefits;
- Generate, and secure public support, for local renewable energy production;

It has also been suggested that community initiatives may generate longer-lasting and more far-reaching behaviour change than the top-down social advertising/marketing techniques often used by government and local authorities.[19]

Our own experience also supports this view. However, we are aware that not all communities or parts of communities will have the desire or capacity to take action, so we think community action should be seen as a complement, rather than a substitute, for government programmes. Communities also require external financial support and/or technical expertise from government, local council and other partners. They also require a supportive and predictable policy environment. Our LCCC grant and the FiT, have been particularly important and enabled us to act with ambition and urgency. Below, we outline some suggestions for how government, councils, business and support organisations, can help other communities take action on climate change.

A supportive and predictable policy environment

We think the following support and policies are needed to support community action.

Finance

The FiT provides a very important financial incentive for the generation of clean renewable energy. It is already creating markets that will drive technological innovation and bring down the future costs. For communities it also provides an important asset and source of income that can be reinvested in further carbon reduction projects. We therefore think it is very important that FiT rates are maintained into the future for communities at a level that enables them to make a double carbon cut.

However, to benefit from the FiT you need to have start-up capital to buy the kit. Many communities, perhaps particularly those in deprived areas, will be risk averse, and daunted by the size of the start up capital. Plus, if communities do raise capital at market rates this reduces the income that they can reinvest in further community carbon projects. So we think supplementary forms of finance are also needed.

To make the most efficient use of public money we suggest a smart combination of different types of finance. This could include: grant funding, low cost loans, and equity raised through community share offers or other creative means. For any such combination to work, clarification of State Aid rules is urgently needed so that innovative thinking can lead quickly to new Funds being developed.

[18] NESTA, (March 2010), Galvanising Community-Led Responses to Climate Change; and NESTA (February 2010) Mass Localism: A way to help small communities solve big social challenges.

[19] NESTA, (2010),Community Led Responses to Climate Change; A local authority briefing, Clare Demuth with contributions from Peter Capener and Jayne Cox.

Grant funding: The FiT provides important revenue incentives but small start up grants are also needed to help kick start community projects, particularly at the early, most risky stages where help is needed to do feasibility work, to provide a bit of working capital to help communities set themselves up and/or provide start up capital for renewables. Communities could combine these grants with no- or low-cost loans and/or private equity investment to provide far bigger amounts of investment for community-scale action than would otherwise be possible.

Scaling up sustainable living

There are around 30,000 communities across the UK. If each community was given a one off grant of £50,000 they could use this to raise match funding from loans and/or equity to invest in renewable energy or other carbon cutting projects. This would enable communities to act on a much larger scale than would otherwise be the case. This would cost a tiny amount in comparison to the annual government budgets spent on defence, for example, and would make a huge environmental, social and economic return to the taxpayer. [See supporting document: 'Scaling Sustainability']. We understand that it will be very difficult to find this money in the current financial circumstances given other immediate pressing priorities, but we think it is important for the future given the urgency of climate change.

Government-backed low- or no- interest loans: We understand that the Feed-in Tariff has been particularly successful in Germany because it has been combined with low interest loans from state-owned banks. We think this approach could be really important for community-owned renewables projects and could give an enormous return to the taxpayer in social and environmental returns, but also by lowering the costs of abating carbon. We helped DECC make this case to the Treasury as part of their work setting up the LCCC. [See supporting document: 'Lowering the costs of carbon abatement: calculations showing the benefit of the double carbon cut'].

Green Investment Bank: A Green Investment Bank would be the obvious way of providing low cost loans to support the development of community energy projects for all types of renewable technologies. It could provide start up grants and low interest loans to communities and social enterprises that commit to reinvesting the income in further carbon cutting projects. These grants and loans should be notified to the EC for state aid approval to work in combination with the FiT and the Renewable Heat Incentive (RHI). This scheme could be set up using a proportion of the expected £3.5bn receipts from the Carbon Reduction Commitment (CERT).

Corporate funding: LCWO and WOCR have had very good support from the Mid-Counties Co-operative in developing our model: members can opt to donate their annual dividends to LCWO. We wonder whether this model could be extended so that major companies could help finance and support local energy schemes as part of their Corporate Social Responsibility (CSR) agenda and efforts

to reduce carbon emissions. This would need careful design because communities would almost certainly not want to be 'owned' by any one company, and might want to screen companies on ethical and reputational grounds.

Equity in the form of share capital: Whatever other forms of capital are available, we think it is very important that communities raise as much equity as possible themselves, whether through issuing a share offer, getting donations or bequests or using other inventive ways of selling the idea of ownership and engagement in their project. This is partly because the object of the exercise is to get more people involved in doing things about climate change, but partly also because paying a return to equity owners is always cheaper than paying back a loan and so more profit is available to put into low carbon projects.

Social enterprises could be developed at the City and/or County level to support communities in the initial start-up work for local energy projects to get them to the point where they can raise share capital and also get loans. The Department for Energy and Climate Change is funding a pilot for this approach in the City of Oxford through its Low Carbon Framework pilot programme.

Tax relief for investment in social enterprises: The government should introduce a Community Enterprise Investment Scheme, to match the current Enterprise Investment Scheme. This could be particularly important to support the development of local community energy businesses and make sure the economic development benefit of the FiT and the RHI is captured and embedded in local economies.

Technical support

There is a lot of technical support available but it is not always well signposted, can be inappropriate, and is sometimes duplicative. We suggest that governments, councils and support bodies:

- Proactively inform communities about the FiT
- Map and signpost existing sources of technical and financial advice including on VAT registration, insurance and State Aid issues, as well as traditional information and advice from the EST;
- Provide funding for community mentoring schemes which pay 'community experts' to mentor other communities;
- Provide communities with a small amount of money to buy in specialised support – this would give the community the flexibility to obtain the exact support they need.

Spreading the benefits of FiT

The FiT is paid for through small increases to energy bills, an increased cost to consumers which has a bigger impact on people in fuel poverty and on low incomes. To ameliorate this effect, and to address fuel poverty, we suggest that the government:

- Ensures that the cost of the FiT, the RHI, the CERT is only placed on above-average users of electricity or gas so that the lowest users (which includes many of the fuel poor) do not pay anything towards these policies.

- Requires local authorities to instigate Low Carbon Zones to work with other partners on a community by community, and street by street basis, to improve household energy efficiency, with supplementary measures focused on the fuel poor, funded where necessary by central government.[20]
- Introduces a legal minimum energy efficiency standard for the private rented sector so that by 2016 at the latest, no home with an energy performance rating below Bands F&G (the most unhealthy homes) can be let without being improved to a higher standard.

Principles for partnership working

We have been able to increase our impact by working in partnership with other organisations. We are fortunate that to date our partnerships have been mutually supportive: partners have supported our agenda, and we have in turn contributed to their carbon reduction and social and economic objectives. We think partnerships work best when underpinned by the following principles:

- *Complementarity and added value* – partnership working is most useful when different partners bring distinct and complementary contributions;
- *Clarity and respect for the different roles and contributions of government, council, private sector and communities* – both monetary and non-monetary;
- *Upstream joint decision making* – early discussions to develop co-ownership and consensus are better than belated consultation;
- *Mutual understanding and respect* – about different roles and responsibilities;
- *Transparency and accountability* – openness and honesty in working relationships and accountability to people and organisations not at the table;
- *Competence* – including reliability and delivering on commitments;
- *Clarity about exit strategies* –clarity about the length of involvement in the partnership, and plans for eventual withdrawal;
- *Early wins* – help keep partnership members motivated.

Source: adapted from Oxfam GB partnership principles

The Thames in West Oxford

[20] Fixing Fuel Poverty, Brenda Boardman

Acronyms and Glossary

Acronyms

BGC	Big Green Challenge
CO_2	Carbon dioxide
DECC	Department for Energy and Climate Change
FiT	Feed-in tariff
IPS	Industrial and provident society
kWh	Kilowatt hour
kWp	Kilowatt peak
LCCC	Low Carbon Communities Challenge
LCWO	Low Carbon West Oxford
NESTA	National Endowment for Science, Technology and the Arts
PV	Photo-voltaic
RHI	Renewable heat incentive
WOCR	West Oxford Community Renewables

Glossary

- Carbon footprint – a measure of greenhouse gases attributable to a human activity. For individuals and households, it usually relates to greenhouse gas emissions over a 12 month period, expressed in terms of their CO_2 equivalent.
- Equity – a share of a company, entitling the shareholder to a share of the assets and any profits.
- Equity finance – the raising of money by an entity through the sale of shares.
- Feed-in Tariff – essentially a premium rate paid for the generation of clean energy e.g. from solar panels, wind turbines or micro hydros, and guaranteed for a long time period. They are used by governments as an incentive to encourage the adoption of newer, cleaner, renewable energy sources.
- Greenhouse gas emissions – gases in the atmosphere that trap heat and contribute to global warming. The primary greenhouse gases are water vapour, carbon dioxide, methane, nitrous oxide and ozone.
- Industrial and Provident Society – a legal entity for a trading company that trades for the mutual benefit of either its members or for the wider community.
- Kilowatt hour –standard unit of electricity consumption equal to 1000 watts over one hour.
- Kilowatt peak – a PV panel's peak power at maximum solar radiation under Standard Test Conditions.
- Photovoltaics – arrays of cells that contain a device to convert solar radiation into direct current electricity.
- Renewable Heat Incentive – a UK government scheme under which owners of renewable heat installations can receive payments for generating renewable heat.
- Social enterprise – a business or service with a primarily social objective whose surpluses are principally reinvested for that purpose in the community, rather than being driven by the need to maximise profit for shareholders and owners.

Annex 1

List of supporting documents on the web

The following appendices are freely available (with the exception of WOCR's detailed Business Plan) to any community wishing to make use of them subject to our copyright and disclaimer outlined on page 2 of this document. They will be on our websites shortly.

[www.wocr.org.uk]

WOCR website

- Lowering the cost of carbon abatement:
  calculations showing the benefit of the double carbon cut
- Financial model and set up costs
- Renewables step-by-step project planners
- Solar PV case studies
- Scaling sustainability:
  the importance of community action in national and global climate change action plans.
- Personal profiles

[www.lowcarbonwestoxford.org.uk]

LCWO website

- Vision of West Oxford Commons
- Outline budget for LCWO activities
- LCLP information leaflets
- Details of LCWO's other projects
- Volunteer information pack
- Personal profiles

Annex 2

The pros and cons of alternate legal forms

Structure type	Pros	Cons
Company limited by shares (CLS)	• Can offer shares to public to raise funding • Attractive investment vehicle – can use EIS, VCT, EMI and CVS tax incentive schemes[21] • Owners have limited liability • Transparent management structure set out in articles of association • A social enterprise with a social mission recorded in the Memorandum of Association which falls outside of government definition of a social enterprise may still attract social capital investment funding from providers such as Bridges Social Entrepreneurs Fund or Big Issue Invest, as well as charitable grants	• Stringent accounting standards to adhere to • Even if a company's social mission is recorded in its Memorandum of Association it may still fall outside of the government's definition of a social enterprise - this may affect its ability to attract government grants[22] • Must register with Companies House and and comply with statutory disclosure
Company limited by guarantee (CLG)	• Members must guarantee company's liability (usually limited to £1.00) on winding up • Most common form of structure for charities and not-for-profits[23] • Members have similar rights to shareholders • Can raise funds in own right under quasi-equity arrangements, social bond issues and loans • If registered as a charity, may have more access to charitable foundation grants, and philanthropic giving • If charity, exempt from corporation tax on profits and can utilise Gift Aid	• If a charity[24] it must register with both Charity Commission and Companies House • Where a CLG is also a registered charity – (i) there must be prohibition on distribution of income and profits; and (ii) members cannot share in profits or surpluses on winding up. (This is a necessary feature of charitable companies) • No shares so can not raise share capital nor attract attractive investment tax relief schemes
Limited Liability Partnership(LLP)	• Separate legal entity • Members benefit from limited liability • Members are taxed as individuals (like an ordinary partnership): the LLP itself is not taxed • Members may be individuals or corporates having a role akin to directors of a company • If wholly owned trading arm of a charity profits can be donated back to charity and can attract gift aid	• No shares so can not raise share capital nor attract attractive investment tax relief schemes • Must register with Companies House • Strongly advised to have a LLP agreement to govern and to incorporate social mission as no Memorandum of Association exists

[21] Enterprise Investment Scheme, Venture Capital Trust Scheme, Enterprise Management Incentive and Corporate Venturing Scheme

[22] This is because there is a gap between the government's definition of social enterprise which is much stricter than what is commonly deemed social enterprise. For example, a private company limited by shares which has enshrined its social mission in its Memorandum of Association and gifts a proportion of its profits to a foundation and focuses its activities on areas of deprivation would not be considered a social enterprise (source: *Investing in Social Enterprise: the role of tax incentives* by Vince Hill (CSFI) May 2010.

[23] This is because it makes clear to the public that the generated profits are not for the benefit of the members but for philanthropic purposes they know their liability is limited to a nominal amount.

[24] See Section on Our Governance for further information on charitable companies.

Structure type	Pros	Cons
Industrial and Provident Society (IPS)[25] There are two types:- (1) Community Benefit Societies; (2) Co-operative Societies Co-ops are concerned with promoting its members' interests as opposed to community interests	• An IPS with charitable objects is not required to register with Charity Commission as it is exempt from registration • Enjoys limited liability status • Both types of IPS can issue shares so can attract investment through EIS and CVS schemes • Less regulation for share issues (than CICs limited by shares) as exempt from many FSA rules regarding share issues • Exempt charity IPSs receive same tax benefits as registered charities • Has an 'asset lock' to protect funds for the future	• Regulated by the Financial Services Authority • If not an exempt charity then corporation tax payable on profits • Maximum shareholding is £20,000 on a one vote one person basis • No profit distribution to members if an exempt charity • Can attract public and charitable grants
Community Interest Company (CIC)	• Created to fill gap between non-charitable social enterprises and charities • Can be either a CLS or CLG • Greater operational flexibility than a charity because does not have to meet strict charitable benefit criteria • Assets of CIC protected for benefit of the community by an asset lock	• Can not be a charity • Profits liable to corporation tax • No relief for general non-trading expenditure • Borrowing at normal rates • No distribution of profits to shareholders other than in certain circumstances • Share dividend capped at 20% of paid up share value • Total dividend payouts capped at 35% of CICs distributable profits
Charitable Incorporated Organisations (CIO)	• New corporate structure specifically designed for charities • Is a separate legal entity which means it can hold property/contracts in its own right • Reduced personal liability for trustees/members • Do not also have to register with Companies House so single regulation by Charity Commission only • Less onerous reporting obligations under Charities Act 1993 than Companies Act 2006 • Strict regulation by independent regulator promoting public benefit, legal compliance and transparency increases public trust • Tax free trading activities directly related to their charitable aims • Numerous tax reliefs and exemptions available • Can claim Gift Aid on donations	• Not yet in existence – expected 2011 • Must register with Charity Commission • Founder/entrepreneur can not usually be a trustee and receive an income from the social enterprise but it can be done (subject to strict guidelines) where the charity's constitution allows it

[25] See section on Our Governance for other features of an IPS.

Low Carbon West Oxford is a company limited by guarantee,
incorporated in England and Wales, registration no. 06907815,
and a registered charity, incorporated in England and Wales, registration no. 1135225
Registered address: 22 Oatlands Road, Oxford OX2 0ET

West Oxford Community Renewables Limited is an Industrial and Provident Society for the Benefit of the Community, registered in England and Wales, registration no. 30711R
VAT Registration no. 994 8081 66
Registered address: 16 Mill Street, Oxford OX2 0AJ

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