# West Midlands Local Authority Low Carbon Economy Programme

## Community Strand – Final Report

## Introduction

**Issues and policy context**

The Community Strand emerged from more than a decade of activity at a community level seeking to respond to the challenges of climate change, energy efficiency and renewable energy both in the West Midlands and nationally, involving grass roots organisations such as Transition groups and low carbon community groups. These are supported by civil society organisations with professional expertise such as Marches Energy Agency, Localise West Midlands, the Energy Saving Trust, as well as many local authorities.

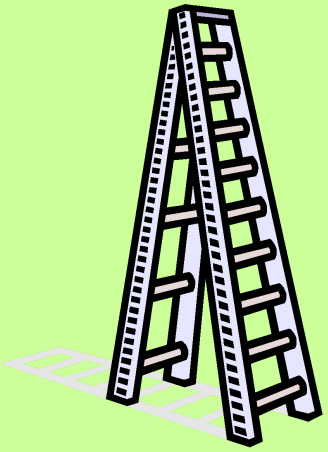
Community organisations have devised solutions to many renewable energy and energy efficiency problems in highly creative ways. Some of these solutions have included:

- Creating models of community buying and ownership of renewable energy, including legal agreements
- Overcoming obstacles in the planning system
- Sharing learning and knowledge between each other through formal and informal networks
- Using local networks to identify early adopters for energy saving and renewable energy measures.

Central government, local authorities and utility companies increasingly recognise the importance of a localised approach to increasing the uptake of energy efficiency and renewable energy measures. As such they are keen to work with third sector organisations to co-construct and co-produce programmes of work.

Sherry R. Arnstein's *ladder of empowerment* gives us an illustration of the relationship between community organisations and mainstream providers such as local government and utilities: Low carbon and Transition groups tend to favour Citizen Control – the top of the ladder. It is also possible for local authorities and the private sector to Manipulate the third sector – the bottom of the ladder. What we increasingly see is Partnership or Co-production where knowledge is crowd-sourced giving the potential for a rapid scaling up of activity.

Citizen Control
Delegated Power
Partnership/ co-production
Placation
Consultation
Informing
Manipulation



**Community Needs - What do communities need to make this all happen?**

Energy efficiency and renewable energy are often viewed as largely technical or building-related issues, e.g. choosing the right sort of solar panels or heating system. They are also economic and financial issues. What is often overlooked is that these are also *knowledge* issues, and it is gaps in knowledge that the Community Strand set out to address.

Overwhelmingly, what communities need is to be able to identify the phases in the journey they are making, identify and access the different types of support that are available to them at each stage, and to be able to learn from others who have already been through success and failure, so that they don't have to learn it all from scratch.

**Project Work packages**

The Community Strand was broken down into 4 work packages:

- Work Package 1: Develop a baseline assessment of current levels of activity and intent among community groups in the region regarding renewable and sustainable energy projects.
- Work Package 2: Identify up to 12 community groups with viable renewable energy/sustainable energy projects that would benefit from funded help to progress towards successful implementation.
- Work Package 3: Provide tailored support, advice, guidance and help to the identified community groups to make measureable progress in moving their projects to successful implementation.
- Work Package 4: Recruit and train up to 40 community energy mentors who will then support new and emerging community energy projects.

## Profile of findings

**Work Package 1: Baseline assessments and case studies**

Thirty six renewable and sustainable energy projects from across the region were featured in our baseline study. Most of the information was gathered from our own desktop study; some of it was gathered from questionnaires completed by organisations themselves including community groups and local authorities.

The baseline showed that 'simple' photovoltaics, i.e. on one community building, is the most common type of project completed or in development. There are also 'complex' community photovoltaic projects, with proposed installations on more than one community building, sometimes as part of a community co-operative. Other renewable energy projects included biomass, anaerobic digestion and hydro, with little activity on community wind due to the time and effort involved in this. Many projects aimed to address issues such as energy efficiency, behaviour change and job creation, although they generally found these issues harder to tackle in practice.

Most of the projects were concentrated in the west of the region, with a cluster in Birmingham and others in Warwickshire. Often projects were led by highly educated and reasonably affluent people. In urban areas they were led by people who had a good education and professional positions but tended to be younger and less financially secure.

Ten case studies were undertaken of community renewable energy projects. A range of technologies were selected from photovoltaic, anaerobic digestion, woodfuel, hydro and wind turbine, but more importantly projects at different stages of development were explored, in order to identify the barriers and challenges actually being faced. Finally, projects selected were of different scales, from single community buildings such as Bayston Hill to large, complex schemes (Hockerton wind turbine). A number of examples involved a series of projects from a larger community programme, such as Derrington Way Ahead.

**Work Packages 2 and 3: Tailored support for community groups**

Work packages 2 and 3 have directly helped 52 community groups or community focussed networks, some of them 2 or 3 times through different themes. Our initial target was 12. The themes included community wind; community hydro; simpler photovoltaics (where a group owns the roof); complex photovoltaics (involving a share offer and/or roof lease agreement); community building energy assessments; training; on-site renewables assessments and strategy development. We have been able to help groups install 3 separate photovoltaic (pv) systems totalling 39kW and a biomass boiler of 24kW. It has also created the conditions for the installation of another 17.5kW pv on Fairford Place Almshouses in Shrewsbury. It has also helped move a further 29 community projects measurably closer to completion. In achieving this we have commissioned 13 different organisations, most from the West Midlands to provide the support packages.

**Work Package 4: Mentors**

Twenty-four people were recruited as mentors to the project. Seventeen mentors attended the first training/coproduction day on 11th September, and 15 the second training/co-production day on 26th November 2011.

Nine organisations have so far applied to be mentored – seven of these have applied though the formal application process and the other two were identified by mentors themselves. Seven of these groups have been allocated mentors. Mentoring is now in progress and two mentors have finished their mentoring.

Other mentoring opportunities are being identified via other projects e.g. Stay Warm, Stay Well in Birmingham. The outputs from these mentoring activities will be completed after the end of the Low Carbon Economy Programme. Some mentors have been informally mentoring other people and organisations.

**Good practice identified from case studies and support packages**

The following are the key findings from the case studies and support packages:

- **Quick delivery**. Tamworth Almshouses, Redlake Village Hall and Bayston Hill all demonstrated that simple schemes for a single building can be delivered within a few months. They did this by having clear decision making structures, good leadership and access to the right technical advice (either in house or from external sources). More complex schemes take longer, 2-4 years for most hydro and wind projects.

**A Simpler Photovoltaics Project**

This project has helped Tamworth Almshouses in Staffordshire install 59 photovoltaic panels. Over only 3 months our support has moved the trustees along quickly from SOCIAL to OPERATIONAL. It gave them the knowledge and understanding of the costs and technology options and introduced them to local installers (ENVIRONMENTAL). We were also able to help with the planning application (LEGAL). All this gave the trustees the confidence to commit some of their reserves (FINANCIAL) allowing them to install and commission their pv (PHYSICAL) in time to lock into the higher Feed In Tariff rate. They are now earning over £4000 annually (OPERATIONAL), a significantly better return than they were getting on their investments elsewhere, helping them deliver a better care service to their elderly tenants.

*Claire Keeling from Tamworth Borough Council – said 'to see the Almshouses realise their goal of becoming green has been fantastic'.*

Opening of the new 15kW pv at Tamworth Almshouses in December 2011

- **Motivation.** The motivation behind community renewable energy schemes is very variable ranging from desires to keep warm (Redlake Village Hall), to making money (Tamworth Almshouses), reducing $CO_2$ emissions, generating local economic activity (Bewdley Development Trust) and community development (Derrington).

- **Policy barriers and Government initiatives.** Changes in Government incentives and policy can both inspire and play havoc with community group aspirations and opportunities as we have seen with the FIT review. FITs has been a great stimulus to projects, helping to generate a range of community renewable energy projects – see boxes. The FIT review has also created confusion and turned off, temporarily we think, a number of community schemes, until Government and the industry settles down. The FIT scheme has also had the impact of diverting attention from more traditional, but still very valid, energy reduction approaches.

- **Skills needed.** The range of expertise required to deliver any community renewable project is considerable, and this becomes greater the larger and more complex the project. All of the projects accessed technical expertise for different aspects of their project. The range of expertise accessed was considerable, ranging from legal and commercial (Hockerton and Community Energy Warwickshire), to planning (SusMo), technical (Redlake and Tamworth Almshouses) and community outreach (Derrington).

- **Partnership working.** All of the projects were founded upon well established partnerships or institutions. Even where a new organisation was being created (SusMo and Community Energy Warwickshire) these stemmed from well established groups. Developing good relations with all those involved in making decisions about the project is critically important, especially with larger or more complex schemes

- **Individual commitment.** Willful individuals are still at the core of all of the projects. Heroic amateurs can get things done, but making it happen every time requires much more; a strong partnership, good project management skills and access to skills and knowledge from a wide range of technical areas.

- **Access to cheap finance.** Accessing cheap finance is critical to the success of many projects, and is a key barrier. The unreliable, ad hoc nature of the funding makes change a very piecemeal affair as groups identify, engage with and try to secure little pots of disparate funding. Projects often end up finding a cocktail of funding from grants, to cheap loans, share offers or competitions. All this takes huge time and effort and does little to create transferable conditions. Hopefully the new FIT regime might bring some long-term stability.

- **Sources of knowledge** There is still a real lack of knowledge on what can, and needs to be done. There are many different sources of knowledge and this can be bewildering for struggling community groups.

### A New Approach: Co-construction and Co-production of Community Energy Services

The Wheel of Fortune is a Community Land Trust model for co-construction and co-production that has been developed for rural affordable housing and community facilities. Under a national demonstration project to support groups in England and Wales it has successfully assisted more than 20 Community Land Trusts (CLT) to set up and co-produce local housing in villages and towns ranging in size from 2 to over 12 units. This successful approach has been applied through this project to community sustainable energy schemes at a variety of scales, with various technologies and with a wide range of different types of group.

In practical terms, the Wheel of Fortune is based upon a set of four pre-development task areas and a second set of two post-development task areas. The acronym SELF-OP has been developed to summarise this step-by-step methodology. The key task areas include: Social, Environmental, Legal, Financial, Operational and Physical issues at each stage of the process.

- **Social**: Building on successful projects elsewhere this segment helps groups understand and develop their ideas to a point where they can commit to a particular project in a particular location. We see the role of mentors being important here in helping groups understand the Wheel of Fortune process and signposting them towards sources of help. Early stakeholder engagement is important in helping a group develop an outline business plan.

- **Environmental:** This segment allows community groups to develop their plans for the chosen site by considering the detailed technology and installer options, together with costs and savings for their chosen scheme, so preparing the ground for the next 2 stages.

- **Legal**: Having worked out what they want to do, where and what the costs are, groups will then gather the necessary legal documents such as planning permission or grid connection licenses under this section.

- **Financial:** this section is key. It involves all aspects of the financials of a project from raising the capital through grants, loans or share offers, to risk finance and detailed planning on income, savings and running and equipment costs.

- **Operational and Physical:** Groups are now ready to install, commission, run and promote their project, which takes place under these 2 segments.

This streamlined approach has enabled people to understand and engage with the process visually; in essence SELF-OP helps to focus effort by stakeholders on an easy to follow journey to help create a strategic development pathway to success. Also it helps groups on the ground to ensure they complete the most important tasks first, before rushing ahead. The CLT national demonstration project found that otherwise, groups spend effort on development task ideas before they put the key building blocks in place. SELF-OP reduces wasted time and effort and can structure a set of 'to do lists' logically as the Wheel of Fortune diagram below shows.

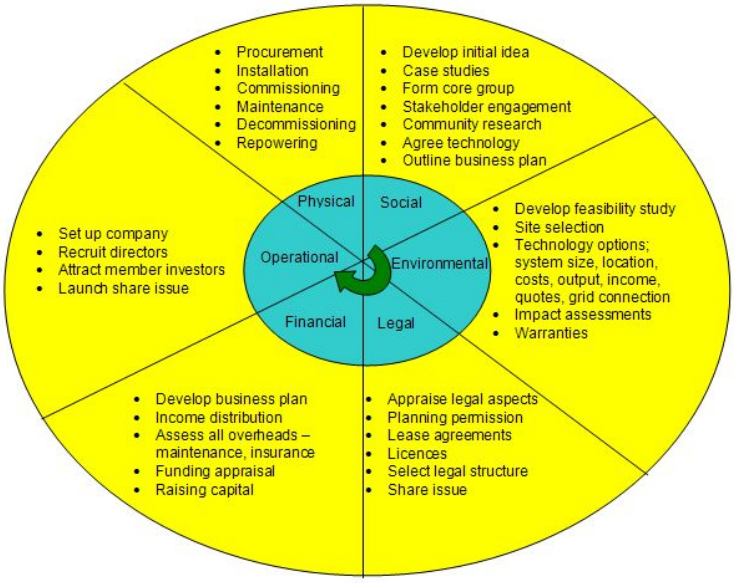


Diagram 1:
Wheel of Fortune process using SELF-OP for support in delivering community sustainable energy projects.
(SELF-OP is Social, Environmental, Legal, Financial, Operational and Physical)

The application of the Wheel of Fortune tool helped identify two missing ingredients of success for community energy projects, land and capital. The Hockerton, Tutbury and Bewdley Development Trust case studies demonstrate how finding the right land and the right site can be critical determinants of project success. Unlike with CLT projects for housing, for many community energy schemes the community building for installations will already be available. Finding initial capital to install measures that then generate revenue is a serious barrier for many communities. Therefore finding ways to facilitate the process is key to generating a step change in the number of projects. Green Deal and settling down of the FIT payments will provide some opportunities, but there is a need to develop and capitalise on some of the more innovative approaches being developed by communities to assist others in accessing cheap finance, including Community Development Finance Initiatives, diocesan funds and rolling capital funding for loans. Funds like this were found by the project to be available but there is the lack of partnership methodology like the Wheel of Fortune to bring key partners together to co-construct a robust plan.

**SELF-OP: Developing Community Wind Projects**
We were able to fund 3 community groups, all in the very early stages of developing their ideas around community-owned wind turbines, to visit a community owned and operated 225kW wind turbine in the East Midlands. The groups were able to learn first hand from a successful group allowing them to deepen their knowledge and understanding. This was followed up with an open map session led by local experts from Share Energy. This allowed them to convert their knowledge from the visit into their own location helping them think about the options for their own project and allow then to start working up outline business plans. This support was delivered as part of the SOCIAL segment of the Wheel of Fortune.

*Stuart said – 'it's inspiring to see and hear about a community wind project that has worked. It's great to see it coming together and will help me translate this into my own community'.*

*225kW turbine owned and operated by Hockerton Housing Project and visited by 3 groups in the project*

## Next steps – the pitch to funders to start to mainstream this approach

**Unleashing the potential – a strategic development pathway**

This project has demonstrated the application of the SELF-OP model to the development of community sustainable energy projects. It has tested and refined the strategic development pathway, and shown that it can work.

**SELF-OP: Complex Photovoltaic Project, Staffordshire**
This tailored support package provided a range of interventions over a period of 4 months for Southern Staffordshire Community Energy. In particular they received support in helping unlock system size and cash flow forecasts, help with overcoming planning hurdles and in compiling the prospectus, (which was successfully issued in early 2012 seeking to raise £52,000 through a share offer). All of this has contributed to the installation of an 18.4 kW system on the roof of the local hospice and an 8.05 kW system on the village hall. The support helped the group move through the LEGAL, FINACIAL and PHYSICAL segments of the Wheel of Fortune and the system is now OPERATIONAL earning a good return for it's shareholders.

*Talking about this project's contribution Mike Kinghan from Southern Staffordshire Community Energy said 'we couldn't have done it without your help'.*

The challenge is how to mainstream the approach and to focus on those areas that will generate greatest impact. These are around:

- Initially (0-6 months) – Simpler photovoltaic projects for community groups where new system prices and FIT returns will still make this an attractive option. Our role will be to help accelerate the rate of uptake for community buildings.
- Medium term (6 months – a year) - Other sustainable energy measures in community buildings such as lighting, insulation and heating allowing wider savings to be realised. This would bring together the best elements of the Wheel of Fortune and Green Deal specifically for community buildings. It'll seek to fill a gap in the market place which we believe is currently unfilled and help community buildings become outstanding low carbon examples in their communities which will stimulate wider economic and social activity.
- Longer term (2-5 years) – We are keen to develop the SELF-OP model for community wind turbine projects once communities are more engaged and such project likely to be less divisive.

The analysis in Table 1 below characterises the opportunities for these sorts of projects.

| | **Benefits** | **Disbenefits** |
|---|---|---|
| **Community building projects** | 1. There are thousands of potential projects.<br>2. Projects are relatively straightforward, with low finance, quick to deliver and fairly risk free.<br>3. Successful schemes can influence immediate communities widely. | 1. Each project will generate a small amount of renewable energy.<br>2. Even with fairly simple projects it can still take volunteer organisations a long time to acquire the knowledge to make an informed decision. |
| **Large scale community wind projects** | 1. Projects produce a large amount of renewable energy and income to sustain longer term work.<br>2. At their best they have the scope to bring a community together. | 1. There are a limited number of potential projects.<br>2. Projects are complex, require significant skills and take time to deliver.<br>3. There are relatively high risks to failure. |

**A national demonstration project for SELF-OP**

A West Midlands national demonstration project concentrating on simpler photovoltaic scheme in community buildings would be the first step to mainstreaming the approach to community renewable energy. This would be followed shortly by an offer to install wider sustainable energy measures. The demonstration project would:

- Demonstrate the SELF-OP model working at scale
- Highlight the impact of this community approach

- Encourage large numbers of people to become involved in sustainable energy, with the prospect of them developing other projects either in their own homes or more ambitious community scale schemes such as wind turbines.

Building on the experience of this project, we will continue to assemble, refine and open source the tools and knowledge necessary for each stage of the SELF-OP model to accelerate the number of successful projects and to fill the pipe for subsequent work. This will include continuing to develop installer networks and relationships and learning how and where best to connect them to community groups seeking to install measures. Our starting point will be those groups who have engaged so far with the project but failed to get pv systems installed ahead of the FIT review. There are also several hundred community buildings that project partners have surveyed over the last few years that would also make a great pool of potential early adopters.

**Developing social financing mechanisms**

Providing access to easily available and cheap forms of social finance mechanisms is critical to success and this project has demonstrated the importance of this. A national demonstration project would explore and secure loans with low interest rates from a range of sources, such as Diocesan funds, foundations and Community Development Finance Initiatives. This has the potential to unleash a large number of projects as people realise the financial viability of community projects.

**Recommendations**

This project has demonstrated that a systematic approach to developing community renewable energy projects works by focussing on a strategic development pathway and that there is huge potential to unleash many more successful projects across the UK. It is recommended that this potential can best be developed through a national demonstration project that focusses initially on producing large numbers of successful schemes in individual community buildings, and from there to develop into community ownership of wind power.

For
Localise West Midlands
And Marches Energy Agency

Annexes

**For Work Package 1**

1. Baseline final report
2. LCEP Community Questionnaire
3. LCEP Local Authority Questionnaire

Case studies x 10: Bayston Hill, Bewdley Development Trust; Community Energy Warwickshire; Cwm Harry Land Trust AD; Derrington; Hockerton Housing Project; Redlake; SusMo; Summerfield; Tutbury Hydro

**For Work Packages 2 and 3**

4. Community Strand – Work Package 2 and 3: Summary of Tailored Support to Groups
5. Hockerton Housing Project – 225kW turbine overview - presentation
6. Hockerton Housing Project – 225kW turbine sizing and costs – presentation
7. Hockerton Housing Project – small scale renewables - presentation

8. Technical Assessment for Tutbury (to follow once the group/ landowner is happy to release them)
9. Feasibility Study for River Teme (to follow once the group/ landowner is happy to release them)
10. Photovoltaic business planning for homeowners and community groups
11. Photovoltaic financial assessment calculator
12. Example of a business plan for simpler photovoltaics

Presentations on complex photovoltaics:

13. procurement,
14. financial planning,
15. contractual framework,
16. legal issues
17. share offer
18. Hand out on legal structures
19. Example of a share offer from Bath and West Community Energy
20. Summary of Opportunities Assessments
21. Think piece on Community Building Green Deal type offer
22. Report from NEF on community engagement
23. Report from Fetch Theatre company on LED lighting and renewable power options
24. Renewables Assessment for Ground mounted photovoltaic tracker system
25. Renewables Assessment for a range of renewables options at a visitor centre and tourist attraction
26. Solid wall and pv strategy for a Victorian- built deprived urban community
27. Community application for Work Package 2

**For Work Package 4**

28. Mentor JD and person spec
29. Mentor application form final word 97.doc
30. Co-production day report
31. Evaluation of co-production day Nov 11
32. Agenda co-production day 10 Sept
33. Agenda coproduction day provisional programme 26 November 2011
34. Blank application mentoring support.docx