Lydney Local Power

Severn Wye Energy Agency, United Kingdom

Summary

The Lydney Local Power project is a community based sustainable energy project located in the town of Lydney on the banks of the River Severn in Gloucestershire. The project is co-ordinated by the Severn Wye Energy Agency (SWEA) in partnership with the Forest of Dean District Council, Gloucestershire County Council and Lydney Town Council.

The project set out to establish a 'Community Energy Club' that would enable local people to become actively involved in sustainable energy projects in and around the town. Club members have identified and begun to develop both a small scale hydro power site and a community wind turbine. A full funding package is in place for the hydro scheme and applications are being prepared for Environment Agency licenses. The wind turbine site has been out to consultation and the group are currently working with BT to establish the clearance needed from a fixed microwave link that runs close to the site.

The club has also been actively promoting domestic energy efficiency measures in the town and working with schools and community groups to change energy behaviour. Almost 500 energy efficiency measures have been installed as a result of this work and are calculated to be worth 66,000 Euros with lifetime CO_2 savings of 3,865 tonnes.

Lydney Local Power has been funded over two years by the Energy Saving Trust Innovations Programme.

End-user area		Target Audience		Technical	
☐	New buildings	■	Citizens	■	Energy efficiency
☐	Refurbishment of buildings	■	Households	■	Heating
☐	Transport and mobility	■	Property owners	☐	Cooling
☐	Financial instruments	■	Schools and universities	■	Appliances
☐	Industry	☐	Decision makers	☐	Lighting
☐	Legal initiatives (municipal regulations, directives, etc)	☐	Local and regional authorities	☐	CHP
☐	Planning issues	☐	Transport companies	☐	District Heating
■	Sustainable communities	☐	Utilities	■	Solar energy
■	User behaviour	☐	ESCOs	☐	Biomass
■	Education	☐	Architects and engineers	■	Wind
☐	Other	☐	Financial institutions	☐	Geothermal
		☐	Other	■	Hydro power
				☐	Other

Context

The town of Lydney became the focus for the community project due to the excellent local renewable energy resources and the need for economic and social regeneration in the area.

The town is located on the north bank of the River Severn with the rolling hills of the Severn Vale to the east and west and the elevated plateau of the Forest of Dean to the north. The region has seen a long term decline in fortunes with the closing of the free mines in the Forest and the reduction in use of the River Severn as a means of transport. As part of a drive for regeneration an independent local consultation study was carried out and this identified that strong and genuine support for a community renewable energy project existed in the town. The Lydney Local Power project was designed to harness this support to develop sustainable energy projects with maximum community benefits.

Objectives

The principal objective was to develop community led renewable energy projects. The Community Energy Club was open to all and provided a structure of regular meetings at which the general public was able to suggest local projects and make decisions relating to their development. The Club also provided an opportunity for raising awareness and encouraging the installation of domestic energy efficiency measures. A series of energy efficiency campaigns were carried out with the aid of the Gloucestershire Energy Efficiency Advice Centre and data on the energy efficiency measures installed by the group were collected and recorded.

Process

The Lydney Local Power Community Energy Club plays the central role in the development of the project. Supported by the project co-ordinator at SWEA, the members of the Club have made decisions on all aspects of the project. The group is made up of local volunteers with an interest in sustainable energy. Members of the club were recruited by putting their name down during the consultation process or by responding to press coverage, posters or word of mouth. The group decided to elect a main steering group and smaller project specific steering groups for the renewable energy schemes.

The smaller groups were made up of around 8-10 local people and were responsible for decisions about the individual projects. The smaller steering groups were accountable to the main Club and would report back at the Lydney Local Power meetings.

Figure 1: Small group consultation during one of the early LLP meetings

The hydro power steering group identified a promising micro hydro site located at the outfall of an abandoned coal mine that spans the Forest of Dean. The reservoir effect of the mine results in near constant year round flows and the water contains very little debris or aquatic life making the system design less complicated. The site is located at a prominent position at the entrance to the Dean Forest Railway, a popular local visitor attraction and heritage railway that attracts 33,000 visitors a year.

A site has also been identified for a community wind turbine. The site has good wind speeds, is away from the wildlife corridor of the Severn Estuary and the landscape already contains a number of large pylons and a major A road which were felt to mitigate the visual and noise impacts. The site was at least 400 metres from all adjacent properties and was not directly overlooked by any residential premises. The land owner is an active member of the Lydney Local Power Steering Group and is prepared to charge a 'peppercorn' rent for a community venture.

The Club's activities also included a series of energy efficiency campaigns, events and site visits. The site visits were aimed at increasing awareness amongst the group and promoting the different technologies at household and community levels. The events helped to recruit new members and raise the profile of the project as well as maintaining the cohesion of the Energy Club. The energy efficiency campaigns involved local schools and local church groups as well as targeting energy club members and the general public.

Figure 2: The Lydney Local Power steering group visit the 500kW Ecotricity turbine near Stroud

Financial resources and partners

The Energy Saving Trust invested 20,000 Euros into an initial feasibility study and business plan for the project. The Trust then provided 70,000 Euros for the two year Implementation phase of the project.
The Severn Wye Energy Agency employed a part time worker to co-ordinate the project and received in kind support from three local authorities, the Environment Agency, the Dean Forest Railway (owners of the micro hydro site) and the local strategic partnership (Lydney Area in Partnership).
The project steering group put in over 7,350 Euros worth of volunteers hours and 66,000 Euros were spent on installing energy efficiency measures by local people.

Results

The club membership has now grown to 115 members and has established itself as a partner in the regeneration of the town. The club has developed a good working structure and has a very committed steering group of 14 people.

Hydro Project

The Norchard Drift hydro project has a full finance package in place with funds coming from the Sainsbury's Family Trust, the EDF Green Energy Fund and DTi Clear Skies programme. The applications for the Environment Agency Land Drainage Consent and Impoundment License are ready to be submitted.

The grid connected hydro electric scheme will generate 55,000 kWh of electricity per annum over a 25 year lifetime. The scheme is expected to be installed by March 2005.

Table 1: Hydro Project Summary

Lifetime Generation (kWh)	Total Cost (Euros)	Cost of Electricity (Euros / kWh)	Lifetime CO_2 Savings (tonnes)
1,375,000	**70,000**	**0.05**	**592**

Energy Efficiency

The energy efficiency campaigns were particularly successful and resulted in a range of domestic measures being installed in homes around the town. The installations include a ground source heat pump and two solar water heaters; a pellet stove has been purchased but is yet to be installed.
The results are summarised in Table 2:

Table 2: Energy Efficiency Measures

Total Measures	**500**
Annual Energy Savings (kWh) **Lifetime Energy Savings (kWh)**	**562,986** **16,295,528**
Annual Carbon Savings (kg CO_2) **Lifetime Carbon Savings (kg CO_2)**	**136,025** **3,864,409**
Annual Financial Expenditure (Euros) **Annual Financial Savings (Euros)**	**66,000** **18,363**
Cost of Savings (Euros / kWh)	**0.004**

Community Wind Turbine

The community wind turbine site has been put out to consultation with various statutory bodies such as the MOD, CAA and BT. Initial several objections were raised and these have been successfully addressed by the community group. One outstanding issues remains concerning a fixed microwave link that passes close to the site. The energy commercial manager at BT is currently investigating the required clearance at the site. Providing that the required space is available the group will continue to develop the site as a community owned turbine.

Lessons learned and repeatability

The key recommendation for other community renewable energy projects is to establish realistic time frames for the completion of the projects. Building support from the community and establishing a coherent structure for genuine local involvement takes time. The installation of renewable energy technologies, especially wind turbines and hydro electric plants, can be prolonged. If the community

group is to have a genuine role in the project it is important to allow time for consulting with the group and reporting back to the members.
The initial public consultation that was undertaken during the feasibility study has been a very valuable document throughout the project. Independent verification of the public support for the project helped to lever in funds from other grant giving bodies and was useful as reference material when decision on projects were being taken by the Lydney Local Power group.

Splitting the larger Lydney Local Power group into a series of smaller steering groups also proved to be successful. Initial larger meetings suffered from fragmented discussions and a lack of focus with little consensus achieved on key issues. Inviting group members to sit on smaller technology specific boards allowed for a concentration of relevant skills and experience. These groups were able to conduct research and make decisions far more quickly and efficiently.

One of the key issues was to maintain interest in the project from the group during the long waiting periods in the development of the renewable energy projects. The response to this problem was to organise a series of events and site visits.

These events:

- Allowed members of the group to see the renewable energy technologies that were proposed for the town for themselves
- Encouraged the take up of domestic renewable energy and energy efficiency measures
- Helped strengthen the cohesion within the group
- Informed the general public about the Lydney Local Power project

If the community group can raise a sum of capital it will greatly assist them in the development of the project. The capital can be used as a lever to attract matched funding from other sources. The capital can also be used to pay for feasibility studies without long delays in applying for grants. This can kick start the project and other funding can be sought once the feasibility study is underway.

Experience from the Lydney project revealed that the co-ordinator role was vital to the survival of the project and that the presence of a paid co-ordinator served to get the most out of the volunteer time that was available. Without the co-ordinator the project would have lacked the drive required to get through the initial stages. Now the project is maturing there is more scope for the community group to become self sufficient.

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