

Report from High Furness Hydropower Meeting, 15th May 2010, John Ruskin School, Coniston

Panel: John Taylor (Colton Parish Councillor and Chair of the meeting)
Colin Davies (South Lakeland District Councillor)
Peter Hensman (formally of Gilkes)
Gwyn Williams (lawyer)
Roger Bingham (historian)
Nick Jones (Little Salkeld Watermill)
Jon Halle (Energy4All)
John Biggs (former Chairman, 'Sustainable Communities in Cumbria')
David Granville (Clerk, Satterthwaite Parish Council)
Mandy Lane (Clerk, Colton Parish Council)

Others present: 23 attended.

1. Introduction (John Taylor)

John Taylor explained the background to the meeting: Hydropower had been somewhat neglected as a possible energy solution for a low carbon economy. Wind power dominated, yet hydropower schemes had a great deal to offer, particularly in areas like south Lakeland.

The meeting would cover the following issues:

1. The potential for hydropower in the South Lakeland area
2. The problems associated with setting up hydropower schemes
3. The potential for cooperative action

2. Potential for hydropower

2.1 Historic precedence for hydropower (Roger Bingham).

Roger Bingham gave an overview of the extensive historic use of water power in the area, with over 40 water mills in south Westmorland before 1500. Water mills had originated in the Dark Ages. Every community had its own corn-mill and community oven, as transport was difficult.

2.2 Little Salkeld Water Mill (Nick Jones)

Nick Jones explained the experiences with electricity generation at Little Salkeld Water Mill - a 'low head' site with a relatively small flow of water. The priority was milling, and electricity could only be generated when the mill was idle. This changed last year with the use of a compact alternator, although the pay-back was small and would take some time to re-coup the installation cost. One particular problem was coupling the old machinery to the new.

2.3 Satterthwaite Parish Council: plans for a micro hydro scheme (David Granville)

David Granville outlined Satterthwaite Parish Council's plans for a new community micro hydro scheme at Farra Grains, with agreement from the Forestry Commission who owned the land. The beck ran for most of the year and access to the site was good, using forest roads. The Council was currently making bids for grant funding. The target date for completion was summer 2011. The electricity would be sold directly into the National Grid; after allowing for maintenance, depreciation and repairs, the remaining revenue would be used for local community purposes.

2.4 Equipment for hydro-electricity generation (Peter Hensman)

Peter Hensman explained that each hydro site needed a unique solution in order to get the best efficiency. The higher the head (the fall) the better, and the higher the flow, the larger the plant had to be. Not all the flow could be used. Dams were often not considered eco-friendly. High and low head sites needed different solutions. Some turbines were not fish-friendly, and there was increasing interest in the use of Archimedes screws for low-head sites to preserve the fish, although the efficiency was relatively low.

He made the following general points:

- Hydropower was capital intensive
- The benefits of hydropower investment were longer term
- A good-quality plant should last for at least 50 years
- 'Plug in and go' compact systems were increasingly available
- Funding: Banks would support schemes as there is evidence for reliability
- Companies like Gilkes would invest in schemes by having a part-interest in the revenue.
- Websites for more information:
 - www.british-hydro.co.uk
 - www.gilkes.com

Oliver Barrett, Backbarrow and Low Wood Hydro schemes: Two sites on the River Leven at Backbarrow and Low Wood. The Low Wood site was developed in the 1950s using the weir and leat from the old gunpowder works. It used Gilkes machines which had given very good service, generating just under 300kw. These were in the process of being replaced with two Archimedes screws (c. 2m diameter), which should be more efficient, expected to yield 450kw. Backbarrow was a completely new plant with a new powerhouse; it had 2 'Kaplan' turbines now giving very good service after a few teething problems. (See www.british-hydro.co.uk for more details.)

3. Problems and Solutions

3.1 Finance (Gwyn Williams and Jon Halle)

The following key points were made:

- It was essential to conduct a good, robust and comprehensive feasibility study.
- The organisation conducting the feasibility study must be given proper brief with defined criteria. This was key to the success of a scheme.
- Feasibility studies themselves must be funded - can cost as little as £2.5K or as much as £30K.
- It was important to allow for other costs, for example in drawing up legal contracts with land-owners, abstraction licensing, possible environmental impact assessments, etc.
- Community projects must involve people who are prepared to put in a lot of time and effort.
- It was important to consult - much consultation and advice was free. Communities should use the authorities and their expertise (for example, the Environmental Agency and local planning authority).

Jon Halle explained the operation of Energy4All (E4A): Based in Barrow, E4A was a not-for-profit organisation and the UK's main promoter of community-owned local energy schemes. Capital was raised through local share offers. To date, this had only been done for wind energy projects. However, with feed-in tariffs (FiTs), this was becoming possible for hydro schemes also. FiTs were generally guaranteed for 20 years and inflation-linked. E4A was looking for community groups, providing money through cooperative schemes for feasibility studies and for development phases. E4A then feeds some of the revenue back into the system for other schemes. This had proved to be a good working model. As an estimate, a 20-30 kw cooperative scheme with few impediments could provide a 4-6% return for its members; this was better than a savings account, for example!

Other sources of funding mentioned were:

- The National Park - at least for feasibility studies. The Brecon Beacons National Park had put substantial funds into supporting a scheme called 'Green Valleys'.
- The North-West Development Agency, which had allocated a new fund for renewable energy projects in rural areas and were looking for expressions of interest before the end of May.
- Utility companies - Lowick Community Hall were awarded a grant from the Scottish Power Green Energy fund.

David Granville (Satterthwaite) explained that there was some doubt that feed-in tariffs were legally permissible for community groups; he would provide details in due course. (*Note provided later from*

Jon Halle, Energy4All: Community schemes could register for and receive FiTs just like any other generator. However some funding streams were incompatible with FiTs, so it was important to check this up with potential funders beforehand.) Also, Parish Councils were not able to go to a bank for a loan. So far, Satterthwaite had received grants from the National Park and the Community Sustainable Energy Programme. One problem experienced was the constraining specifications attached to such grants. The Satterthwaite feasibility study had cost £4900; this had taken the plan as far as establishing that it was a practical proposition. Initial contacts with the EA and the National Park were favourable.

3.2 Hoops and Hurdles

Groups were advised:

- to work with the agencies and the bureaucracy and not to fight them.
- to consult the Environment Agency, in particular, early on in the process.
- to try not to get involved with having to conduct environmental impact assessments.
- to be as clear as possible that the scheme will be accepted before putting in for planning permission.
- to avoid using organisations for feasibility studies who are trying to sell their turbine.
- to avoid using organisations that focus purely on the engineering aspects - the study should be comprehensive, including assessment of access, land ownership, noise, visibility, and also conducting negotiations with agencies and utilities (for grid connection).
- to use local knowledge, time and effort, where appropriate.
- to shop around for organisations to conduct the study and use a tendering process to get best value.

4. Cooperation

The following points were made:

- The National Park Authority should be approached to encourage support for hydropower schemes across the Park.
- It was suggested that an informal group be set up for sharing information and cross-communication with an informal 'rent-a-nerd' scheme! This had been very successful in Herefordshire.

5. Summing Up

Dr John Biggs thanked the panel and participants and closed the meeting. It was agreed that a webpage would be set up on the Colton Parish Council website, to include the meeting report, copies of the presentations and links to sources of information about hydro schemes and funding sources. An email giving the weblink would be sent to everyone present.