

LLES

Llanidloes Energy Solutions Ltd

NEWSLETTER



October 2006

Updates from Diana Berriman, our development officer ...

Energy Efficiency Campaign

You will all be aware of our energy efficiency drive, and thank you to those members helping with the surveys and those acting as guinea pigs to practice it on.

The survey is computer-based and gives a carbon footprint for a household based on actual fuel consumption over a 12 month period. Householders are finding the information very interesting (it is completely confidential) and as more people become involved we are building up a picture of our energy use as a town.

Our challenge is to survey every household in Llanidloes. This will give us a base line upon which to gauge improvements in energy use. Our more immediate target is to complete 250 surveys by November, to meet the requirements of the Spirit 2 grant. Several members have very kindly volunteered to help (thank you!), and if anyone else can give an hour or so to do a survey please get in touch. WE NEED YOU!

We also need people to sign up for a survey, as cold calling is proving a slow way to get people involved (especially as they need notice to find bills etc), so if you can suggest friends or family who live in town I would be grateful. Leaflets about the campaign are available from the LLES office in the Resource Centre if you would like some to hand out. Free low energy lightbulbs and water saving devices are handed out with each survey, which will save people money on their utility bills.

Please contact me on 411131 if you can help at all with this. Thank you.

Hydro-electric scheme

The feasibility study last December, carried out by Dulas Ltd and funded from the Powys Environmental Partnership and Quick Wins funds, identified two potential sites, a low head scheme on the River Severn and a high head scheme at Nant Geifr Reservoir, just west of Llanidloes.

We approached Severn Trent, owners of Nant Geifr, a disused reservoir which used to provide Llanidloes with drinking water, and informed them of our interest. This led to internal discussions opening up within several departments of ST about the future of the reservoir which will continue well into next year.



Richard Drover, hydro engineer from Greener Earth Energy, taking measurements at Felindre Mill.

We also approached the owners of Felindre Mill, Joyce and Noel Benbow, who were very enthusiastic about the possibility of a hydro electric scheme at their mill. We couldn't believe our luck! The plan is to put a waterwheel back on the site of the original wheel with a 10kW generating power. We excavated the pit by the wall of the mill to establish the size of the original wheel, and discovered it to be about 4m across.

We are currently trying to cost the project with a view to making a funding application to take the project forward. Will keep you informed....

Around the World

Portugal, with a population of only 10 million, is installing another 500 wind turbines to increase its current wind capacity to 4,400MW by 2010.

Arizona, with its hot and dry climate is seeking to produce 15% of the state's electricity from renewables by 2020. Utilities will be able to use solar, wind, biomass, biogas, or geothermal to generate clean power.

New building regulations in **Spain** will give the country some of the most advanced solar legislation in the world. They already are one of the largest renewable energy providers in Europe.

A solar roof at Microsoft's **Californian** H.Q. will generate 480Kw/hr at peak, when the demand for energy for cooling is greatest.

The **UK** wind industry expects to install around 836MW of new capacity in 2006.

In 2005 the **German** solar thermal industry turned over 750 million euros, employed 12,500 people and fitted over a million square metres of collector area, up 30% on the previous year.

Bugle village hall in **Cornwall**, with support from the Green Energy Fund has been awarded £30,000 for solar photo voltaic panels which will generate 90% of the hall's requirements and save 145 tonnes of CO₂ each year.

A Green Future for Cwmbiga

Cwmbiga Farm at Staylittle has a fascinating history and an exciting future thanks to the vision of LLES members Susan Kilgour and Peter Bayliss. Owned in the 11th century by the last Prince of Powys, it became part of Abbey Cwm Hir until the dissolution of the monasteries. The Earl of Leicester then gave it to University College, Oxford. The college owned it for 400 years before selling it to a local farmer, Maurice Jones, who in turn sold it to the Forestry Commission. Susan and Peter are the 8th owners of the property in 1,000 years. They plan to make Cwmbiga a state of the art environmentally friendly tourist destination, with B&B accommodation, holiday lets in a converted modern barn, a tea room and even overnight accommodation for horses in the ancient stables, while still retaining Cwmbiga's unique character. All the stone outbuildings are to be kept as they are and the exterior of the farmhouse is to have a coat of lime slurry and a lime wash. The modern barn is to be converted into two timber framed super-insulated cottages, with cedarwood facing and a slate roof.

The whole complex will be heated by an innovative log burning Austrian batch boiler that is so efficient that it will only need to be run for 2 hours per day in the winter to provide hot water for all the occupants and to keep the whole complex cosy and warm. Any quality wood can be used, so all the fuel will be sourced from the Hafren Forest. An Energy Efficiency Survey from the Centre for Alternative Technology identified energy efficiency measures to reduce heat loss from the farmhouse: including secondary glazing (to retain the character of the original windows) and 50mm of insulation on the inside of the solid stone walls. Forty square metres of solar panels (the largest privately owned array in Powys) will supplement the wood boiler, providing about 17,500 kWh per annum. Water demand will be restricted by the use of low flow showers and dual flush toilets.

A small farm will provide organic vegetables, eggs and some meat for guests, with the help of former owner Mr Ieuan Rees (well known to Llanidloes residents for his informative tours of the historic farmhouse and his

beautifully made walking sticks) who is taking a keen interest in Cwmbiga's future and lending a helping hand.

The site, which includes a large pond, is rich in wild life which Susan and Peter are keen to encourage and protect. With the assistance of the local Wildlife Trust and the Montgomeryshire Barn Owl Group, they have identified 32 different species of birds so far, rare butterflies and bats and have installed a barn owl nesting box. One hectare of land is just about to be planted with mixed hard wood trees, which will further the bio-diversity of the site and, in due course, provide a pleasant hillside walk with a view of Llyn Clywedog at the top. The farm features on a new walk recently developed and signposted by the local Countryside Access Officer. "We are doing this because we believe in it", says Susan, "but we also want to appeal to those people seeking an environmentally friendly



holiday, as well as attracting and hopefully educating people who just want a comfortable place to stay. It also makes economic sense with energy prices set to spiral. We will reap the benefits of cheap energy for years to come."

If anyone wants to find out more about the project, or the technology or suppliers they are welcome to phone Susan or Peter on 01686 430615.

Turbo turbines!

One of the criticisms levelled against current wind turbines is the limited time they can usefully generate electricity. At both low and very high wind speeds they are not operational, thus reducing their financial and environmental effectiveness.

Older turbines start generating at wind speeds of 4-5m/s (meters per second) and reach maximum output at around 15m/s. Much higher wind speeds means the turbine shuts down as over-speeding damages the generator. Thanks to recent technology advances, mainly from American manufacturers, those parameters have been greatly increased.

Blade design and control have advanced to the stage where a turbine can continue generating at full capacity at far higher wind speeds without damage.

The latest machines have generators split into 12 individual sections or 'pods', and in very light winds only 3 or 4 of those generating pods will be activated, and although the output is reduced, at least it's generating current. As the wind speed increases, more and more of the 'pods' are brought into use until the machine is developing its full capacity.

A faulty generator used to mean that the turbine was out of action until it could be replaced, a time consuming and expensive job, but this new system can isolate a faulty pod but

allow the remaining 11 to continue working. The faulty unit can then be replaced using the small winch within the housing quickly and easily.

Further developments offshore envisage dual turbines with conventional wind blades and also rotors below the surface of the water driven by tidal currents, thus ensuring the maximum utilisation of capital and space.

Another market sector which is rapidly expanding is micro turbines for domestic use and we are hoping to put details of these on our updated website 'lles.co.uk/technology' before the end of October.

David Utting

Hydrogen – fuel for the new Generation

Jon Maddy is engaged in cutting edge research and development on generating power from hydrogen, at the University of Glamorgan. Recently he came to Llanidloes to speak about his work.

Hydrogen is one of the most plentiful elements on earth (mainly in combination with oxygen as water), and has the highest energy per unit of any gas. It can be separated out (catalysed) and used to fuel vehicles or just about anything else, but of course this takes energy. This could be from a renewable source such as wind (which solves the problem of the National Grid not being able to take in more electricity) or biomass fermentation, making hydrogen gas for vehicles, and storing energy for future use. Or it can be made in a fuel cell - a device which could be tiny enough to power a mobile phone or large enough to drive a bus. Prototype vehicles and fuel cells are still very expensive, but like anything else, more demand will bring this down.

As everywhere in the world can potentially produce its own hydrogen, the problem of transporting fuel by pipeline (like the one scarring the land from Milford Haven and threatening the Brecon Beacons national park) or ship and the risk of political upheaval cutting us off from supplies are solved. Its use emits no carbon or polluting particles - air pollution causes 3 million deaths a year

world wide - 24,000 in the UK. One problem with fuel cells is that they need precious metals like platinum to power the reaction of splitting the hydrogen and oxygen, but in future enzymes might take their place in a biological reaction.

Jon stressed that it was still very early days for hydrogen power, and the several exciting projects he is involved in throughout Wales are experimental. After the talk, someone remembered hearing about hydrogen research almost half a century ago and asked why we weren't much further on. The simple answer: the discovery of North Sea oil (and presumably the heyday of the nuclear energy myth of power that would be too cheap to meter and last for ever) put a stop to any research and development. Now we in Llanidloes have the opportunity to be pioneers, possibly using hydrogen to store wind energy or developing a two-part system which takes in waste and produces both methane and hydrogen. If you want to know more about the technical side and about projects in Wales, see www.h2wales.org.uk - A Sustainable Energy Supply for Wales: Towards the Hydrogen Economy.

So when I was in London a couple of weeks ago, watching a million-pound shiny new bus puffing out steam in the cool autumn morning, I knew what was going on inside it - well, more or less!

Beck Woodrow

LLES on 'Today'

"The Today Programme will be visiting the Royal Welsh Show", announced John Humphries on Radio Four, "please contact us if you know of an interesting story from mid-Wales." I promptly emailed 'Today' detailing LLES' aims and activities, and the next day Polly Billington, a young reporter, got in touch to say they were very interested in what LLES was doing and wanted to do an article on us.

Polly visited us the next week and spent an entire day with Diana in Llanidloes interviewing people and finding out about our activities. I arrived at the

Llanidloes Resource Centre to find Polly in the garden interviewing three young girls dressed as light bulbs who were to help give out low energy bulbs at the show (unfortunately this was cut out of the broadcast).

The broadcast began with Polly asking me why I had contacted them and what we were doing in Llanidloes to combat climate change. I explained our aim to make Llanidloes a 'zero carbon' town by generating our own electricity and gas from renewable resources.

Felindre Mill was the site for the next report on our proposed small scale hydroelectric project. Noel

Benbow, who owns the old mill which is sited in his beautiful garden, enthusiastically explained the plans to convert it to generate electricity: "I like some of the water for my garden, but I'm prepared to share some of it for making electricity".

Gwen Prince



Stop Climate Chaos march and rally

Climate Change is affecting our weather but in developing countries it is costing millions of lives with floods, droughts and storms. Come and be counted and add your voice to thousands of others around the world to demand that governments act now before it is too late.

The Stop Climate Chaos coalition which includes development groups such as Oxfam and Christian Aid, environmental groups, trade unions, churches, the WI - you name it - are launching an 'I Count' campaign with a

big event in London on Saturday November 4th including a march to Trafalgar Square from the US Embassy, followed

by a rally with speakers, music and film.

The aim of the event is to demonstrate to governments the strength of feeling about climate change and to call on the government to take action quickly and effectively. Similar events are being planned all over the world on the eve of critical international climate talks in Nairobi.

Please tell your friends and colleagues about this and let's make our voices count. This is a really important event - don't miss it! Gwen is organising transport to London. Please let her know if you can come by email or phone 411128. You can get further information from www.icount.org.uk.

A NEW USE FOR OLD TYRES

Using over 400 used tyres collected from local garages and farmers (so some of them may be from your cars), our spring project was to build this wall at the side and front (and a bit around the back) of the house. I have planted most of it, with plants growing in all directions so that in the fullness of time the tyres won't be visible. All the earth excavated to make space for the wall was compacted into the tyres to make the wall immovable, so there was no earth to get rid of off site. The tyres were free, with the added benefit of being diverted from landfill. It costs about £65 per tonne to get rid of tyres to landfill, so the



The wall under construction. Old fencing was put behind the tyres to further strengthen the wall.

garages were very happy to let me have them. So a very cheap solution

(the one builder's quote we had to do the job in stone and stake was £12,000!) If anyone's got any spare plants to get rid of I've got just the spot for them.....

Diana

More from Diana

Fundraising ideas needed....

I am applying to the Council for a grant from the Powys Environmental Partnership (PEP) to enable us to continue the Energy Efficiency Campaign for a month or so in January/February. We need to provide match funding for it, some of which can be volunteer time, some will have to be from our own funds. If volunteers are prepared to help with the surveys to the tune of a collective total of 64 hours (over 6 weeks), we would need to find £500.00 ourselves. I thought about having a one-off fundraising event, e.g. cake stall, sponsored run, etc., to raise the money for this. If anyone has any ideas, big, small, imaginative or not, please let me know.

Funding Energy Efficiency Measures

The Council's CO2i (cosy) scheme is running again until March 2007. This gives assistance of up to £500.00 for measures such as cavity wall and loft insulation, draught proofing and energy efficient boilers. To apply ring 0800 512012.

LLES has joined forces with our local credit union (www.romcul.co.uk)



Undeb Credyd Sir Drefaldwyn
Robert Owen
Montgomeryshire Credit Union

to provide low cost loans for energy efficiency measures in the home. Leaflets giving details are available from the LLES office, or email: office@romcul.co.uk .

HEES Wales gives heating and insulation grants of up to £2700.00 for certain households depending on income. To find out if you qualify ring 0800 316 2815.



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Llani Car Club Survey Progress Report

The email to LLES members yielded 18 replies out of 95 sent, which is a very good response. I have also done some canvassing around town and had questionnaires in the Resource Centre, Library, Doctor's Surgery and the Sports Centre. I received a further 17 responses from these locations. 35 questionnaires answered so far.

So far the number of people who expressed an interest in joining was 15 with an extra 6 saying maybe and 14 not interested. 24 people had heard of the car club concept already. The main reasons for joining amongst the Yes and Maybe's were environmental, saving money and having access to another car rather than having to own a second one. 8 people ticked the box saying it could be a way of replacing their car. Most of the yesses and *maybes* lived within 2 miles of Llanidloes but 4 lived further out. 11 of the yesses and *maybes* have one car in their family, the remaining 10 have 2 or more.

I was pleasantly surprised at the number of people interested in joining a scheme and although I had hoped to get more responses I feel it is sufficient to make a case for moving to the next stage, which is persuading Llanidloes Community Transport to apply for funding to set up a scheme. Currently they do have a vehicle available for use by the general public at weekends. My intention is that they will have another vehicle available 24 hours a day to car club members, probably a small one, like a Corsa or Smart. Then in time as demand grows, adding another vehicle.

Andrew Capel

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?
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?
Lovely selection of organic and welsh cheeses

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