Farming has constantly evolved over the centuries, changing its crops to suit the needs of the times and adapting its processes with the advance of new technologies. The landscape has changed and the communities that manage this land are facing a future rich in challenges.

Farming the wind is another classical milestone for agricultural Britain. It complies with the age-old objective of farming, imbued with heritage and tradition, which is to produce from the land for the benefit of all.

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This brochure is also available as a Welsh language version.

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Wind Farmers

A unique project harnessing natural energy, conceived, developed and owned by part of the local farming community

Welcome to the fascinating story of the Wind Farmers

“Cwmni Gwynt Teg” is an immensely successful wind farm that is unique because it has been conceived, developed and owned by a co-operative of local farmers in North Wales. Initiated in response to falling income from hill sheep farming, the scheme provides clean energy locally and a recent highlight for the project was the winning of the prestigious Ashden Awards for Sustainable Energy in June 2003.

It is planned to expand the scheme by a further 9 turbines in order to secure the financial viability of the project for the future, and provide additional local community benefits.

The aim of the project

To develop wind power for electricity generation in a way that retains the economic benefit within the local community.

The story so far ...

Looking for a solution to the problems facing farming

This project was originally conceived by three hill farming families near Llanrwst whose livelihoods and way of life were at risk due to the various challenges that have faced farming over recent years. Hill sheep farming in the area is unbelievably still under restrictions from the Chernobyl nuclear disaster in 1986 when the Welsh hills were polluted by nuclear fallout. As if that wasn’t enough, due to BSE there have also been restrictions on the sale of beef. Along with constant market volatility for their produce, such challenges together conspired to reduce the income of hill farmers by 75% over a three year period.

It was time to look for a solution to these problems! During the winter of discontent for farming in 1997, and whilst taking part in major protests at the Port of Holyhead, it became increasingly obvious to the farmers that they faced real financial hardship, and uncertainty about the future of farming for their children. It was during this depression that the co-operative, called “Cwmni Gwynt Teg” (meaning “Fair Wind”) was conceived. It was formed in early 1998 to diversify from traditional farming activities and develop a small scale wind farm of three turbines.

Whilst the three hill farmers were suffering badly from the various crises in agriculture, they realised that they, as hill farmers actually owned some of the best and most productive wind power sites in Europe. So, despite having no background whatsoever in the wind industry, the families set out to develop, finance and build a farm to harness their greatest natural asset – the wind! It then took five years of dedication and hard work, especially the challenges of raising the necessary finance, until the project, featuring the UK’s 1000th wind turbine, finally came to fruition at the beginning of 2003 when it was officially opened by Rhodri Morgan, First Minister for Wales.

One of the turbine positions was sold for equity to a German company in order to make the project financially viable. The remaining two are still in the ownership of the farming co-operative.

Following the success of the first project, the co-operative plans to extend the site, which will in turn provide more benefits to the local community. This next (and final) exciting phase is called “Ail Wynt’, or “second wind”.

The need for this form of energy

It is now beyond doubt that the burning of fossil fuels by traditional types of power stations, and the consequent emissions of carbon dioxide, sulphur dioxide and nitrogen dioxide, are causing global warming and erratic weather patterns. This in turn is damaging the earth's fragile eco-systems. Following a World Summit in Kyoto, Japan, when the governments of the world came together to address the pressing environmental problems faced by the planet, Westminster government has set targets that 10% of electricity requirements are to be generated from renewable sources by 2010. In February 2003, the Welsh National Assembly put Wales on a path to a zero carbon electricity system and also set out its vision of Wales becoming a global showcase for sustainable clean energy production. In recognition for the need to promote renewable energy resources in Wales, the National Assembly has adopted a target of 4 Terra Watt Hours (Twh) (ie. 4 billion Kilo Watt Hours) of renewable energy production by 2010 and has set an objective of some 7 Twh by 2020. A significant proportion of this renewable energy will need to be provided by onshore wind, as this is by far the most advanced of all renewable technologies.

If action is not taken locally to create alternative sources of energy, then climate change is likely to significantly alter the landscape of Wales forever. In order to overcome this global dilemma we must embrace the technologies available to us today.

Supportive local community

The project has enjoyed tremendous support from the local community to date, with 1500 people turning out in September 2002 to celebrate the erecting of the first turbine. In addition, 500 people turned up on a freezing winter day on 31st January 2003 for the official opening of Cwmni Gwynt Teg's two turbines by Rhodri Morgan, and the official launch of Ail Wynt.

Award Winning

Due equally to the success of Gwynt Teg and its proposals for Ail Wynt, especially of its groundbreaking plans for the local community, the project won the prestigious Ashden Awards for Sustainable Energy in June 2003. Chosen from 25 renewable technology projects from throughout the UK, the award recognises outstanding and innovative renewable energy projects, and winners must be seen to be exemplary in the field of renewable energy and inspirational for others to follow. In particular, schemes are recognised that aim to alleviate poverty and/or improve people's quality of life while protecting the environment.

At the awards ceremony, held at the National History Museum in London, the announcement that Cwmni Gwynt Teg were the 2003 UK winners was enthusiastically received by all. The emotion of the moment even spilled into song as the sizeable Welsh contingent belted out "Hen Wlâd fy 'Nhadau", urged on by some informal conducting by awards presenter Jonathan Dimbleby.

The Facts

The existing project - Cwmni Gwynt Teg

Output

The existing project at Moel Moelogan, "Cwmni Gwynt Teg", comprises of two turbines, each capable of producing 1300 Kilo Watts (Kw) of electricity per hour. The amount of electricity produced by wind turbines, in relation to their potential capacity, obviously depends on how windy it is! The average site in the UK produces electricity at a capacity factor of 30%. Since production started in January 2003, the turbines at Moel Moelogan have been producing electricity at an average of 43% of their current capacity for 24 hours per day, 7 days per week - this is the equivalent of producing at full power for 10 hours per day, 365 days per year. The output of the three turbines is equal to the requirement of 2500 homes, or all the farms, homes and villages in the Bro Garmon area, as well as Llanrwst, Betws-y-Coed and Trefriw. A turbine on a typical British site, even operating at just 30% of capacity, will produce double the electricity of the same turbine on a typical German site, yet there are 14,500 turbines in Germany!

The electricity produced from Moel Moelogan goes to the local Llanrwst sub-station 4.5km away and is sold to the Non-Fossil Purchasing Agency (NFPA) - who have half yearly auctions to sell on to the utilities.

Funding

The funding for the first project was provided by a loan by Triodos Bank (the leading ethical bank for funding sustainable projects) (£1.7 million), Objective One funding (£366,000), and a Barclays Bank loan (£460,000) (£2.5 million total).

Ownership

Two turbines are owned and operated by the local farming co-operative, the third turbine is owned and operated by Energiekontor, a German wind development company. This turbine is just as efficient as the Cwmni Gwynt Teg turbines and is also producing electricity for local distribution.

The new project - Ail Wynt

Output

The new scheme was originally intended to feature an additional 11 turbines. However the views of some local people and public bodies such as the Countryside Council for Wales (CCW) were taken into account as part of the consultation process, and the plans have been revised to incorporate just 9 additional turbines, within a more compact area and at reduced height.

If the UK average on-shore capacity factor of 30% is used, then the new scheme is forecast to produce 30.7 million Kw/h of energy per year, this will provide enough energy for some 7,300 homes (16% of the County). Based on actual figures of 43% capacity from Moel Moelogan, the site is set to produce 44 million Kw/h, which is enough energy for 10,400 homes.

Funding

It is anticipated that some 75% of the total cost will be raised through a commercial bank who will have a charge over Ail Wynt's assets. The other 25% or so will be raised by a combination of an investment issue, and the co-operative's own endeavours.

Ownership

Uniquely in Wales, it will be owned 100% by the farming co-operative.

Frequently Asked Questions

What about the visual impact of the wind turbines?

The Ail Wynt co-operative fully appreciates the concerns about the visual impact of the development. At the heart of the co-operative is the overriding desire to protect the natural beauty of the Welsh landscape for future generations. Therefore every care has been taken to site the turbines in positions which have minimal impact in terms of visual appearance. The majority of the new turbines will be situated on lower ground in a natural hollow, which makes the development difficult to see from many local areas.

Many people actually see wind turbines as graceful and even therapeutic forms of art in the landscape. We appreciate that this view is not held by everyone, but they are certainly more elegant than a traditional power station belching out clouds of smoke.

There is also the argument that windmills have been a part of the Welsh landscape for many hundreds of years, and that wind farms are just the latest incarnations of this genre.

Is the site in an environmentally sensitive location?

The area is not in the Snowdonia National Park, it is not an Area of Outstanding Natural Beauty, or any other designated area such as a National Nature Reserve or a Site of Special Scientific Interest. The site is in a Landscape Conservation Area, and this has been taken into account during planning and development.

The project has no adverse effect on natural habitats or archaeological sites. Also, because the turbines require minimal maintenance, there will be no significant traffic increase in the area.

Are offshore wind farm developments a better option?

It is commonly accepted that it is cheaper to generate renewable energy from on-shore sites. However the co-operative supports the development of offshore wind farms, as these are another important element of the overall renewable strategy for Wales. Offshore wind farms will be clearly visible from populated, tourist based coastal areas as we are witnessing off the North Wales Coast, but they obviously don't have the same visual impact within the rural landscape. However they do not have any of the advantages of the Ail Wynt scheme such as access for maintenance and financial benefits to the local community through local ownership - all the elements that have made this project an Award Winner.

Do wind turbines produce excessive noise?

No, there are stringent noise limits that must be adhered to. Apart from the farmhouse there is only one other property that is within one kilometre of the site, and tests have shown that noise levels are comfortably within the recommended limits. Monitoring of noise is however undertaken on a regular basis by an independent authority.

Do wind turbines affect local property prices?

Although claims have been made that property prices may be reduced near wind farms, surveys have shown that there is no overriding evidence to support this claim. Indeed the only comprehensive survey commissioned in America, based on 25,000 homes within a 5 mile radius of various windfarms, showed no change in values other than a small increase.

Is this an acceptable location for wind generation?

The environmental assessment process has shown that the proposal will not cause harm to planning interests, and the scheme's contribution to national and Welsh objectives for generating more power from renewable sources far outweighs the limited visual impact of the development on the local landscape.

Is the ownership of the new turbines being retained by the local co-operative?

Yes, Ail Wynt will own 100% of the new turbines.

What has been the electricity production since the project started?

Production from Cwmni Gwynt Teg commenced on the 15th of January 2003. Total production from both machines, up to the 14th of June 2003, was 3.6 million Kw/h and this period included a one month running-in period, when the machines were only allowed to operate at up to 70% power, and it also excludes most of the windy season - autumn and much of the winter.

Even so, the turbines have still generated pollution-free energy at a capacity factor of 43.5%, which is very encouraging. To put this figure into context, the average capacity factor for on-shore wind turbines in Britain, for a full year, is 30%. This clearly demonstrates Moel Moelogan's suitability as an ideal location. All of the production is sold on, as it is produced, at the contract price (5.1 pence per Kw) to the Non Fossil Purchasing Agency (NFPA).

Summary

The winning of the Ashden Awards has already acknowledged the significance and the sustainable nature of this project, and especially the concern that the co-operative has demonstrated to listen to the views of the local community. Incisive action must be taken to address the challenges to farming and the environmental damage caused by traditional sources of power generation. Ail Wynt is a natural evolution of the existing and successful Cwmni Gwynt Teg development.

We hope we can count on your support for this project to help benefit the local area and community.

- At least 26,400 tonnes of Carbon Dioxide saved annually
- At least 304 tonnes of Nitrogen Dioxide saved annually
- 100% locally owned
- Over £200,000 injected into the local economy annually
- UK 2003 Ashden Award winners
- Pioneering Energy Saving Scheme
- Unique investment opportunity for local people
- Replicable throughout Britain
- Approved by CCW
- In partnership with the RSPB
- Supported by the Church of Wales, and Farming Unions
- Only farmer co-op project in Britain