

2 How Communities have already Invested in Wind Energy Projects

2.1 The European wind energy experience

Community investment in wind energy has worked well in Germany and in Britain. The real success story, however, is Denmark.

The steady demand for turbines from Danish community projects enabled infant manufacturers to stay in business during periods in which commercial and export demand almost disappeared. These companies then went on to become some of the largest producers of turbines in the world.

2.1.1 A Danish case study

The Danish experience is very relevant to Ireland in view of its similarity in population, size, wind resource and co-operative tradition. The popular movement to invest in wind energy on a community basis in Denmark can trace its origins to three families living in Ny Solbjerg on the outskirts of Aarhus. After the sharp rise in oil price in 1979 families and neighbours, who had previously shared a snowplough, decided that they should club together to buy a wind turbine to meet their energy needs. They would erect the turbine on the boundary where their properties met and sell any surplus electricity to the grid. This was a bold step as about €45,000 (€177,525 today based on the increase in the consumer price index since 1979) or €15,000 per family was needed to purchase the 55kW turbine they had in mind. Two of the families needed to take out loans secured on their properties to raise their share.

The local electricity company (Denmark has 110 regional power distributors) was much less enthusiastic. In fact it said quite categorically that there was no question of its accepting the group's power. It took political lobbying, a debate in the Folketing (parliament) and the direct intervention of the Minister for Energy to get that decision reversed and the grid connection made. A further two years of negotiations over the price followed but the agreement they made formed the basis of all subsequent group connections. Under it, they delivered all the power they produced to the public network and were paid 85 per cent of the household price for it. They then bought back all the electricity they needed at the full price.

When these generous purchase arrangements were announced, the group was almost overwhelmed by people telephoning to ask for help in setting up their own turbines. A total of 377 turbines were installed between 1979 and 1980 and wind power guilds were set up all over the country, drawing on a rural co-operative tradition that is very similar to that in Ireland.

Support Mechanisms

The only limitation imposed by the Danish Government on other groups getting similar treatment was that all members of a guild had to live in the same electricity supply area and within 3km of its turbine. No Environmental Impact Assessment (EIA) or Environmental Impact Statement (EIS) was required so long as there was 'no major impact'. The idea was that if people in the area around the turbine experienced any inconvenience from it, they should at least be able to enjoy its advantages. Persons from outside the area were not allowed to invest in these turbines and gain the advantage of cheaper electricity without being affected by any noise or visual disturbance from the turbine sites.

The emergence of the guilds¹⁹ was a crucial factor in generating political support for the development of wind power. The first fruit of this was the adoption by the Folketing of the 1981 Energy Plan, which gave grants covering one third of the cost of installing a turbine. Three years later, the grants were replaced by a subsidy of 15.5 ore (1.9 cent) plus VAT for every kWh supplied to the grid. As a result, the buying price in 1994 was between 60 and 65 ore per kWh, depending on the price of power in the area in which the turbine was located. This was equivalent to roughly 8.25 cent per unit, and included a 27 ore (3.4 cent) state subsidy. According to Johannes Poulsen, the managing director of Vestas, Denmark's and the world's largest turbine manufacturer, this was enough to give a 15 per cent return on the capital invested.

The subsidies were limited to 150 per cent of each household's electricity consumption.²⁰ An average Danish household consumes 6,000kWh per annum so a typical guild member could avail of subsidies for the production of 9,000kWh. Any income over this was taxed. The requirement that participants in community schemes had to live within 3km of the turbines was later extended to 10km. The production of up to 30,000kWh by any person who lives, works or owns property in the borough in which the turbines are sited is now allowed.

¹⁹ Danish guilds are partnerships rather than co-operatives because Danish law does not allow the members of a co-operative to set the interest they pay on its loans against their personal income tax.

²⁰ CSA Group Ltd, Final Report submitted to the Renewable Energy Partnership December 2003, p.107. Other material on wind energy in Denmark is taken from Douthwaite, R., Short Circuit, Lilliput Press, Dublin, 1996.

2 How Communities have already Invested in Wind Energy Projects

The tax relief and high guaranteed prices for wind electricity made Denmark not only a world leader in wind power generation, but also the leading global centre for turbine research, engineering and sales. Thousands of jobs were created. Wind Farms, 80 per cent of which are community-owned, now account for almost 22 per cent of Danish energy needs and more than 100,000 Danish families are wind guild members. Most financed their participation with loans provided by local savings banks and credit unions. Denmark intends to generate 50 per cent of its energy, 5500MW, from the wind by 2030. **File 3: Danish Community Wind Farms**

In drawing lessons from Denmark's experience it should be remembered that Danish communities became involved in wind energy in the early phases of the technology's development. This was a time when the turbines and the wind farms themselves were too small to interest the established power generating companies and large investors. This helped incubate small locally-financed community projects. Irish communities will not have this advantage unless a degree of protection is provided.



2.1.2 The British experience

The best-developed British example of community investment in wind energy began in 1996 when a Swedish company, which had developed a wind farm at Harlock Hill in Cumbria, offered ownership to the local community through the Baywind Energy Co-operative Ltd. The co-operative was established as a vehicle for community investment. The offer was based on a renewable energy investment model widely used throughout Scandinavia. Two share offers raised nearly stg£2 million, 50 per cent of which came from people living in Cumbria and North Lancashire. This enabled the co-operative to buy three turbines and in 2001 it took out a bank loan to buy the remaining three. The co-operative has run the Harlock Hill site ever since. **File 4: British Community Wind Farms**

Today Baywind Energy Co-operative Ltd has 1,300 shareholders and owns six wind turbines on two sites. The co-operative has a minimum shareholding of stg£300 and a maximum of stg£20,000 to allow the widest possible ownership and works on the principal of one member one vote. Seven shareholders are elected by the others to sit on the board. All profits from electricity generation are distributed to the shareholders after the co-operative has met its operating costs. Since 1996 members have received between 5.6 per cent and 6.6 per cent pre-tax return on investment or between 7 per cent and 8.2 per cent return under the British Government's Enterprise Investment Scheme.²¹ Members will receive their capital back at the end of the project's life. If their money was on deposit with a bank at present they would earn from 1 to 3 per cent.

In addition, a percentage of the co-operative's income is diverted to an energy conservation and educational trust for the locality. The trust has worked with the local community for seven years to provide energy efficiency advice and grants to homeowners and community organisations in conjunction with the Carlisle Energy Efficiency and Advice Centre. In addition, schools and colleges receive grant assistance and support. Representatives from Baywind advise other community groups and hundreds of people from the UK and overseas have visited the site at Harlock Hill.

²¹ The Enterprise Investment Scheme is similar to the Irish Business Expansion Scheme. It aims to help smaller trading companies raise equity finance from outside investors by offering tax incentives to them. Under the scheme, investors can take an active part as directors in the management of the companies in which they invest. The scheme is administered by the Inland Revenue and further details can be obtained at www.dti.gov.uk.

2 How Communities have already Invested in Wind Energy Projects

Energy4All Ltd

Baywind Energy Co-operative recently established Energy4All Ltd to enable communities throughout Britain to invest in and develop their own renewable energy developments or to join in larger developments in their region. According to Angela Duignan, Project Development Manager of Energy4All, the company provides the experience, expertise and administrative systems to create new co-operatives and enable them to own and manage their own projects. She states that

'The process involved in taking a project through to the point at which a turbine can be handed over into community ownership is legally and financially complex and involves considerable negotiations with larger wind farm developers. We are the only agency in Britain with experience of negotiating financially viable community ownership schemes.'

The demand in the UK for public involvement in renewable energy developments is considerable and Energy4All has registered over 2,500 potential investors through its website (www.energy4all.co.uk) without advertising or promotion. When it sets up co-operatives, it gives preference to local investors so that the neighbouring community can maximise the economic benefits of the scheme. Energy4All is also working to develop a scheme to offer the green power produced by its wind farms to local homes and businesses.

Baywind Energy Co-operative has proved over the last seven years that the community ownership structure can be commercially successful and can bring major benefits to the local community:

- the co-operative members receive attractive annual dividends on their investments;
- the Energy Conservation Trust promotes energy conservation in the local community;
- the co-operative uses local contractors for site development, maintenance, and support;
- the wind farm is visited by hundreds of school children and adults on educational visits and Baywind provides environmental books for local schools;
- members receive a regular newsletter and support service on sustainable energy investment;
- the farmer receives land rental and the local council receives business rates;
- direct local involvement increases awareness of environmental issues at grass roots level.

'Part or full ownership of wind farms by the community is a most effective way to raise capital, maintain profits in the local economy and provide a sense of involvement', Angela Duignan says. 'It therefore increases the grass roots level of support for renewable energy and for additional climate change mitigation measures. Community ownership of part of a scheme ensures that almost all the revenue does not end up in shareholders' pockets elsewhere in the UK with only a tiny percentage left behind in the area which produced it. Revenue is distributed locally and is then available for reinvestment in the area rather than servicing loans from city banks and firms very often located overseas. The Baywind model has worked well for over seven years in Cumbria and we are now applying it in other communities.'

2.1.3 Community wind farms in Germany

Hollich Windpark

Hollich Windpark in northern Germany represents the classic German model of community ownership. It consists of eleven turbines each of 1.5MW capacity, erected at a total cost of €19 million by a limited liability company with limited partnership,²² a form of ownership not available in Ireland. The company has 155 partners all resident in the city of Steinfurt and drawn from all walks of life. The maximum each partner was allowed to invest was €40,000 and the minimum was set at €4,400. Many took out loans to finance their shares.

The process which led to the development of the wind farm began when the site was designated as a preferred area for wind energy in the local development plan. The turbine manufacturer Nordex was actively seeking land leases in the area and the local agricultural association, LOV, established a planning committee to avoid conflicts between local farmers and find a local solution to planning objections. The farm was developed by the planning committee using the experience of one of its members who had operated wind farms since 1990. Only one public meeting was held and this was followed up by sending information by post to individuals who requested it. The farm pays compensation each year to people affected by its noise.

²² GmbH & Co. KG. The shares can be sold to family members provided that the shareholders agree by simple majority. If shares are to be sold outside the group then the other shareholders have first right of refusal.

2 How Communities have already Invested in Wind Energy Projects

The Burger Windpark

The Burger Windpark in Lower Saxony was also initiated by the local farmers' association which worked with the manager of the local Raiffeisen farmers' bank. It has 19 turbines of 1.5MW capacity each installed at a total cost of €30.4 million, although community investors own only five of these. The association appointed an outside expert to manage the project for a small fixed fee and a 3.5 per cent share of the profits. The expert chose the site in an area already designated for wind energy in the local development plan. All residents in and surrounding the designated area were invited to participate in the project by investing €5,000 each.

Once planning permission had been obtained, 11 of the turbine sites were sold to an energy company, Energiequelle, to provide the capital to install five turbines as a community project. The three remaining turbine sites were developed privately. Interestingly, only one public meeting was held and no prospectus was issued. Twenty-six residents contributed to the project initially and a further seven joined after planning permission was obtained and before construction began. Voting rights are distributed in proportion to each person's shareholding and decisions are taken by a five-person board. It took two and a half years from the time the investment was first sought to the start-up of the farm. *File 5: German Community Wind Farms*

2.2 Community wind farm projects in Ireland

Despite such positive experiences elsewhere in Europe, very few Irish communities have taken even the first steps to develop their wind energy resources. Of the 29 wind farms operating or under construction in Ireland in November 2003, only two small-scale developments could be regarded as community projects.²³ (See Table 1)

The first of these is on Inis Meáin, one of the Aran Islands off the coast of Co. Galway. Three 225kW turbines are used to power a seawater desalination plant required to supplement the island's inadequate groundwater supply. The second is a 660kW turbine installed by the Burtonport fishing co-operative to generate electricity to supply its fish processing and freezing plant. Together, these two projects made up only 0.7 per cent of the country's total installed wind capacity. *File 7: Irish Community Wind Farms*



Table 1: Status of community wind energy projects in Ireland, December 2003

Name	Location	Stage of development in Nov 2003	Issues that arose	Comments
Fuinneamh Glas Teoranta (Inis Meain)	Aran Islands, Co. Galway	Complete	Planning objections were received (including European Commission re lack of EIA) but project was granted planning permission.	Wind Farm is being used for desalination.
Cumhacht Comharchumann Teoranta – a fishermen's co-operative (Burtonport)	Burtonport, Co. Donegal	Complete		Construction of 660kW turbine began in May 2003. Energy used for fish processing and freezing.
Bere Island Project Group (Bere Island)	Bere Island, Co. Cork	Power Purchase Agreement obtained	Failed to raise grant co-funding for loan finance. Planning permission expired Jan 2004.	Only community dividend to be paid: for community projects – envisaged that project will not go ahead.
Comharchumann Chleire Teoranta (Cape Clear)	Cape Clear Island, Co. Cork		Currently looking at erecting one 0.66MW turbine due to grid constraints. Community group uncertain about viability	Have not yet applied for planning permission.

²³ CSA Group Ltd Final Report submitted to Renewable Energy Partnership, December 2003

2 How Communities have already Invested in Wind Energy Projects



Bere Island Project Group

On Bere Island, which is located off Castletownbere in West Cork, a wind energy co-operative hopes to erect a 600kW Vestas turbine. This will be linked by undersea cable to the electricity distribution grid at Castletownbere. The co-operative was established by the island's 200 residents plus those who holiday regularly there and emigrants who still regard the island as home. Each was asked to buy a €1 share to become a co-op member. The revenue from the electricity sales is to be a community dividend. It will be used for island development projects decided upon by an elected committee operating under the island's integrated Conservation Plan. If the project goes ahead 'the island will have an income for 25 or 30 years which could have an enormous multiplier effect as you need cash of your own whenever you are looking for money from anyone else, says Mary Jordan, who worked on the project for 18 months.

The co-operative obtained a Power Purchase Agreement under the fifth round of the Government's Alternative Energy Requirement (AER) bidding system for renewable energy purchases, AER V, and had planning permission for the turbine. It was unable to go ahead as planned in 2003 however, because, even though it had raised over €100,000 from island sources, it was unable to get the €200,000 grant aid it felt it required to make the project viable. The co-operative had linked with a Scottish island community to apply for INTERREG funding but this was unsuccessful. The co-operative has also tried to source grant aid funding from national sources but again have been unsuccessful.

The refusals meant that construction was unable to proceed. The planning consent for the turbine expired in January 2004 and a new application will have to be made. It is unlikely, at the time of print that the project will go ahead as planned. The lack of funding essential to the viability of the project has broken the momentum and some of the support for the project at local level.

Templederry

Another community wind energy project in the pipeline at present is that at Templederry, Co. Tipperary where two wind farms are planned: a small fully community-owned farm with three 1.3MW turbines and another of 40MW to be owned by a group of local farmers. The project started in 1999 when the community development group, a registered co-operative, obtained funds from Tipperary LEADER to develop a Community Development Plan. After public meetings in four parish centres and widespread consultation, they identified renewable energies, including wind, as a way of achieving social, economic and environmental development. Accordingly, feasibility studies into three renewable sources – wind, biomass and anaerobic digestion, were carried out by the Tipperary Energy Agency with funding from the County Enterprise Board. As a result of the wind study, the community erected a 10m anemometer (*File 8: Technical Glossary*) on the proposed wind farm site in 2002 and this has validated the wind resource. Planning permission is now being sought.

The community co-operative has registered a private limited company, Templederry Energy Resources Ltd, to carry out the wind farm development, and holds a no-cost 8 per cent share in it in exchange for the work it has done to date. The remaining shares were offered to members of the community who were informed that their investment could be lost if the project failed to get through the planning process. Despite this, the offer was oversubscribed.



2 How Communities have already Invested in Wind Energy Projects



Other projects

Other community projects under development include those by groups at Kiltimagh, Co. Mayo and near Ballyshannon, Co. Donegal. Locally-owned (as opposed to community-owned) projects are being developed by Golden Vale Co-op Marts Ltd of Kilmallock, Co. Limerick, which helps landowners select sites and move through the planning process. The landowner becomes a member of the wind farm co-operative operating on his land.

Meitheal na Gaoithe

Meitheal na Gaoithe²⁴ was set up as a co-operative to promote the development of wind and other renewable energies in ways that will allow farmers, communities and other groups to retain the financial and social benefits of wind farms in their areas. It provides information and support to its members and highlights issues at national and EU level.

Until the end of 2003, Meitheal na Gaoithe held numerous workshops around the country supported by the Renewable Energy Information Office and involving international experts. In spite of high levels of participation the workshops were discontinued. Meitheal na Gaoithe's chairperson, Tommy Cooke, says that the organisation took this step because of the losses that small and medium-sized wind farm developers had experienced as a result of failed planning applications and unsuccessful feasibility studies.

For example, projects that had succeeded in gaining planning approval were now at serious risk because they could not get Power Purchase Agreements, he added. This meant that the developers were not able to apply for grid connections and their projects were impossible to finance. Meitheal na Gaoithe estimated that approximately €4 million had been lost by small and medium-sized developers to date with at least €1 million being lost on failed planning applications.

'Small-scale community wind energy developments may have public support and are important for the development of positive public attitudes towards the technology however the actual mechanisms to deliver these projects have failed. The policies that operate to support small-scale renewable energy development are weak and favour large developers. In spite of the setbacks, we are determined to ensure that the benefits of renewable energy are made available to the rural communities' Mr. Cooke added.

²⁴ www.mnag.ie

2 How Communities have already Invested in Wind Energy Projects

2.3 Conclusions to review of European and Irish cases studies

Given the abundance of wind energy potential in Ireland why have so few community wind farms been established here? As Table 2 shows, Germany installed 250 times more wind energy capacity than did Ireland in 2002, while Spain installed 115 times.

File 6: Spanish Community Wind Farms

Both these countries have much less favourable wind conditions than Ireland. This means that Spanish and German wind farms are inevitably much less profitable than Irish ones unless considerably higher prices are paid for their power.

The research carried out under the 'Community Ownership of Wind Farm Projects' study²⁵ makes it very clear that for wind energy to develop substantially in Ireland, with or without community involvement, serious and consistent state support is required. Most EU Governments offer such support by requiring electricity distribution companies to purchase power from renewable sources at a generous guaranteed price.

Spain, for example, has such a requirement and also gives capital grants and tax benefits to wind farm developers and investors. As a result, the country installed 1,493MW in a single year (2002) almost ten times the amount that Ireland had installed in total at the end of 2003 (see Figure 4). Eighty-five per cent of the equipment used was made in Spain by some 350 different companies which now supply 12 per cent of all the wind turbines produced in the world. Around 26,000 jobs have been created.²⁶

Every EU country which previously gave wind energy supply contracts on the basis of competitive bids has ceased to do so, except Ireland. Table 2 shows that the five countries with the best developed wind energy sectors all imposed an obligation on their electricity distribution companies to purchase whatever wind electricity is available at a fixed premium price. The 'Community Ownership of Wind Farm Projects' study shows that most European countries are offering guaranteed premium prices and imposing purchase obligations to ensure grid access for renewable energy suppliers. At least five countries, including Denmark, the

Netherlands and Italy, are applying carbon tax on fossil fuels to generate additional revenues to support development of renewable energy sources. The remaining countries are applying tax benefits for investment in renewable energy. Most countries are also providing capital grants or subsidies for renewable energy development.

Ireland currently offers limited legislative, fiscal or financial incentives for the development of renewable energies, particularly to communities. Additionally, the current allocation of small wind power generating capacity to large companies, who can offer lowest prices, effectively debar local community entry.

Since every EU country to show sustained growth in wind energy installations operate feed-in laws which provide guaranteed Power Purchase Agreements at fixed prices, the REP's key recommendation is that Ireland must replace its Alternative Energy Requirement (AER) bidding system with a feed-in law,²⁷ at least for projects below a certain size. If communities are to have the chance to bring significant numbers of projects forward such a feed-in law should provide stable and transparent pricing mechanisms for at least ten years ahead.

The 'Community Ownership of Wind Farm Projects' study states that Irish renewable energy policy is lagging significantly behind our European partners in facilitating community ownership of wind farms. In addition, grid infrastructural constraints are likely to inhibit the development of wind energy installations in some parts of the West of Ireland and prove a major barrier to community entry there. A significant shift in Government policy is required if communities are to gain a significant share in ownership of wind deployment in Ireland. Each of the key 'wind countries' in Europe has pro-actively driven wind energy development politically, rather than relying on purely market-driven development. In each of the three dominant countries, Germany, Denmark and Spain, community ownership has been promoted through facilitative national and regional supports, with a strong component of public ownership.

²⁵ CSA Group Ltd Final Report submitted to Renewable Energy Partnership, December 2003

²⁶ European Wind Energy Association, Wind Directions, May - June, 2003

²⁷ The feed-in law system requires electricity utilities to pay a fixed price for all electricity generated from renewable resources.

2 How Communities have already Invested in Wind Energy Projects

Table 2: Summary of Principal EU Member States' Support Mechanisms for Renewable Energy Development and Corresponding Installed Capacity

Country	Legislative Support (1993 –1999)	Fiscal Incentives (1993 –1999)	Financial Support (1993-1999)	2002 MW of Installed Capacity	2002 Year End Total Installed Capacity
Germany	Purchase obligation. Guaranteed premium price.	Tax benefits for investing.	Subsidies and low interest loans for all Renewable Energy projects provided by local banks.	3,247	12,001
Spain	Purchase obligation. Guaranteed premium price.	Tax benefits for investing.	Capital grants.	1,493	4,830
Denmark	Purchase obligation. Guaranteed premium price.	Energy/carbon dioxide taxes on fossil fuel; revenue partly used to support Renewable Energy.	Subsidies provided historically for RD&D. Capital grants.	497	2,880
Italy	Purchase obligation. Guaranteed premium price.	Energy/carbon dioxide taxes on fossil fuel; revenue partly used to support Renewable Energy.		103	785
Netherlands	Purchase obligation. Guaranteed premium price.	Energy/carbon dioxide taxes on fossil fuel; revenue partly used to support Renewable Energy.	Government subsidies. Obligation for utilities to invest in Renewable Energy projects.	217	688
UK	Changed to purchase obligation (abolished NFFO).	Carbon dioxide taxation.		87	552
Sweden	Purchase obligation.	RE pays lower or no energy tax or nitrous oxide levy. Tax benefits for investing in Renewable Energy.	Investment Grants.	35	328
Greece	Purchase obligation. Guaranteed premium price.	Tax benefits for investing in Renewable Energy.	Subsidies (capital grants).	4	276
Portugal	Purchase obligation. Guaranteed premium price.		Interest free loans. Support for grid connection.	63	194
France	Competitive tendering (2001 changed to purchase obligation system with guaranteed price).		Subsidies (capital grants).	52	145
Austria	Guaranteed price	Energy taxes on gas and electricity; revenue partly used to support Renewable Energy.	Public grants, subsidies and loans.	45	139
Ireland*	Competitive tendering	Reduced tax benefits for Renewable Energy.	Lack of subsidies/capital grants.	13	137
Finland	Transmission costs fixed; grid access open to all producers.	Energy/carbon dioxide taxes on fossil fuel; revenue partly used to support Renewable Energy.	Subsidies on investments and equipment (capital grants).	2	41

Sources: European Environment Agency – Environmental Issue Report No 27 and European Wind Energy Association Press Release, 3 March 2003

* Public consultation process currently underway to determine future support mechanisms.