

# Renewable Energy Proposals on Cape Clear Island Cork County, Ireland

This Project came about as a result of a successful application to the European Commission in 1994 to carry out a study on the Island of Cape Clear. It was part of a European Partnership with the North Aegean Islands of Greece and the Isle of Ponza off Italy. The project received 33% funding from DGXVII under the Regional and Urban Energy Planning Programme and work commenced on the project in January 1997.

This paper gives a summary of the present position of the project as of May 1999.

## Projects on Cape Clear

A number of significant studies have been completed. These include a feasibility study for a 'Renewable Energy Trail' on the Island commissioned by the Comharchumann and carried out by Hyperion Energy Systems Ltd. LEADER and Cork County Council funded this. There was also an Interim Report on energy conservation, recycling and waste management and wind developments prepared by the Council's Energy Office under an E.U. Contract. This contract includes Italian and Greek Partners. Comharchumann Staff prepared an 'Environmental Report' on a proposed upgrading of the Island's wind energy system. (consisting of two 30 kW wind turbines installed in 1986.)

## Cape Clear Energy Trail

All these initiatives have created significant interest and awareness amongst the Island Community and have created a focus on energy conservation and renewable energy. This has been realised in a practical way in the implementation of a 'renewable energy trail' on the Island. The first steps have already been taken to create this trail. These 'first steps' include

**During the past two years a partnership has been created between Comharchumann Chléire Teo (Cape Clear Island Community Council) and Cork County Council's Public Energy Information Office based in Mallow. The aim of this partnership is to develop all aspects of renewable energy and energy conservation on the island. The possibilities for various kinds of renewable energy are greater on an island and the preservation of the environment and sustainable tourist development should go hand in hand.**

the installation of a solar water heating system in the school, the preparation of a 'biomass demonstration plot', and two demonstrations of solar powered public lighting on the island.

A study has also commenced on a small-scale hydroelectric system and planning permission has been obtained to develop the wind energy system from Cork County Council.

## Energy Conservation

All houses on the Island were visited by the staff of the council's Energy Office who gave free leaflets and advice on energy saving in the home. Two people from the Island were trained in Mallow, as Energy Managers. The school children also visited the Energy Office as part of their 1997 School Tour.

Currently the County Council is assisting the Community Council in preparing and presenting Weekend Training Courses in Renewables and Energy Conservation.

## Work Programme for Cape Clear Project

Due to the two year delay in the commencement of the project, a slightly

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revised work programme had to be prepared to make the work relevant to 1997. This revised programme was adopted at the kick-off partners meeting in February 1997.

The Irish Work Programme will be divided into five main areas that are briefly explained hereunder.

## Wind Energy

- a A preliminary study to assess the wind energy potential of the Island will be produced,
- b Technical support to the Islanders, in the area of wind energy.



### Island Energy Manager

Training of Energy Manager for the Island:

The existing energy agency in Mallow will train one Islander on energy matters with an emphasis on energy conservation.

It is anticipated that when trained this person will have the ability to conduct

- energy audits of buildings,
- promote energy conservation,
- promote water conservation,
- have a working knowledge of the benefits and applicability of renewable energy on Cape Clear,

### Solar Energy

- The feasibility of erecting solar thermal systems on tourist/visitor accommodation will be investigated/promoted/ and a pilot plant will be erected.
- Photovoltaics: The reallocation of part of an existing large-scale PV installation will be designed and investigated, with a view to stand-alone applications for PV on the Island.
- Promotion of the use of passive solar in the newer dwellings will take place.

### Hydro Power

The possibility of one or two small hydro power units, e.g. 1 kW size will be investigated as an energy source for the school or other installations.

### Desalination

Regularly in the summer periods there is a shortage of water on the Island. The feasibility of desalination in the Irish context will be investigated.

### Summary of Activities to - date 1997

- Participated in partners meeting Lesvos Greece in February 1997.
- Appointed consultant to the project - Hyperion Ltd
- Prepared and presented public presentation on Cape Clear to involve the Islanders.
- Arranged publications for the project in local media.
- Prepared Interim Report to the E.U.
- Visited the Island to attend the official switch-on of national electricity grid connection to Cape Clear.
- Initiated work on four Renewable Energy reports.
- Visited the Island re. Hydropower Survey.
- Visited the Island re. Solar installations.
- E.U. partners meeting on Cape Clear (October 1997).
- Organised and sponsored Educational visit by the school children of Cape Clear to the Councils Energy Office in Mallow, (June 1997).

### 1998

- Trained two Islanders as Energy Managers (January 1998).
- Completion of each Report (Solar Thermal, PV, Hydro & Energy Conservation).
- Installed Solar Thermal panels on the school (February 1998).
- Examined Sources of Funding for the individual projects on the Island.
- Examined Possibility of Wave Energy demonstration on the Island (April 1998).

- 2nd Interim Report submitted to E.U. (August 1998).
- Supported Islanders in Wind development proposals.
- Brief E.U. partners meeting in Cork (December 1998).

### 1999

- PV powered light for noticeboard installed.
- PV Electric Fence installed.
- PV powered water pump installed.
- Advised Islanders on the installation of P.V. powered electric light for slipway (January 1999).
- Produced Brochures for Training Courses on the Island.
- Produced Course Notes for Energy Training Courses -April 1999.
- Presented 2 day training workshop on 17/18th April 1999.

### Proposed Activities in May

- Install 1KW wind turbine for lighting.
- Present paper to Island Solar Summit in Tenerife - County Engineer.
- Hold weekend Energy Workshop for Teachers 22/23rd May.

### Energy Conservation in the homes

Mr. Pat Walsh, Mr. Pdraig Barrett, Mr. Ger Barry of the Council's Energy Agency Office visited the Island of Cape Clear on the 20th and 21<sup>st</sup> of February 1998. The main purpose of the visit was to enlighten the Islands inhabitants on the subject of energy conservation and the ways in which they could put it into practice in their own home. Each house, occupied during the winter-time, was visited.

As well as expert advice being given to the householders, a pack of approximately 12 leaflets on Energy Conservation in the home was distributed to each house.

### Energy trail

The aim of the proposed work is to establish an Energy Trail on Cape Clear. The Trail will consist of nineteen different renewable applications located at different





- V operated Public Light on the slipway.
- PV operated water pump.
- PV operated electric fence.
- PV operated lighting for noticeboard.
- 10 Biomass Plants
- 2 x 30KW wind generators (previously on the island, currently switched off)

## Conclusion

This project is now well advanced. The final Report is due for submission to the European Commission in February 2000. Even though a small project, it is an excellent example of how a small island community can establish strong links with a Local Authority, Private Consultancy Companies, Suppliers, European Partners and the E.U.

## Acknowledgements

The Cork County Council would like to acknowledge the valuable contribution of the following organisations:

- The E.U. support received under the Regional and Urban Energy Planning Programme of DGXVII, now amalgamated into the SAVE II programme.
- Comharchumann Oilean Chleire. When the Council thought of this idea in the first instance in 1994, we always felt that we were "pushing an open door". The Islanders were very enthusiastic and indeed, the Islanders themselves have undertaken several of the actions listed here
- At the start of the project Consultants from Watergrasshill, Hyperion Ltd, were employed and it was Hyperion who thought of the idea of an Energy Trail and produced the report for the Energy Trail.
- National Microelectronics Research Centre (NMRC), who contributed financial support and several ideas for the Energy Trail concept.
- Leader & Udaras Na Gaeltachta who supplied some financial support to some of the actions implemented.

locations throughout the Island. The renewable energy systems to be included in the Trail are as follows:

2 x 35kW wind generators

- Hydraulic wind pump
- PV Water Pump
- PV electric fence
- PV weather station
- PV buoys
- PV Refrigeration
- PV powered security System (Holiday Homes)
- PV remote supply for sheds
- Stand-alone PV house
- PV/wind powered system (Based on 20ft container)
- PV battery charger on boats
- PV radio transmitters
- Biomass demonstration plot (10 Biomass plants)
- Thermomax solar heating system on houses
- Passive solar design of houses
- Wave Energy demonstration.

The aim of the Trail is to establish new business activities on the island based on guided tours, training courses, workshops and the sale of renewable energy products. The market for the Trail would be tourists, education, research, energy demonstration, training and energy supply.

The main categories of renewable energy systems would be wind, solar thermal systems, small hydro systems and small PV systems. There is a large cost involved

in establishing a high quality Renewable Energy Trail. This is due in large part to the high cost of the PV modules, but this could be divided into three stages:

- Stage 1: Mini-trail in North Harbour
- Stage 2: Medium sized PV systems
- Stage 3: PV Systems for R & D

The main possible sources of funding for the proposed Trail are:

- Udaras Na Gaeltachta
- Leader
- FAS
- EU R&D programmes
- Department of Energy AER Programme.

The success of the Trail will depend on the quality of the systems, the quality of the personnel presenting the lectures/tours/courses and the effort used in promoting the Trail. The support of the community is essential to ensure the success of the initiative.

The longer-term success of the Trail will be based on the operation of the Trail as a business with proper marketing, training and maintenance programmes in operation.

## Present Position.

### April 1999

A mini Trail is presently in operation on the island:

- A solar thermal system has been erected on the roof of the national school. This was funded 50% by Cork County Council and 50% by Udaras na Gaeltachta.



