



# Wind Energy Direct

Low Cost Energy Onsite



## Munster Joinery Case Study

In May 2009 Wind Energy Direct commissioned a 4 MW on-site wind energy project at the production plant of Munster Joinery, Co. Cork. This project is Ireland's first large scale wind autoproduction project.

### About Munster Joinery

Munster Joinery was established in Ballydesmond, Co. Cork in 1973 and today it is Ireland's leading manufacturer of energy efficient windows and doors. The company supplies both the Irish and UK markets.

### The background

Prior to the installation of the on-site wind energy project, Munster Joinery's primary energy source was the ESB electricity supply. Munster Joinery's annual energy consumption was in the region of 26 GW hours.

In 2006 Munster Joinery undertook a review of their energy costs. In the light of rising oil and gas prices and the likely introduction of carbon taxes, the company decided to examine means of **hedging their future energy costs** and simultaneously reducing their carbon emissions.

Together with Wind Energy Direct the company examined the option of wind energy autoproduction, i.e. installing wind turbines on-site primarily for on-site energy consumption.

### About Wind Energy Direct

Wind Energy Direct (WED) provides on-site wind energy solutions for large commercial energy users. WED finances and installs wind turbines on-site for clients and sells the generated low-carbon electricity to their clients at a significant discount to their commercial rate.

Wind Energy Direct enables clients to:

- Avail of low cost green electricity
- Break the link with fossil fuel energy inflation
- Reduce carbon emissions

There are three financing options available to clients:

- WED builds, owns and operates the turbines. No capital outlay is required from the client
- Joint venture between the client and WED, where both parties meet the financial outlay
- WED project manages the construction for the client



## Scoping the project

The following steps were undertaken to assess the viability of the wind autoproduction project:

1. Show stopper review (2 weeks duration)
2. Feasibility study (6 weeks duration)\*
3. Wind analysis (12 months duration)\*
4. Planning (3 – 9 months duration)\*
  - Geotechnical study
  - Environmental Impact Assessment
    - i. Noise study
    - ii. Visual impact and landscape study
    - iii. Geology and hydrology study
    - iv. Archaeological study
    - v. Electromagnetic effects
    - vi. Assessments of Cork and Kerry development plans
    - vii. Ecology study, including assessments of impact on:
      - Special protected areas
      - Special areas of conservation
      - Birds and bats

*\*Some of these stages can occur concurrently*

At each stage the project was deemed viable and progressed onto the next stage.

## Exporting to the grid

A grid application was applied for as part of the Gate 2 Group Processing Scheme and the connection was granted in 2008. When electricity is not used on-site at the Munster Joinery plant, the power can be exported to the grid. WED have expert knowledge concerning the regulations relating to the exporting and importing of electricity. Due to a recent decision by the Commission for Energy Regulation (CER) a gate application will not be needed for most new autoproduction projects.

## Total project costs

The total project costs were €6m. This included all planning, purchasing and construction costs of the turbines. No capital outlay was required from Munster Joinery.

## Projected energy savings for Munster Joinery

The estimated energy cost savings for Munster Joinery will be in excess of €1 million over the next five years. The 4 MW installation will also displace over 9,000 tonnes of carbon per annum.



# Installing the turbines

The timeframe for the planning and installation of the turbines is highlighted in the chart below.



Initiate & Planning – 2006	Mobilise/Foundations - November 2008	Install Turbines – February 2009	Project Commissioning
<ul style="list-style-type: none"> <li>Feasibility study</li> <li>On-site wind analysis</li> <li>Geo-technical survey</li> <li>EIS completed</li> <li>Planning permission granted</li> <li>Application for grid connection</li> <li>Power purchase agreement</li> </ul> <p><b>T1 = Turbine 1</b> <b>T2 = Turbine 2</b></p>	<ul style="list-style-type: none"> <li>Mobilise T1 - 28/11/08</li> <li>T1 Excavate and blind - 28/11/08</li> <li>T1 Shutter and fill - 02/12/08</li> <li><b>T1 Final inspection</b> - 03/12/08</li> <li>T2 Excavate and blind - 04/12/08</li> <li>T2 Shutter and fill - 05/12/08</li> <li><b>T2 Final inspection</b> - 17/12/08</li> <li>Accommodation works - 13/12/08</li> <li>Hardstand areas T1 and T2 commenced - 20/12/08</li> </ul>	<ul style="list-style-type: none"> <li>T1 tower delivery concrete section - 05/01/09</li> <li>Assemble T1 concrete tower section - 01/02/09</li> <li>T1 turbine/blade delivery - 10/03/09</li> <li>T1 tower delivery - 10/03/09</li> <li>T1 install tower/blades - 13/03/09</li> <li>T2 tower delivery concrete section - 09/01/09</li> <li>Assemble T2 concrete tower section - 20/02/09</li> <li>T2 turbine/blade delivery - 24/03/09</li> <li>T2 tower delivery - 24/03/09</li> <li>T2 install tower/blades - 29/03/09</li> </ul>	<ul style="list-style-type: none"> <li>Pilot/Commissioning - 30/03/09</li> <li>T1 Commissioning - 02/04/09</li> <li>T2 Commissioning - 02/04/09</li> <li>Commissioning and optimisation by WED - 04/09</li> </ul>

## Support from Sustainable Energy Ireland

Sustainable Energy Ireland recognised the importance of this project as a technology demonstrator for all autoproduction projects in Ireland and supported this project through the provision of a €1 million grant.

The Minister for Communications, Energy and Natural Resources, Eamon Ryan, is very supportive of on-site autoproduction and voiced his support for this project; ‘Wind autoproduction... allows industry to access one of our best renewable energy resources, benefit directly from cheaper electricity and reduce greenhouse gas emissions in the long term. With support from Sustainable Energy Ireland, this project is a great example of how companies can create jobs and save money. It is the green economy in action’.

## Project summary

The benefits, both financial and environmental, gained from Munster Joinery’s installation of wind turbines are considerable. On an annual basis this on-site wind energy project will provide Munster Joinery with up to 30% of their total energy requirements. The project will save Munster Joinery in excess of €1m in energy costs over the next five years and will reduce its carbon emissions by 9,000 tonnes per annum. This investment in on-site wind energy will make it the industry leader in reducing carbon emissions and will significantly improve the competitiveness of the company through reduced electricity costs.

Wind Energy Direct is providing Munster Joinery with a **true hedge** against future energy price increases.





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