

## ***Successful Biomass Implementation in Ireland***

### ***Regional Energy Information Office, REIO, Ireland***

#### **Summary**

Starting from a low base, Ireland has seen considerable advances in Biomass in recent times, so much so that it is foreseen that some three 50 000 tonne wood fuel production facilities will proceed within the Irish mechanical forest industry and agricultural sector in 2003. This is the result of an integrated action plan comprising market research, information dissemination, organised events, national targets and a funding programme, without which we would not have succeeded in coming thus far.

Wood energy within the mechanical forestry industry was identified as a sector with considerable potential for biomass implementation in Ireland. Subsequently, information and details of wood energy events were targeted at relevant organisations i.e, panel boardmills, sawmills, existing fuel suppliers, main forestry companies, high energy users etc. As a result of a national Wood Energy Conference, as well as a successful annual wood energy study tour which took place in Sweden in 2002 (where delegates participated in the World's First International Wood Pellets Conference, the ManagEnergy Workshop on small-scale biomass utilisation and visited pellet production facilities), three potential wood pellet production projects have now emerged in Ireland. All three have applied for feasibility and demonstration support under Sustainable Energy Ireland's Renewable Energy Research, Development & Demonstration programme. Establishment of wood pellet production units, and hence a reliable wood fuel supply chain in Ireland, will significantly advance the development of wood energy in large buildings with associated reductions in greenhouse gas emissions, in line with EU and national targets.

<b>End-user area</b>	<b>Target Audience</b>	<b>Technical</b>
<input type="checkbox"/> New buildings	<input type="checkbox"/> Citizens	<input type="checkbox"/> Energy efficiency
<input type="checkbox"/> Refurbishment of buildings	<input type="checkbox"/> Households	<input type="checkbox"/> Heating
<input type="checkbox"/> Transport and mobility	<input type="checkbox"/> Property owners	<input type="checkbox"/> Cooling
<input type="checkbox"/> Financial instruments	<input type="checkbox"/> Schools and universities	<input type="checkbox"/> Appliances
<input checked="" type="checkbox"/> Industry	<input type="checkbox"/> Decision makers	<input type="checkbox"/> Lighting
<input type="checkbox"/> Legal initiatives (municipal regulations, directives, etc)	<input type="checkbox"/> Local and regional authorities	<input type="checkbox"/> CHP
<input type="checkbox"/> Planning issues	<input type="checkbox"/> Transport companies	<input type="checkbox"/> District Heating
<input type="checkbox"/> Sustainable communities	<input type="checkbox"/> Utilities	<input type="checkbox"/> Solar energy
<input type="checkbox"/> User behaviour	<input checked="" type="checkbox"/> ESCOs	<input checked="" type="checkbox"/> Biomass
<input type="checkbox"/> Education	<input type="checkbox"/> Architects and engineers	<input type="checkbox"/> Wind
<input type="checkbox"/> Other	<input type="checkbox"/> Financial institutions	<input type="checkbox"/> Geothermal
	<input type="checkbox"/> Other	<input type="checkbox"/> Hydro power
		<input type="checkbox"/> Other

## **Context**

The primary aim of the development of biomass in Ireland is to introduce wood energy as a viable option for heat and power, in line with national and EU targets to increase the overall % of Ireland's energy supply from renewables. At present, just 2% of Ireland's Total Primary Energy Supply comes from renewables. Over 1% of this is from wood energy in the form of industrial and domestic wood heating. While some sawmills and boardmills are currently burning wood residues for heat, there is considerable potential for development of wood-fuelled CHP within Ireland's mechanical forestry industry. As domestic wood heating in Ireland takes place in open fireplaces, there is a need to promote the installation of modern wood burning systems to reduce emissions and enhance overall efficiency.

Given the projected increase in forestry from 9% to 17% by 2030, with a corresponding increase in the availability of wood residues, there is considerable potential for procurement of wood fuels from these resources in the future. Furthermore, wood energy projects will provide employment and economic benefits e.g. using a benefits calculator, we estimate that a 50 000 tonne wood pellet production facility will provide 24 new jobs in operation and maintenance, save Euro 12 Million in oil imports and save 84 000 tonnes of CO<sub>2</sub> emissions per annum.

## **Objectives**

Implementation of successful biomass projects in the wood energy sector in Ireland through:

- Market research;
- Information dissemination;
- Event organisation for key players in wood energy sector;
- Establishment of wood fuel production best practice demonstration projects;
- Development of a reliable wood fuel supply chain.

## **Process**

To begin with, biomass sectors were examined to ascertain which had considerable potential for development in Ireland. The mechanical forestry industry was identified as such. Market research was conducted to distinguish appropriate organisations i.e. sawmills and panel boardmills, existing fuel suppliers, main forestry companies, high energy users etc., for whom an annual wood energy study tour to countries advanced in their use of wood energy would be of interest and benefit. This annual study tour aims to increase awareness amongst key players in the wood energy sector in Ireland and to facilitate technology transfer and exchange of ideas. An Irish wood energy conference 'White Coal Green Energy' organised in 2002, was also organised and boasted participation of several experts from European countries where wood energy is well developed. In parallel with these events, an Irish biomass strategy was devised, outlining short and medium-term targets for various biomass fuels and technologies, including wood heat and power applications.

Technology: Wood energy and pellet manufacturing technologies not only address the problem of disposal of wood residues, but also increases our use of renewable energy. Technologies are advanced in other countries and hence knowledge and expertise can be transferred to Ireland.

## **Financial resources and partners**

All three have applied for feasibility and demonstration support under Sustainable Energy Ireland's Renewable Energy Research, Development & Demonstration programme.

## **Results**

Results for three 50 000 tonne wood pellet production plants:

Energy produced by renewables: 70 ktoe. This represents a 45% increase on the current use of biomass (and increases Ireland's renewable energy supply by over 50%); Economic benefits: Saving 176 000 tonnes (or 1.3 Million barrels) of oil per year. Annual savings of Euro 36 Million substituting for oil; Environmental benefits: 250 000 tonnes of Carbon Dioxide equivalent; Jobs created: 72; Behavioural changes achieved: Developing wood heating systems in preference to fossil fuel systems.

## **Lessons learned and repeatability**

Realisation of successful wood energy and pellet production facilities in Ireland will increase awareness of wood fuels for energy and ensure that future plants will follow best practice procedures. Furthermore, the ready availability of wood pellets and a reliable fuel supply chain will ensure market development of wood pellet heating systems. We are in the early stages of discussing the possible production of wood pellet stoves with existing wood stove manufacturers in Ireland.

Lack of awareness of potential of biomass and wood energy – ongoing but we overcoming problem through targeted information dissemination, organisation of workshops, conferences and study tours for key players in the Irish market.

Lack of confidence amongst interested developers – we supplied these parties with case studies of proven examples from European countries and referred them to high quality publications e.g. EU Thermie 'Wood Pellets in Europe', TEKES "Growing Power" [www.bioheat.info](http://www.bioheat.info) etc.

Lack of political support for biomass – we formulated a briefing note for government on the benefits, targets and options for the way forward for biomass in Ireland.

Capital and production costs for biomass make it difficult to compete with fossil fuel technologies – Sustainable Energy Ireland's RD&D programme with a budget of Euro 16.25 Million will provide financial support for feasibility studies and demonstration projects.

Steps taken to ensure successful implementation of biomass production in Ireland can be transferred to other countries committed to biomass development. In this way, lessons learned by us will ensure other countries avoid making unnecessary mistakes.

### **Contact for more information:**

Organisation / Agency: Renewable Energy Information Office  
Main contact: Fiona Jennings  
Address: Shinagh House, Bandon, Co Cork, Ireland  
Tel: +353 (0)23 29145  
Fax: +353 (0)23 29154  
E-mail: [biomass@reio.ie](mailto:biomass@reio.ie)  
Web Site: [www.sei.ie/reio.htm](http://www.sei.ie/reio.htm)

Printed reports or other literature available:

Title: CD Proceedings of Annual Wood Energy Study Tours and Irish Wood Energy Conference  
(available shortly on our website)  
Wood Fuels for Residential Buildings – Bioheat brochure (Free)  
Wood Fuel: Sustainable Heat for Public Buildings – Bioheat brochure (Free)  
Wood Fuels Basic Information Pack (Euro 38)  
IEA Handbook of Biomass Combustion & Co-firing (Euro 39)