

**RENEWABLE ENERGY BEST PRACTICE CASE STUDY**  
IRISH ENERGY CENTRE, RENEWABLE ENERGY INFORMATION OFFICE

**USE OF WOOD WASTE FOR HEAT PRODUCTION AT THE WILLAMETTE PLANT**

Site: Clonmel, County Tipperary

Starting date: 1994

**1. AIM OF THE PROJECT**

The aim of the project was to install a 19 MW wood-burning furnace at this 130,000 m<sup>3</sup>/year MDF (medium density fibreboard) facility in order to use wood wastes from the process to meet the heat requirements of the plant.

**2. DESCRIPTION**

Waste material from wood processing operations, including bark and screen fines, is transported by a conveyor system to the combustion chamber and onto a reciprocating grate, where a flue gas volume of 35,500 Nm<sup>3</sup>/hr is generated.

The hot gas is cleaned via cyclones and used for drying wood fibre, generating saturated steam and heating thermal oil for processing operations.

The combustion unit is a 19 MW refractory furnace. Technical details are summarised below:

Furnace operating temperature		950 °C
Grate surface area		28 m <sup>2</sup>
Bark	firing capacity	19.2MW
	moisture content	55 - 65 %
	calorific value	8,000 kJ/kg dry basis
Sander dust	burner firing capacity	7MW
	moisture content	4 %,
	calorific value	19,000 kJ/kg dry basis

**3. OWNER**

The plant is owned by Willamette Ltd. a US company with over 90 wood processing plants, the majority of which are located in North America. The Clonmel plant in County Tipperary is Willamette's only European operation to date.

**4. INVESTMENT AND FINANCING**

The project was financed as an integral component of the overall plant, predominantly through bank debt. The total capital costs for the wood-burning system were in the region of IR£1.5 million. The decision to install the system was on the basis of a financial analysis taking into account savings from avoided fuel costs.

**5. RESULTS**

The plant runs to a high level of automation and is currently in operation for 24 hrs/day. The overall thermal efficiency is high at 95 %, and combustion is very satisfactory, with recent analysis showing just 0.8% unburned fuel in the ash. The plant provides 16.5 Gcal/hr and meets the entire heat load of the MDF line.

**6. ENVIRONMENTAL IMPACT**

In contrast to fossil fuels, wood is carbon dioxide neutral. Furthermore, because wood contains less sulphur than coal or oil, emissions of gases that can cause acid rain are reduced.

**7. USERS**

There are opportunities for the application of this technology at other facilities in the wood processing industry, including particle board, orientated strand board and other MDF plants. Moreover, there is potential to produce electricity as well as heat through the use of combined heat and power technology.

Wood-fired systems for heat and/or power production also have applications outside the wood processing industry and at a smaller scale.

## **8 MAIN MANUFACTURERS AND SERVICE SUPPLIERS**

### *Overall Project Management:*

Willamette Europe Ltd., Clonmel,  
County Tipperary, Ireland.

Tel +353 52 21166 Fax +353 52 21815

### *Engineering:*

Sunds Defibrator AB, Strandbergsgatan 61,  
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### *Prime Contractor:*

HDS Energy Ltd., Celbridge,  
County Kildare, Ireland.

Tel +353 1 6271011; +353 1 6271015

## **9. MORE INFORMATION**

Further information about this project can be obtained from:

Willamette Europe Ltd., Clonmel,

Irish Energy Centre,  
Renewable Energy Information Office,  
Shinagh House,  
Bandon, County Cork.

Tel +353 23 42193, Fax +353 23 41304.

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