

Case Study 5 – Biomass CHP

Client: Kedco Energy

Project: Saw Mill Combined Heat and Power

Project Outline:

Expansion in Latvia was planned at a sawmill owned by Kedco to increase timber output from 13,000 m³/annum to 84,000 m³/annum. For the new plant a 50,000 te/annum pellet plant was planned to utilise by-products of the sawmill (e.g. sawdust) and a new boiler plant would be required to meet the increased thermal demands from the new sawmill, sawdust dryer and pellet mill. With the need for significant investment in a new wood fired boiler an opportunity arose to investigate the application of Combined Heat and Power (CHP).

Renewable Energy Consultants Role:

Renewable Energy Consultants carried out a feasibility study to investigate the installation of a CHP plant at the existing facility and also for the proposed new plant. The purpose of installing a CHP plant would be to improve the economic operation of the plant by improving the effective use of energy and minimising imported energy charges. The CHP would generate electricity from a steam turbine.

In order to carry out the work Renewable Energy Consultants:

- Calculated the process material balance for raw wood flows, tonnage of site generated sawdust/ wood chip/ wood waste and imported sawdust import
- Analysed the process electricity and heat demands
- Obtained quotations for boilers, steam turbines, sawdust dryers, wood drying kilns and pellet mills to allow the process demands to be determined
- Investigated the tariffs available for imported and exported electricity
- Reviewed the on site electrical distribution network
- Determined overall plant capital cost and energy savings to allow plant economics to be calculated.

The heat and power demands at the site indicated that it was suitable for the installation of a CHP plant. In order to optimise the plant economics Renewable Energy Consultants considered that the following should be examined:

- A review of the electrical import and export cost structure
- Investigation of grants available for the installation of carbon neutral biomass plant
- Investigation of availability of additional fuel sources of wood chip and sawdust and the associated costs
- A review of the proposed pellet production in order to limit import of material
- A review of the process energy demands.