

# An overview of Macphie

- A dynamic, independent food ingredients manufacturer
- 80 years of success
- Turnover £41 million
- Two sites - 275 employees
- Servicing Bakery, Food Service and Food Manufacturing sectors
- Focus on customer solutions, based on marketplace and consumer insight
- Core product categories
  - Ambient Liquids
  - Chilled & Frozen
  - Mixes & Concentrates



# ISO 14001

- Company accredited to ISO14001 in 2003
- System facilitates legal compliance, pollution prevention and continual improvement

Achieved by

- Targets and Objectives
- Monitoring and Measurement
- Staff training
- Reporting
- Communication



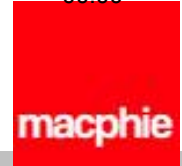
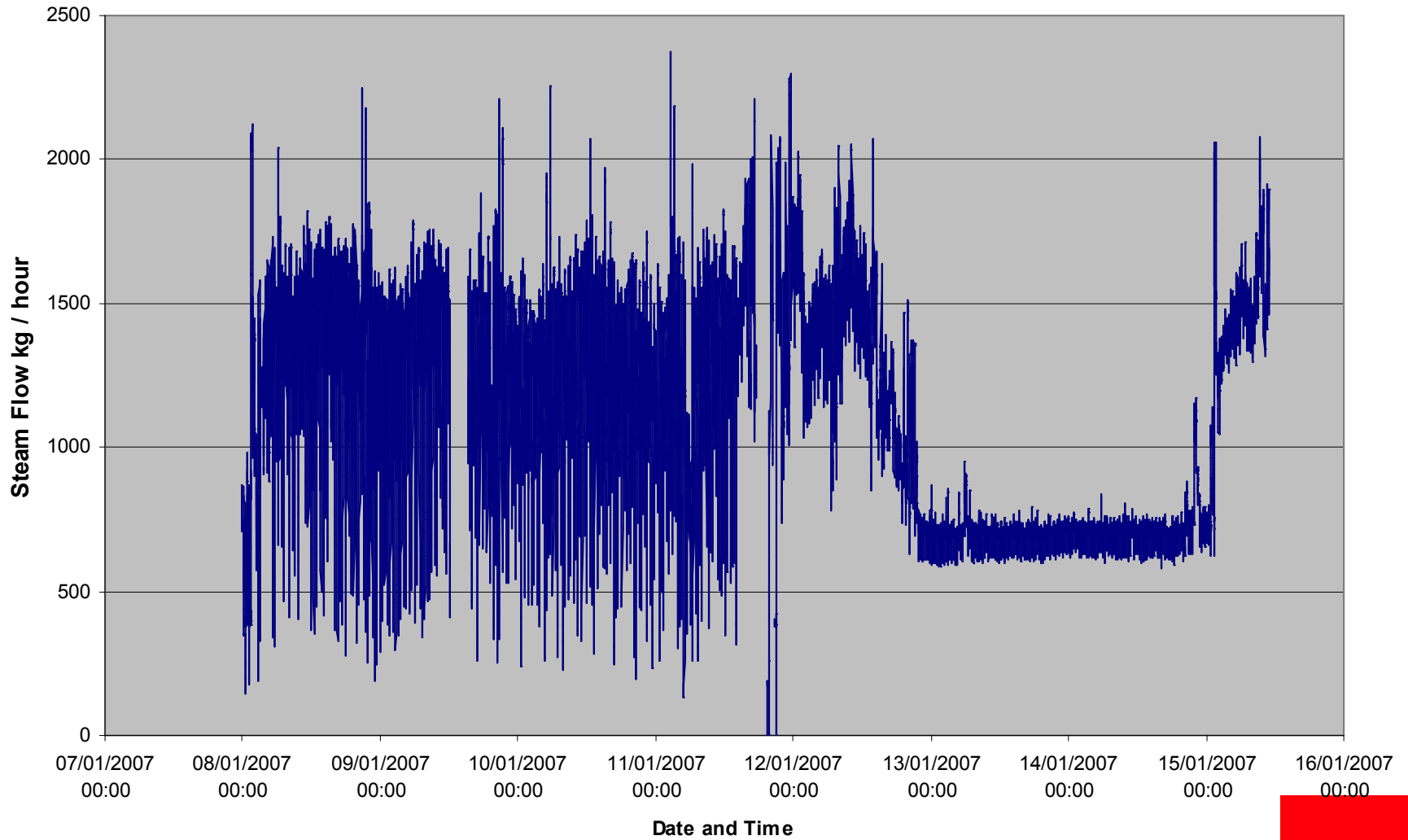
# Renewable Energy

- Feasibility study commenced in April 2006.
- Objective: To determine the renewable energy options for the Glenbervie Site.
- Sgurr Energy provided a consultancy service.
- Investigated wind turbines, biomass, aerobic and anaerobic digestion and hydro power.
- Both digestion and hydro dismissed as they would not provide sufficient energy.
- Concentrated on wind and biomass to supply electricity and process steam to the site.

# Biomass

- Biomass feasibility study continued throughout 2006 and 2007.
- Steam metering was installed to determine steam demand.
- Fuel type and quantity requirements were determined.
- Availability of fuel and storage.
- Boiler suppliers
- Grant application
- Feasibility study completed in June 2007.

# Steam Flow



# Biomass

- Turnkey contract awarded in November 2007.
- 1.2 MW biomass boiler.
- Supplied by Cochran (Scotland) and Kara (Holland).
- Produces up to 1950kg of steam per hour.
- Will supply the base steam demand for the Factory, with one of the existing fuel oil boilers producing additional steam as required.
- Using approximately 80 -100 tonnes of woodchip per week with a moisture content of up to 60%.

# Biomass

- Reduce CO<sub>2</sub> emissions by 2,100 tonnes per year.
- Renewable fuel source, supplied from a local pallet manufacturer, and their wood is sourced from local sustainable forests.
- Crisis and supply secure
- Price stability

# Biomass

What did we do well?

- Turnkey contract for the project, including clauses to claim liquidated damages in relation to the project completion date and boiler performance.
- We sourced a woodchip supplier at an early stage, and determined contingency suppliers.
- We employed a technical advisor.

# Biomass

What would we do differently?

- Install steam metering at an earlier stage.
- Spend a longer time on the design.
- Install a fuel store that doesn't require double handling of woodchip.

# Wind turbines

- Other wind farm developments in the area indicated suitable wind resource.
- Feasibility study commenced in April 2006.
- Initial planning application submitted in September 2006 for three 1.3MW turbines located 1km from the factory.
  
- Wind mast erected to measure wind speed in September 2006.
- Supporting information collected throughout 2007 and 2008.
- Application was approved on 28th October 2008.

# Wind turbines

- Electricity used directly in the Factory, and excess sold to the grid.
- Will reduce our CO<sub>2</sub> emissions by 8,000 tonnes per year.
- Will include upgrade of the grid supply network.

# Other Key Initiatives

- Installed a new effluent treatment plant in 2000
  - Treats approximately 30,000 tonnes per year
  - **£500K investment**
- 3,000 tonnes of sludge spread on the Macphie farmland as agricultural soil improver
- Improved cooling water intake system and temperature control
  - Reduced mains water usage by 10,000 tonnes per year across all sites
- Targets to reduce packaging
- Plant 30,000 trees annually

# Environmentally-led Investment

£8.0m in 8 years





**Biomass Tours**  
**2 Groups approx 25 minutes**