ENERGY EFFICIENCY

DEVELOPMENT: **IPPC PERMIT VARIATION APPLICATION**

LOCATION: **Lower Trederwen Farm**
Arddleen
Llanymynech
Powys
SY22 6RZ

CLIENT: **Mrs J Mountford**

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V2
November 2025

Energy usage at Lower Trederwen Farm Poultry Unit Energy source	Use
Electricity	Lighting, ventilation, computer control systems, feed augers, water pumps
Heat	X2 Wood chip boilers ETA eHack 240 EP
Diesel	Standby generator.

The correct environment for the birds is maintained in the sheds through a combination of ventilation fans located in the roof all of the poultry houses.

Each shed will be monitored by a computer system, which automatically controls and records the humidity and the temperature. There are two biomass boilers providing warm air within the poultry houses.

Control sensors will be checked regularly and kept clean so they are able to detect the temperature at the stock level.

Ventilation rates will be computer controlled to minimise, as far as the indoor requirements allow heat losses from the sheds.

Fans will be fitted with back draft shutters to reduce heat loss.

The sheds will be maintained in good condition, cracks and open seams will be repaired.

The sheds will be fully insulated with a U-Value of approximately 0.4 W/m2/°C to reduce condensation and heat lost.

The sheds will be constructed to ensure litter is dry and friable.

The concrete flooring will be maintained and cracks will be repaired.

Each shed will have a damp proof course.

Nipple drinking system reduces spillage of water.

The sheds will be heated by the X2 Wood chip boilers ETA eHack 240 EP, approved to burn virgin timber, straw, miscanthus or a combination of these. The net thermal input for one of this biomass boilers is 287 kWh. The temperature will be varied by according to the age of the birds. Each biomass unit runs at partial load when demand is lower, reducing fan speed and mechanical activity. Enabling greater energy efficiency.

Electricity

The ventilation fans in the sheds have been selected so that they are appropriate power and size for the sheds.

The computer control systems control the ventilation for maximum efficiency i.e. one fan operating at full capacity rather than two operating at half their capacity.

The fans are low energy per m3 of air.

The fans are regularly maintained and cleared of debris.

Low energy light bulbs will be used in the control/vestibule areas, the office and stores.

Fluorescent lights will be used in the sheds.

We operate a variable lighting period during the crop cycle.

Fuel Oil

The standby generator is regularly maintained in accordance with the manufacturers' instructions to ensure it operates efficiently. Final operating hours criteria that generator will operate no more than 500 hours with combined testing and standby usage.

A breakdown of delivered and primary energy consumption will be recorded and provided to Natural Resources Wales annually in the following format

Energy Source Delivered	Energy Consumption Units	% of Total
Electricity	Kwh	
Gas Oil	Litres	