

Appendix 11: **Energy Efficiency Review**

Willow Tree Farm has in place a policy to only use the most energy efficient options for all farm operations and specifically pig production.

This entails researching and purchasing of the most up to date computer controlled automated fan systems in all new buildings. These systems only operate when required and are monitored and maintained regularly to ensure they work at their peak efficiency.

The buildings will enable energy savings and increased efficiency, by the following:

- they will be highly insulated to maintain the correct environment
- slurry is frequently removed and separated, reducing nutrient loss
- no scrapers are needed, reducing energy use
- targeted feeding according to pig weight and requirements
- low energy lighting will be used throughout

Basic energy requirements

The site has been designed with a strong focus on renewable energy and resource saving and efficiency, e.g. wind energy from turbine, low energy lighting, insulated buildings, fully slatted system and efficient feeding system.

Temperature control

- Each shed is monitored by a computer system, which automatically controls and records the humidity and the temperature
- Control sensors are checked in accordance with manufacturer's instructions and kept clean, so they are able to detect the temperature at the stock level
- Ventilation rates are computer controlled to minimise, as far as the indoor requirements allow, heat losses from the sheds
- Fans are fitted with back draft shutters to reduce heat loss
- The sheds are maintained in good condition
- The sheds are fully insulated to reduce condensation, heat loss and solar gain
- The concrete is maintained, and cracks are repaired

Electricity

- Electricity for the pig units will be sourced from wind energy. A wind turbine is located to the East of the installation (shown on the location plan in Appendix 4) and will feed into the farm electric with excess generation feeding back into the grid.
- The ventilation fans in all sheds have been selected so that they are the appropriate power and size for the age and number of animals housed
- The computer systems control the ventilation for maximum efficiency
- The fans are low energy and are regularly maintained and cleared of debris
- Low energy light bulbs are used in the control/vestibule areas, the office and stores
- LED lights are used in the sheds.

Fuel oil

- No fuel stored on installation
- No generator
- Minimal use of vehicles due to the automated and fully slatted design of the site
- Vehicles and tractors are serviced by a contractor at recommended service intervals
- All staff and contractors employed on site are trained in the efficient use of equipment, including driving techniques. Training needs are reviewed annually, and as new equipment or techniques are introduced
- Energy usage is recorded. In accordance with the permit, energy efficiency and usage will be reviewed every four years. Opportunities to improve energy efficiency will be implemented if suitable.
- We use well maintained machinery with energy efficient engines, on a rotating replacement policy looking for the most energy efficient models.

Other

- The office equipment, monitors and computers have automatic power down functions to save energy use where not required.
- Energy meters are monitored and actions put in place if areas are found to be less energy efficient.

Further potential improvement measures include:

Installing more energy efficient equipment and controllers, as appropriate, e.g. lighting timers.

Although energy use is monitored constantly throughout the year, Willow Tree Farm will undertake a major review of all aspects of their energy requirement and use on a 4 yearly basis and will keep an updated annual 'Energy Use' document on site.

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