



ANGUS BIOFUELS

Padanaram, Angus

Company Profile

The company was initially based at one site at Padanaram, Angus. The satellite depots were later developed as processing and storage capacity was exceeded at Padanaram and the customer base expanded, requiring local depots. Angus Biofuels has invested over £2 million to develop its current infrastructure, supported by the Scottish Biomass Support Scheme. The company manages the full range of services a customer would need to operate a woodfuel system, from system design, specification and installation, through to fuel supply and ongoing boiler maintenance and servicing.

The fuel supply business was developed in tandem with the company's ESCo activities to provide a reliable source of fuel to meet its heat supply contracts. Angus Biofuels is an Energy Services Company (ESCo) that sells its fuel by the tonne, m³ or by the kWh through heat supply contracts. Heat supply contracts can benefit the customer as there is no need to measure the moisture content of fuel deliveries to calculate actual heat costs. The ESCo can maximise outputs and income by ensuring a consistent, low moisture content woodfuel. A long-term heat supply contract benefits the ESCo by guaranteeing sales for the future and allowing the producer to support further development and investment in infrastructure.

What is an ESCo?

- // An Energy Services Company (ESCo) is a "one-stop-shop" business that designs, installs, maintains and sometimes finances a woodfuel boiler installation
- // Offers guaranteed energy prices through fixed price heat supply contracts
- // Ensures best value and likelihood of success through risk management
- // It can remove the need for a capital investment requirement from customers
- // Packages depend on client requirements and each is tailored to individual needs.
- // Prices calculated on delivery distance, maintenance and support level required

Woodfuel Supply

Angus Biofuels produce woodchip to industry wide European CEN Standards. On-site sieve analysis and quality control systems monitor and ensure quality. Most chip sizes and moisture contents can be accommodated depending on customer requirement.

Security of Supply

Angus Biofuels' large stocks of roundwood and covered storage capacity across its depots allow it to meet its supply contracts through the winter, using material chipped during the summer months, when the air dried timber is at its lowest moisture content. Forward notice of intent to purchase will allow an increase of stock in line with demand. However, should demand increase rapidly, woodchip can be force-dried using a biomass fuelled hot air blower and drying floor. Should mechanical breakdown occur within the chip production facility, other locally based chip producers are committed to maintain production, and supply to customers should not be interrupted.

Fuel Delivery

Angus Biofuels has a fleet of six delivery vehicles across Scotland. They vary in size, with a delivered capacity ranging from 5 to 25 tonnes. The largest vehicle is an articulated lorry with a 150 m³ capacity and has a self emptying walking floor delivery system. Good fuel store design should allow fuel to be transferred into the store without lifting. This is the quickest, cheapest, safest, most flexible and reliable method of delivery.

What is a Walking Floor?

- // Hydraulically-driven conveyance system for moving material
- // Floor is divided into 3 sets of narrow slats which move backwards and forwards
- // The slats move in unison and the material is moved in the direction required
- // It can be utilised within a woodfuel storage shed or in a delivery vehicle
- // System can quickly unload material without having to tip or tilt the trailer
- // It takes less than 15 minutes to unload a 13.6 m trailer

Boiler Operation and Monitoring

Modern woodfuel boilers can be remotely monitored to ensure maximum efficiency and constant operation. An ESCo can remotely monitor biomass plant using a Building Management System (BMS) which sends automatic alerts for maintenance issues. The system can be automatically connected to landline or mobile phones to instantly alert the maintenance company of a problem. Service packages vary in range from fuel supply only, up to full support and maintenance.

How to Operate an Efficient Woodfuel Supply Business

- // Sourcing fuel at the right price locally is critical in order to keep haulage costs down, as double handling fuel costs more
- // Start small and allow for growth
- // Locate delivery depots close to installed and planned boilers - chipping is most cost efficient if located close to the source of wood and boilers
- // Locate delivery depots near to centres of population, to allow for a greater customer base and reduce haulage of bulky chip
- // Haulage of roundwood and woodchip is biggest operational cost
- // Ensure infrastructure is in place before business expansion, in order to maintain quality
- // Covered storage will ensure chip supply through the winter months



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| Delivery range | Throughout Scotland |
| Total contract output | 10,000 – 14,000 MWh of heat as of April 2009 |
| Number of boilers supplied (May 2009) | 22 |
| Heat supply contract period | 10 years – with price review on annual basis Summer 2007 |
| Supplying since | Padanaram depot: 80,000 MWh or 20,000 tonnes |
| Max. annual output of chipping sites | 40,000 MWh or 10,000 tonnes |
| Quality standards | Operating to European CEN Standards. On-site sieve analysis and quality control monitor quality. |
| Target supply | 25 % or below |
| Moisture content | |
| Customer type & range | Private companies and individuals, public sector and housing associations. Boilers range from 110kw - 750 kW |
| Source of roundwood | Self owned woodlands constitute 20 - 40 % of raw material supply, other stock is sourced from local private forests |
| Source radius | Within 40 miles from depot |
| Sustainable management | All raw material sourced from UK Forest Standard approved felling, and where possible UK Woodland Assurance Scheme (UKWAS) and Forest Stewardship Council (FSC) certified timber is purchased |
| Storage capacity | Woodchip storage: 1000 tonnes or 4,000 MWh covered storage (total at three depots) Wood storage: 20,000 MWh or 5,000 tonnes of round timber (main site – Padanaram) 5,000 tonnes in forest stocks |
| Number of employees | 7 full time positions |
| Chippers | Jenz, Junkari and Heizohack |
| Chip output | Summer (April – Sept): 430 tonnes a day Winter (Oct - Mar) |
| Fuel delivery options | Weather permitting: dry and cold conditions required Choice of 6 delivery vehicles across Scotland. Varying in size from 5 tonnes - 25 tonnes. The largest has a 150 m ³ capacity with a self emptying walking floor delivery system |