ESP ENERGY

The Renewable Energy Experts

Arbor ElectroGen CHP

ESP Energy is partnered with Arbor HP to provide the ArborElectroGen 45 Unit. This Biogas CHP unit provides renewable heat and electricity from wood.

Combined heat and power is simply the simultaneous generation of usable heat and electricity. The heat can be used for domestic or industrial space heating or for process heat.

45kW of energy is used to create 100kW of heat.

Simple heat and power concept

The ArborElectroGen system converts wood into gas that fuels a Combined Heat and Power system (CHP), this produces a mixture of heat and electricity. This unit offers one of the most cost-effective and low carbon heat generation systems for a variety of applications and is ideal for those who already have an on site supply of useable wood.

The ArborElectroGen® system produces little or no visible smoke plume from its flue, virtually zero NOx, and CO2 emission levels that are 93% lower than that of an equivalent natural gas-fired CHP system. This is due to the process and temperature at which the gas is produced in the vessel – coupled with the fact that the gas is made up of approximately 50% combustible components – a fuel that produces water vapour and small quantities of carbon dioxide when combusted in the CHP system.

Key Features

- Highest available RHI and ROC revenues
- Incentivised year round operation
- Better returns than any other renewable technology
- Easy integration into existing plant room
- Clean generation with ultra low emissions
- Offset traditional fossil fuels
- Renewable export tariff for surplus electricity

Length 4820mm, Width 1270mm, Height 2500mm

Solar PV
Solar Thermal
Biomass Boilers
Ground Source Heat Pumps
Air Source Heat Pumps

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Case Study

Grove Farm, Knighton, Powys

At this Powys farm there are 2 x ArborElectrogen 45 systems with a Pezzolato EPG 50 chip pre-treatment system.

Grove Farm situated in Knighton, Powys just a stone's throw over the border from England is home to Andrew and Jackie Powell. Andrew and Jackie are cattle livestock breeders and free range chicken growers that have been in farming for many generations. They had previously invested in biomass boilers to provide renewable heat to the farm, but with the expansion of their business and increased costs of energy they were looking for a technology that provided both renewable heat and power. After extensive research the Powell's had determined that the ArborElectrogen® system was the best system to do the job they required and provided the long term reliability and automation so they could focus on their core business.

This site uses the heat from 2 x ArborElectrogen 45 systems for wood drying with a Pezzolato EPG 50 chip pre-treatment system that dries and screens the woodchip. This allows the owners to buy in wet, unscreened chip at a lower cost to pre-screened, dry woodchip and use the heat to do this themselves in a fully automated process. The excess chip that is unsuitable for gasification will be used for either his existing biomass boilers or as bedding for the farm livestock – so nothing goes to waste. The electricity is used on the farm to reduce costs and any surplus is exported to the grid.

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