CASE STUDY

HIGH FORCE RESEARCH LTD: INSTALLATION OF VARIABLE SPEED DRIVES

- Carbon Trust one day survey identified energy saving opportunities
- Installation of VSDs on fume cupboard extract fans and air handling unit
- Replacement of existing gas burner
- Predicted carbon savings of approximately 55 tonnes/year
- Annual cost savings forecast to be around £9,800, giving simple payback of around 4 years

As a Carbon Trust Consultant, ESP was commissioned to carry out a one day survey at High Force Research Ltd in Bowburn, County Durham, in order to identify possible energy efficiency and carbon reduction opportunities. High Force Research is a fine chemicals company offering high quality services including synthesis and R&D as well as proof of concept studies. Its activities are laboratory-based and require the use of fume cupboards.

The company suspected that energy saving opportunities existed in relation to fume cupboard operation and heating of the laboratory space, as prior to the study, fixed speed motors were being used for the fume cupboard extract fans and the air handling unit. In addition, the gas burner supplying space heating via the air handling unit, was in need of replacement due to its age.

During the Carbon Trust survey, the installation of variable speed drives (VSDs) to control the speed of the extract fan motors and the air handling unit was identified as an effective method of significantly reducing energy consumption, carbon emissions and annual energy expenditure. ESP was commissioned to carry out the works, which involved installation of the VSDs, the fitting of new air flow monitors and controllers for each fume cupboard, replacement of the gas burner and modifications to the building control panel.

It is anticipated that these measures will reduce energy consumption at the site by approximately 149,000kWh per year, giving a carbon saving in the region of 55 tonnes and a reduction in annual costs of around £9,800. This equates to a simple payback period of 4 years. If a new burner had not been required, a payback period of under 3 years could have been achievable.

BESPOKE DESIGN

Each installation is designed to meet specific client requirements with full computer simulation used to prove all designs.

ENERGY EFFICIENCY

As approved Carbon Trust Consultants, we will ensure that the system energy performance is optimised to produce lower operational costs.

PROJECT CDM AND MANAGEMENT

Our engineers and consultants will ensure that all aspects of the design and installation are fully compliant and all relevant permissions and safety requirements are fully adhered to.

MCS ACCREDITED

ESP is an accredited installer, approved under the Government's Micro-generation Certification Scheme.

CARBON TRUST

ESP are approved Carbon Trust Energy and Biomass Consultants.

UK Biomass Ltd

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