

VSDS HELP ENERGY CONSUMPTION TARGETS

GAMBICA, the national organisation representing the interests of companies in the instrumentation, control, automation and laboratory technology industries in the UK, has produced figures that demonstrate that VSD control applied across industry could reduce UK plc's energy consumption by the equivalent output of over 6000 wind turbines.

GAMBICA estimates that around 10 per cent of the motors in use in British industry are equipped with VSDs and that at least 50 per cent of those that aren't would benefit. An energy saving of 40 per cent or more is common as the result of adding variable speed control to an appropriate application and in good conditions the saving can be up to 70 per cent. If we did this across British industry, we could save around 25,000 GWh of energy. This saving is approximately the same as the output of around 6000 medium sized wind turbines.

The real message here is that a very high percentage of the energy consumed in industry and commerce is consumed by electric motors with no form of control. The irony is that turning down their speed only slightly would equate to a very big energy saving, when considered on a national level.

We are in a time of efficiencies and this efficiency uses existing and proven technology which delivers very fast return on investment. In every correctly assessed and installed, relevant, application this technology saves money every time. Reducing the amount of energy we use is just as important as finding new ways of generating clean energy to meet the demand that exists.

The first step for anyone who wants to investigate this further is to identify the potential for saving in their application, or more likely applications. This is best done either via a manufacturer or an accredited distributor: GAMBICA's Variable Speed Drives group membership is a comprehensive list of such

manufacturers and each of them can put you in touch with a set of distributors.

Once you've made contact with a manufacturer or distributor, they will conduct an audit of some kind. In the first instance this will normally be done remotely by telephone or via the web. They will want to know whether the application is pump or fan based (because

if it is, then it's automatically a great candidate for VSD control), what the power rating of the motor is and the number of hours per day it is being used for. An experienced drives engineer will be able to pick out whether or not you will save money very quickly.

You should expect to receive a rough calculation showing the energy that could be saved on the application. This will show clearly whether or not it is worth moving to the next level and investigating the process further.

A good example of how VSDs can provide impressive financial payback was provided by a recent cooling application on six fans, delivered by a GAMBICA member company. This retrofit project had to take into account a number of issues including power quality, compatibility with the existing motors and of course cost.

The price of installing the first of the six VSDs, one for each fan, was £22,000, including the harmonic mitigation measures taken to ensure power quality. The remaining five were added once the principle had been proven and the existing motors in the application were upgraded to accept VSD operation.

Before the project was installed a payback calculation tool was used to give the end user an idea of the energy savings they could expect. As this tool predicted, the payback period was a mere eight months, based on 1500 kWh of energy being saved per day at a total annual value of just over £30,000 annually.

This demonstrates that the key piece of data that you should look for in a quote is the projected energy usage of the overall system during its lifespan with and without a VSD fitted. The motor that the drive is controlling will consume many, many more



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times it's cost in energy during this time. Thus, the lifetime cost of the system in which the VSD figures is vastly more important than the VSD's own capital cost. By reducing this energy spend you can offset the initial price very easily.

Once the sums have been done on the system itself, it is time to consider the financial incentives provided by the Government for fitting VSD control. The Carbon Trust offers two form of encouragement. The first of these is the Enhanced Capital Allowance scheme, which means a business can claim 100 per cent first-year capital allowances on their spending on VSDs. Then, more importantly, there is the loan scheme, which allows small companies and SMEs to use an interest free loan to pay for the VSD and its installation. In effect, you borrow the money to buy the equipment and the VSD then covers the repayments itself, by reducing expenditure on energy.



A typical plant room

