

Using the PS System

If you are building a new property or doing a major refurbishment on an existing property the Powerguard PS System and generator can be fully utilised increasing efficiency and reducing costs.

Our intention is to use the PS System to extract the maximum useful energy from every litre of fuel reducing costs and pollution.

A modern building whether new or refurbished will be well insulated and in most applications the PS System will provide all of the hot water and space heating required.

If the building is large and cannot be refurbished to the latest insulation standards or is heavily used during the day then a supplementary boiler may be required. Even so the PS System will provide the bulk of the requirement.

Combined Heat and Power (CHP)

How does the Powerguard PS System provide hot water and space heating?

You have purchased the PS System and generator to provide your electricity and will be paying for the fuel to power it.

For every 1kW a typical diesel generator provides in electricity it wastes 2kW in heat. Powerguard can recover about 85% of this heat and use it to provide you with hot water and space heating. We call this Combined Heat and Power (CHP).

CHP makes the system very efficient cutting the cost of a kW of electricity to well below the price you would be paying for grid connected power.

If you can you should make use of the CHP facility.

Cooking

Some of our customers use gas for cooking, usually LPG. That's OK but it does mean that you have to install a tank and purchase and store

another fuel.

We think it is better to use electricity for cooking because the generator has to run part of every day and it may as well be when the cooker is being used.

We have just tested an induction hob on a PS System for one of our customers and it worked very efficiently. We were very impressed.

Supplementary Heating

Even though the house is centrally heated some people like to have a focus point to sit round on a cold evening.

If a solution is required that is instant with no regular maintenance we would suggest a small power electric fire probably less than 1kW.

Or an oil fired solution using the same fuel as the generator.

Alternatively if manual operation is not a problem an open or closed fire burning solid fuel could be installed.

Another advantage besides increased utilisation and efficiency is avoiding the cost of purchasing and storing another fuel.

Reliability

One of the reasons behind some of our customers using different fuels is because they feel that if the PS System or generator is not working they can at least keep warm. Unfortunately that is often not the case because gas often needs electricity to control it. The Powerguard PS System is very reliable more reliable than the national electricity grid.

If reliability is a paramount issue then it is probably better to have another small cheap standby generator with a manual changeover rather than install a tank and purchase and store LPG.

Alternative Heaters

Some of our customers want to install a ground source heat pump with the PS System.

Firstly this would be a much more expensive and less efficient solution than the CHP option.

Secondly it is not a good idea because a typical heat pump will use a relatively large motor rated at about 3.5kW. This would keep the generator running longer using more fuel.

Investment

The Powerguard PS System and generator represent a significant investment and adding the CHP option increases that amount. There are two main ways that the investment is repaid.

1. The convenience and time saved by fully automatic operation.
2. The reduced use of fuel.
3. Increased life of the generator and reduced maintenance.

If the location is off-grid and a generator is running most of the day to provide electricity the cost in fuel and wear and tear is high. When a PS System is installed to control the generator the costs are immediately and significantly reduced. The PS System will easily pay for itself in less than three years in saved fuel alone as well as give fully automatic operation.

If the CHP option is installed then the PS System and generator become very efficient and the payback will be even quicker.

Even if the PS System is purchased on finance the payback would still be within about three years.

If you generate your own power you need a PS System.