

CASE STUDY



Fort Vale Engineering Ltd

JRP Solutions were appointed by Fort Vale Engineering Ltd to carry out an ESOS audit of their two UK manufacturing sites. The two sites selected for audit accounted for 100% of the consumption across the whole of the Fort Vale organisation.

The total consumption for the reference period was 9,226.8MWh, equating to a cost of £633.7k, of this gas consumption was 2,704.3MWh and electricity consumption was 6,522.5MWh.

Fort Vale is a forward thinking company which selects assets with high standards of energy efficiency. Examples of this are an upgrade programme for the lighting in the original buildings at the Simonstone site and the inclusion of efficient lighting in a new workshop extension, plus the installation of solar panels on the roof of the main building.



An analysis of the manufacturing sites revealed the significant energy uses to be:

- Local exhaust ventilation (LEV)
- Wax pressing
- Lighting
- Compressed air
- Hot water tank heating

During the audit, all five LEV systems were investigated. These were operating using compressed air bag blowing on time control. The demand to remove particulate matter varied according to the intensity of the grinding, blasting and welding operations, but it was discovered that the time control on bag blowing was set as a default to cope with the maximum rate of blockage of the filters, not taking into account the variations. This meant a large amount of compressed air was being used at full system pressure.

It was estimated that a 20% saving could be achieved by installing a differential pressure control system to the bag blowing compressed air feed, set to a nominal safe differential pressure while enabling the LEV system to be effective. The saving equated to 185.3MWh and £16.2k per annum, with an associated implementation cost of £15k. This project had a simple payback of 0.9 years.

There was a second opportunity identified to install a control system to link the hydraulic power packs directly to the operation and demand for the wax presses. These were controlled by large hydraulic power packs that feed the rams and were running for longer periods than necessary for the operation of the process. This was consuming significant amounts of energy when idling between pressing operations. Installing a control system link would reduce the amount of time left idle, minimising wastage, leading to savings of 20MWh/£1.7k per annum, with an associated implementation cost of £5k and a simple payback of 2.2 years.

A further opportunity was identified to install lids on the hot water tanks. Two hot water tanks had open surfaces and were losing heat. A recommendation was made to install a two part lid to close behind the hoist chain when the dip is taking place. It was thought that other methods of minimizing evaporation such as floating balls would not be appropriate due to the baskets and components.

Installing lids on the hot water tanks would achieve savings of 151.2MWh/£13.2k per annum, with an associated implementation cost of £5k with a simple payback of 0.4 years.

If all the saving opportunities identified in the ESOS report were implemented, total utility savings of 977.1MWh pa could be achieved, equating to a cost saving of £78.7k. These had associated total implementation costs of £87.2k, giving a simple payback of 1.1 years.

"We decided on JRP Solutions to act as our lead assessor and the whole process was conducted professionally and in a timely manner with little or no impact on day to day activities and several sensible and realistic opportunities were identified. We will undoubtedly be working closely again in the near future with the team at JRP" Mark Smith, EHS Manager, Fort Vale Engineering Ltd."

SUMMARY

Customer:
Fort Vale Engineering Ltd

Industry:
Valve and fittings design
and manufacturing

Services Provided:
Energy audit to comply with
the requirements of the
Energy Savings Opportunity
Scheme, ESOS

**Potential Savings
Identified:**
£78.7k pa

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The Energy Specialists