



Shetland Heat Energy & Power
Working to benefit Shetland's Environment and Economy

DAI

CASE STUDY

The Challenge:

- ⌚ Getting the complete buy in from all stake holders for the migration from one DCS manufacturer to a newer better solution
- ⌚ Under tight timescales, the overarching requirement for right first time, with the critical nature of the system
- ⌚ Build a solution that was future proofed as much as possible

Introduction

For the population of Lerwick, on the Shetland Islands, the concept of incinerating waste to provide heat is critical, especially in winter where temperatures can fall below 0 °C.

Their existing process is centred on a Distributed Control System (DCS) which controls their entire operation, from regulating their 1100 °C furnace, to ensuring that pressure and temperature levels are correct for the water as it is pumped around Lerwick.

This DCS was approaching obsolescence, and hence needed to be replaced and upgraded to enhance performance and facilitate future proofing.



Solution Partner

Automation

SIEMENS

Why DAI?

DAI are known experts in the provision of DCS (distributed control systems) solutions, and have a proven track record in the delivery of business critical systems to the Energy sector. In addition DAI are Siemens PCS7 partners, with a relationship going back over 30 years.

(Since the successful delivery of this project and others, an on-going continual improvement strategy by DAI in Siemens technology has resulted in a joint DAI and Siemens investment in a new state of the art demonstration facility at the DAI Aberdeen offices manned by DAI and Siemens experts. We are the only UK partner to offer this type of Siemens demo facility, which allows prospective customers to see how their solution might work for real.)

Challenges

The wish for the new system was to have a stable solution, which was built around open technology, hence to offer Shetland Heat Energy and Power (SHEaP) greater choice and flexibility moving forward.

Since the system was critical for heat provision to Lerwick, any replacement needed to be fully up and running, and well tested, before the significant demands of the winter months arose.

The migration path adopted, from the old obsolescent DCS to the new DCS needed to have an easy to execute fall back plan to ensure the well being of the Lerwick population during the project execution.

Solution

DAI engineered a new DCS solution based around Siemens PCS7, replacing the legacy ABB Advant DCS.

To help reduce project timescales and costs, existing I/O modules were retained.

Through the flexibility of the system, DAI built several features into the changeover strategy to help keep the risk of operational disruption to a minimum.

In addition new functionality was introduced to make things work better and more efficiently than they had before.

The Result

Within 3 months of the migration, tangible benefits were obvious from the new system. Among other things, there were clear improvements in furnace regulation and consequently a reduction in maintenance time. Other benefits included a very operator friendly solution.

The DCS is used across the entire process, from regulating the temperature in the Energy Recovery Plant (ERP) that is annually incinerating more than 22,000 tonnes of waste, through to ensuring the temperature and pressure levels are correct as the water is pumped around Lerwick.

“We are very happy. There is no doubt that it works a lot more smoothly.” commented Neville Martin, District Heating Manager for SHEaP.