

CASE STUDY: Supermarket retailer

PROJECT: Ethos

## ETHOS HELPS FM COMPANY SLASH £68,000 OFF THEIR MULTINATIONAL RETAILER CUSTOMER'S ANNUAL ENERGY BILL

Refrigeration Innovation of the Year award winner Star Technical Solutions (STS) collaborated with a leading provider of facilities management & building maintenance to serve their retail customer with annual savings of 680,000kWh and 190 tonnes of CO<sub>2</sub> at their distribution centre cold store in the South Midlands.

The supermarket retailer achieved the significant cuts in energy costs and CO<sub>2</sub> emissions through the installation of Star's unique energy management and performance optimisation system, Ethos.

The facilities management company were actively pursuing energy saving options and were aware of Ethos due to its success at The Ice Co Storage & Logistics company where savings of over £100,000 per site were achieved. The decision to choose Ethos above other data logging facilities on the market stemmed from the unique selling points of the Star product, which has recently won the Refrigeration Innovation at the RAC Cooling Awards in recognition of its ability to drive behaviour change and its ability to provide targeted diagnostics to deliver the largest saving

returns to end users. Ethos measures energy consumption and plant status throughout the day.

It also models the client's refrigeration system and reports on the gap between how the system is currently operating and how it should ideally be performing.

Introducing Ethos into the large temperature-controlled distribution centre, STS oversaw all aspects of the installation at the end-user's site. The system now provides the site's management team with continuous and up to date information about the depot's current energy consumption and insights on how to optimise the refrigeration equipment to achieve maximum savings.



Ethos connected to refrigeration system

The installation of Ethos did not interfere with the plant's normal operation and it was installed and commissioned with minimal down time. This was possible through collaborative working involving the customer, STS, Star Refrigeration's

Operations team and in house electrical contractor, SMES.

Once Ethos was installed, it provided data relating to the refrigeration plant's ongoing energy consumption, overall system performance and actionable insights. Analysis of this real time performance data identified improvements and estimated monetary benefits.

### Targeted Maintenance and Capital Investment Opportunities

STS was able to identify the following targeted maintenance actions on the cold store chamber:

- Thorough cleaning of all condensers
- Replacement of condensers float switches
- Repair of passing control valves
- Optimisation of adjustable Vi slides on the compressor
- Purging of air from the condenser

After implementing all of these steps there was a significant reduction to the year on year energy consumption. The actual measured reduction in energy consumption was 680,000kWh which is 23% year on year reduction on energy cost for the store.

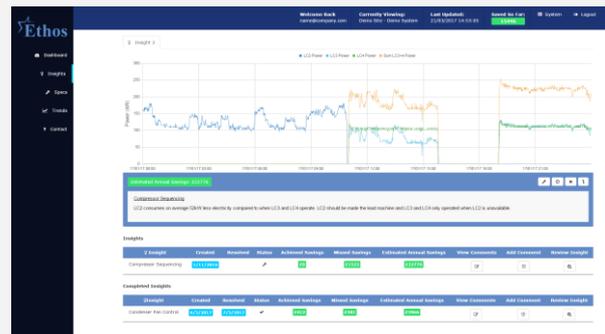
In addition, Ethos highlighted a series of actions requiring capital investment which had the potential to reduce the energy bill by an extra 27%. These included the replacement of the evaporator (12%) and the condenser (15%).

The savings produced by the installation of Ethos at the site are indicative of Star's commitment to

and expertise in reducing the energy bill for its customers. As the maintenance contractor for this major retailer, Star regularly holds meetings with their energy team and have worked on various money-saving initiatives in the past.

One of these is the installation of Frequency Response equipment on refrigeration plants. This technology allows the end-user to keep abreast of peaks and troughs in the national grid power supply, coming offline at times in response to peak loads on the grid to maximise energy savings. With Ethos installed on their site they are now equipped to reduce its energy expense even further.

The Ethos service provides initial insights that are low cost and quick to implement including the tweaking of set points and targeted maintenance. It also highlights opportunities for improved efficiency through equipment replacement and upgrade typically requiring capital investment. These investments are justified by energy saving predictions produced by the software based on data collected from site.



Ethos insights

Ethos also provides ongoing monitoring of the refrigeration system behaviour making sure that any emerging inefficiencies are caught early and actioned.

Star Technical Solutions (STS) is the technical advisory service of Star Refrigeration, the UK's leading refrigeration engineering company.

STS operates independently of the rest of the business, with its team of full time technical staff bringing together wide ranging and expert knowledge of the refrigeration, HVAC, heat pump and insulated envelope industries.

For more information about Star Technical Solutions and its energy management services, visit [www.star-ts.co.uk](http://www.star-ts.co.uk).



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