



## Topic

How Ethos is Driving Carbon Reduction and Hitting Targets

## Author

Anne Flanagan, Technical Business Development Manager at Star Technical Solutions



# Ethos helps end users of refrigeration systems save money and cut carbon emissions

Time is running out to reverse the effects of global warming, which means the pressure on industry and businesses to reduce their carbon footprint is increasing. The business green agenda is more important than ever, and Star Technical Solutions have designed a tool which can help refrigeration plants run more efficiently in order to reduce energy consumption and save money on energy costs.

### Star's Customer Carbon Reduction Strategy

Energy consumption reduction is a strategy taken seriously by Star Refrigeration's group of companies and this has led to the development of the Ethos system. It has also led to investment in the drive to deliver Ethos to as many customers across the UK as possible. The energy management and plant optimisation service reduces carbon output generated from electricity consumption of refrigeration systems and provides two key benefits – visibility of energy usage and energy savings insights that no other service has been able to offer to date. This consequently results in a more efficient plant, which minimises energy consumption and has a positive environmental impact.

### How Ethos works

Ethos is a consultancy-led service that involves installing monitoring equipment onto the refrigeration plant to extract data. Star consultants collect the data using one of three methods: sensor based data logger, network based data logger or a web API. This data is managed and stored in a SQL database alongside configuration data that describes the system being analysed.

The plant data is then processed within a custom-made application that models the system as a "dynamic digital twin". This allows Star to apply a bespoke analytical tool developed by the refrigeration experts at STS which provides the insights to drive the savings. These insights are displayed on an easily accessible online dashboard where they can be viewed by customers, along with energy usage data and lots of other useful information such as dynamic graphs of system vitals, overview of equipment status and alerts informing on irregular behaviour.

Ethos is like a digital commissioning engineer that is watching over customer's equipment night and day so that energy inefficiencies can be highlighted and avoided through early intervention to rectify poor system performance. It's quick and easy to install, and works behind the scenes 24/7 to prevent unforeseen maintenance costs and save energy.



### Current and future applications

Ethos has been deployed so far on cold storage warehousing, blast freezers, breweries and food manufacturing sites. Every customer on board has saved money with Ethos, and continues to use the system. In many cases, customers have reported energy costs savings of up to 30% by following recommendations delivered by Ethos.

Right now Ethos has been deployed or is being deployed on a further seven existing client sites. The total annual energy consumption for refrigeration of these sites is 39 million kWh. Star comfortably expect to achieve combined savings of 3.9 million kWh across these sites – which translates to saving 1,039 tonnes of CO2 being released into the atmosphere. This is an annual figure and the saving will be experienced year after year during the life of the plant.

In the future, Star's strategy is to supply all new refrigeration plant from this point onwards "Ethos ready" and to encourage customers to sign up for monitoring from the start of operation. This is to ensure that the plant will never drift from the optimum energy consumption which is achieved when the plant

is newly commissioned. Star's consultants estimate this will reduce carbon output from the outset in the region of 10% per year.

So far in the first few months of 2019 Star have designed refrigeration plants for new sites with Ethos ready equipment. This will result in a carbon output avoidance of 60,000kWh annually or 17 tonnes of CO2. Star also have plans in place to implement Ethos onto Star's heat pumps in addition to refrigeration plants.

### Long term objectives

Ethos is currently experiencing rapid growth, with installations requested through contractors, facilities management and consultancy companies as well as end users. Star predicts that Ethos will be deployed in about 50 to 60 sites by 2020, with the subsequent carbon reduction year on year.

The potential for the energy optimisation system is huge, and Star's vision is for Ethos to be a legal requirement fitted to all new refrigeration plants to ensure the absolute minimum carbon output industry wide.

Find out more about how Ethos could drastically reduce your carbon footprint here: <https://www.star-ts.co.uk/service/ethos-homepage/>

Anne Flanagan can also be contacted directly for further information [aflanagan@star-da.co.uk](mailto:aflanagan@star-da.co.uk)

## Star Refrigeration

Thornliebank Industrial Estate, Nitshill  
Rd, Thornliebank,  
Glasgow G46 8JW

Tel: 0141 638 7916 [star@star-ref.co.uk](mailto:star@star-ref.co.uk)

@StarRefrig

[www.star-ref.co.uk](http://www.star-ref.co.uk)



## The Star Refrigeration Group

