

powerdown220

Coolnomix Trial Report

Major UK food group, Poole

reducing carbon emissions locally and globally

Client

The UK's leader in savoury foods production and manufacture

Coolnomix Model

1 x AR-01 for refrigeration use
+

1 x MID smart meter with GPS capability for remote monitoring

Direct Annual Savings



2,197.3 kWh



624kg CO2



Saving of £262.50 per refrigeration unit
34% energy saving
23 months ROI

Coolnomix®

Reduce the energy consumption of your air-conditioning and refrigeration without affecting the output you need. Our technology is maintenance free and can be easily installed by our qualified engineers with no disruption to your operation. You can expect up to 40% energy saving on your air-conditioning and up to 30% on your refrigeration.

We keep your people, equipment and produce cool, and your energy budget from overheating

Client

The company aims to minimise and mitigate their environmental footprint and have adopted several responsible practices across the business. The bakery plant consists of three bakeries under one roof.

Overview

The purpose of the trial was 'proof of concept' and to identify the potential for reducing both carbon emissions and direct energy consumption with the installation of COOLNOMIX - a unique patented intelligent thermostat, with a view to supplying and installing COOLNOMIX across the company's UK refrigeration portfolio.

Emissis carried out an 83-day trial on one refrigeration unit.

Trial

On the 13/07/2020 the COOLNOMIX unit was installed and connected to the internal refrigeration unit, located within a walk-in fridge, and the system was switched either on/off at varying times during the trial.

To measure the energy consumed by the refrigeration unit an MID smart meter, with remote connectivity, was connected to the external condenser.

Data recording commenced on the 13/07/2020. COOLNOMIX (ON) was operational for 1200 hours (50 days). COOLNOMIX was bypassed (OFF) and the refrigeration operated as 'normal' for 792 hours (33 days) until 07/10/2020.

During the 83-day trial, the metered half-hourly and 4-hourly data was collected and analysed. All the information is available on the Emissis cloud platform as well as the two appendices as supporting evidence.

Results

Daily

COOLNOMIX active (ON) reduced daily energy consumption by 6kWh. Reducing both energy use and carbon emissions by 34% (see Figure 1).

The saving is based on the refrigerator using 17.7kWh daily with COOLNOMIX inactive (OFF) and 11.7kWh with COOLNOMIX active (ON).

Daily energy consumption (kWh) and saving with COOLNOMIX

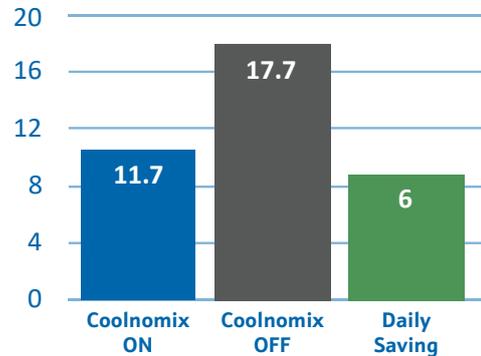


Figure 1: Daily energy consumption and saving

Annual energy consumption (kWh) and annual saving with COOLNOMIX

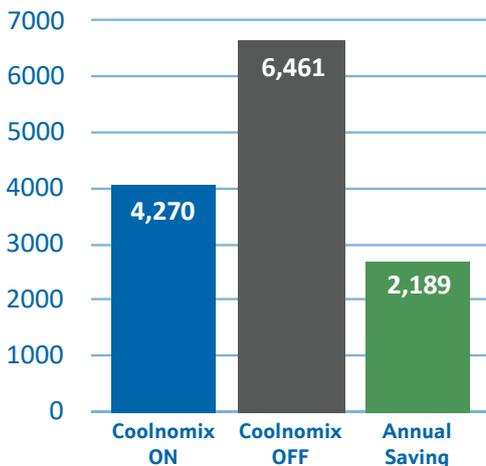


Figure 2: Annual energy consumption and savings

Annual

The calculated 6kWh daily saving with COOLNOMIX equates to annual energy savings of 2,189kWh (see Figure 2) which is equivalent to a carbon emissions reduction of 624kg of CO₂.

The annual savings were calculated on average daily consumption showing:

COOLNOMIX (ON) consumption averages 11.7kWh
COOLNOMIX (OFF) consumption averages 17.7kWh

COOLNOMIX will reduce your carbon emissions by 624kg of CO₂ per annum

Conclusions

The trial test accurately proves the daily energy savings with COOLNOMIX, allowing us to predict the annual carbon emissions reduction and the energy savings plus the financial benefit. We have based cost savings on the trial site's electricity supply cost of £0.12 per kWh including any CCL.

The COOLNOMIX trial delivered a 34% energy reduction in electricity consumption; annualised this equates to a reduction, per refrigerator:

- 2,189kWh
- 624kg of CO₂
- Cost Savings of £262.50



Recommendations

Full rollout across the company's 5 UK sites will have a significant impact on each site's energy consumption, carbon emissions and profitability. Assuming that the cost of electricity is £0.12 per kWh, each refrigerator will save £262.50 annually in electricity costs. The return on investment is 23 months.

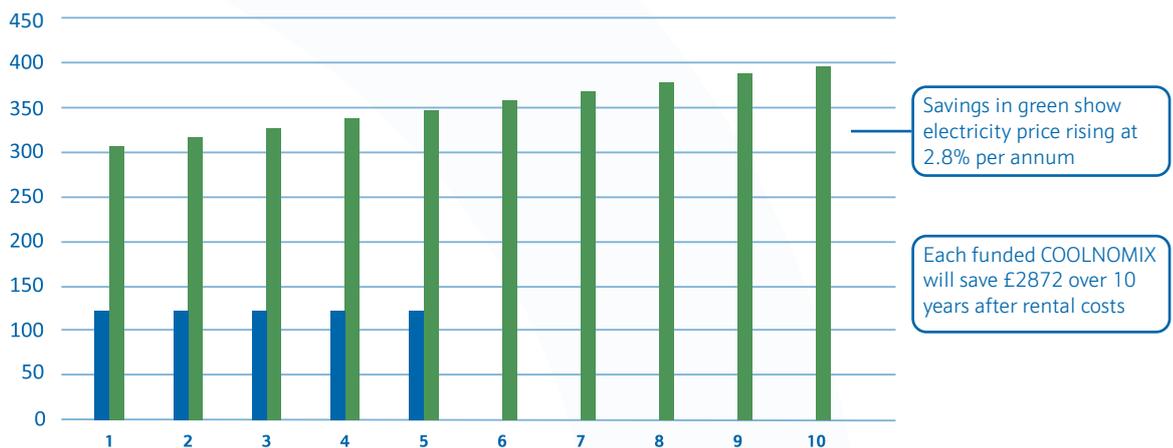
Over 10 years each refrigerator fitted with a COOLNOMIX device would achieve:

CO2 reduction
6,240kg

Electricity reduction
21,890kWh

Rental Option

Zero CapEx (off balance sheet, zero deposit) option



Emissis offer a monthly rental option backed by Macquarie Bank that does not require a deposit and yet provides a net annual benefit over the rental period and a significant benefit over 10 years. In this instance, the 10-year benefit is £2,872 based on the current results and after the rental cost of £600 per COOLNOMIX device.

Appendix

All half-hourly data and its summary '4-hourly readings' is attached.

GREEN indicates COOLNOMIX active (ON) and the refrigerator operating with COOLNOMIX 'optimisation'

RED Indicates COOLNOMIX inactive (OFF) and the refrigerator operating as 'normal'

Notes

The COOLNOMIX device's ROI is dependent on the following criteria:

- KW rating of the refrigeration or cooling system
- Operational run hours
- Electricity cost per kWh

We're ahead of the game

We deliver a powerful suite of solutions that reduce your carbon emissions, save you money with lower energy bills and generate revenue from being a more flexible energy user with the help of today's leading technology.

See our COOLNOMIX brochure and videos

See our other solutions

COOLNOMIX
Emissis | Exclusive European Distributor

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