



TUTUM
ENERGY

Coolnomix Trial Report

Broomfield Hospital
Mid and South Essex NHS Foundation Trust

Report compiled by Shaun Nugent Director Emissis
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Mid and South Essex
NHS Foundation Trust

About

Broomfield Hospital is an acute district general hospital in Chelmsford, Essex.

It is managed by the Mid and South Essex NHS Foundation Trust.

Annual Savings:



kWh

1,870 kWh



935kg of CO2



Saving of £243.18

PAYBACK

29 months

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.

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

Overview

The purpose of the trial was 'proof of concept' pilot study to prove the benefit of installing COOLNOMIX our unique patented intelligent thermostat on reducing the energy consumption, costs, and carbon emissions of the air-conditioning.

Emissis and our partner Bouygues carried out a 10 day trial on one air conditioning unit in the UPS Room 1CP at Broomfield Hospital.

Trial

On the 03.02.2022 One Coolnomix units was installed and connected to one internal Mitsubishi ceiling mounted split unit rated 14kw air conditioning unit annotated as system number 20.

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

Data recording commenced on 03.02 with Coolnomix OFF until 09.02 and then Coolnomix was turned ON from 09.02 -16.02. During the trial the metered half hourly and 4 hourly data was downloaded and analysed.

Results

Daily

Coolnomix active (ON) reduced daily energy consumption by 16% reducing kWh consumption by 4.1kWh per day

This saving is based on average daily consumption of power with COOLNOMIX (ON) and COOLNOMIX (OFF) over the period of the trial.

Daily Energy consumption (kWh) and saving with Coolnomix

Daily energy consumption (kWh) and saving with COOLNOMIX

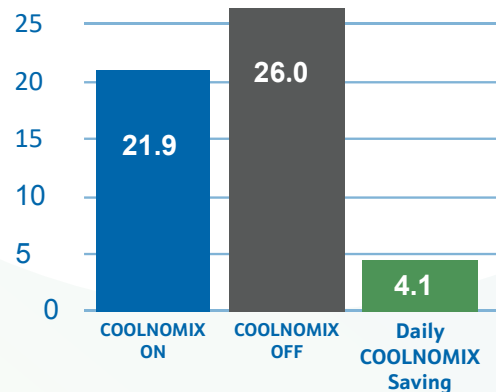


Figure 1: Daily energy consumption and saving

Annual

The calculated daily saving of 4.1kWh equates to an annual saving of 1,496.50 kWh with COOLNOMIX (ON) which is equivalent to a carbon emissions reduction of 748.25kg of CO2

At a cost price of 0.13p per kWh one Coolnomix unit will save Broomfield Hospital £243.18 per year. In the warmer months of April and throughout the Summer months the outside temperature increases making the AC unit work harder.

All AC units are designed to work to a maximum outside air temperature of around 32 degree C and will hold the room at, for example, 22 degrees ensuring that until the outside temperature is reached there is residual energy within the AC unit that Coolnomix will make savings on. In this way we usually expect to see additional savings of around 24% in these warmer months.

For the purpose of this pilot we have conservatively estimated annual energy reduction at 20% saving over 1870kWh per year. Carbon Emissions will be reduced by 935 kg of CO2.

Conclusions

The trial test accurately proves the energy savings with Coolnomix allowing us to forecast the annual carbon emissions reduction and the energy saving plus the financial benefit. We have based cost savings on the trial sites existing electricity supply cost of 0.13p per kWh (excluding any taxes). With electricity costs set to rise the savings model will only improve over time.

It is estimated that Coolnomix will deliver on average a 20% energy reduction in electricity consumption over a 12 month period. Spread over an AC estate estimated of consisting of 100 similar units the annual benefit of Coolnomix will be as follows:-

First Year Energy Reduction & Savings (based on 100 Coolnomix units)

- 187,062kWh saving
- 93,500 kg or 93.5 tonnes of CO2
- £24,318 financial saving year 1
- Rapid return on investment of 29 month payback period with 10 year + life expectancy of a Coolnomix thermostat

5 Year Energy Reduction & Savings (based on 100 Coolnomix units)

- 936,250kWh saving
- 467,500 kg or 467.5 tonnes of CO2
- £121,590 financial saving (not factoring in inflation as cost of electricity set to rise by at least 30% over next 2 years)

10 Year Energy Reduction & Savings (based on 100 Coolnomix units)

- 1,870,620kWh saving
- 935,000 kg or 935 tonnes of CO2
- £243,180 financial saving (with inevitable inflation much more)

Coolnomix is compliant with TM44 part L2 building regulations.

Coolnomix helps hospitals meet their carbon baseline.

Coolnomix does not increase the amount of fluorinated greenhouse gases in a cooling system.

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

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