



CASE STUDY

BROOMFLIED HOSPITAL

MID AND SOUTH ESSEX NHS FOUNDATION TRUST

Coolnomix® Report,

Report compiled by Shaun Nugent, Director Emissis
02/28/2022

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Annual Savings of the Broomfield Hospital Mid and South Essex NHS Foundation Trust Report



1870 kWh



935 kg of CO₂



**Financial
Savings**
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.

About

Broomfield Hospital is an acute district general hospital in Chelmsford, Essex. It is managed by the Mid and South Essex NHS Foundation Trust.



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, cost, and carbon emissions of the air-conditioning.

Emissis and our partner Bouygues carried out a 10 day trial on one air conditioning unit 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

for Broomfield Hospital, England

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®

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.



| DAILY ENERGY CONSUMPTION (KWH) AND SAVING WITH COOLNOMIX® | | | |
|---|-------------------------|------|---------------------|
| Site | Daily consumption (kWh) | | Daily savings (kWh) |
| | OFF | ON | |
| Broomfield Hospital | 26.0 | 21.9 | 4.1 |



CONCLUSION

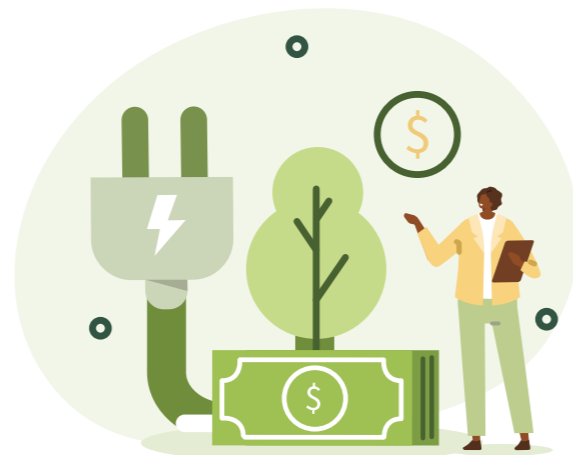
The trial test accurately proves the energy savings with Coolnomix® allowing us to forecast the annual carbon emissions reduction and the energy saving plus the financial benefit. We have based cost savings on the trial sites existing electricity supply cost of 0.13p per kWh (excluding any taxes). With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

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.



Energy Reduction & Savings Forecast

(based on 100 Coolnomix® units installations)

Year 1

kWh = 187.062 kWh per year
 CO2 savings = 93.500 kg or 93.5 tonnes
 Financial savings = £24,318
 Payback = 29 month period with 10 year + life expectancy of a Coolnomix® thermostat

After 5 years

kWh = 936,250 kWh saved
 CO2 = 467,500 kg or 467.5 tonnes saved
 Financial savings = £121,590

(not factoring in inflation as cost of electricity set to rise by at least 30% over next 2 years)

After 10 years

kWh = 1,870,620kWh saved
 CO2 = 935,000 kg or 935 tonnes saved
 Financial savings = £243,180

(with inevitable inflation much more)

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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