



**Midlands University**

**Coolnomix**

**Trial Data Report**

**Report compiled by Tim Twohig**





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## 1. Introduction

As specialists in the field of Critical Power and Cooling, EMC Renewables were invited to conduct a site survey to assess the suitability of Coolnomix being integrated into the existing University's DX cooling systems, and any other potential issues that could improve the efficiency within the rooms.

A Coolnomix unit was fitted to a Mitsubishi PKA.RP71KAL unit for a trial period and monitored with a standard KWh meter.

The trial Coolnomix unit was fitted on 19<sup>th</sup> April and is currently connected.

## 2. Room Overview

The room being surveyed was a Lift Motor room and comms room with multiple Racks and a Lift Motor plus control panels. The cooling unit was blowing cold air from high level towards the racks.

The air conditioning unit was set to 22°c.

The general opinion of the current room layout and cooling is that it is sufficient for the load currently seen.

## 3. Temperature Readings

The unit within the room was set to 22°c and running adequately.

The below readings were taken to ascertain Coolnomix suitability.

Data Hall	Unit 1		Unit 2		Unit 3		Unit 4	
Environment	Min	Avg	Min	Min	Avg	Avg	Min	Avg
Set Point	22.0							
Cooled Room Temp		23.0						
Return Air Temp		21						
Min Cold Air Temp		13.7						
Temp Delta	9.3							

Having a Temperature Delta of >7 gave confidence that a trial unit could be fitted.

## 4. Coolnomix Energy Optimisation Systems – Midlands University

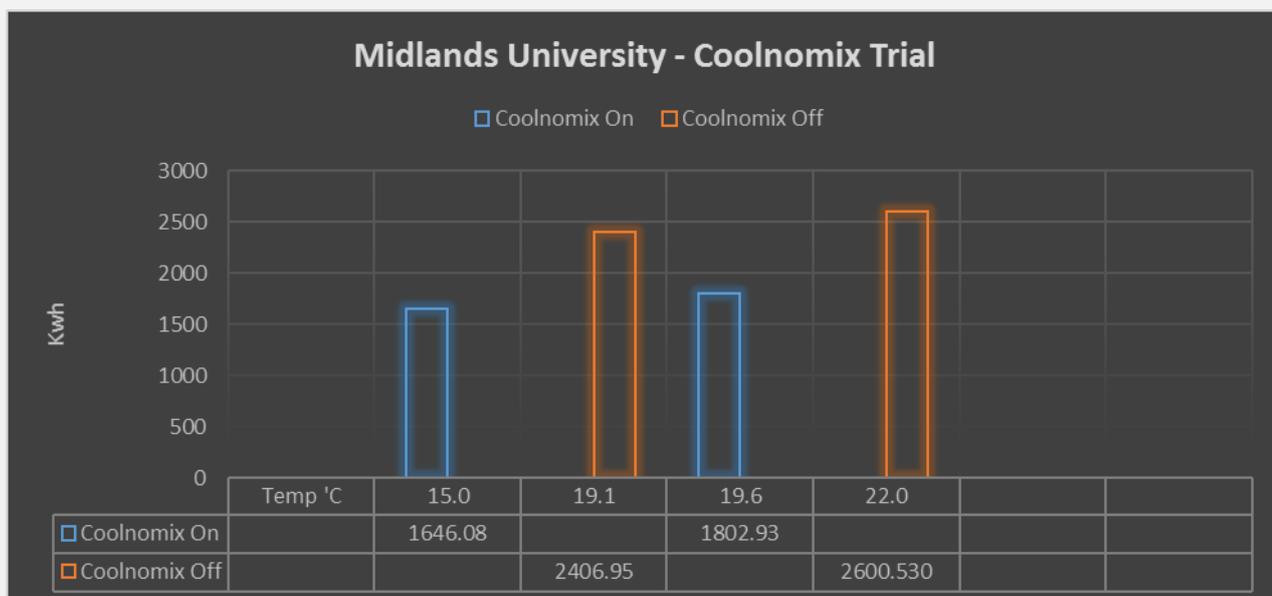
With the unit having some spare capacity suitable for Coolnomix installation the test was set up to operate on Coolnomix and in Normal operation, with site monitoring the KWh usage and environmental conditions during the works, clearly the data below shows that good savings can be made.

### Calculation results

The KWh usage of one unit can be seen below giving good savings over both periods with Coolnomix attached and having been tested for both on/off scenarios over a 6-week period.

kWh Readings		Status	kWh Usage	Temperature
19/04 – 02/05 (12days)	26.0 – 83.5	On Coolnomix	57.5	15.0°C
02/05 – 11/05 (10days)	83.5 – 142.3	Normal operation	58.8	19.1°C
11/05 – 25/05 (12days)	142.3 - 213.1	On Coolnomix	55.2	19.6°C
25/05 – 01/06 (6days)	213.1 - 255.7	Normal operation	42.6	22.0°C

By extrapolating the data, creating equal usage periods, into a graph format we can show that over time the Coolnomix is making a considerable saving on the Energy usage.



Using the trend data shown it can clearly be seen that Coolnomix creates considerable savings on KWh usage when operating.

This is clearly shown, when comparing similar outside temperatures, the graph shows that when Coolnomix is not connected the Air-conditioning unit was using **33.5%** more energy than when Coolnomix is connected and operating.

As outside air temperatures also increase during the summer season we would expect the Coolnomix kWh savings to significantly increase during this period.



EMC Renewables are confident that with the trial percentage saving the Coolnomix would have a good return of investment when applied to the correct application and would be happy to discuss further where this could be used within the university's portfolio.

## **5. Recommendations**

Following on from the successful trial of one Coolnomix unit, the next step would be to install the solution permanently and depending on budget the quickest return on investment would involve identifying the larger AC units from the asset list and installing the Coolnomix accordingly.

EMC Renewables would welcome the opportunity to work with University Energy & Estate teams to formulate a proposal which would cover the remaining desirable A/C systems, to achieve the most cost-effective Energy savings.

For further information and to discuss how we can help your business, please find our contact details at [www.emcrenewables.co.uk](http://www.emcrenewables.co.uk)