The background of the entire page is a photograph of a mountain range. The mountains are layered, with the closest ones in the foreground and others receding into the distance. The scene is shrouded in a light mist or fog, which softens the details of the landscape. The color palette is monochromatic, consisting of various shades of blue and teal, creating a calm and serene atmosphere.

powerdown220

# Coolnomix Trial Report

**Bancolombia - Cartegena branch**

Report compiled by Shaun Nugent, Director, Emissis;  
in partnership with Clear Energy

reducing carbon emissions locally and globally



## About

Bancolombia is a major banking group in Colombia.

## Coolnomix Model

3 x AC-01 for air-conditioning use  
+  
1 x MID smart meter with GPS capability for remote monitoring

## Direct Annual Savings



22,155.5kWh



11,077.75kg CO2



Saving of €2,658.66 per branch  
26% energy saving  
12-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

Bancolombia is a full-service financial institution that provides a range of financial products and services to a diversified individual and corporate customer base throughout Colombia, as well as in other jurisdictions, such as Panama, El Salvador, Puerto Rico, the Cayman Islands, Peru, and Guatemala.

## 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 exclusive partner Clear Energy carried out a 46.5-day trial on three air-conditioning units at the Cartagena branch, Colombia.

## Trial

On the 06/04/2021 three COOLNOMIX units were installed and connected to three internal Trane air-conditioning units, each with two compressors forcing cooled air through each air handling duct.

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

COOLNOMIX units were installed on air-conditioning units No. 1, No. 2, and No. 3. A kWh meter was installed to monitor the consumption during the trial. No. 1 and No. 2 air-conditioning units were very erratic due to the branch occupancy at the end of April onwards, but No. 3 air-conditioning unit continued to operate normally for 24-hours a day, as it cools the ATM area.

Data recording commenced on the 06/04/2021 with COOLNOMIX active (ON) until 28/04/21 and then COOLNOMIX was inactive (OFF) until the trial was completed on 23/05/21.

During the trial, the metered half-hourly and 4-hourly data was collected and analysed. No. 1, due to the erratic operation, was analysed on a half-hourly basis.

# Results

## Daily

COOLNOMIX active (ON) reduced daily energy consumption by 26% (see Figure 1), providing a reduction of 60.7kWh per day.

This saving is based on the 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

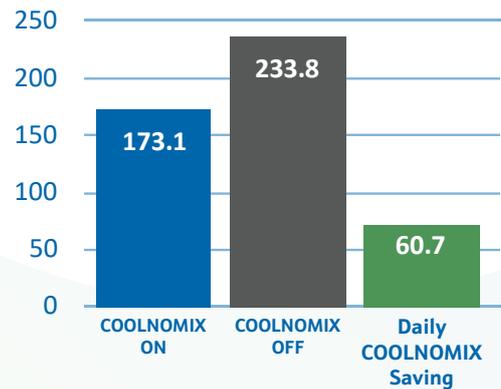


Figure 1: Daily energy consumption and saving

Annual energy consumption (kWh) and annual saving with COOLNOMIX

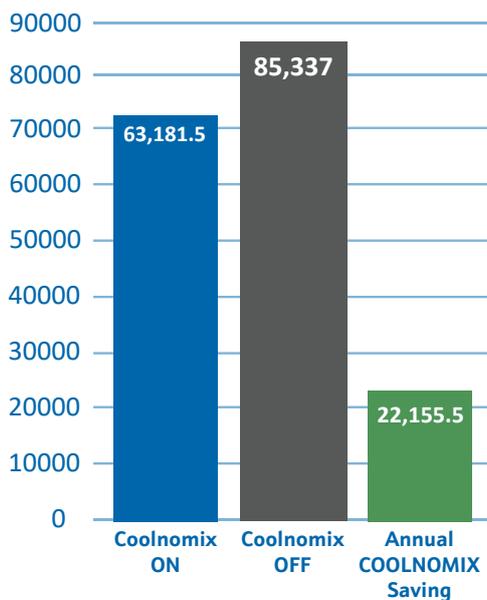


Figure 2: Annual energy consumption and savings

## Annual

The calculated 60.7kWh daily saving with COOLNOMIX (ON) equates to annual energy savings of 22,155.5kWh (see Figure 2) which is equivalent to a carbon emissions reduction of 11,077.75kg of CO2 annually.

The annual savings were calculated on average daily consumption showing:

COOLNOMIX (ON) daily consumption averages 173.1kWh  
COOLNOMIX (OFF) daily consumption averages 233.8kWh

*COOLNOMIX will reduce your carbon emissions by 11,077.75kg of CO2 per annum, per branch*

## 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 (excluding any regional climate change taxes).

The COOLNOMIX trial delivered a 26% energy reduction in electricity consumption; annually this equates to a reduction, per branch:

- **22,155.5kWh**
- **11,077.75kg of CO2**
- **Cost Savings of €2,658.66**

Across an estimated 800 Bancolombia branches COOLNOMIX will see an annual benefit as shown in figure 3.

- **17,724,400kWh**
- **8,862,200 kg CO2**
- **€2,126,928**
- **Rapid return-on-investment**

## Expected annual benefit across 800 branches over 1 year

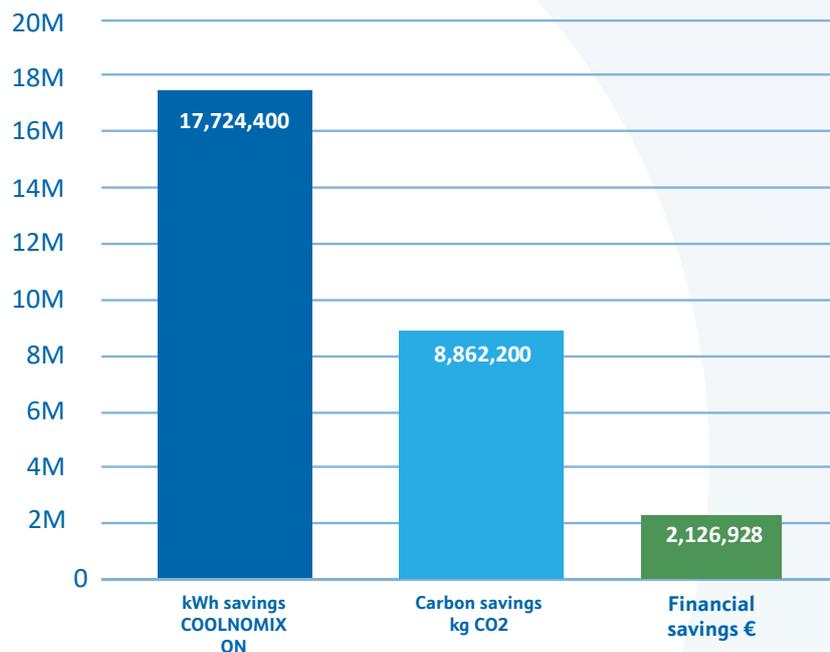


Figure 3: Annual benefit across portfolio of branches

## Recommendations

COOLNOMIX clearly shows that significant energy, carbon, and financial savings can be achieved, and it is highly likely that due to the climate in Colombia; these savings will be available throughout the Bancolombia branch network. A full roll-out across the portfolio would also offer a significant long-term benefit.

Over 10 years Bancolombia will achieve:

**CO2 reduction**  
**88,622tn**

**Electricity reduction**  
**177,24GWh**

## Appendix

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

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

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

## Notes

1. 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 + regional climate change taxes



**COOLNOMIX**

Emissis | Exclusive European Distributor

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## 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

## Partners



CLEAR ENERGY