RESYNC

Technical Case Study

National Hospital

Surabaya, Indonesia

INTRODUCTION

PROJECT OVERVIEW

Introduction

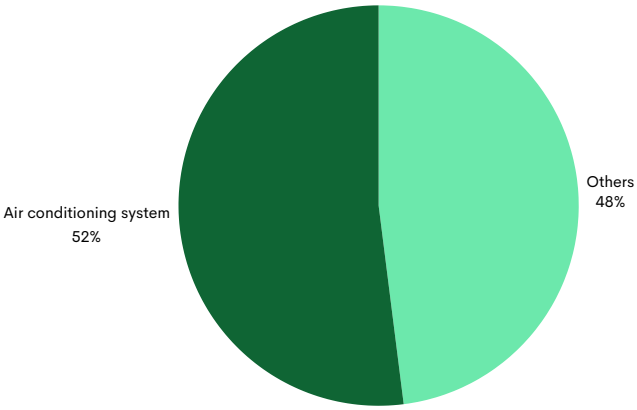
The National Hospital Surabaya undertook a transformative project to enhance energy efficiency, digitize asset management, and maintain desired thermal comfort throughout its facilities. This pioneering effort included advanced optimization of the Daikin VRV Condensers, a unique and specialized system for which comprehensive optimization solutions are rare. Resync successfully implemented these optimizations, demonstrating our capability to handle such advanced technologies effectively.

Type of building	9 Storey Hospital Building
Location	Surabaya, Indonesia
Average Energy Consumption ($)	US $38,800 - US $ 41,000
Average Energy Consumption (kWh)	550,000 kWh - 603,000 kWh per month
HVAC/ACMV:	Daikin VRV Condensers + Fan Coil Unit

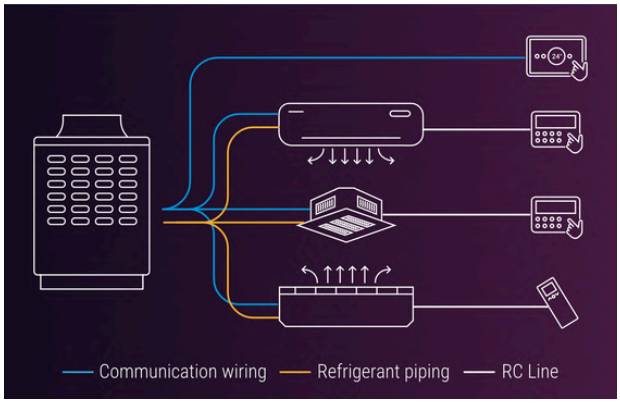
PROBLEM

CHALLENGES

The National Hospital Surabaya faced significant operational challenges and high energy costs. The facility operated 536 FCUs condensers manually, lacking a unified real-time asset management system. This led to a high level of manual intervention by the facility team, requiring substantial resource allocation and ad hoc maintenance.



Air Conditioning Expenditure of Total Building Energy Consumption



Manually Controlled VRF System

Primary Challenges Faced

High Energy Consumption

Lack of Real-Time Asset Management

Lack of Automated Control

Ad-Hoc Maintenance

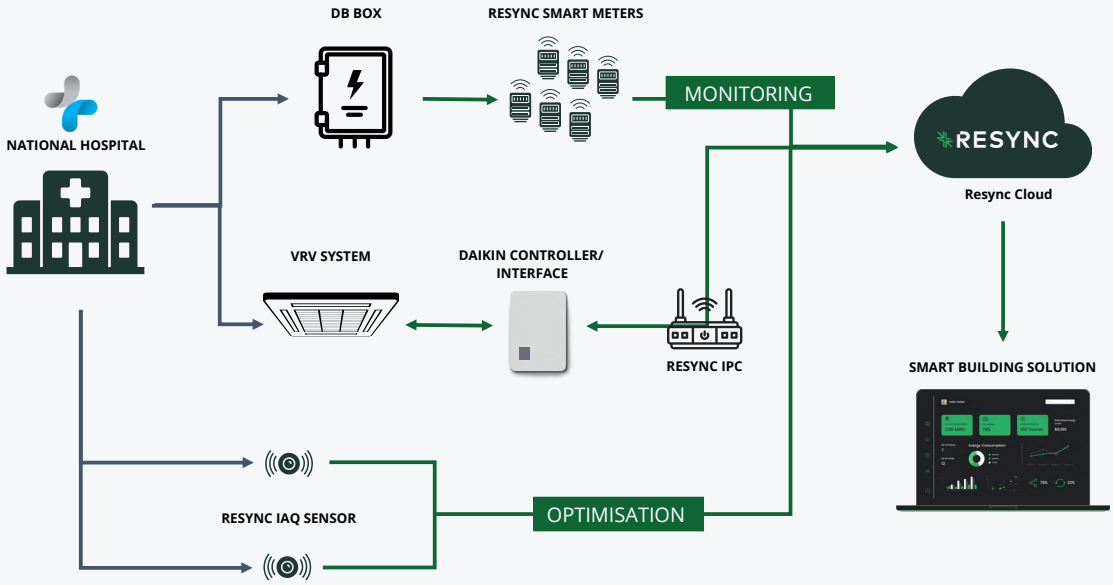
Manual Facility Management

Lack of Sustainability Tracking

IMPLEMENTATION

SOLUTION

Resync implemented a comprehensive energy management solution at the National Hospital Surabaya to address high energy consumption while maintaining thermal comfort. By integrating advanced AI-driven systems, Resync optimized HVAC operations, enabling more efficient energy use. The digitalization of asset management allowed for real-time monitoring and automated control of over 536 FCUs condensers, significantly enhancing operational efficiency.



System Overview for Asset Consumption Monitoring and HVAC Optimization

Key Solutions for Enhanced Energy Management

01
Digitalization

The manual control of FCU condensers was transformed into an automated system with real-time monitoring, to boost facility management and energy oversight.

02
Optimization

Advanced AI-driven control systems were implemented to optimize HVAC operations, ensuring efficient energy use and operational performance.

03
Thermal Comfort

Achieved balanced indoor temperatures to eliminate fluctuations, ensuring a comfortable environment for staff and patients while enhancing overall efficiency.

SOLUTION

DIGITALISATION

Digitalisation transformed the hospital's energy management by integrating advanced IoT-driven technologies. This enabled real-time monitoring and control of assets, streamlining facility management processes and enhancing operational efficiency.

24 Smart Energy Meters

Installed and integrated into Resync's platform for accurate real-time energy monitoring.

536 FCUs Onboarded

All FCUs are now controlled via Resync's platform, allowing for efficient and centralized management.

Automated Scheduling

Scheduling and operation of FCUs can be automated from the platform, eliminating the need for manual intervention.

Significant Achievements and Results

Enhanced Real-Time Monitoring

Continuous and accurate tracking of energy usage and asset performance.

Centralized Control

Unified management system for efficient operation of all connected devices.

Improved Operational Efficiency

Enhanced processes and streamlined workflows lead to optimized utilization.

Detailed Reports & Analytics

Access to multiple reports for enhanced insights and informed decision-making

Reduced Downtime

Reduced downtime capabilities minimize unexpected failures and expenses.

Optimized Resource Allocation

Efficient use of resources based on real-time data and usage patterns.

SOLUTION

OPTIMISATION

Resync implemented advanced AI-driven systems to optimize the hospital's HVAC operations, specifically targeting the high energy consumption of air conditioning systems. By leveraging real-time data, Resync introduced precise control strategies to enhance energy efficiency and reduce overall energy usage.

27% Energy Savings on HVAC

Optimized HVAC operations contributed to a notable reduction in total energy usage.

19% Energy Savings on Building

Observed on the building's total energy consumption level

Resync's Optimization Results

Overall Energy Savings Achieved

Resync's strategies in Air Conditioning optimization and HVAC operations led to substantial reductions in energy consumption.

SOLUTION

THERMAL COMFORT

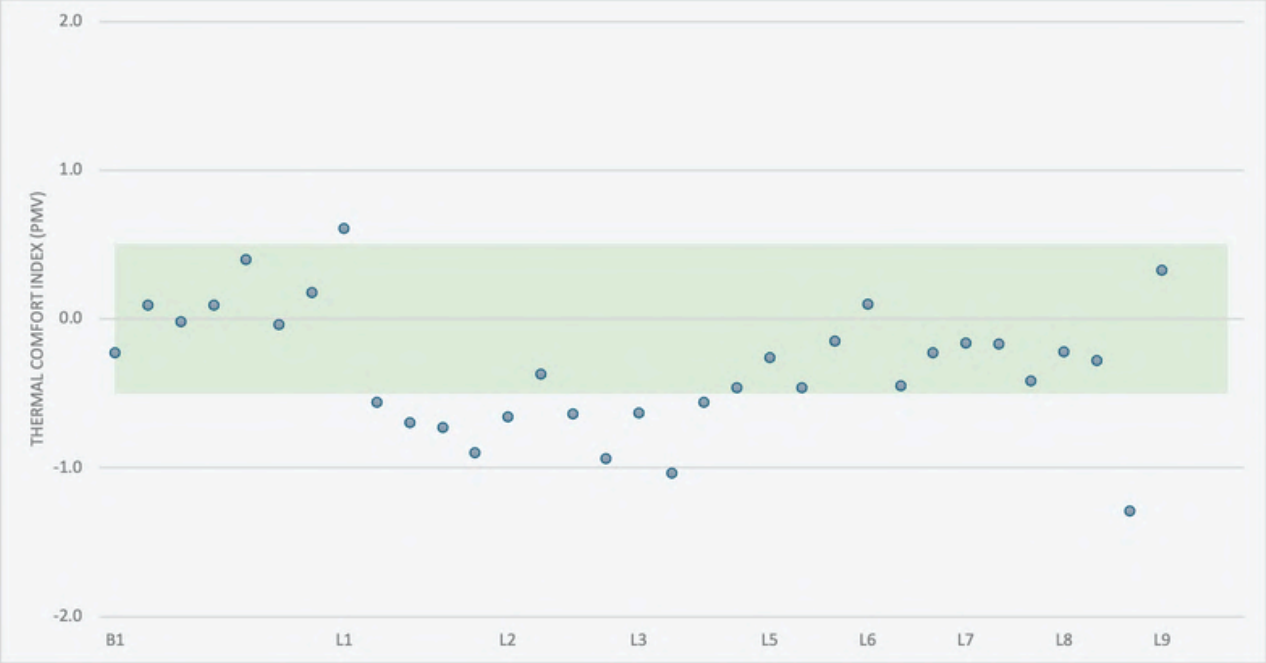
Through our digitalization and optimization efforts, including fine-tuning of temperature & humidity levels, we successfully achieved a median Predicted Mean Vote (PMV) within the optimal comfort range. The facility's thermal comfort level met the ASHRAE Standard 55-2020 guidelines as a result, ensuring a comfortable indoor environment conducive to productivity and well-being while optimizing energy usage.

ASHRAE Comfort Range

Achieved median Predicted Mean Vote (PMV) within the ASHRAE comfort range (-0.5 to +0.5).

Optimized Environmental Conditions

Optimized environmental conditions for temperature and humidity levels.



Thermal Comfort Maintenance: PMV Values within ASHRAE Standard 55-2020

PMV values consistently maintained within the optimal range of -0.5 to +0.5, ensuring comfortable indoor conditions as per ASHRAE standards

RESYNC

Contact us

For more information or to discuss how Resync can optimize your facility's efficiency and comfort, please reach out to us.

Let's Get In Touch

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