

Zurich Airport Brasil



Airport Name: Vitória e Macaé Airports | AEROPORTOS DO SUDESTE DO BRASIL S.A

Airport Group: Zurich Airport Brasil

Responsible: Artemis Papanika, COO

Project Name: GCOP – AI-Powered Chilled-Water Optimization Program

Executive Summary

Zurich Airport Brasil is implementing the Green Chiller Optimizer Package (GCOP), an artificial intelligence-driven (IA) Chilled-Water optimization Program, across the four airports: Natal, Macaé, Vitória and Florianópolis. Developed in partnership with DLV Energy Brasil and Hiperblock Energy, the initiative demonstrates how digital innovation can optimize the use of natural resources and accelerate airport decarbonization while improving operational efficiency.

Air-conditioning systems are among the largest consumers of electricity in airport terminals and play a critical role in passenger comfort. Traditionally, chiller operations operate with fixed temperature setpoints that do not adequately reflect real-time variations in passenger demand, weather conditions or thermal loads, leading to avoidable energy waste. GCOP addresses this challenge through continuous machine-learning optimization.

The platform integrates with existing chilled-water infrastructure and dynamically adjusts operating parameters to identify the most energy-efficient conditions while maintaining thermal comfort, equipment reliability and operational resilience. A key advantage of the solution is that it requires no mechanical retrofits, capital investment or interruption of airport activities, allowing rapid deployment and scalability across different airport environments.

Based on validated international applications and preliminary assessments in Brazil, GCOP is expected to reduce chiller electricity consumption by 8% to 25%, depending on operating conditions and airport profiles. These savings directly contribute to lower greenhouse gas emissions associated with electricity consumption, supporting Zurich Airport Brasil's commitment to Net Zero by 2040.

Beyond energy savings, GCOP strengthens asset management through continuous remote monitoring, reduces dependence on manual operational adjustments and supports more efficient equipment operation. The resulting efficiency gains are expected to reduce maintenance requirements and extend equipment lifespan. The solution is further distinguished by its performance-based shared-savings model, enabling airports to adopt advanced AI technology without upfront investment, increasing accessibility and facilitating large-scale replication.

By combining artificial intelligence, operational excellence and measurable environmental

outcomes, GCOP transforms conventional HVAC systems into continuous learning, self-optimizing assets, demonstrating how digital innovation can deliver tangible progress toward more sustainable and resilient airport operations. The initiative contributes with the SDGs 7 (Affordable and Clean Energy), 9 (Industry, Innovation and Infrastructure), 12 (Responsible Consumption and Production) and 13 (Climate Action).

Results and Benefits of the Project

The GCOP project is currently being implemented across Zurich Airport Brasil's airport network and has already demonstrated its potential to deliver significant environmental and operational benefits through artificial intelligence-driven optimization of chilled-water systems.

During the pilot phase, GCOP's Evaluation Mode alternates optimization cycles over a 14- to 21-day period to quantify energy-saving potential under actual operating conditions. Once fully deployed, the AI engine continuously operates continuously and further refines performance through ongoing machine learning, enabling adaptive optimization based on real-time conditions.

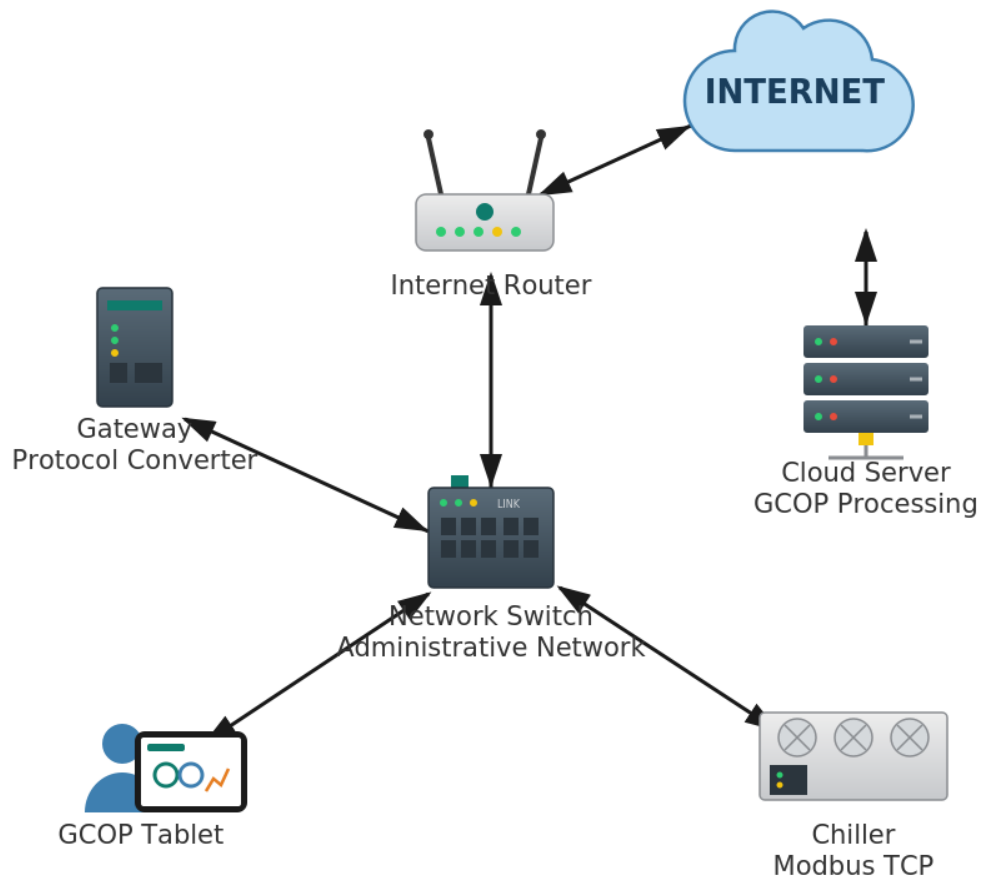
Based on validated international applications and preliminary assessments conducted in Brazil, GCOP is expected to reduce 8% to 25% of chiller electricity consumption, depending on airport characteristics, cooling demand and climatic conditions. As HVAC systems represent one of the largest energy loads in airport terminals, these reductions generate substantial environmental benefits through lower indirect greenhouse gas emissions associated with electricity consumption.

In addition to energy efficiency, the project improves operational performance by continuously adjusting cooling parameters in response to changing conditions, eliminating the limitations of static setpoint management. Centralized remote monitoring across multiple airports enhances visibility, enables faster decision-making and strengthens operational resilience.

The initiative is also expected to reduce mechanical stress on critical equipment by optimizing compressor operation and cooling performance. Based on international benchmark results, preventative maintenance requirements may be reduced by 5% to 12%, while equipment service life may be extended by up to 5%.

The project's greatest innovation lies in applying artificial intelligence to transform a traditionally static HVAC process into a continuously learning and self-optimizing system. Combined with a no-capex, shared-savings business model, GCOP provides a scalable and replicable pathway for airports seeking to reduce emissions, improve energy efficiency and accelerate sustainability performance through digital innovation.

GCOP NETWORK ARCHITECTURE — CHILLER MONITORING AND AI OPTIMIZATION



DAILY SAVINGS REPORT

GCOP - GREEN CHILLER OPTIMIZATION PACKAGE

Sign out

Powered by greenmediahd LLC
www.greenmediahd.com

Evaluation mode

Average Capacity

> Daily Savings Report

Last 30 Days Savings

Savings Summary per Month

Savings Summary per Year

Monthly Savings Trend

Evaluation Results

Updates

GCOP - Estimated Savings Result Compared with Minimum Fixed LCHWT SP.

Client:

Today's Active Optimization Time: 0 %

Last Update: 2026-09-02 10:36:05

Date:

08/20/2026

Chiller 1 kW-h saved
441.3 kW-h

Chiller 1 Savings
14.9 %