

Airport Name: Aeroporto Internacional de Belo Horizonte (BH Airport)

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Project's Name: Innovation of the Climatization System at Belo Horizonte International Airport

Resumen Ejecutivo

Belo Horizonte International Airport has an innovative, efficient and economical air conditioning system, consisting of two Cold Water Plants (CAG 1 and CAG 2), installed in Passenger Terminal 1 and Passenger Terminal 2. Both centrals have thermo accumulation tanks, which are large vertical reservoirs capable of storing a total of 4,002,000 liters of ice water. All this new infrastructure and equipment installed in the cold water plants contributes to promoting the climate of the environment in a sustainable way.

The use of these tanks gives the airport a gain in system efficiency of up to 30% and generates a reduction in energy consumption of the chilled water central, mainly at peak hours, by up to 70%, which makes the air conditioning even more economical and efficient.

The air conditioning system at Belo Horizonte International Airport is linked to another important project, referring to the reuse of rainwater. Installed in Passenger Terminal 2, the rainwater reuse system has the capacity to reuse 2352 m³ of rainwater.

This volume is directed to underground reservoirs, and then to the elevated reuse water reservoir. The collected rainwater can be used as a water source for the air conditioning system.

The renovations carried out at the cold water plants in the last year considerably increased the efficiency of air conditioning at the Belo Horizonte International Airport terminals, in addition to savings in maintenance and water savings.

This project, implemented at Belo Horizonte International Airport, meets the UN's Sustainable Development Goals (SDGs), related to infrastructure and industry innovation (9) and combating climate change (13), with the preservation of the environment and natural resources.

Projects results and benefits

The central chilled water system at Belo Horizonte International Airport has two thermoaccumulation tanks. Each tower is 31 meters high and has a storage capacity of around 4,002,000 liters of chilled water. All of this cold water serves as a reserve that is used at the most critical times of the day in terms of electricity consumption.

The cooling of this water is carried out much more efficiently compared to the previous process, which was carried out using electric motors, where there were no thermoaccumulation tanks. This is an innovative project, as it was also connected to the rainwater harvesting system, which can be used as a replacement for the air conditioning system. It is also an important environmental benefit, as the infrastructure has the capacity to save 2352 m3 of water.

Previous maintenance costs reached almost R\$ 2,900,000 per year. Currently, the maintenance of the entire system is around R\$ 1,800,000, representing a savings of almost R\$ 1,100,000 per year, which represents an economy of 35%.

After installing all the new equipment, an energy efficiency of 12.5% was achieved in terms of electricity consumption, which means a total value of 1,419 Kw/h per year.

Belo Horizonte International Airport is an organization committed to sustainability, which in its short, medium, and long-term objectives, its strategy is to achieve efficient ESG management. In view of that, we carry out projects such as the Innovation of the Airport climatization System Belo Horizonte International, where we achieved gains in energy efficiency, water reuse, maintenance cost reduction, and application of technological innovation, in line with the UN Sustainable Development Goals (SDGs), related to infrastructure and industry innovation (9), and combating climate change (13).

