Centrair Eco Airport Guide

◆ Overview of airport
- Airport island: 470 ha
- Runway
  Quantity: 1
  Direction: True azimuth N11°W
  Length: 3,500 m
  Width: 60 m
  Width of landing zone: 300 m
- Operation
  Time limits are not imposed on the landing/take-off of aircraft (24-hour operation is possible)

Areas around the airport
1. Energy center (Natural gas co-generation system)
2. Refueling facility
3. Refueling system using the hydrant method
4. Solar power panels
5. Natural lighting
6. Photocatalytic windows
7. Recycling of waste
8. Equipment using seawater
9. Location and shape of airport island
   taking into account the flow of seawater
10. Green curtain
11. "Support Enterprises of the Flower Kingdom, Aichi"

GPU (Ground power unit)

Aviation fuel refueling facility

Multi-level parking lot

Central Japan International Airport Station

Main passenger terminal building

Control tower

Cargo facility

Runway

Refueling facility

Maritime access terminal

Equipment using seawater

Recycling center

Energy center

Natural lighting

Aircraft noise

Photocatalytic windows

Green curtain

Solar power panels

Recycling of waste

Support Enterprises of the Flower Kingdom, Aichi"
An energy center has been installed in Centrair to carry out district heating and cooling by natural gas co-generation. In addition to producing about half of the electricity used by the passenger terminal building, it uses the waste heat generated in the process to produce and supply cold and hot water to the passenger terminal building etc.

In addition, the energy of seawater is used effectively as a cooling water heat resource in the energy center to operate the plant equipment efficiently. (Run by Centrair Energy Supply Co., Ltd.)

**1 Regional air conditioning system by co-generation**

**Equipment using seawater**

Making use of its location in the sea, seawater equipment is installed in the airport to cool the cooling water heated up by the energy supply plant equipment using seawater, which is then recirculated in the plant equipment as cooling water. Energy conservation is promoted by making effective use of the seawater energy which had almost never been utilized in the past.

**2 Promoting the use of GPU**

Normally, electricity and air conditioning is supplied to aircrafts parked in the apron by auxiliary equipment known APUs but instead of these, ground power plants known as GPUs are installed at 36 spots in Centrair.

The use of this GPU can reduce not only the emission gases and noise but also the CO2 emissions together with a reduction in the fuel consumption.

10 - 15% of the electrical power supplied to aircrafts is served by solar power installed in the passenger terminal building.

**GPU flow chart**
A refueling center which employs a hydrant-type refueling system is installed on the grounds of the airport. This system supplies aviation fuel stored in the storage tanks of the refueling center to the various refueling points in the apron (aircraft parking area) using pumps and piping buried underground (total length: approx. 11.3 km). By adopting this method, emission gases are reduced as a result of eliminating the need to move the refueling center on a refueling tank vehicle (fueler) and the movements between the apron districts.

In addition, making use of the location of the airport in the sea, stored aviation fuel is transported in a tanker. 5,000 kl or more of fuel can be transported and supplied at any one time.

1,440 solar power panels have been installed on the roof top of the passenger terminal building to generate electricity using the power of nature (total area of about 1,900 m² and an output of about 240 kW). The electricity generated here is supplied preferentially to the GPU to supply electrical power to the parked aircraft.

In addition, the solar power panels installed in Centrair employ antiglare solar cell modules that are not glaring so not to affect aircraft operations etc.
5 Natural lighting

Glass surfaces are increased to take in an abundance of natural light from the ceiling and sides. Make effective use of the natural brightness to conserve energy.

6 Photocatalytic windows

Some of the wall windows of the passenger terminal building (17,000 m²) are coated with a photocatalyst to prevent staining. When sunlight shines on these windows, a decomposition effect is generated in the stains sticking to the windows, weakening the adhesive strength of the stains and making it hard for the stains to stick to the windows, which can then be washed away by rainwater. The number of washings can be reduced by this, thereby helping to conserve water.

7 Recycling of waste

A recycling center has been installed on the airport island to sort the waste unloading from aircrafts and reduce the volume of general waste generated by the facilities in the airport using collection, sorting and carbonizing equipment, etc.

Waste is sorted into 15 types in the airport island and sorted recyclable waste is recycled to turn them into resources for reuse.

General waste treatment flow chart (FY2016)
8 Location and shape of airport island taking into account the flow of seawater

Seawater flows mainly to the south in the Tokoname Sea where the airport island is located. The airport island is located as far away from the opposite shore as possible and the shape of the island is rounded so that the flow of the seawater is not impeded.

- **Countermeasure 1**: Maintaining a minimum ocean width of about 1.1 km between the airport island and the opposite shore.
- **Countermeasure 2**: Incorporating curves into the shape of the airport island and expanding the ocean width with the opposite shore.
- **Countermeasure 3**: Turning each corner of the airport island into a curve.

9 Consideration of aircraft noise

Centair was constructed in the sea in order to minimize the aircraft noise problem. Since its opening in February 2005, Centair has continuously conducted noise surveys at 4 locations around the airport island.

Environmental standards pertaining to aircraft noise

- Lden(dB) 57 max

Aircraft noise monitoring results (FY2016)

- Continuous monitoring stations (4 stations) •: points
  - Lden(dB) 43 to 45

Lden stands for “Day Evening Night Sound Level” while WECNL stands for “Weighted Equivalent Continuous Perceived Noise Level”. Both of these indicators are used to express the level of aircraft noise in a special environment.

Overview of environmental monitoring system

The environmental monitoring system is used to collect, process and publicize measurement data on aircraft noise. Operation and monitoring of this system is carried out inside the Central Japan International Airport.
10 Joint cultivation of green curtain

Since 2012, passion fruit produced in the Handa Nogyo High School is used in the joint cultivation of a green curtain jointly with the students of “Aichi Prefectural Handa Nogyo High School”. This green curtain initiative creates a place of comfort for passengers by promoting energy conservation and shielding the passenger terminal building from sunlight in summer etc.

11 Certified as a “Support Enterprises of the Flower Kingdom, Aichi”

Since 1962, Aichi Prefecture has continuously produced the largest amount of flowers in the country and promoted an event known as the “Prefectural Flower Campaign”, earning it the accolade “Flower Kingdom”. As a part of these activities, enterprises in Aichi Prefecture which practices activities using the flowers of Aichi Prefecture are certified as “Support Enterprises of the Flower Kingdom, Aichi”.

On this occasion, in recognition of the following initiatives that it has implemented, Centrair is hereby certified as a “Support Enterprises of the Flower Kingdom, Aichi”.

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