

Efforts of Development, Management, and Decarbonization of Airports in Japan

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- 1 . Trends of Transportation of Airline Passengers in Japan**
- 2 . Planning, Budget, and Development Processes of Airport Development in Japan**
- 3 . Concession of Airport Management**
- 4 . Decarbonization in Airports**

1. Trends of Transportation of Airline Passengers in Japan

2. Planning, Budget, and Development Processes of Airport Development in Japan

3. Concession of Airport Management

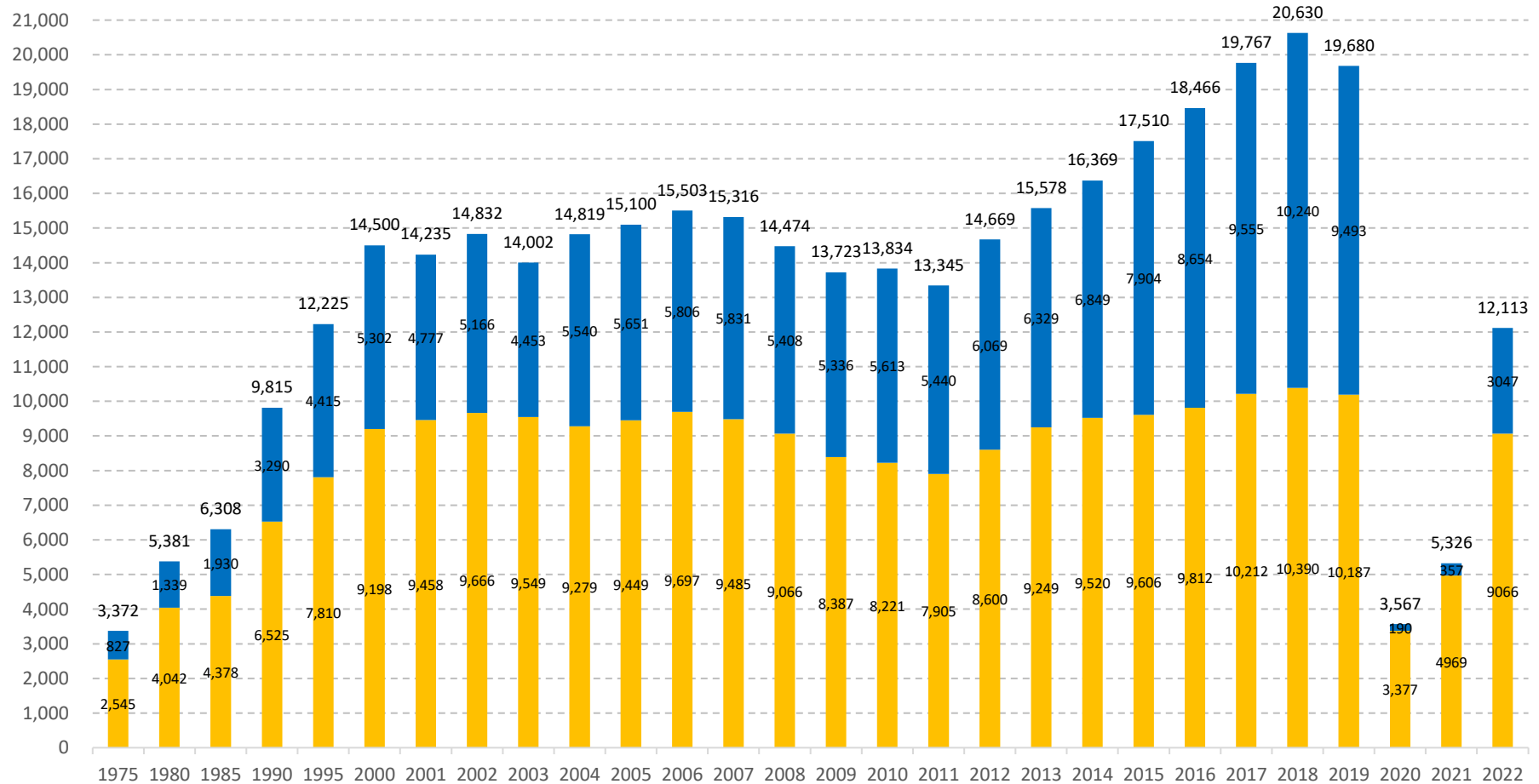
4. Decarbonization in Airports

Trends of Transportation of Airline Passengers in Japan

- In Japan, the number of airline passengers exceeded 100 million in FY 2017 and the number of international airline passengers exceeded 100 million in FY 2018.
- From February 2020 onward, the number of passengers decreased substantially due to the influence of COVID-19 infection but has been increasing again since 2021.

(10 thousand people)

■ Domestic airlines ■ International airlines



* Created based on the aviation transportation statistical report and the Civil Aviation Bureau materials

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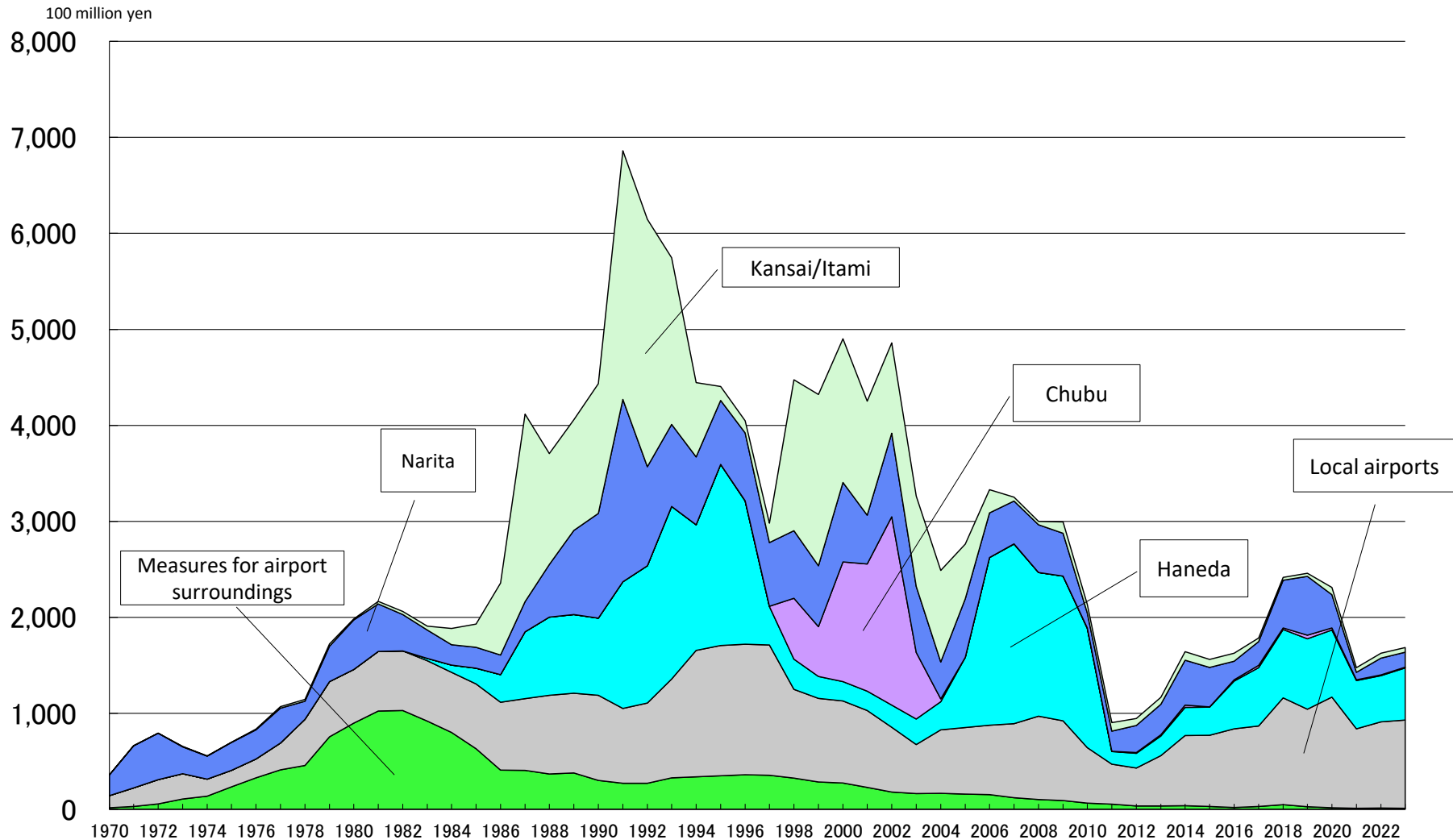
Progress of 5-year airport development plan

(Unit: 100 million yen)

	1st 5-year airport development plan	2nd 5-year airport development plan	3rd 5-year airport development plan	4th 5-year airport development plan	5th 5-year airport development plan	6th 5-year airport development plan	7th 5-year airport development plan
Plan period (Fiscal year)	1967 - 1971	1971 - 1975	1976 - 1980	1981 - 1985	1986 - 1990	1991 - 1995	1996 - 2002
Plan amount	1,150	5,600	9,200	17,100	19,200	31,900	36,000
Priority development matters	<ul style="list-style-type: none"> ○ Development of Haneda Airport and Itami Airport ○ Development of local airports 	<ul style="list-style-type: none"> ○ Development of new international airports (Narita/Kansai) ○ Development of local airports 	<ul style="list-style-type: none"> ○ Measures project for airport surroundings ○ Development of new international airports (Narita/Kansai*) <p>* For Kansai International Airport, investigation/examination of environmental influence and planning/examination of location</p>	<ul style="list-style-type: none"> ○ Development of Narita Airport, offshore deployment of Haneda Airport, promotion of planning/investigation/examination of Kansai International Airport ○ Measures project for airport surroundings 	<ul style="list-style-type: none"> ○ Near completion of Narita Airport, offshore deployment of Haneda Airport, construction of Kansai International Airport ○ Development of local airports 	<ul style="list-style-type: none"> ○ Completion of second phase facilities of Narita Airport, completion of offshore deployment of Haneda Airport, opening of Kansai International Airport ○ Development of local airports 	<ul style="list-style-type: none"> ○ Completion of parallel runways of Narita Airport and completion of offshore deployment of Haneda Airport, development of parallel runways of Kansai International Airport, investigation/examination and project promotion of Chubu Centrair Airport ○ Development of local airports

Change in Expenses Related to Airport Development

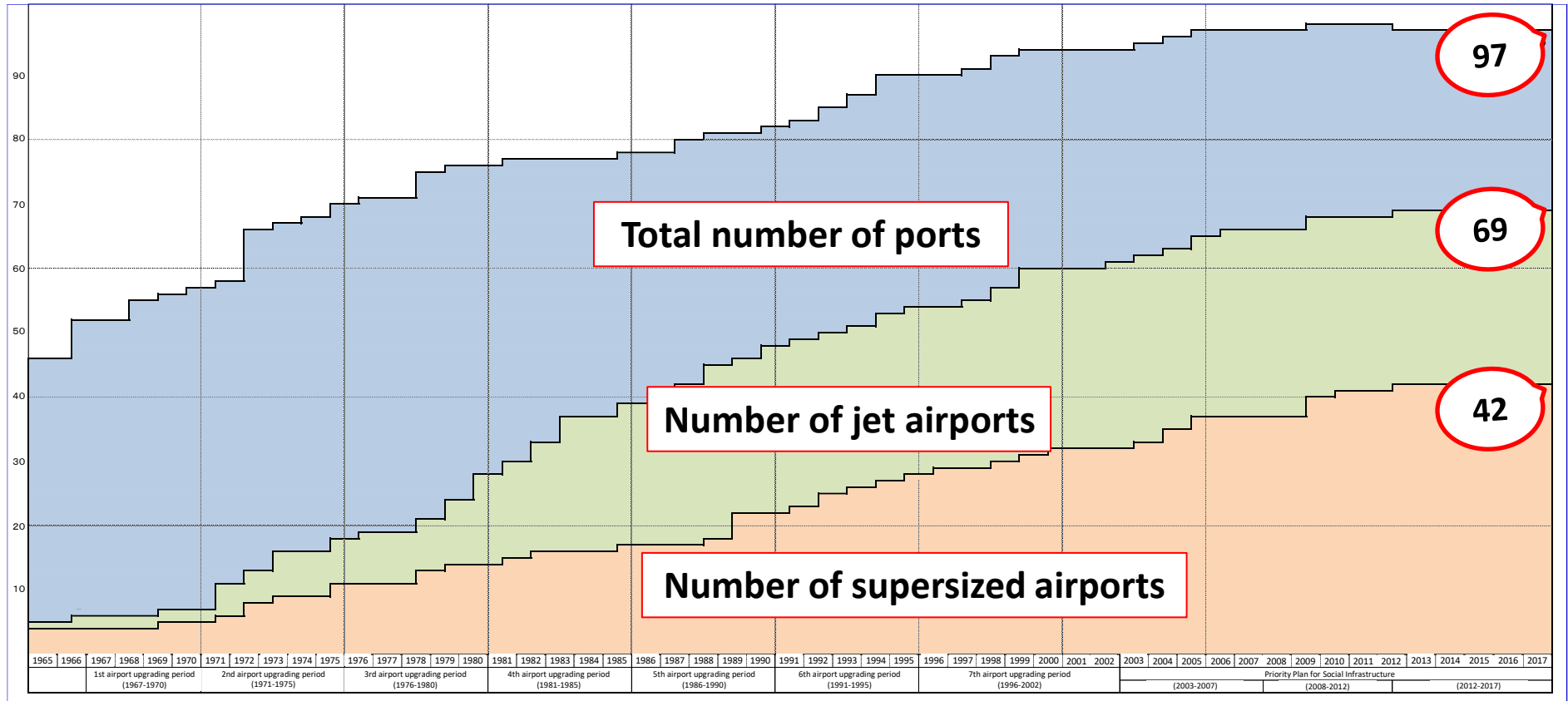
Airport development is conducted based on airport development account (special account). Company managed airports (Narita/Kansai/Chubu) are developed based on government investment and private investment.



(Note)

1. For Narita Airport (FY2001 to FY2019), Kansai Airport (FY1984 to FY2008) and Chubu Centrair Airport (FY1998 to FY2003), expenses are an actual amount of airport construction project expenses via private investments including government investments.
2. Except 1., expenses are based on the annual expenditure of airport development project expenses
3. For Itami Airport, the expenses were recorded as general airport expenses up to FY2012. The general airport expenses include aviation safety/security measure and airport function sophistication project expenses.
4. Expenses related to measures for airport surroundings for FY1994 to FY2002 includes construction interest and loan redemption (principal redemption portion).

- The current number of airports has reached 97 by the airport development project that was launched in FY1967 and development from the aspect of locations is almost completed.
- On the other hand, recent increase in demand for aviation has sought for greater users' convenience and higher international competitiveness including maintenance and upgrading of the aviation network. The airport policy has shifted from "development" to "management."

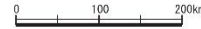


- Note)
1. "Total number of airports": Total number of airports (excluding heliports) and shared airports
 2. "Number of jet airports": Total number of airports with a runway length of 2,000m or more, airports serving jet planes (excluding heliports) and shared airports
 3. "Number of supersized airports": Airports with a 2,500m class runway and a facility serving larger aircrafts (excluding heliports) and shared airports

Type	In service	Runway length of	Out of service
		2,000m or more	
A: Hub airport	28	28	0
① Company managed airport	■	4	0
② Government managed airport	●	19	0
③ Specific local authority managed airport	○	5	0
B: Local authority managed airport	▲	30	0
C: Other airports	★	1	0
D: Shared airport	☆	7	0
Total	97	66	

Airport Distribution Map

As of April 1, 2023

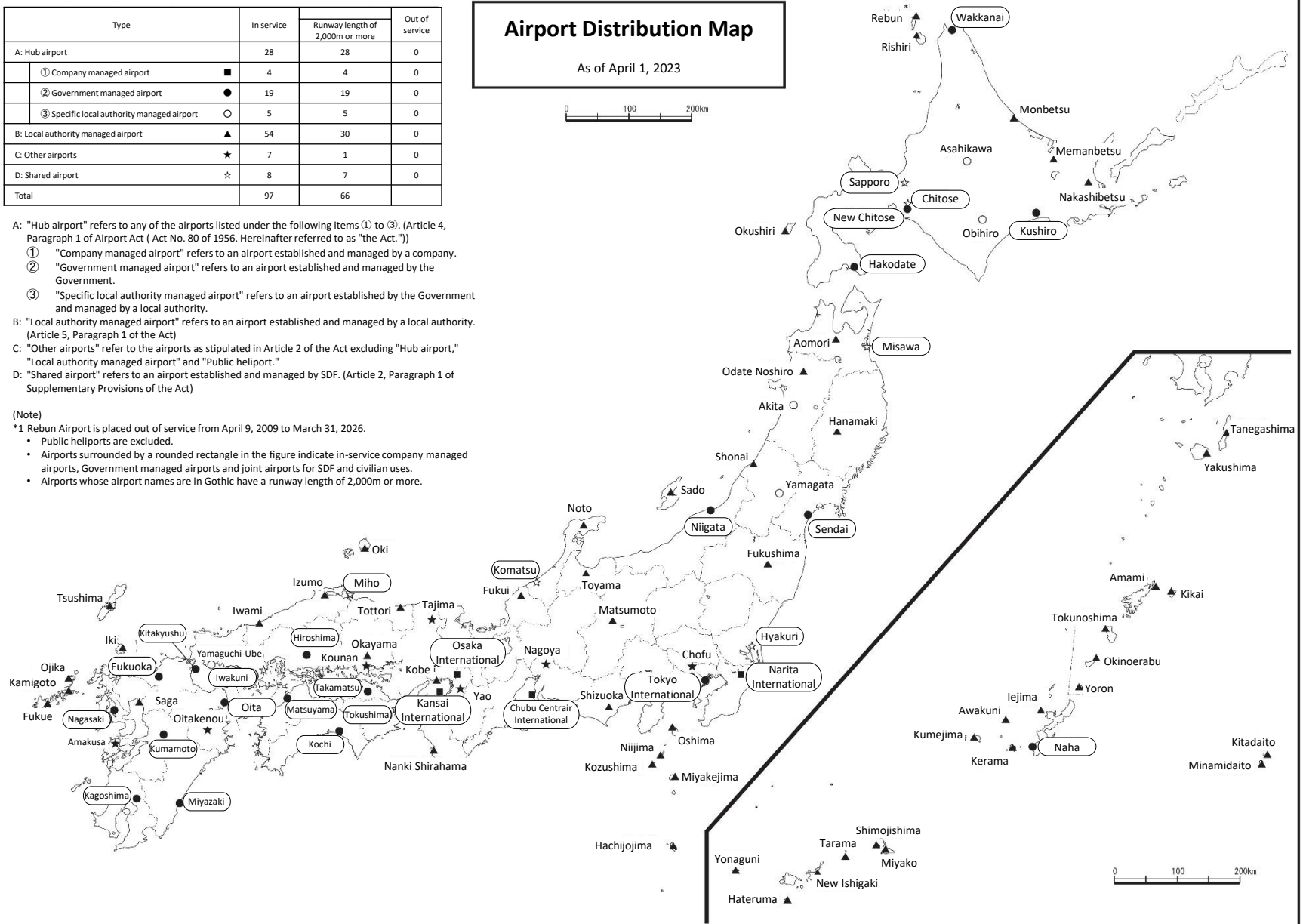


- A: "Hub airport" refers to any of the airports listed under the following items ① to ③. (Article 4, Paragraph 1 of Airport Act (Act No. 80 of 1956. Hereinafter referred to as "the Act.))
- ① "Company managed airport" refers to an airport established and managed by a company.
 - ② "Government managed airport" refers to an airport established and managed by the Government.
 - ③ "Specific local authority managed airport" refers to an airport established by the Government and managed by a local authority.
- B: "Local authority managed airport" refers to an airport established and managed by a local authority. (Article 5, Paragraph 1 of the Act)
- C: "Other airports" refer to the airports as stipulated in Article 2 of the Act excluding "Hub airport," "Local authority managed airport" and "Public heliport."
- D: "Shared airport" refers to an airport established and managed by SDF. (Article 2, Paragraph 1 of Supplementary Provisions of the Act)

(Note)

*1 Rebus Airport is placed out of service from April 9, 2009 to March 31, 2026.

- Public heliports are excluded.
- Airports surrounded by a rounded rectangle in the figure indicate in-service company managed airports, Government managed airports and joint airports for SDF and civilian uses.
- Airports whose airport names are in Gothic have a runway length of 2,000m or more.



Classification of airports	Burden/ Subsidy	Facility	New construction or improvement					Recovery from disaster	Local airport development special project
			General	Hokkaido	Remote islands	Amami	Okinawa		
Tokyo International Airport	Burden	Basic facility	100						
	Burden	Ancillary facility	100						
Government-managed airport except the above-mentioned airport	Burden	Basic facility	2/3	85			95	80	
	Burden	Ancillary facility	100	100			100	100	
Specific local authority managed airport	Burden	Basic facility	55	2/3				80	—
	Subsidy	Ancillary facility	—	—				—	Within 40
Locally managed airport	Subsidy	Basic facility	Within 55	Within 2/3				Within 80	0
	Burden	Ancillary facility	50	60	80	80	90	80	—
Joint airport for SDF and civilian uses	Subsidy	Basic facility	—	—	—	—	—	—	Within 40
	Burden	Ancillary facility	Within 50	Within 60	80	80	90	Within 80	0
Other airports (commuter airports)	Burden	Basic facility	2/3	85				80	
	Burden	Ancillary facility	100	100				100	
Other airports (commuter airports)	Subsidy		40						

(Remarks)

- Basic facilities refer to the runway, landing strip, taxiway, apron, lighting facilities and airport lands stipulated by cabinet orders.
- Ancillary facilities refer to the drainage system, bulkhead, road, parking lot and bridge.

For government-managed airport

[Local authority]
 Conducts prior investigation/examination related to the necessity of the project and conducts, as required, coordination with local people concerned and makes a request to the Government

[Government] **Investigation/Plan**
 Implementation of PI (Public Involvement)
 * Explanation to residents

[Government]
Environmental Assessment Environmental Assessment Act/Ordinance
 * Hearing opinions from prefectural governors and related municipalities

• Evaluation at adoption of new project **[Government]**

Launching a new project

• Procedures for establishment/change permission of airport

[Government] **Construction**

• Notification of airport or aviation security facility
[Government]

Start of service

For locally managed airport

Note: Within brackets ([]) is an implementation body.

[Local authority]
 Prior investigation/examination related to the necessity of the project

[Local authority as an establishment/management body, herein referred to as "local authority"]
Investigation/Plan
 Implementation of PI (Public Involvement)
 * Explanation to residents

[Local authority]
Environmental Assessment Environmental Assessment Act/Ordinance
 * Hearing opinions from prefectural governors and related municipalities

• Subsidy request **[Local authority → Government]**

• Evaluation at adoption of new project **[Government]**

Launching a new project

• Procedures for establishment/change permission of airport

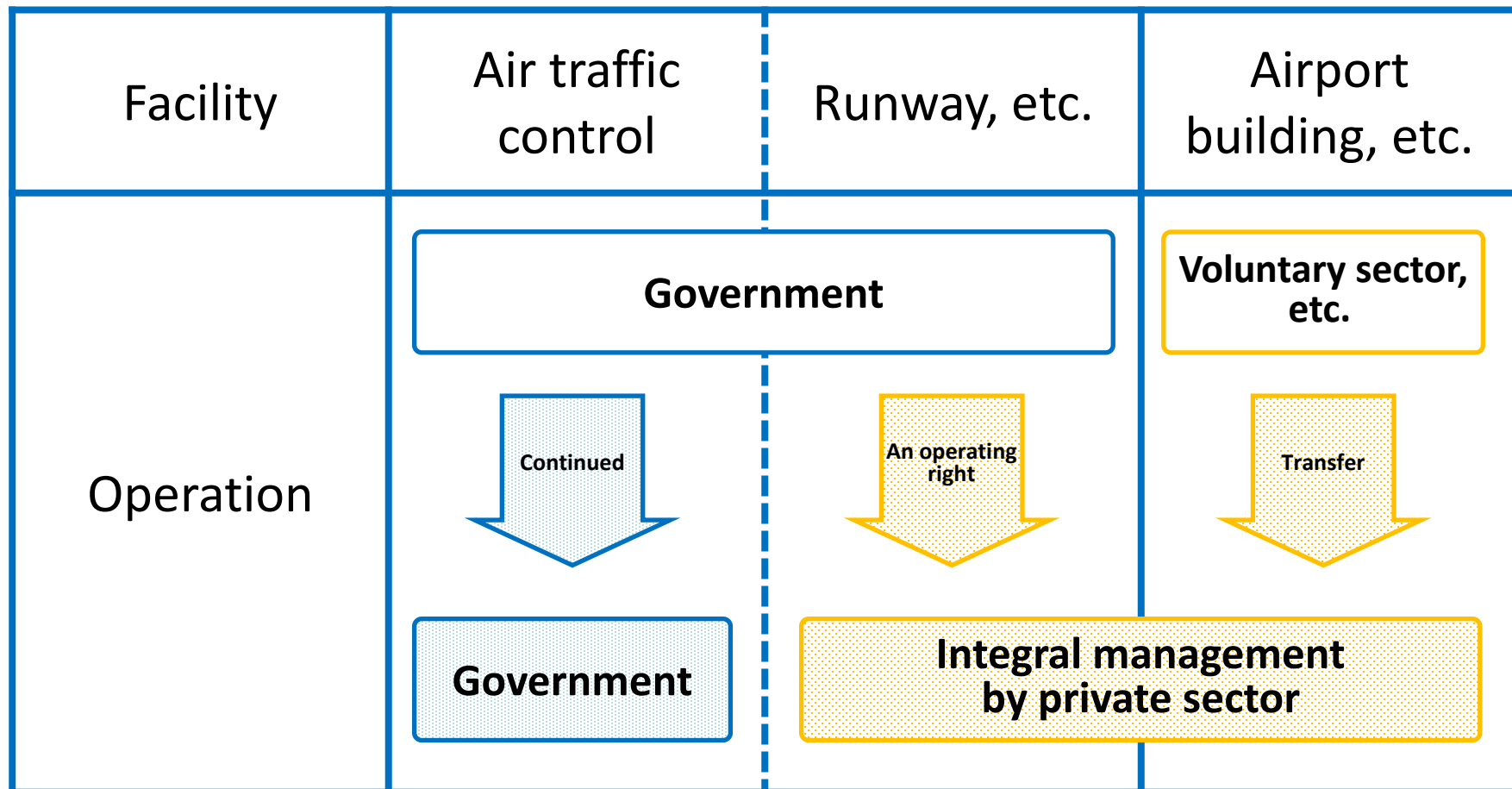
[Local authority] **Construction**

• Notification of airport or aviation security facility
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Start of service

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- The Government sets an operating right to a private company while reserving the ownership of land, etc.
- The private company integrally manages aviation businesses (such as aircraft takeoff and landing) and no-aviation businesses (such as sale of goods, eating and drinking in a terminal building, and parking lot).



- Runways and airport buildings are managed jointly
- Airport operation utilizing private-sector funds and knowledge



Reduction of landing fees

Increase in airport building sales

Increase in number of routes



Increase in the number of visitors

Vitalization of local economy

Past Efforts and Results in Concession Airports

Investment on airport (Kumamoto Airport)

Development of new terminal building



Substantial expansion of duty-free shop



Area: Approx. 10-fold
Customer unit price:
Approx. 3.5-fold



Improved access (Takamatsu Airport)

Extension of airport access (Bus routes)



Airport PR/use promotion (Fukuoka Airport)

Route attraction activities/Regional PR



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Promoting Decarbonization at Airports

- JCAB is promoting the decarbonization at airports, which are the gateways to Japan, in order to achieve a carbon-neutral, decarbonized society by 2050.
- In order to promote decarbonization at airports, in March 2021, we **launched** the “Study Group on CO2 Reduction in the Airport Sector” and in September 2021, we **established an** “Airport Decarbonization Platform.”
- **Overall goals were developed** in February 2022.
 - < Goals > **Aim for carbon neutrality at the entire airports by reducing 46% or more CO2 at each airport (compared to FY 2013) and maximizing the potential for the introduction of renewable energy by FY 2030.**
- **The amendments to Civil Aeronautics Act and Airport Act were enacted** in 1 December 2022. (They stipulate the formulation of basic policy and the establishment of plan certification system by the Government)
- **Guidelines [2nd edition]** for **decarbonization promotion plans** to be developed at each airport and **a Manual [1st edition] for project promotion** were formulated in December 2022.
- In the future, airport officials will work together to **create a promotion plan, and to promote the reduction of CO2 emissions from airport facilities**, vehicles, etc., and the conversion of airports into renewable energy hubs.

Main initiatives for airport decarbonization

① Reduce CO2 emissions from airport facilities and airport vehicles



ANA website



Courtesy of JAL

Promote EV and FCV conversion of airport vehicle
(Photo shows an example of EV vehicle)

LED lighting and lamps

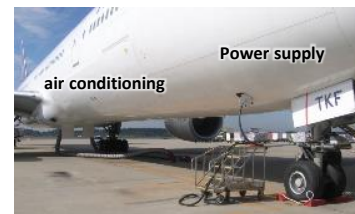


Bulb type



LED type

② Reduction of CO2 emissions from aircraft on the ground



Promotion of GPU use

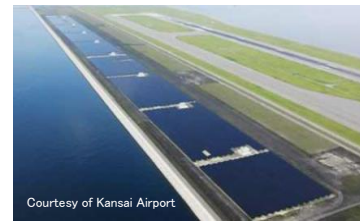


Mileage reduction

③ Making a renewable energy hub



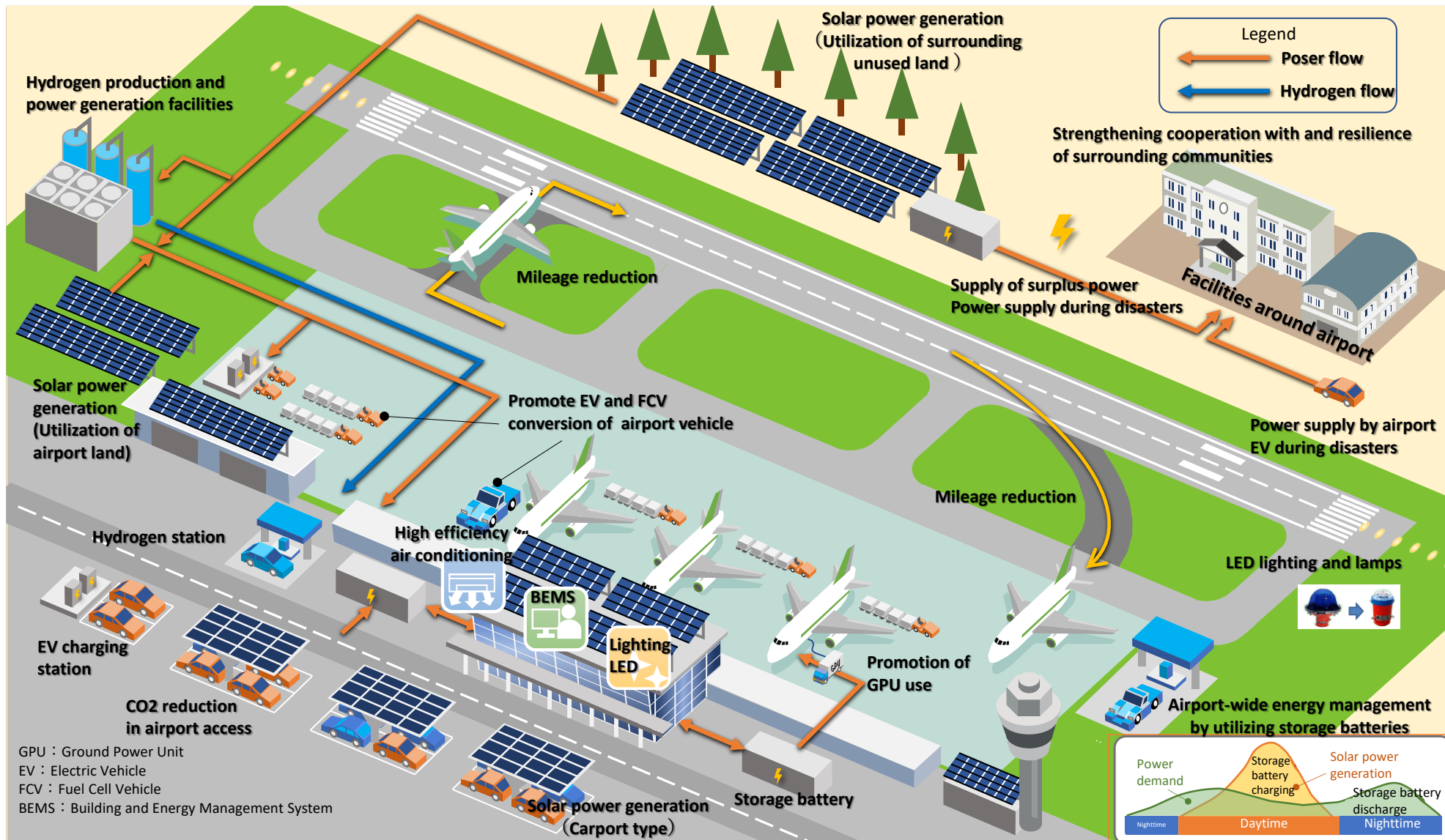
Sendai Airport
Renewable Energy Power Generation LLC



Courtesy of Kansai Airport

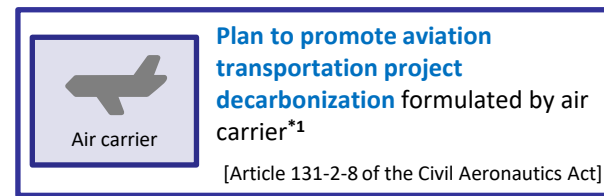
Solar power generation

Image of Airport Decarbonization Promotion



- While carbon neutral promotion trend is being accelerated across countries and fields in the world, the Ministry of Land, Infrastructure, Transport and Tourism prepared, in FY2021, a process chart (road map) for promoting decarbonization of aviation fields in consideration of FY2030 to FY2050.
- Recently, a systematic framework has been introduced that aims to share a policy based on a process chart as a national issue, as well as to let each operator and airport make efforts proactively and in an organized way so as to properly fulfill the accountability.
- ➔ **Revision of the Civil Aeronautics Act/Airport Act (Promotion of decarbonization was incorporated into purpose provisions of both laws)**
[Promulgated on June 10, 2022, enforced on December 1, 2022]

[System]



Request for discussion by air carriers is possible
[Article 131-2-10 of the Civil Aeronautics Act]

Organization of a council by airport managers is possible
[Article 26 of the Airport Act]



(Organized, for each airport, by the airport manager, air carrier, terminal building operator, refueling company as well as entity expected to implement the project to promote decarbonization at airports, and local authority)

*1 Formulation of a plan is optional

*2 Special measures under the National Property Law by receiving certification are taken

[Main efforts](matters listed in process chart)

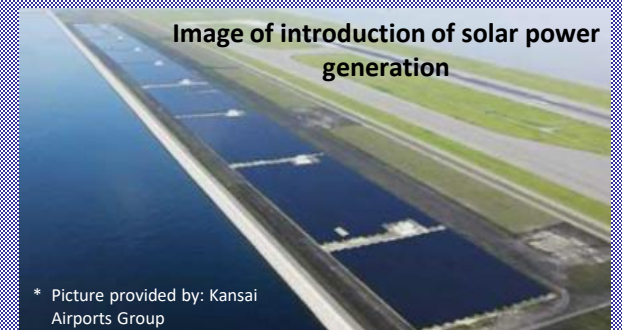
Aircraft operation field

- Introduction of new technology into machines and interior equipment
- Improvement of operation system via sophisticated control
- Promoting introduction of sustainable aviation fuel (SAF)

Airport field

- Reduction of CO2 emissions from airport facilities and vehicles
- Promoting introduction of renewable energy
- Reduction of CO2 emissions from ground aircraft/airport access

Reflected

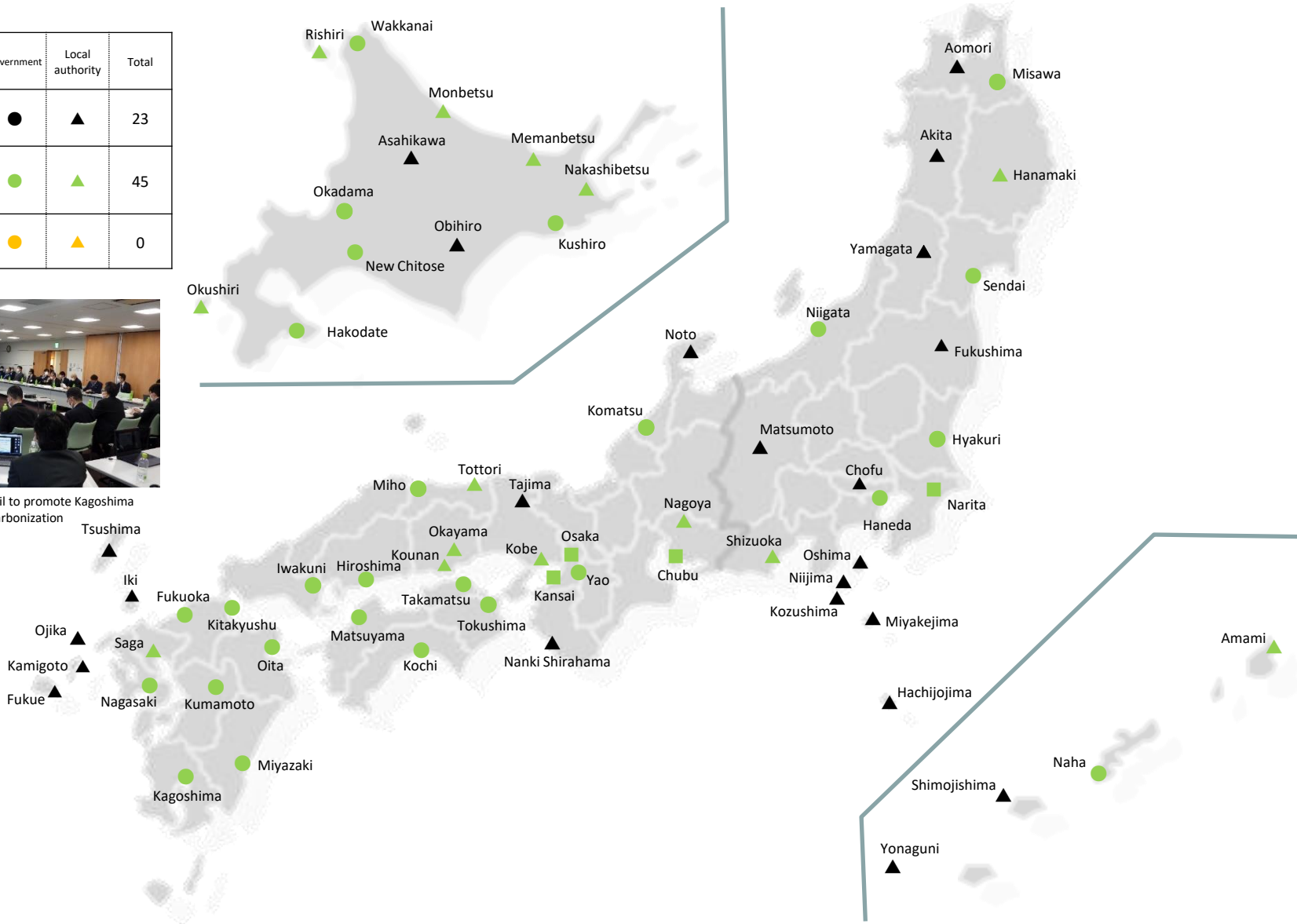


<Legend>

Plan formulating body	Company	Government	Local authority	Total
In preparation	■	●	▲	23
Establishment of council	■	●	▲	45
Promotion plan has been formulated	■	●	▲	0



Event status of 1st council to promote Kagoshima Airport decarbonization



The Civil Aviation Bureau established the "review meeting related to CO2 reduction in the airport field" and is now promoting examination of CO2 reduction measures for airport facilities and vehicles and of making a renewable energy hub.

In order to establish a system toward measure implementation and facility introduction at each airport and accelerate and deepen examination of decarbonization, **it is important for airport officials and companies having technologies and knowledge related to energy saving/renewable energy share their own information and build a cooperation system.** For this purpose, the "**public-private partnership platform toward airport decarbonization**" is established under the review meeting.

* Currently 322 entities are registered (airport managers/surrounding local authorities 87, airport officials 59, private companies/organizations 176)

Airport officials

Energy-saving / renewable energy related companies

Airport managers (companies/local authorities/Government)
Airlines, airport operating rights holders, related companies in airport
Energy-related companies, energy saving/renewable energy facility related companies

Trading companies, construction companies, financial institutions
Local authorities surrounding airport, Ministry of the Environment, Civil Aviation Bureau of the Ministry of Land, Infrastructure, Transport and Tourism
Advisers (expert members of review meeting), etc.

Government / local authorities

< Details of implementation >

- Introducing the efforts of decarbonization by airport officials
- Introducing energy saving/renewable energy technologies of private companies
- Examination of model project



Details of Support Related to Airport Decarbonization

① Support for formulation of plan to promote airport decarbonization

Gives a subsidy to formulation of a plan to promote airport decarbonization which includes goals of decarbonization at each airport and details of efforts.

- Airport as a target of subsidy: company managed airport, specific local authority managed airport
- Operator as a target of subsidy: airport manager
- Subsidy rate: within 1/2

② Support for introduction of facilities

Gives a subsidy to introduction of facilities necessary for airport officials and companies related to decarbonization to promote construction of a renewable energy hub for solar power generation as well as shifting airport vehicles to EV/FCV and optimization of lighting and air conditioning of airport buildings toward airport decarbonization. Also promotes introduction of solar power generation in government buildings.

- Introduction of renewable energy facilities
 - Introduction of EV/FCV infrastructure facilities
 - Optimization of lighting/air conditioning
- Airport as a target of subsidy: all Airports
 - Operator as a target of subsidy: Airport manager, airport operators, other private companies
 - Subsidy rate: within 1/2

Sendai Airport

○ Installs a car port type solar power generation facility with a power output of approx. 1,800kW in a parking lot by way of PPA to supply the output power to a passenger terminal building. This covers approx. 30% of the total power consumption of the passenger terminal building. (Reduction of approx. 920 tons of CO2 emissions per year)



③ Support for formulation of implementation plan, support for introduction of GPU utilizing renewable energy

Examines operating body, profitability and strengthening of cooperation between airport officials, formulates a specific plan and builds a project system in accordance with characteristics of each airport, in order to achieve airport decarbonization.

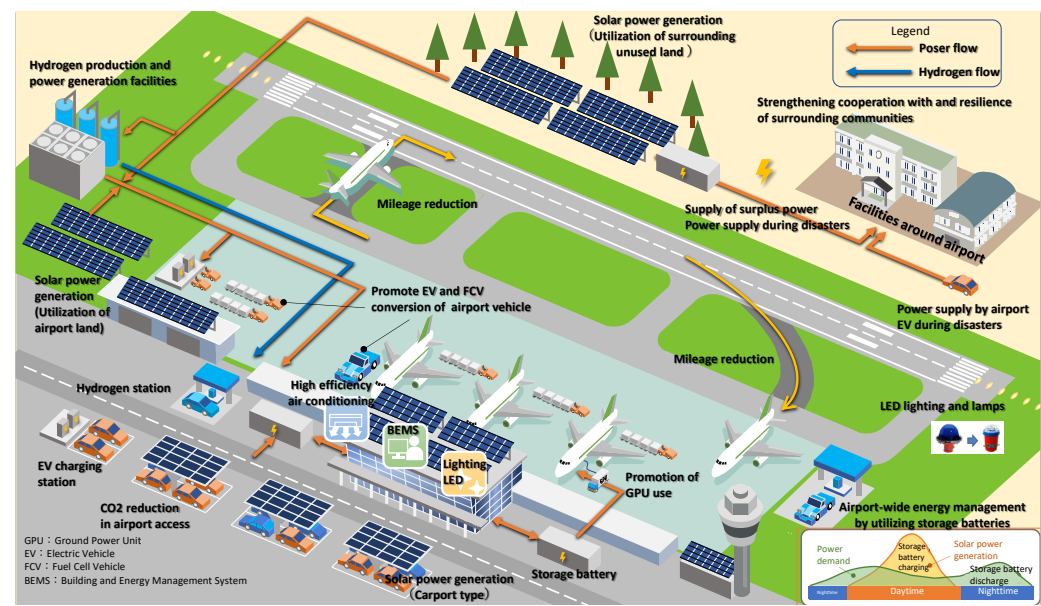
* Project commissioned via 100% government expenditure

Gives a subsidy to switchover of supply of electricity/air conditioning to parked aircraft from APU utilizing conventional aircraft fuel to GPU utilizing based on renewable energy based power in airport.

- Airport as a target of subsidy: all airports
- Operator as a target of subsidy: private companies and organizations, local public bodies
- Subsidy rate: within 1/2



Promoting use of GPU



Concept of promoting airport decarbonization