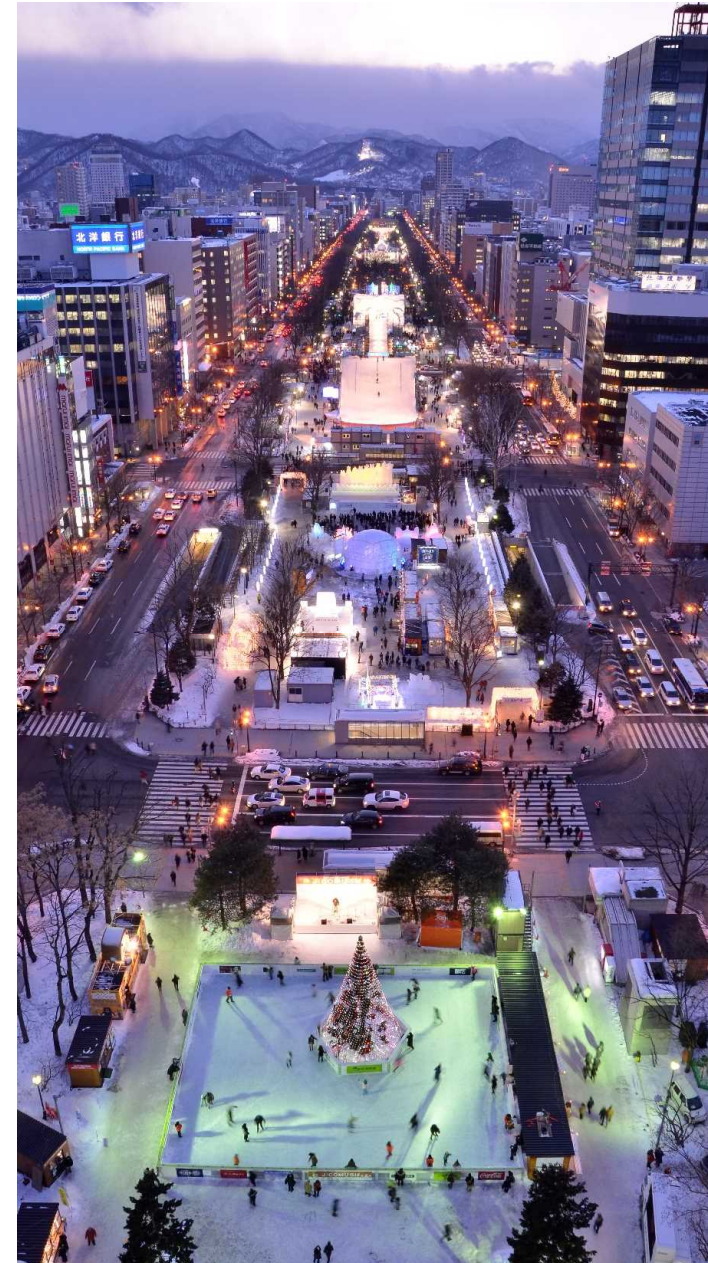


みらいを想う
Think Green
環境首都・SAPPORO

20th World Winter Cities Conference for Mayors
Group session: Environmental Policies for Winter Cities

Decarbonization initiatives for Sapporo's future

Dec. 17th, 2024
Mayor of Sapporo, AKIMOTO Katsuhiko



History of Sapporo City and the Progression of Environmental Issues

1922 • Sapporo established as a city

• 1950s ~ 1970s

Due to the use of coal and oil, and the rapid increase in number of automobiles pollution becomes more severe.

City center in the late 1950s (Sapporo City Archives)



1950s • Population surpasses 500,000

Development of city infrastructure accelerates

1970s • Population surpasses a million

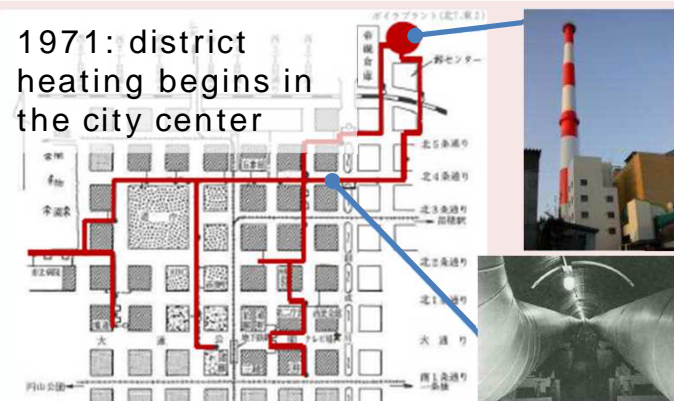
• Sapporo Olympics are held

• Sapporo becomes an ordinance-designated city

• 1960s ~ 1980s

Due to regulations by law/ordinance and the development of new infrastructure such as district heating and subways there is a dramatic improvement in air quality.

1971: district heating begins in the city center



1972: Sapporo Olympics are held

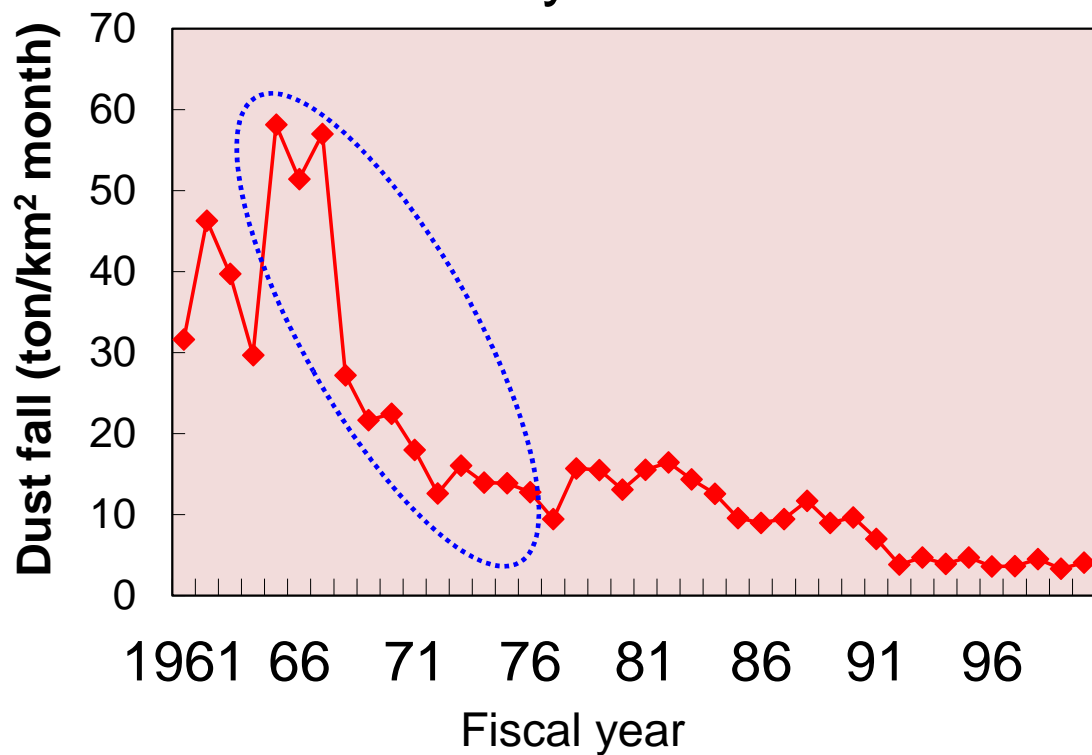


1971: Nanboku Subway Line opens



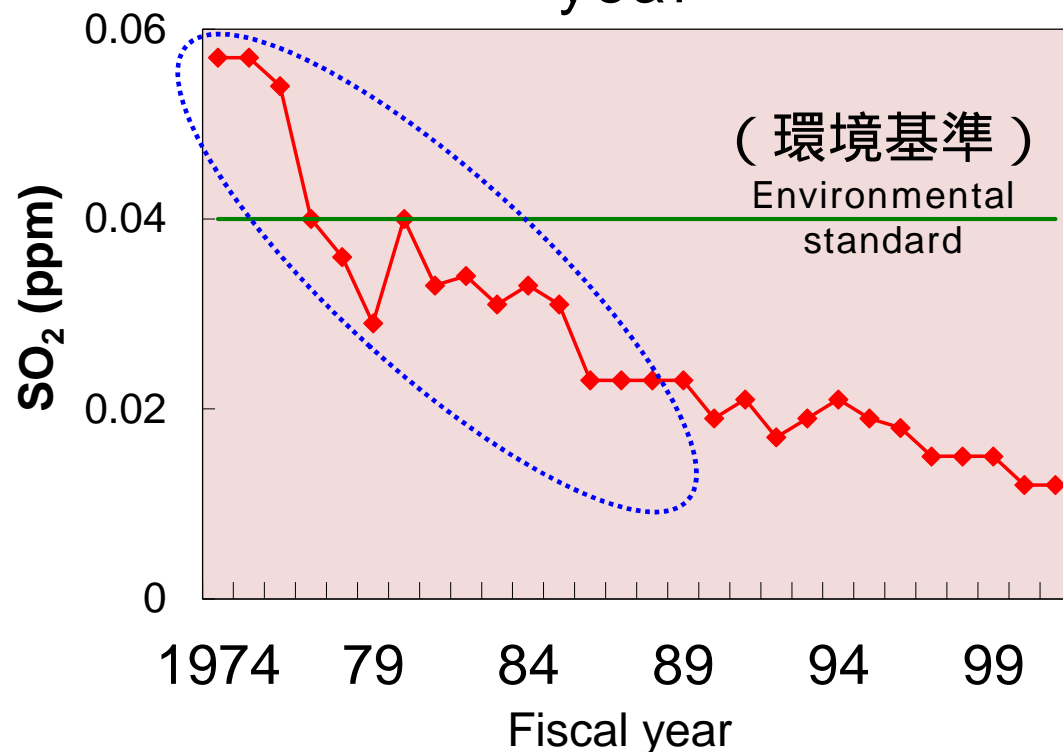
History of Sapporo City and the Progression of Environmental Issues

Amount of dust fall by fiscal year



Winter (October – March) value,
central part of Sapporo City

Sulphur dioxide concentration by fiscal year



Annual average value,
central part of Sapporo City

History of Sapporo City and the Progression of Environmental Issues

1990s • Population surpasses 1.8 million

• **1990s**
Through global warming and the loss of biodiversity environmental problems become apparent

2000s • Population surpasses 1.9 million

• **2008**
With the aim of becoming a world-class environmental city, 'Green Capital, Sapporo' is declared.

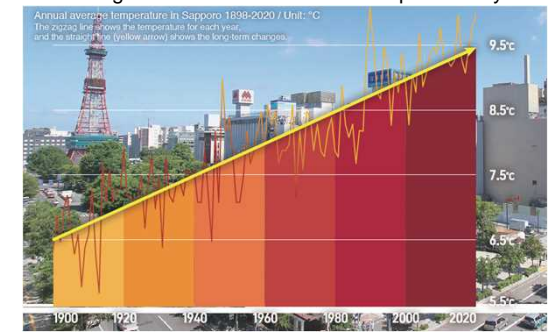
2020s • 100-year anniversary of city establishment
• G7 Ministers' Meeting on Climate, Energy and Environment is held in Sapporo

• **2020**
The ambition to be a 'Zero carbon city' is declared.

• **2023**
On the occasion of the G7 summit, the Hokkaido/Sapporo Declaration is announced to pave the way for a decarbonized future through local energy production for local consumption, and contributions to economic revitalization.

City renewal acceleration

Sapporo's annual average temperature has been increasing at a rate of about 2.5 per 100 years.

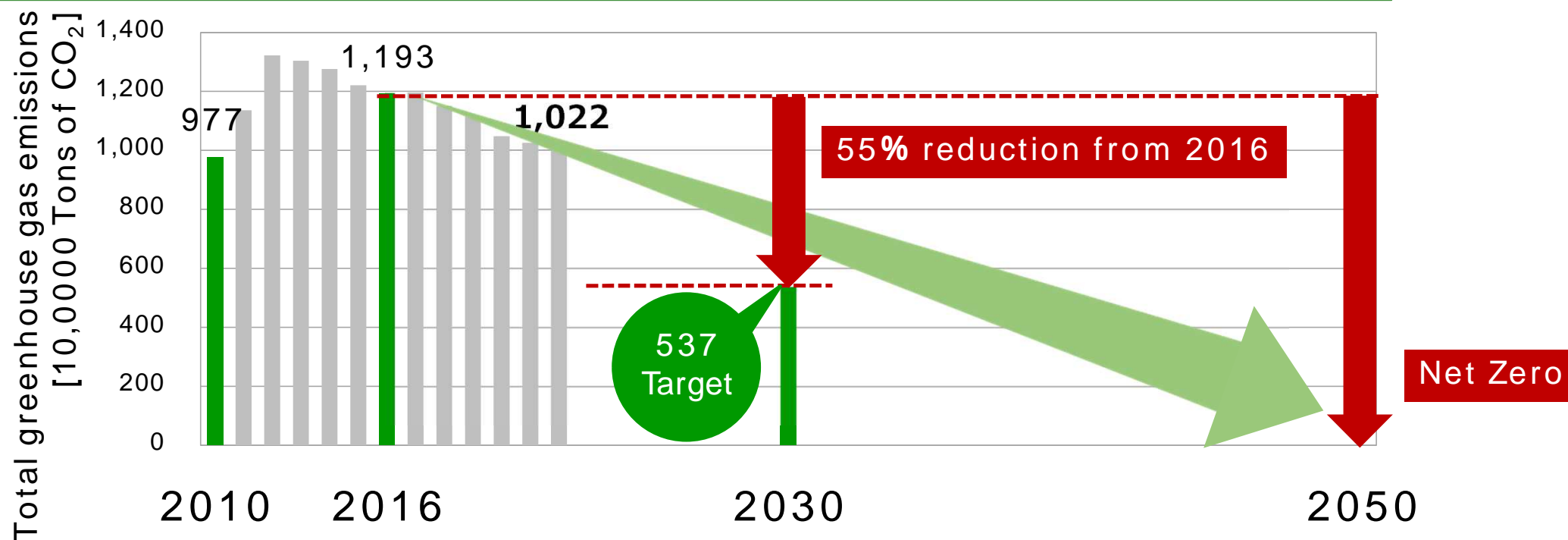


Sapporo City's objective to reduce Greenhouse Gas emissions

- With the intention of becoming a zero-carbon city by 2050, Sapporo aims to have reduced emissions by 55% by 2030 (in comparison to 2016 levels).
- Sapporo city's Climate Action Plan (March 2021) was created based on the scientific findings of the IPCC in keeping with the '1.5 target' of the Paris agreement.
- Aims to meet this target through initiatives capitalizing on the special characteristics of the region.



PARIS2015
ON CLIMATE CHANGE CONFERENCE
COP21·CMP11



Decarbonizing initiatives utilizing Sapporo's special regional characteristics (snowy, cold winter climate)

Promotion of ZEHs and ZEBs in order to substantially reduce heating energy consumption

- Establishment of 'Sapporo's Next Generation Housing Standards', with certification and subsidy programs for well-insulated and airtight houses.
- Providing support for the additional design costs required for the construction of ZEB and ZEH-M (apartment) high energy-saving buildings and condominiums.

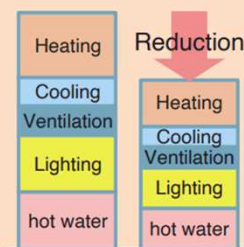
Net Zero Energy House

Highly insulated, requiring as little energy as possible

(cooler in summer and warmer in winter)



Uses energy effectively with high-performance equipment



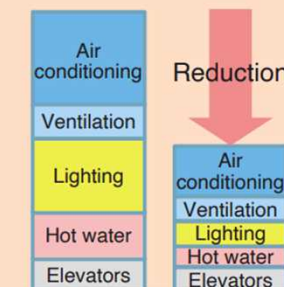
Creates energy



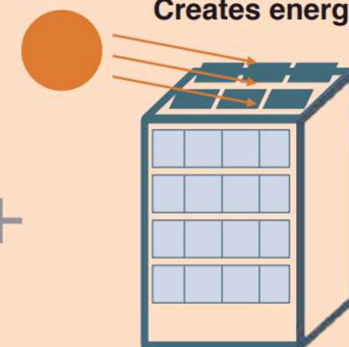
ZEH

Net Zero Energy Building

Efficient usage of as little energy as possible



Creates energy



ZEB

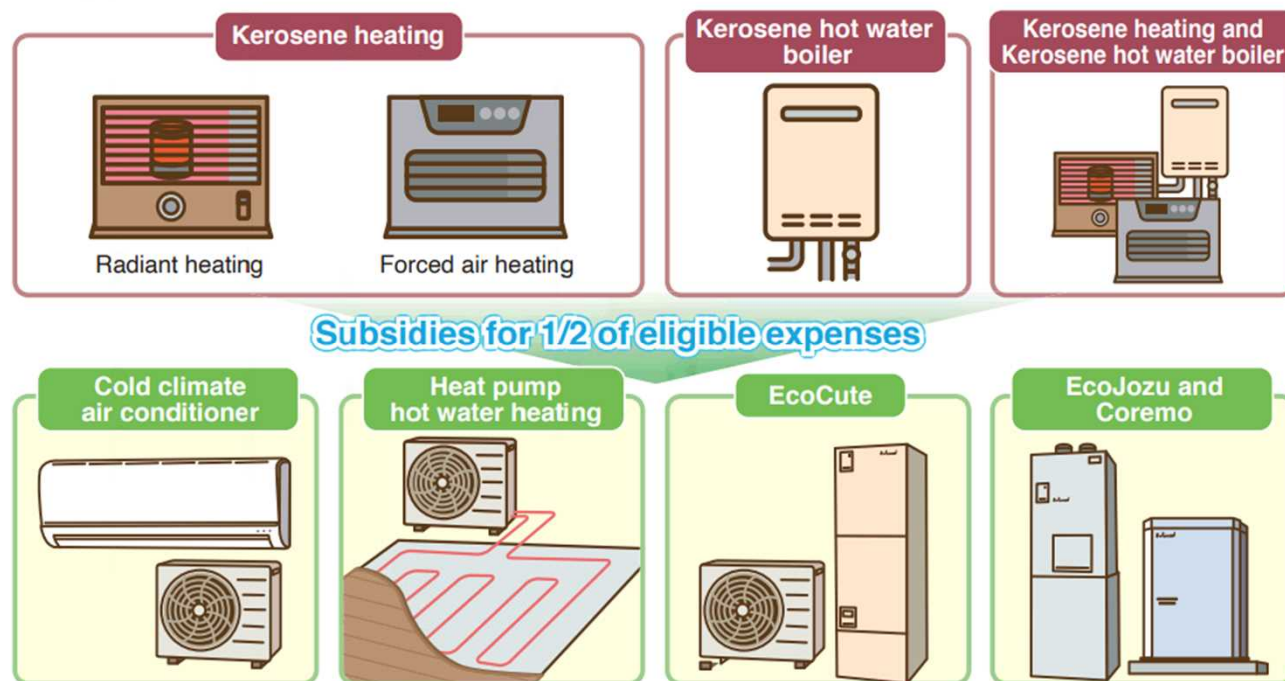
Decarbonizing initiatives utilizing Sapporo's special regional characteristics (snowy, cold winter climate)

Promoting energy source transitions from kerosene-based heaters and boilers

- In order to encourage people within the city to transition from widely-used kerosene-based heaters and boilers to electric or gas-based ones, which produce fewer CO2 emissions, we provide subsidies and collaborate with businesses to raise awareness.



PR Booth at the 74th Sapporo Snow Festival



Decarbonizing initiatives utilizing Sapporo's special characteristics (city renewal)

Using the opportunity of city renewal to make progress with decarbonization

- In 2022, a discussion system between the government and businesses in Sapporo was set up to make efforts to prioritize 'decarbonization', 'resilience' and 'comfort' in the early planning stages of any new-builds and renovations in the city center.
- If a company relocates its head office from outside of Hokkaido to a 'Zero Carbon Building' which meets the criteria and has been certified as such, they are eligible for preferential treatment, including for example having two years' rent 100% subsidized.



ゼロカーボン推進ビル (2024年11月時点 4件認定)

Zero Carbon Building (four buildings certified as of November 2024)



Decarbonizing initiatives utilizing Sapporo's special characteristics (city renewal)

Using the opportunity of city renewal to maintain and expand district heating

- Using the opportunity of large-scale city redevelopments to carry out the simultaneous development of district heating plants.
- Taking the opportunity of city renewal projects to expand the network of heating conduits.
- Through district heating in the city center, we can actively utilize untapped and renewable energy sources.



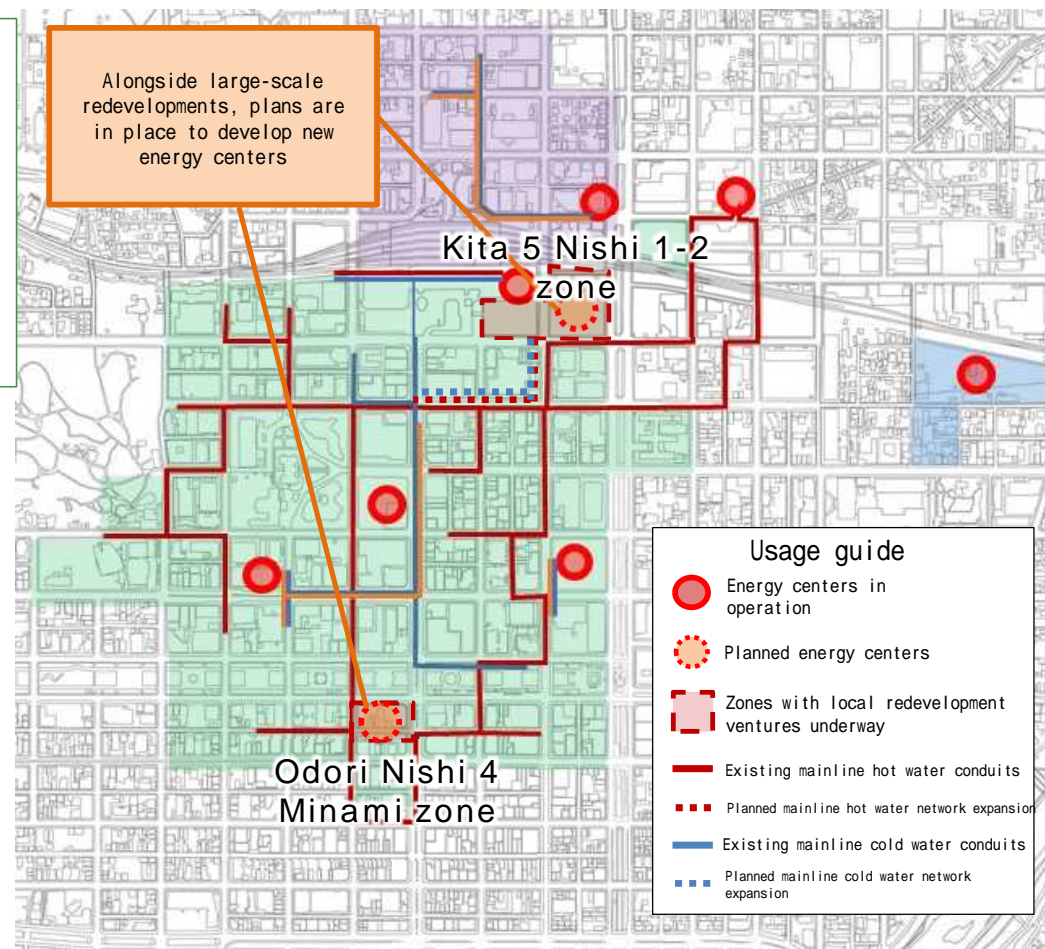
Development of heat conduits in underground walkway spaces



Cogeneration system



Wood biomass utilization

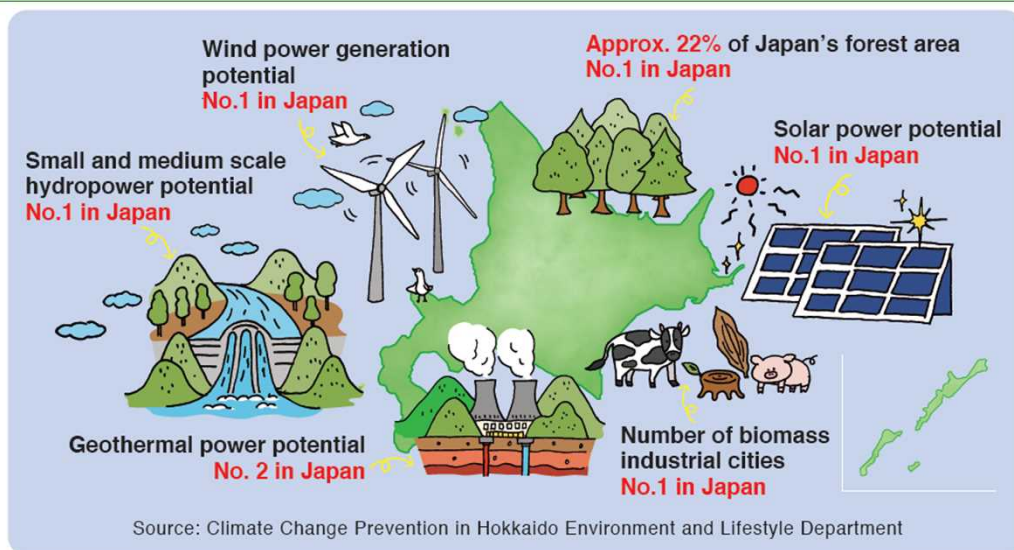


Status of district heating in Sapporo city center

Decarbonizing initiatives utilizing Sapporo's special characteristics (population, infrastructure)

Expansion of Renewable Energy Use Through Collaboration in Hokkaido

- While it is difficult for Sapporo, a large city with dense urban infrastructure, to meet all of its electricity needs from renewable energy produced internally, Hokkaido has the greatest potential for renewable energy in the entire country.
- In order to promote the utilization of renewable energy in cooperation with those regions of Hokkaido with high renewable energy potential, we are working on a system to supply surplus electricity from those regions to customers in Sapporo.



Decarbonizing initiatives utilizing Sapporo's special characteristics (population, infrastructure)

Using excess electrical power from waste incineration plants to supply the city-

- Since April 2024, surplus electricity produced from the heat emitted when burning of refuse at three waste incineration plants has been supplied to the three city-managed subway lines, according them a non-fossil fuel certificate known as 'environmental value'.
- Approximately 70% of the electricity consumed is carbon zero, and 'local production for local consumption' also results in a significant reduction in CO2 emissions (CO₂ reduction: around 45,000 tons/year).

It is planned to reach 100% zero carbon in April 2025.

(With new waste incineration plants, power generation capacity will be tripled.)

- First 'local energy production for local consumption' subway initiative in Japan.



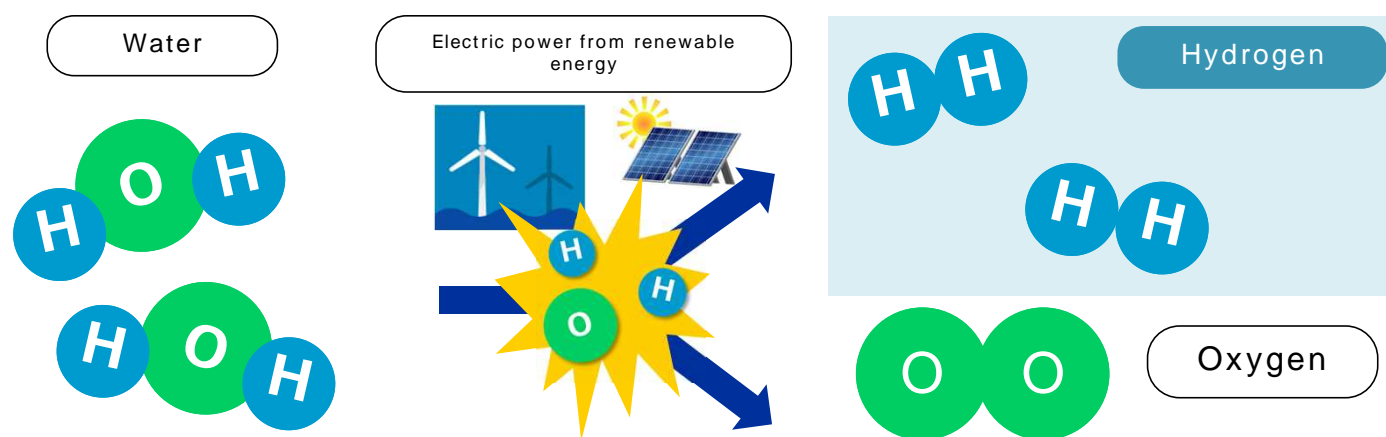
Decarbonizing initiatives utilizing Sapporo's special characteristics (population, infrastructure)

Model area for hydrogen utilization

- In anticipation of a hydrogen-based society, a stationary hydrogen station capable of supporting large vehicles is being prepared.
- In addition, we plan to develop hospitality facilities which integrate initiatives such as pure hydrogen fuel cells and ZEB.
- Research is being undertaken on the development of a supply system for hydrogen produced using renewable energy in order to meet growing hydrogen demands in Sapporo city.



(Image shown is for illustration purposes only and may not be an exact representation)



Decarbonization initiatives for the future of Sapporo

'Green Capital Sapporo'

Passing on the rich environment to the next generation and communicating the attractiveness of Sapporo

Pride in being the 'green capital' thanks to a culture of affluent living

Daily Life

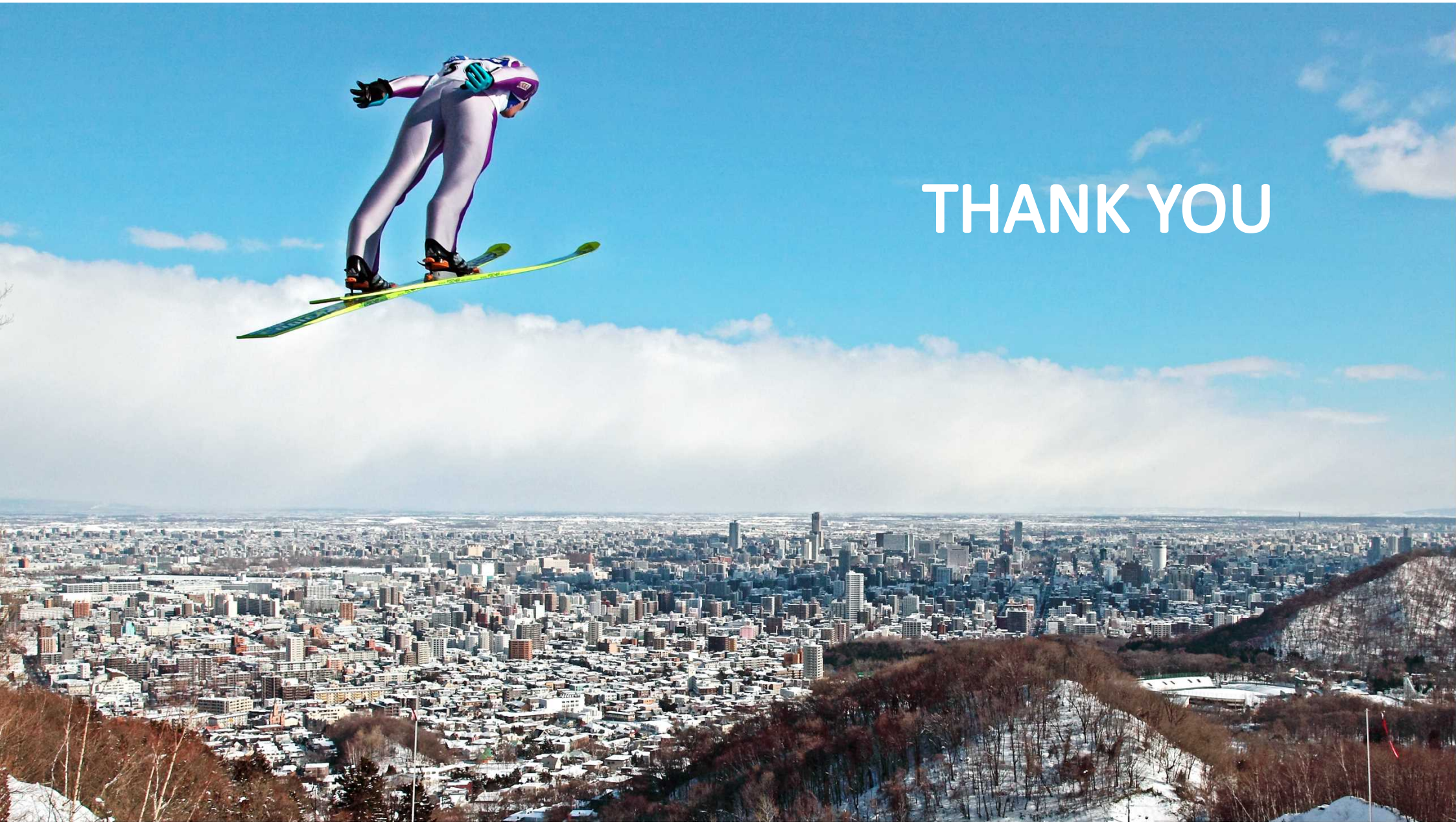
Strengthening the Sapporo brand by spreading the word about the attractiveness of Sapporo domestically and internationally

Society

Promoting economic circulation and industrial development in Hokkaido by using local resources and energy

Economy

The ripple effects of our initiatives can be felt on the economy, in society, and on daily life.



THANK YOU