## Building and hydrogen energy initiatives for zero carbon city in Sapporo



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## **1. Overview of Sapporo City**

## 2. Energy measures for buildings

3. Efforts for hydrogen energy

## **1. Overview of Sapporo City**



- Capital of Hokkaido, the northernmost of Japan's 47 prefectures
- ✓ The fifth largest city in Japan
- ✓ Hosted the 1972 Winter Olympics, the first ever held in Asia

Population	1,975,065 (as of October 1st, 2020)			
Area	1,121 km² (432 sq mi)			
Sister Cities	Portland, U.S.A. (since 1959)			
	Munich, Germany (since 1972)			
	Shenyang, China (since 1980)			
	Novosibirsk, Russia (since 1990)			
	Daejeon, Korea (since 2010)			







### **Climate Change Measures Action Plan**

- Through Climate Change Measures, We will contribute to solving various issues such as securing energy in the event of disaster, revitalizing industrial and economic activities, and extending healthy life expectancy.
- This plan also aims to reduce greenhouse gas emissions by 55% in 2030 compared to 2016.



## 2. Energy measures for buildings

### **Reducing Heating Energy Consumption**

### Detached houses



- ightarrow Promoting the spread of the "Sapporo version of next-generation housing" ,
  - which is a heat insulation and airtight standard set by the city of Sapporo.

#### Insulation and airtightness level of

"Sapporo version of next-generation housing"

Nes housing grade	Skin heat performance (UA Value)[W/m · K]	Primary energy consumption		corresponding	Ex) High level house	
		Whole house	Heating + ventilation	gap area [C Value)[cm/m]	Wall thickness	
Top runner	0.18 or less	Grade 5	35% or less	0 5 or loss	205mm	
High level	0.22 or less		45% or less	0.5 01 1855		
Standard level	0.28or less		60% or less	1.0 or loss		
Basic level	0.36 or less		75% or less	1.0 01 1655	+ resin sash	
Minimum level	0.46 or less	Grade 4	90% or less	1.0 or less		

### **Reducing Heating Energy Consumption**

### • Apartment houses and buildings

→ Subsidizing the design cost for the construction of apartment houses and buildings that can significantly reduce energy consumption by improving heat insulation performance and introducing solar power generation.

#### **Animal Welfare & Management Center**





## 3. Efforts for hydrogen energy

### Utilization of hydrogen derived from renewable energy



# THANK YOU