



An Example of Heat Pump Utilization in District Heating and Cooling

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Seminar on the Joint Crediting Mechanism (JCM) in Uzbekistan

On February 27, 2025

We are



- ◆ Foundation 1986
- ◆ Activities Public Dissemination/Promotion
Technical Support
International Activities
- ◆ Membership 99 companies / organizations
(As of October 1, 2022)



Public Dissemination
/Promotion



Technical Support



International Activities

We are

conducting international activities including **Technology Collaboration Programmes (TCPs) on Heat Pumping Technologies and Energy Storage** by IEA and other activities.

1. Technology Collaboration Programme on **Heat Pumping Technologies (HPT TCP)**

- **Annex 58: High-Temperature Heat Pumps**
- **Annex 61: Heat pumps in Positive Energy Districts (PED)**



2. Technology Collaboration Programme on **Energy Storage (ES TCP)**

- **Annex 36: Carnot Batteries**
- **Annex 37: Smart Design and Control of Energy Storage Systems**



3. Other international activities

- **Asian Heat Pump & Thermal Storage Technologies Network (AHPNW)**



What is Heat Pump?

Heat pumps in our lives



Air Conditioner



Refrigerator

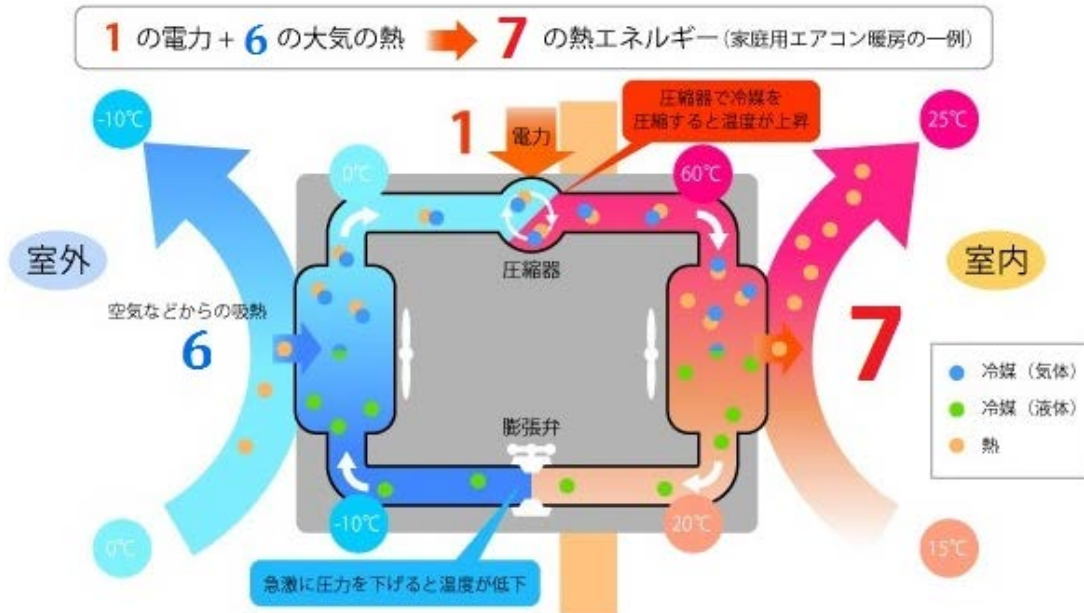


Clothes Dryer

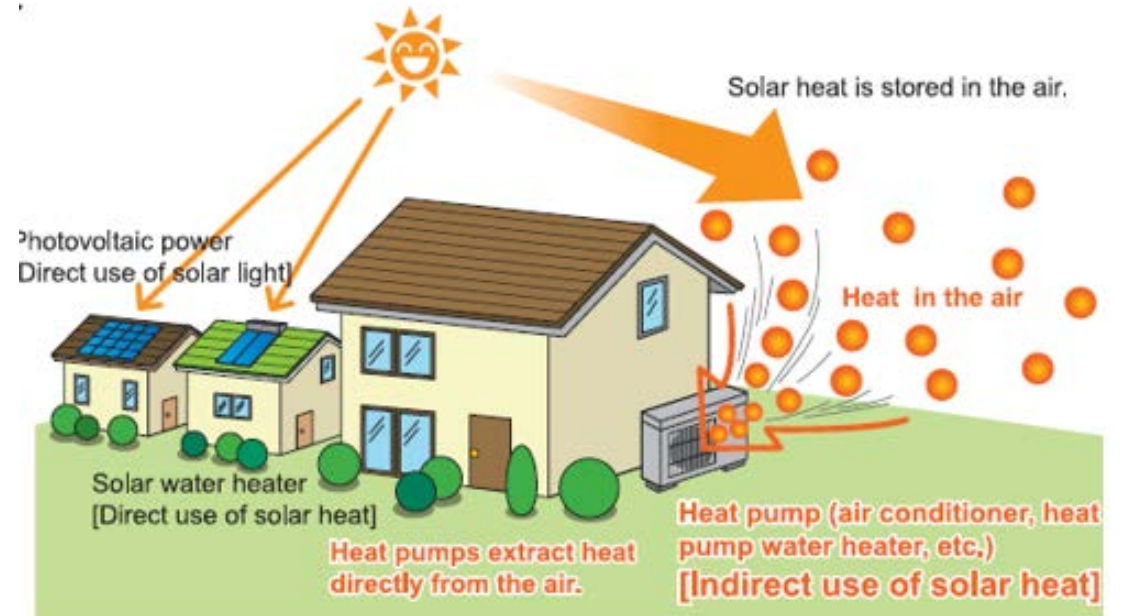


Water Heater

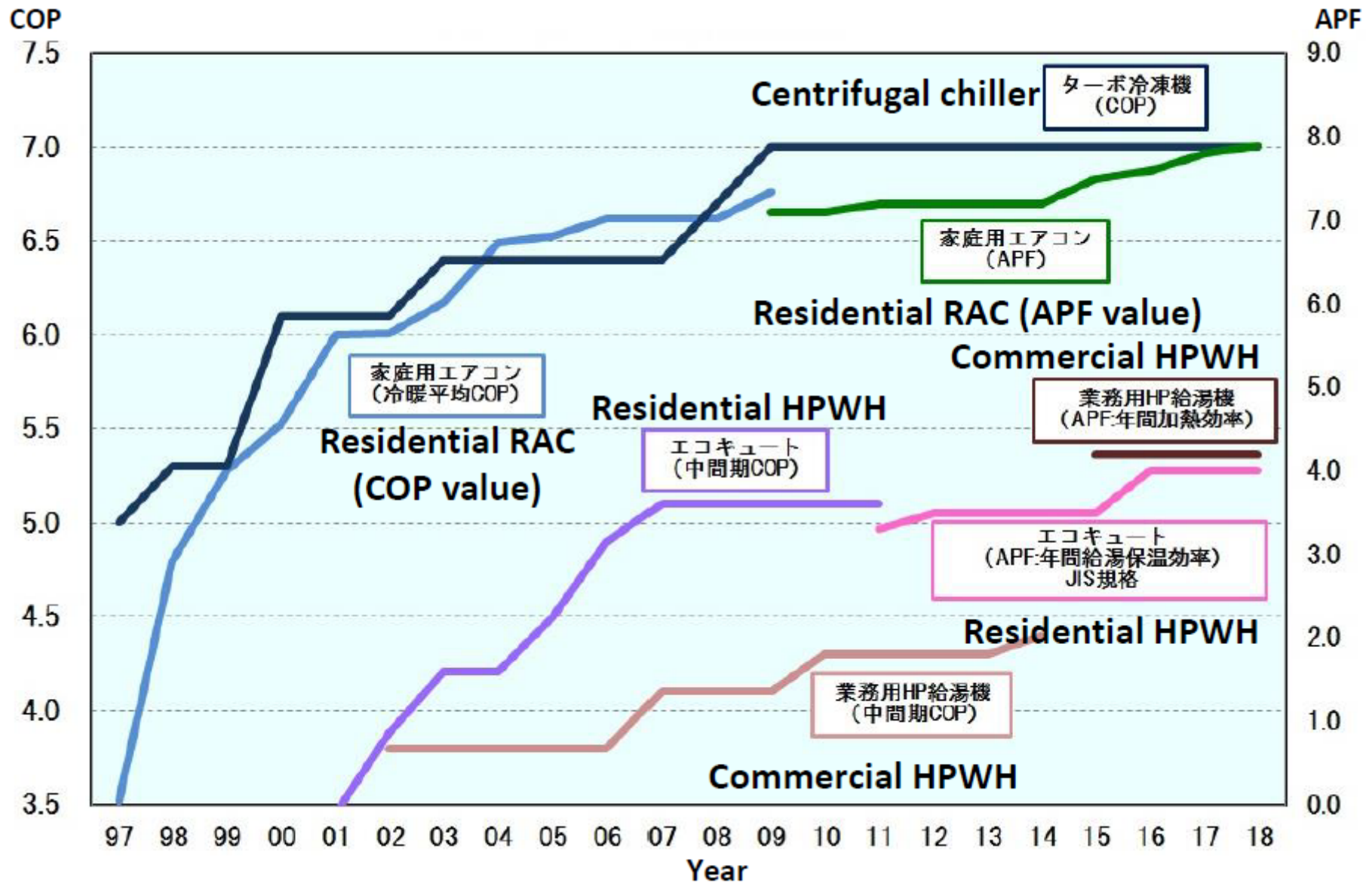
Energy efficient heat supply by HPs



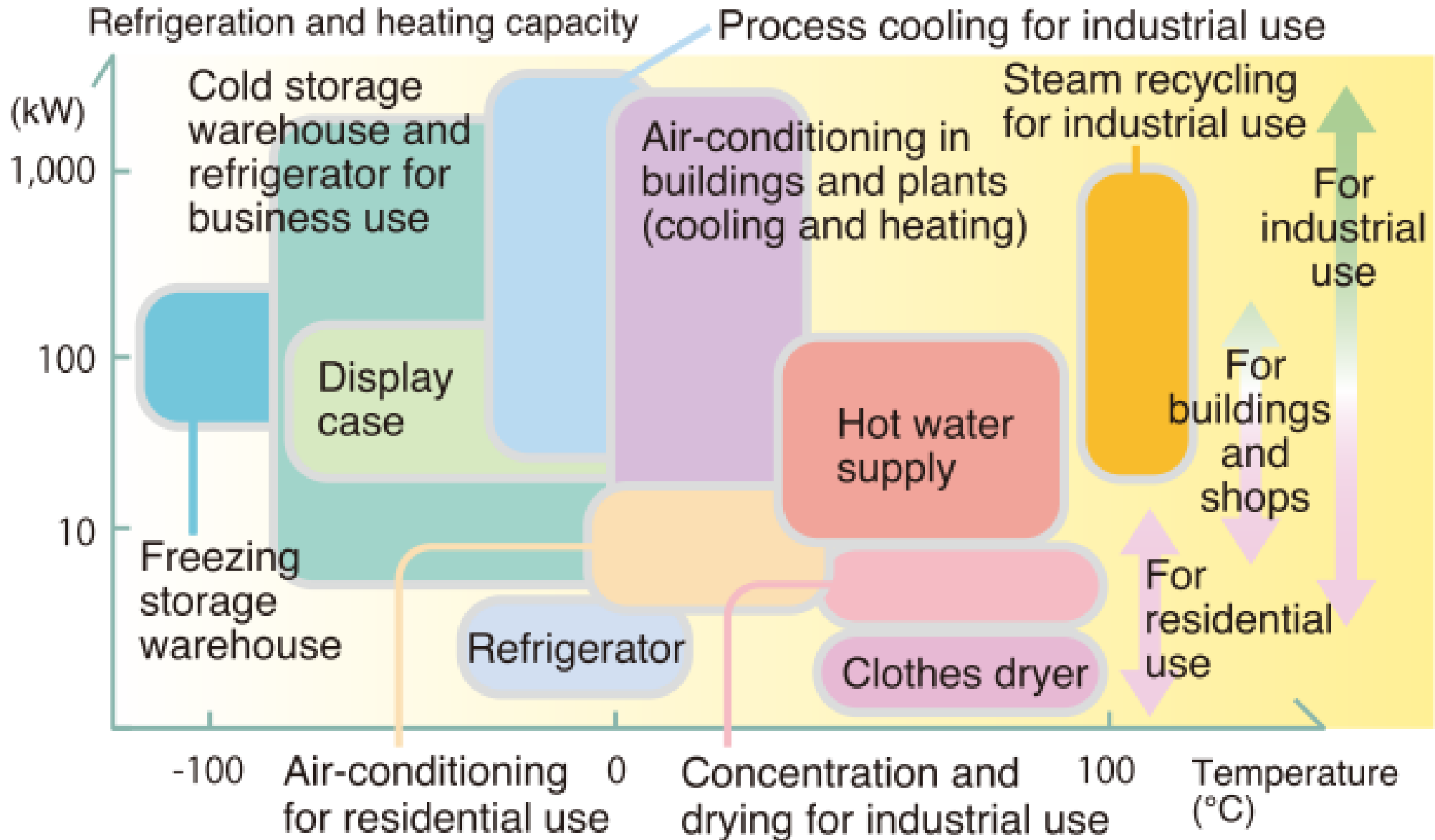
Renewable energy utilization by HPs



Energy Efficiency improvement of HPs

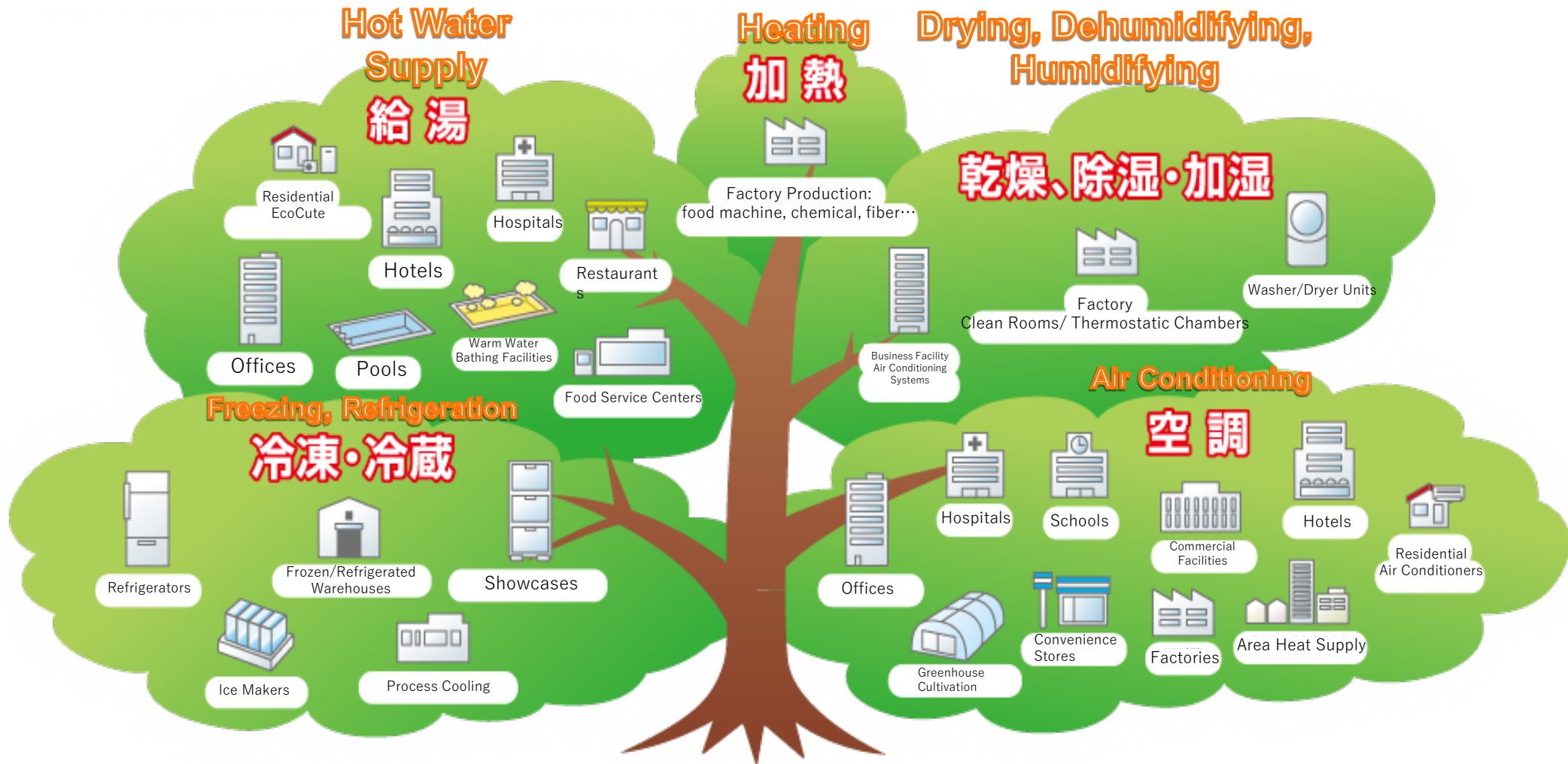


Heat Pumps are applicable to all sectors.



Expanding Heat Pump Utility

Thanks to Technological Advancement, Heat Pump Application has Diversified, and Extended into Various Fields and Applications



Japanese district heating and cooling are

- able to improve environmental, economic, and disaster prevention performance compared to operating individual heat sources.
- expected to reduce CO2 emissions in the region toward a decarbonized society, with an eye toward carbon neutrality by 2050.
- first introduced in Japan in the 1970s as part of large-scale urban development projects to provide energy supply for the area.
- currently more than 130 such facilities there throughout Japan

**Positioned as an important urban infrastructure
and attracting renewed attention in the thermal energy field**

Policy - Decarbonization

Source

- Policy Speech: [Cabinet of Japan](#)
- Leaders Summit on climate: [Ministry of Foreign Affairs of Japan](#)
- Date of enforcement of the amended act: [Ministry of the Environment \(MOEJ\)\(JP\)](#)
- Japan's NDC, Long-term Strategy, Plan: MOEJ ([EN](#), [JP](#))
- The Sixth strategic Energy Plan: Ministry of Economy, Trade and Industry (METI) ([EN](#), [JP](#))

46-50% GHG reduction in FY 2030 (from FY 2013 levels) and
Net-Zero by 2050

The 7th Strategic Energy Plan

Policy Speech by the Prime Minister to the 203rd Session of the Diet

“We hereby declare that **by 2050**
Japan will aim to reduce GHG emissions
to **net-zero**, that is, to realize a
carbon-neutral, decarbonized society.”



26 Oct. 2020

Leaders Summit on Climate

“Japan aims to reduce its
GHG emissions by **46%** in **FY
2030**” (Furthermore, the
lofty goal of **50%**)



22 Apr. 2021

Japan's Nationally Determined Contribution (NDC)
Japan's Long-term Strategy under the Paris Agreement
Plan for Global Warming Countermeasures
The 6th Strategic Energy Plan

22 Oct. 2021

Enforcement of the amended Act on Promotion of Global Warming Countermeasures

“decarbonized society by 2050” was stipulated

1 Apr. 2022

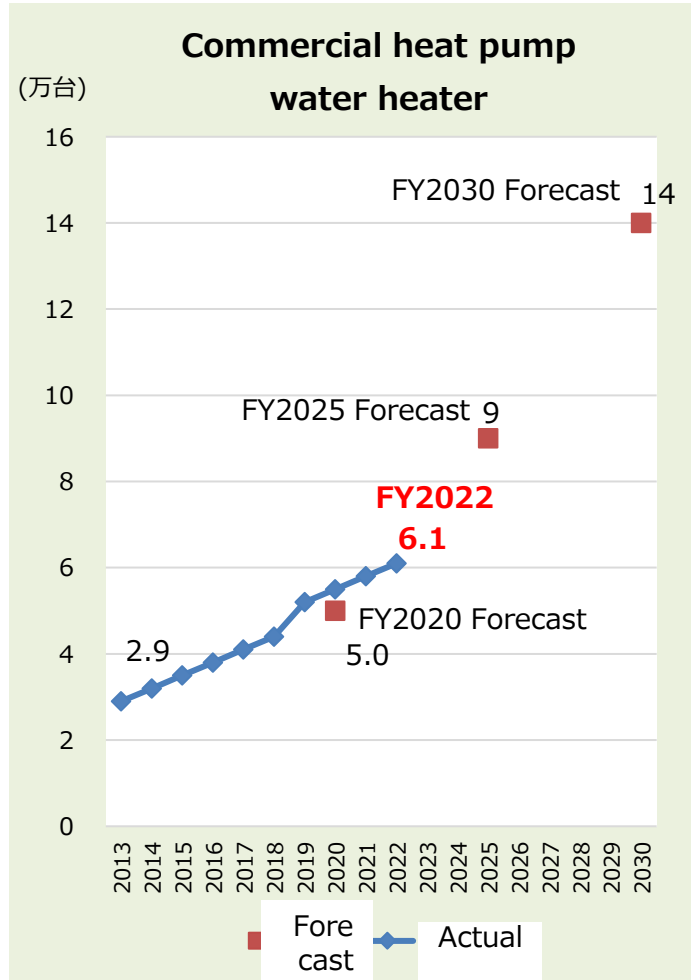
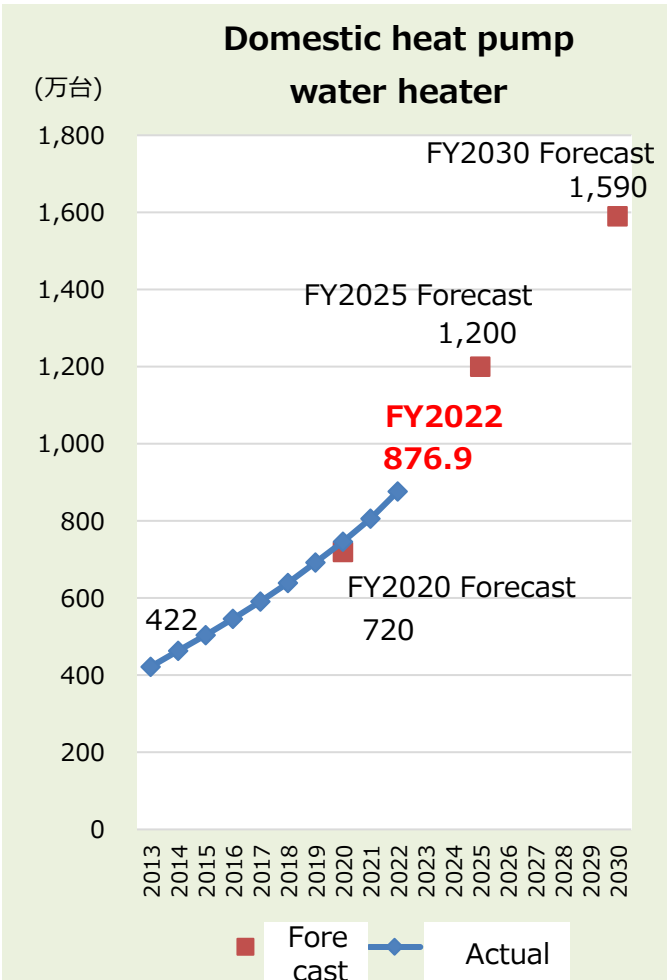
Technology Strategy for Energy
Efficiency and Transition to Non-
Fossil Energy 2024 Formulated

14 MAY. 2024

18 FEB. 2025

Dissemination status of heat pumps

Although there is some progress in the spread of hot water heat pumps, it has **not reached the level expected in the future**. **Further policy support is desired** to achieve future expansion.



In preparation for the revision of Strategic Energy Plan,
HPTCJ compiled and published policy recommendations
(June 2024)

(Recommendations for the widespread use of heat pumps and heat storage systems)

1. **Clearly reflect the direction** of the widespread use of heat pumps and thermal storage systems **in policies and measures**
2. Provide **cost support** for the introduction of heat pumps and thermal storage systems
3. **Expand technical support** aimed at promoting the introduction of heat pumps and thermal storage systems
4. **Support for the entities that install** heat pumps and thermal storage systems (developers, construction companies, etc.)
5. Promote the use of **flexibility** in heat pumps and thermal storage systems
6. Work **to raise awareness** of the characteristics and advantages of heat pump technology

Japanese Manufacturers

Hot water HPs



NIPPON
CARRIER



MAYEKAWA



KOBELCO



MHI



MITSUBISHI



DAIKIN



HITACHI



MHI



SCIENCE



MDI



MDI



ZENERAL

Hot air HPs



MAYEKAWA



MHI

Steam HPs



KOBELCO



FUJI
ELECTRIC

Vapor compression HPs



KOBELCO



MAYEKAWA



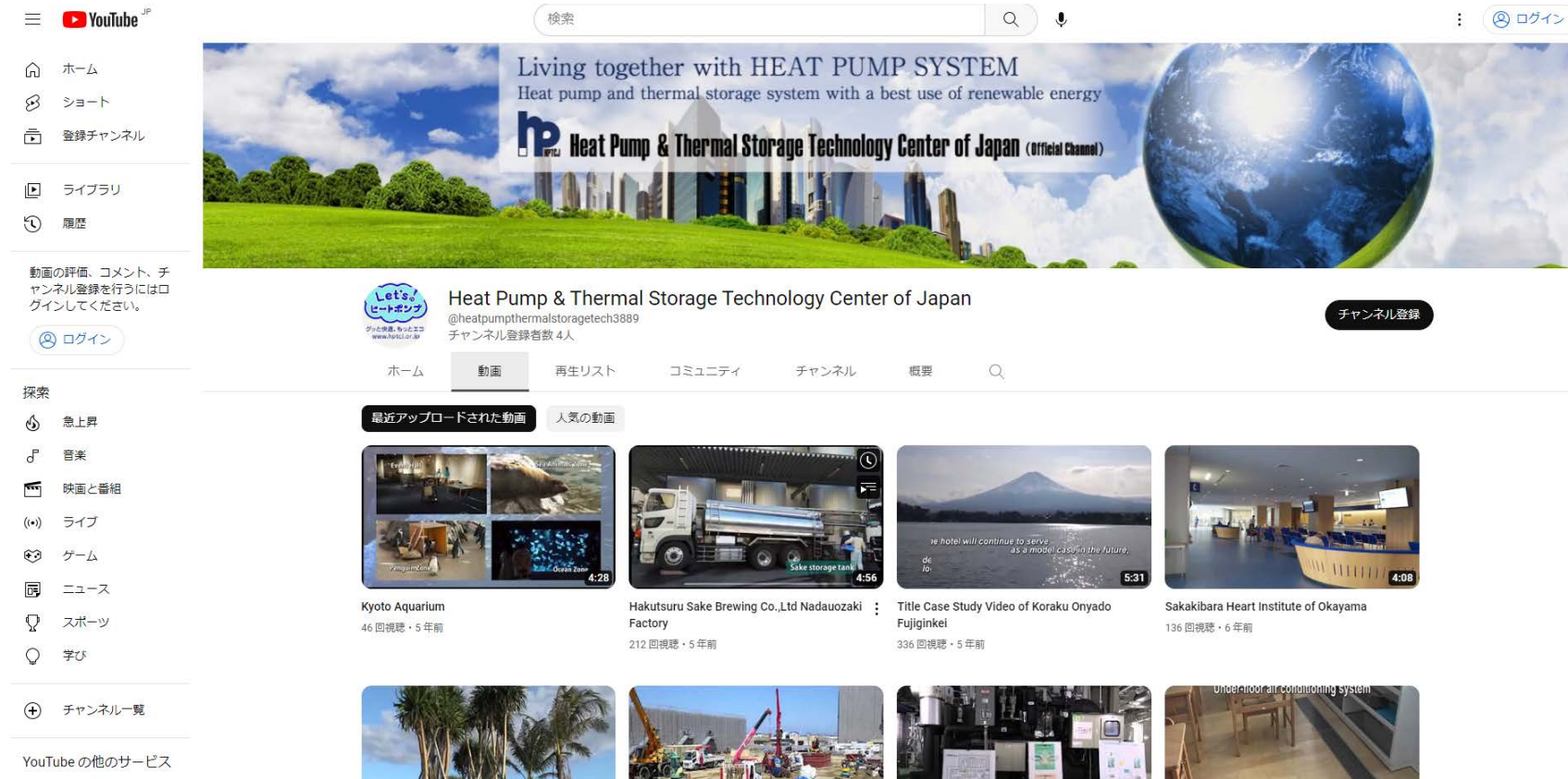
SASAKURA



KIMURA

HPTCJ's English YouTube Website

- <https://www.hptcj.or.jp/e/publication/tabid/790/Default.aspx>



The screenshot shows the YouTube channel page for the Heat Pump & Thermal Storage Technology Center of Japan. The channel banner features a green field, a city skyline, and a globe, with the text "Living together with HEAT PUMP SYSTEM" and "Heat pump and thermal storage system with a best use of renewable energy". The channel name is "Heat Pump & Thermal Storage Technology Center of Japan" with the handle "@heatpumpthermalstoragetech3889" and 4 subscribers. The page displays a grid of video thumbnails, including "Kyoto Aquarium", "Hakutsuru Sake Brewing Co.,Ltd Nadaozaki Factory", "Title Case Study Video of Koraku Onyado Fujiginkei", and "Sakakibara Heart Institute of Okayama".

Thank you for your attention!

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Mount Fuji



Nagoya Castle

