



# Introduction of Japanese district heating and cooling case studies using heat pumps

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EGRD's webinar on Climate Neutral Heating and Cooling  
On April 20, 2023

**We are**



**Heat Pump & Thermal Storage Technology Center of Japan**

# 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)**



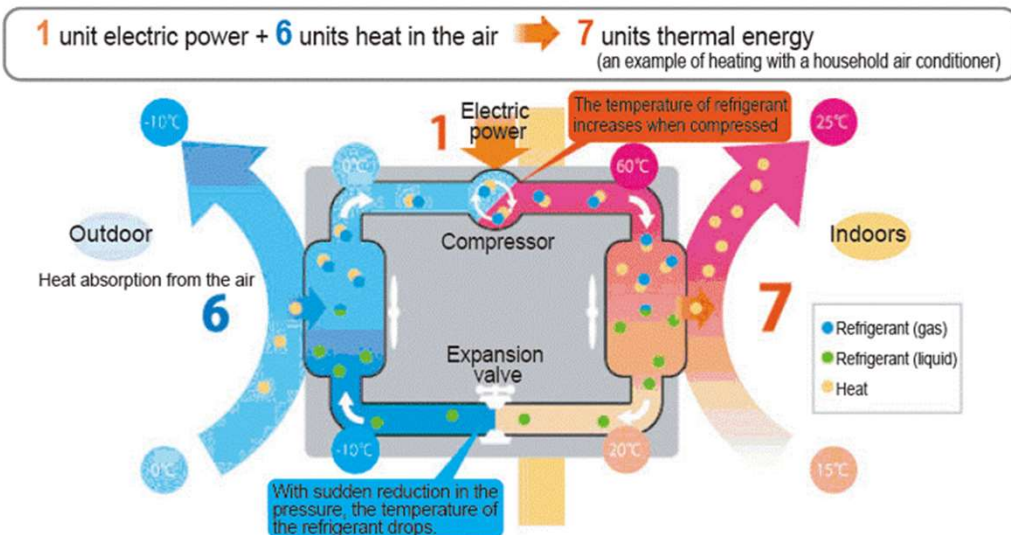
## Japanese district heating and cooling are

- 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

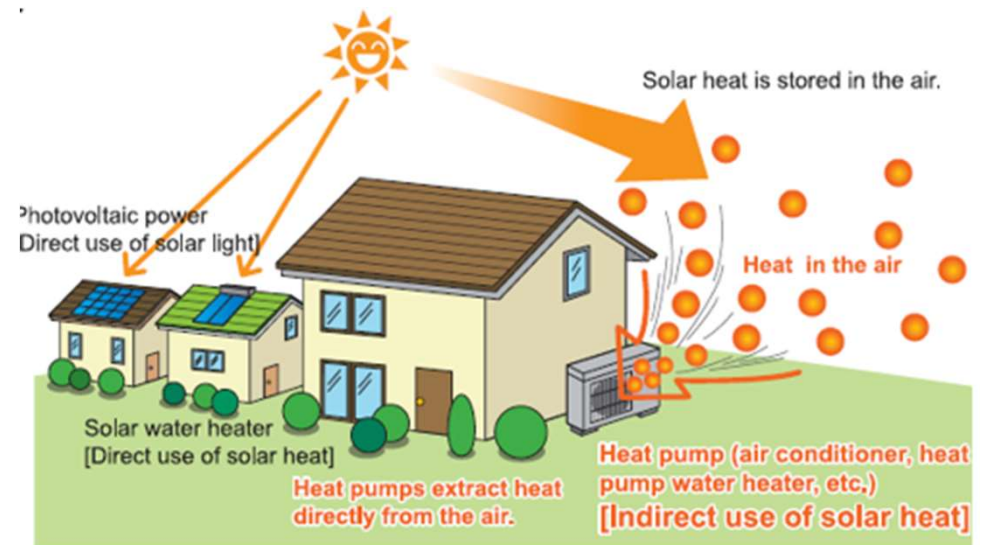
**Positioned as an important urban infrastructure  
and attracting renewed attention in the thermal energy field**

# Heat Pump in the spotlight

## Energy efficient heat supply by Heat Pumps



## Renewable energy utilization by Heat Pumps



Heat Pump is expected to be a trump card against global warming

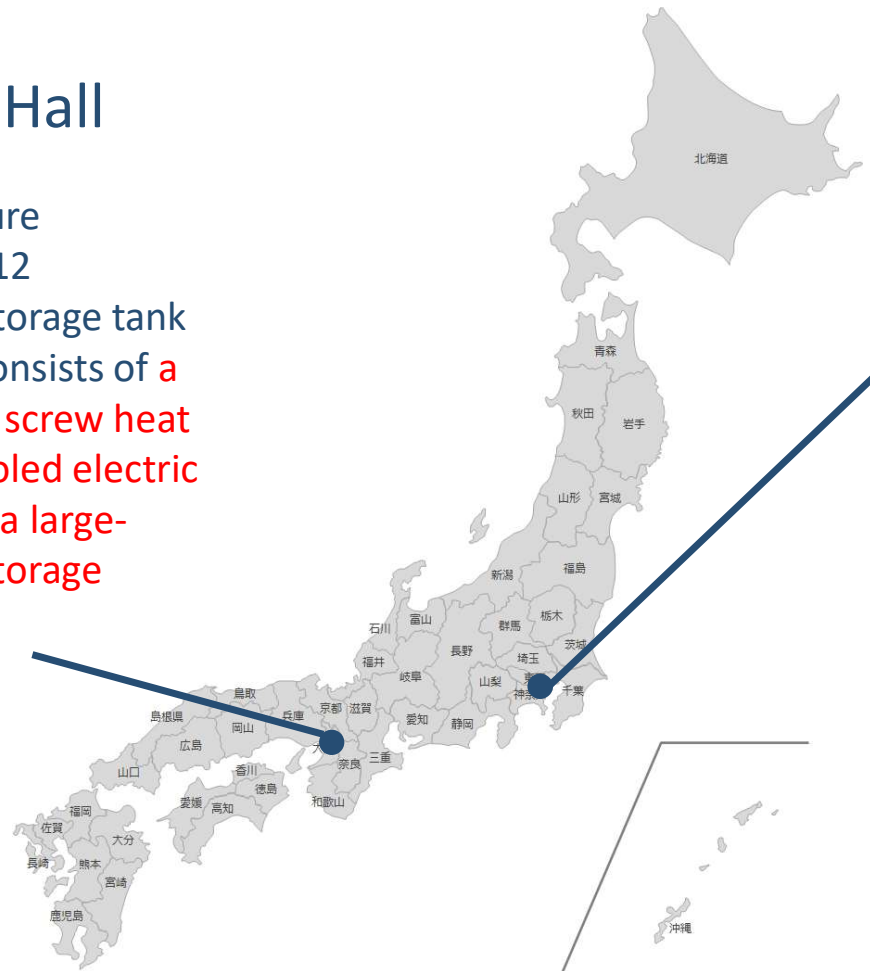
# Japanese district heating and cooling cases using heat pumps

## TOKYO SKYTREE

### Nakanoshima Festival Hall



- In Osaka Prefecture
  - Completed in 2012
  - 2,400m<sup>3</sup> water storage tank
- The heat source consists of a water heat source screw heat pump, a water-cooled electric centrifugal chiller, a large-scale water heat storage tank(2,400tons).



- In Tokyo
- Completed in 2012
- The main plant has a centrifugal chiller, a heating tower heat pump, a water heat source heat pump, and a large-scale water heat storage tank (approximately 7,000 tons), while the subplant has a centrifugal chiller and a hot water boiler.

# HPTCJ's English YouTube Website



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

Living together with HEAT PUMP SYSTEM  
Heat pump and thermal storage system with a best use of renewable energy  
Heat Pump & Thermal Storage Technology Center of Japan (Official Channel)

Heat Pump & Thermal Storage Technology Center of Japan  
@heatpumpthermalstoragetech3889  
チャンネル登録者数 4人

チャンネル登録

ホーム 動画 再生リスト コミュニティ チャンネル 概要

最近アップロードされた動画 人気の動画

Kyoto Aquarium  
46 回視聴・5 年前

Hakutsuru Sake Brewing Co.,Ltd Nadauozaki Factory  
212 回視聴・5 年前

Title Case Study Video of Koraku Onyado Fujiginkei  
336 回視聴・5 年前

Sakakibara Heart Institute of Okayama  
136 回視聴・6 年前

Underfloor air conditioning system



## Summary

- Japanese district heating and cooling are positioned as an important urban infrastructure and attracting renewed attention in the thermal energy field.
- Heat pump is expected to be a trump card against global warming.
- I introduced Sasashima Live 24, that boasts the highest class of efficiency in Japan and is characterized by the use of waste heat from sewage heat and cogeneration, and the reduction of peak power consumption by water heat storage tanks.
- You can watch videos of introduction examples of heat pumps and thermal storage at HPTCJ's website.

**Thank you for your attention!**

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**Mount Fuji**



**Nagoya Castle**

