APEC EGNRET 57, Oct 5-7th

BCG Model towards Carbon Neutrality in Japan

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2050 Carbon-Neutral Declaration and 2030 Climate Goal

- In October 2020, Prime Minister Suga declared that **Japan aim to reduce greenhouse gas emissions to net-zero by 2050,** that is, to realise a carbon-neutral, decarbonised society.
- At the Leaders Summit on Climate in April 2021, Prime Minister Suga announced that **Japan aims to reduce its GHG emissions by 46 percent in FY 2030 from its FY 2013 levels**.

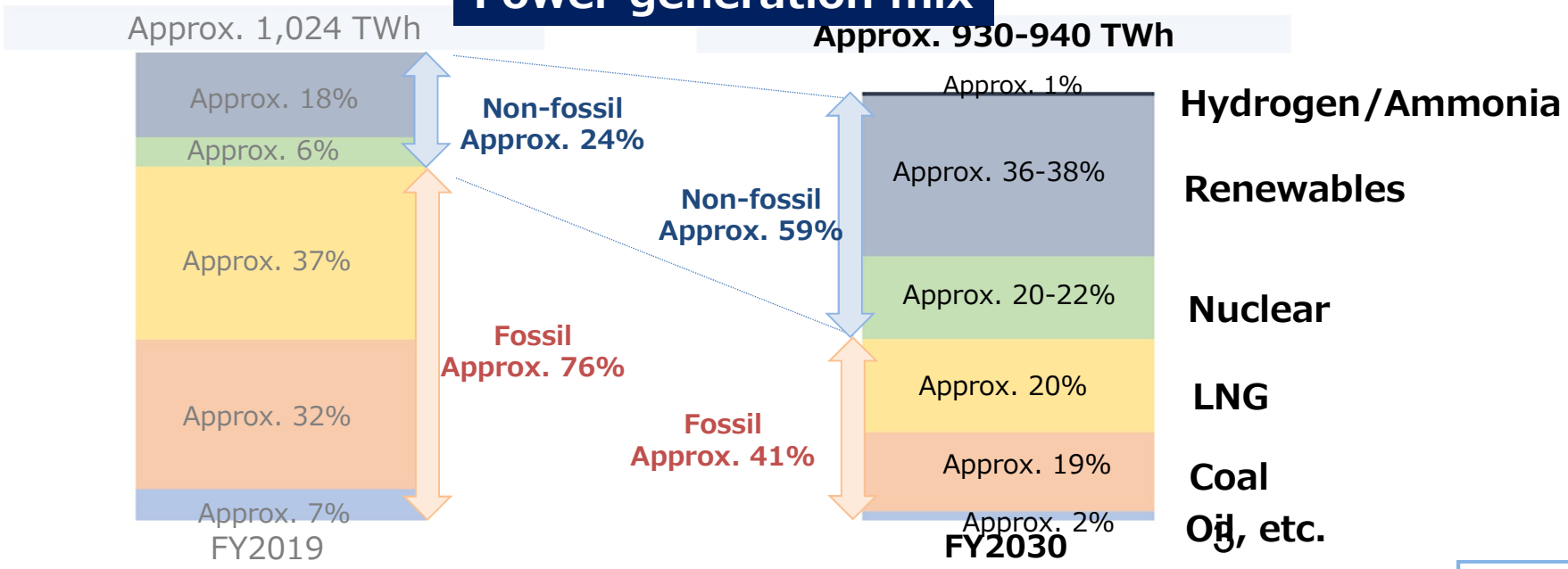
Remarks at Leaders Summit on COP26 (Nov. 2021)

Japan aims to reduce its greenhouse gas emissions by 46 percent in the fiscal year 2030 from its fiscal year 2013 levels, and that **Japan will continue strenuous efforts in its challenge to meet the lofty goal of cutting its emissions by 50 percent in the fiscal year 2030**.

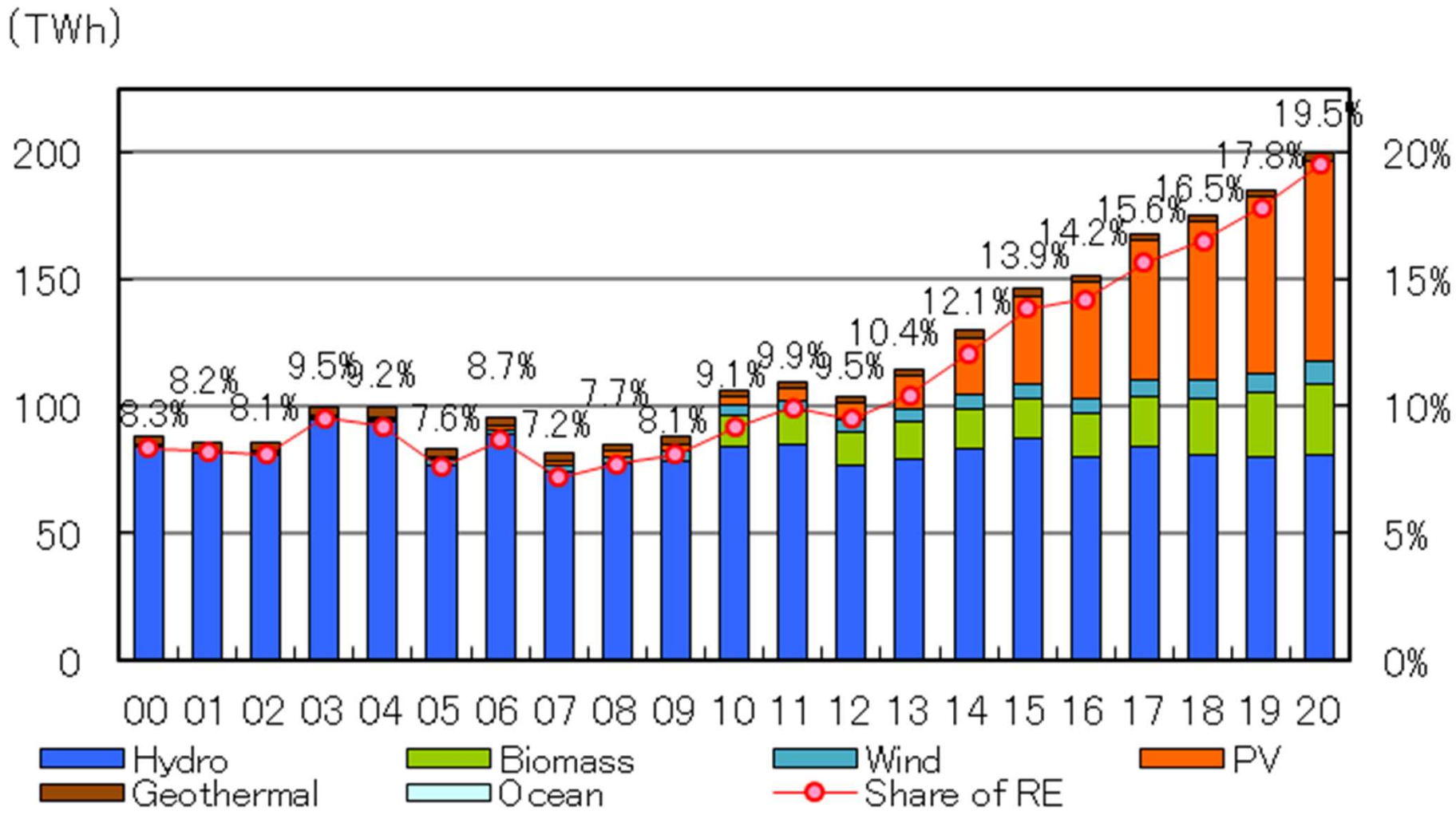
Strategic Energy Plan -Policy responses for 2030-

- **Maximum introduction of renewable energy as a major power source on the top priority on the major premise of S+3E**
- **Further pursuit of greater energy efficiency**
- **Restart nuclear power plants with safety as a top priority**.
- Recognizing that securing a **stable supply of energy is a major principle**, Japan will seek to lower the **thermal power ratio** of its power generation mix **to the extent possible.**
- **Japan plans to pursue innovation** in the thermal power mix, etc. by exploring and using **hydrogen /ammonia - fired power generation and CCUS/Carbon Recycling**.

Power generation mix

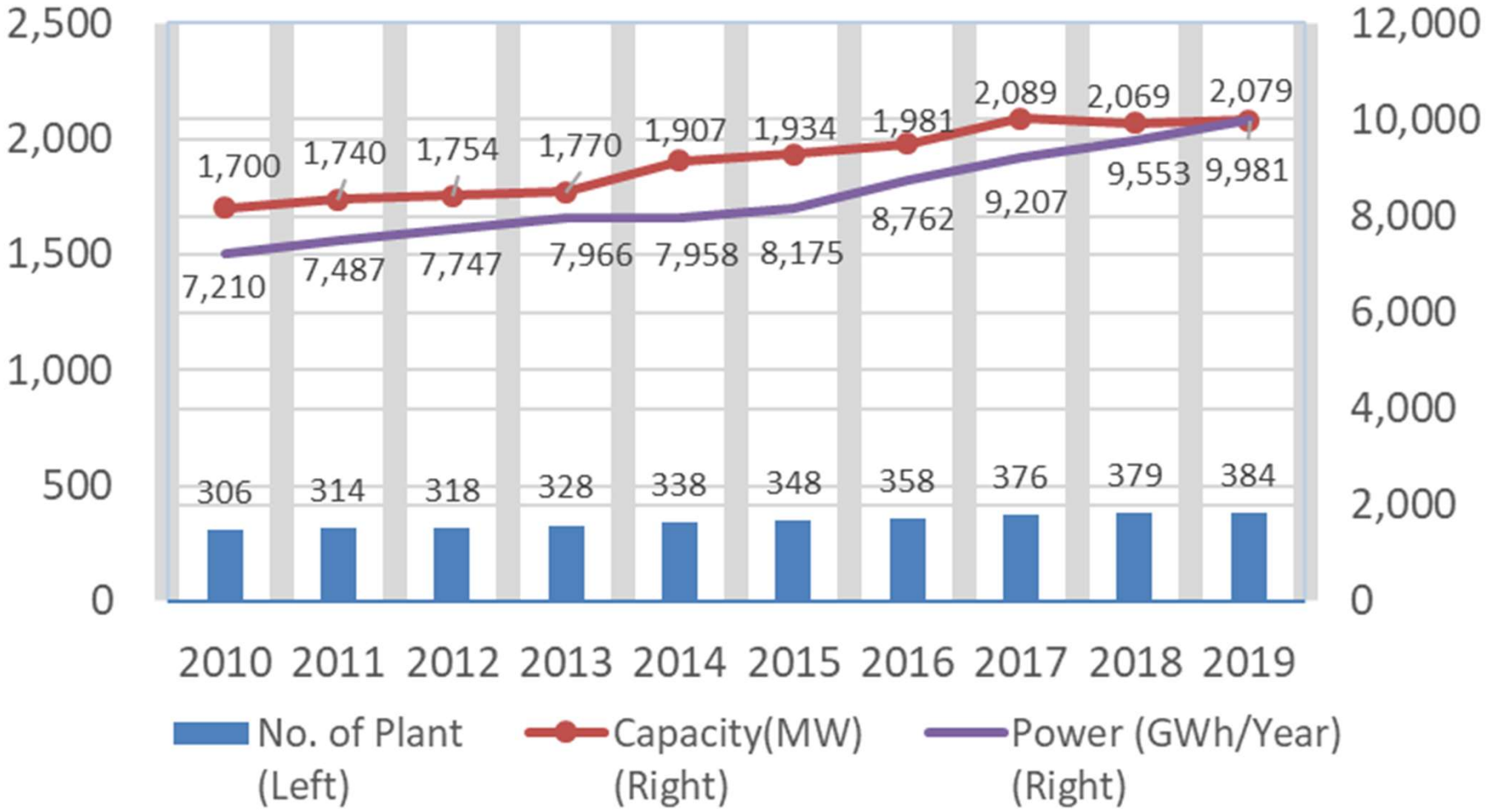


RE Power Generation in Japan



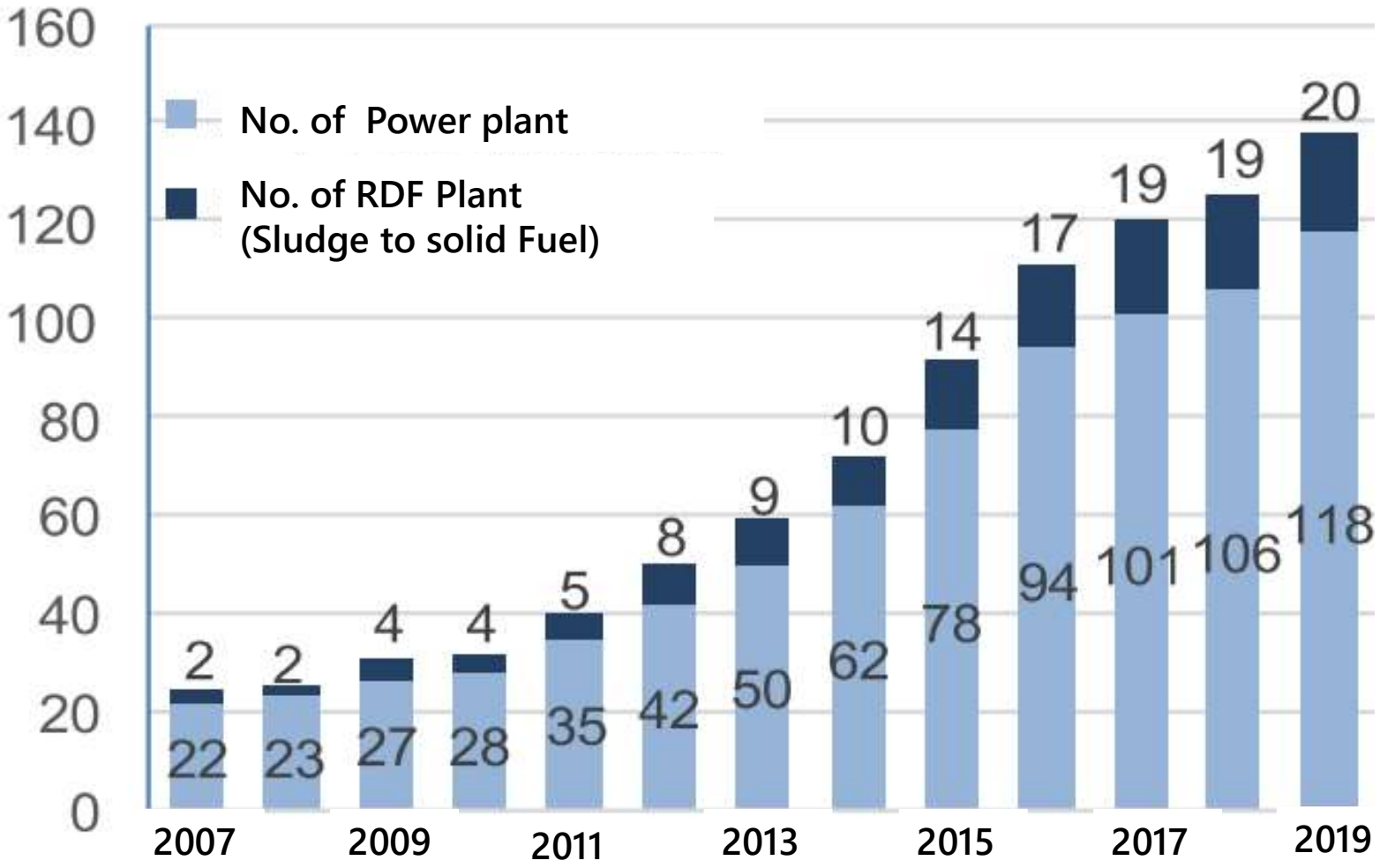
Source: IEA World Energy Balances 2022

WtE Power Generation in Japan



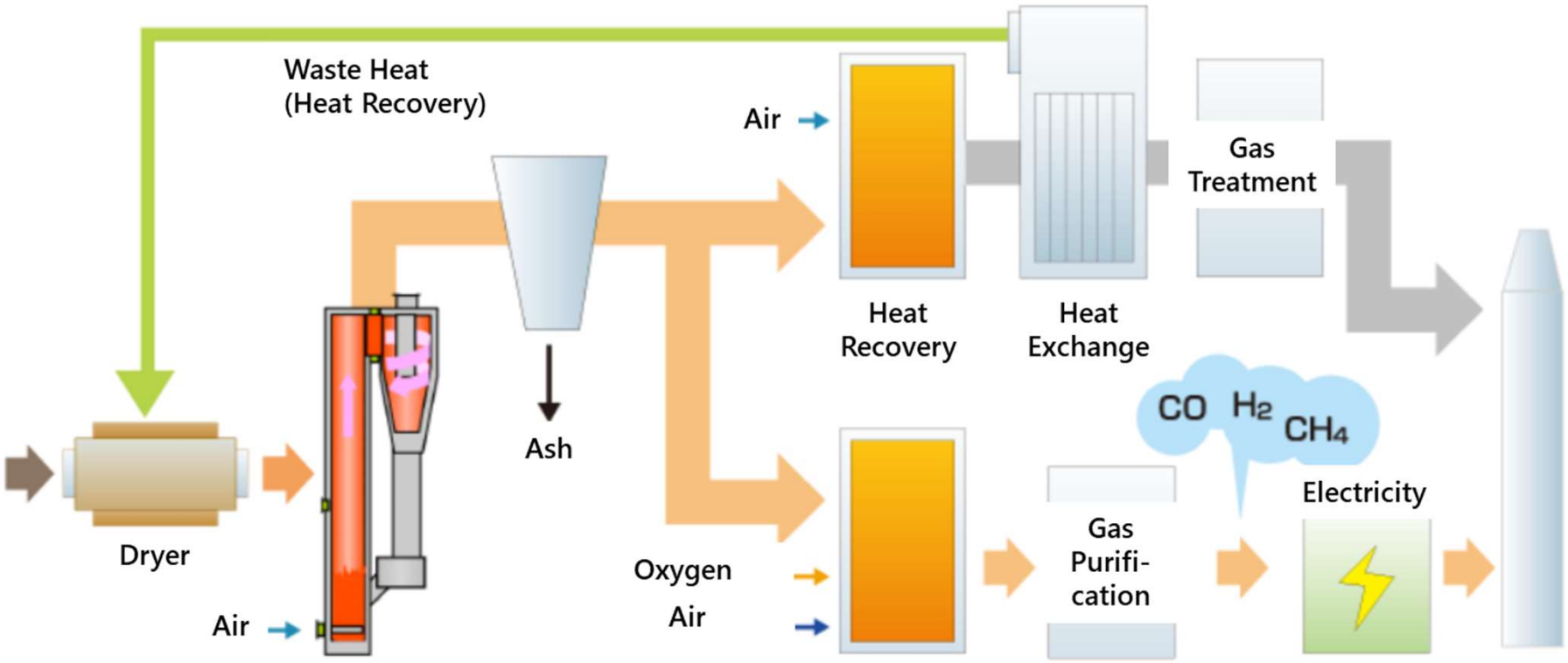
(Source) Ministry of Environment, Japan
No. of total waste incinerator facilities in Japan (FY2019): 1,067

Sewage Sludge to Power in Japan



(Source) Ministry of Land, Infrastructure, Transport and Tourism, Japan
Ratio of utilization of Sewage sludge as fuel : 9%

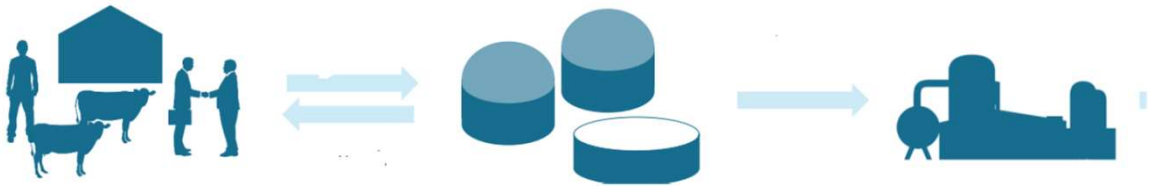
Sewage Sludge to Gas Power



- **Bureau of Sewage, Tokyo Metropolitan Gov.**
- **Capacity : 100t/Day**
- **Operation : July 2010**

Biomass to Hydrogen (NEDO Project)

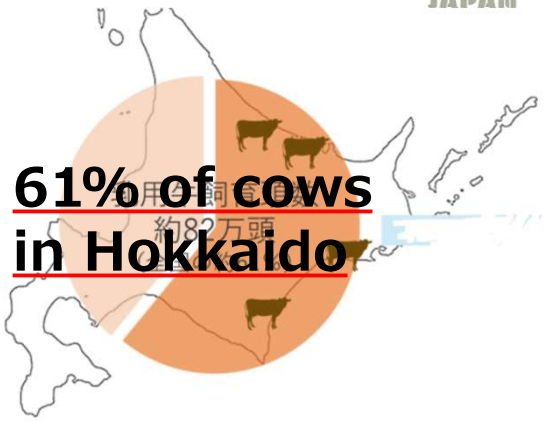
Farm byproduct to Hydrogen in Hokkaido



Dairy farmer

Biogas plant
(Methane gas)

Methane gas to
Hydrogen



61% of cows in Hokkaido

Hydrogen Demonstration Project at LA port, USA(2022-2026)

Part of Hydrogen comes from dairy farmers in Central Valley, California.
Hydrogen will be utilized by Forklift and diesel machine of Toyota group

Sewage Sludge to Hydrogen project will be demonstrated at Kansai EXPO in 2025

OSAKA, KANSAI, JAPAN
EXPO 2025

Carbon Recycling

- Carbon recycling: Considering Carbon dioxide (CO_2) as source for Carbon, capture CO_2 then utilize and recycle it as Carbon compounds. **Promoting R&D for these technologies more efficiently**
- Solve climate change problems by reducing CO_2 in the air as well as secure stable supply of new resources. Challenging innovative technologies contributing both at once.
- Taking following actions to **establish a new eco-system**
  - ① Reduce cost and improve efficiency rate for capturing CO_2
  - ② R&D for producing, converting and processing CO_2 as materials and resources (chemical products, fuels, minerals, etc.)
  - ③ Develop variety of utilization sectors for materials and resources oriented from carbon.

Coal Gasification Capturing CO2

Algae Research Area Demonstration Research Area Fundamental Research Area

- **Research center at Osaki Power Plant of Chugoku Electric Power Co (NEDO Project)**
- **Consist of 3 Area**
  Demonstration Research Area
  Fundamental Research Area
- **Operation : September 2022**

Thank you for your attention!