

Japan's CCUS policy

Oil and Gas Division

Agency for Natural Resources and Energy

CCS status in Japan

- Approx. 240 billion tons of domestic CO₂ storage potential has been assumed based on basic data from previous investigations.
- Several CCUS projects are being carried on or planned in Japan.
- Japan has made a commitment to improve business environment toward the start of CCS business by 2030.

Demonstration of transportation by ship

- Important techniques for the CCS hub & cluster plan, in which multiple hubs in Japan are assumed, for transporting CO₂ captured at distant emission sources
- Transportation by a 1,000-ton class liquefied CO₂/LPG convertible transport ship



CO₂ transport ship



Tomakomai CCS demonstration

Storage and monitoring

- CCS demonstration underway
- Injection started in 2016 and 300 thousand tons completed in Nov. 2019

Tomakomai CCS/CR hub

- Facilities for Tomakomai CCS demonstration are utilized.
- CO₂ captured in distant emission sources is utilized in Tomakomai, an industrial city, through efforts of carbon recycling.

Capture

Thermal power plant

- Capture with solid absorbents (approx. 10,000 tons/year)
- Capture to start in 2023



Maizuru Power Station
(Coal fired power plant)

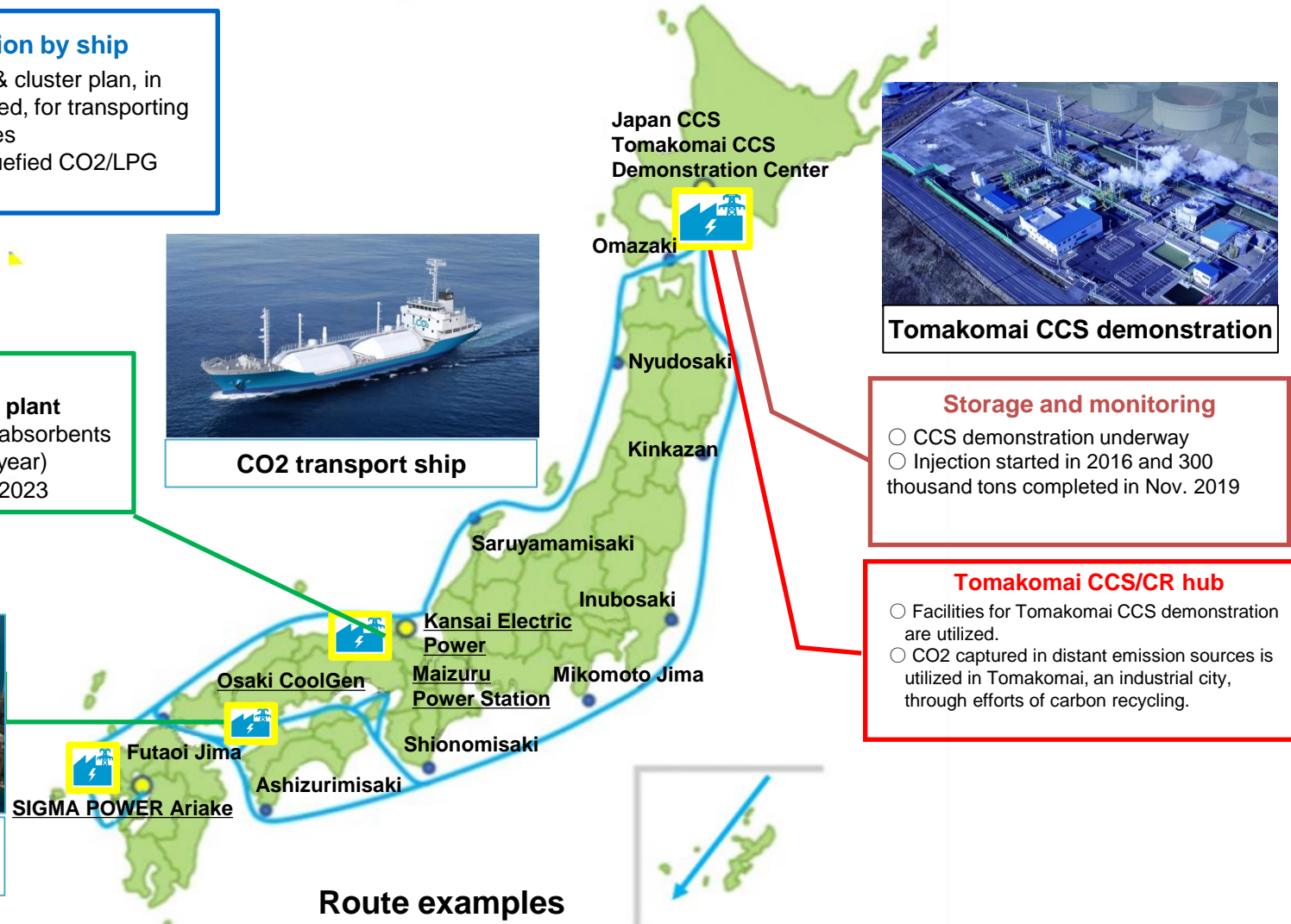
Capture IGCC

- Capture based on physical absorption (approx. 100,000 tons/year)



Osaki CoolGen (IGCC)

Carbon recycling R&D base

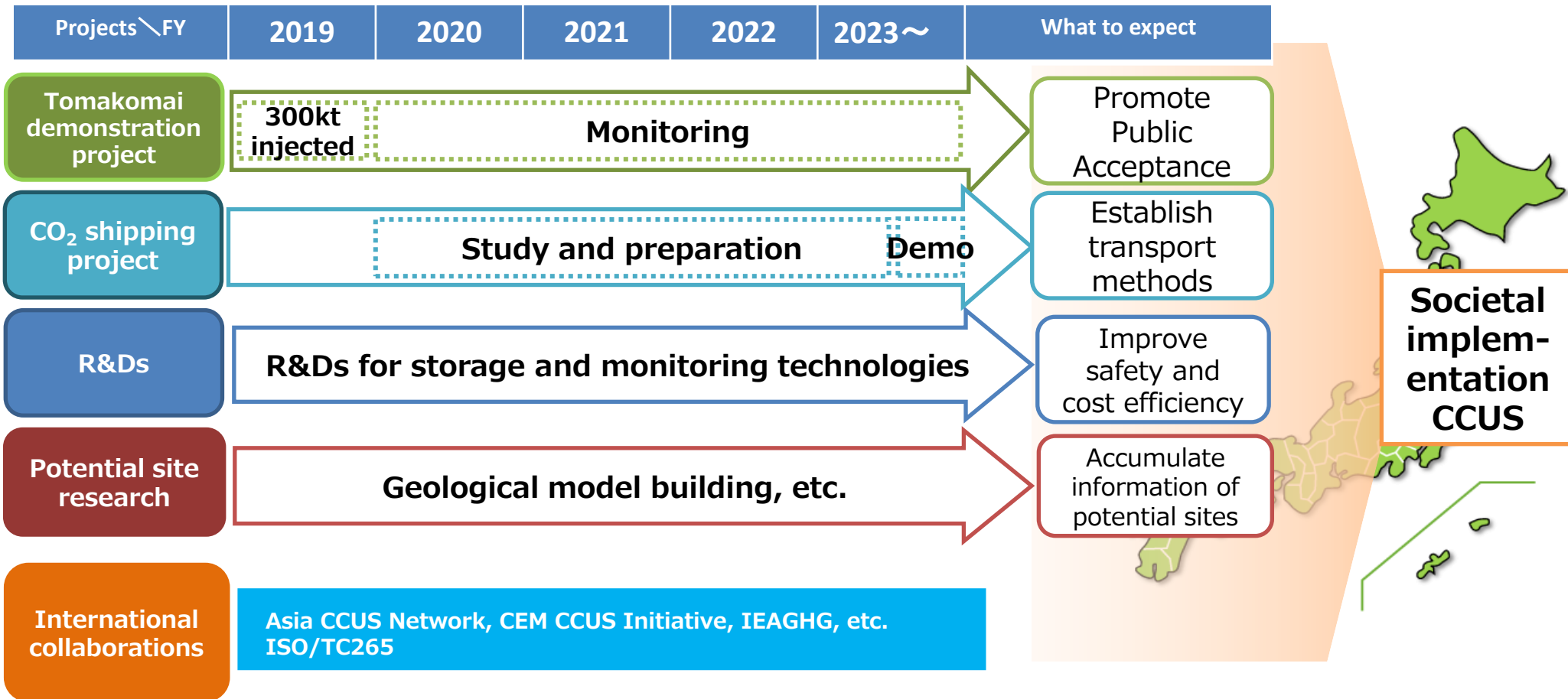


Route examples

Current CCS Projects in Japan

- Toward the start of CCS business by 2030, the followings are being carried out;

① Tomakomai demonstration project ② CO₂ shipping project ③ R&Ds for storage and monitoring technologies ④ Investigation of Potential CO₂ storage sites



CCS Long-Term Roadmap Intermediate Summary

- **Business environment improvement toward the start of CCS business by 2030 should be clearly declared as a government target.**
- To achieve the target, the following actions should be taken:
 - (1) **Agendas toward the legislation of CCS domestic laws should be organized by the end of 2022 to legislate such laws as soon as possible.**
 - (2) **Future cost targets should be defined for each CCS value chain, and R&D and demonstration should be conducted to reduce costs.**
 - (3) **The Government should actively research places suitable for CCS in cooperation with operators** (including disclosure of existing data). **Ideal support from the Government for advanced CCS business should be studied, referencing to support systems including substantial subsidy systems (most of subsidy rates both for CAPEX and OPEX are 100%) in leading CCS countries such as Europe and the US. Ideal additional support from the Government should also be studied flexibly based on commercialization stages, referencing to subsidy systems in the US and other countries.**
 - (4) **The Government, municipalities, and businesses should cooperate to promote understanding of the public as well as residents in CCS implementation areas.**
 - (5) **Overseas CCS should be promoted** through knowledge sharing via the Asia CCUS Network and risk money supply to overseas CCS business.

