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https://www.meti.go.jp/english/policy/energy_environment/global_warming/roadmap/index.html

CCUS in Japan
Present and future

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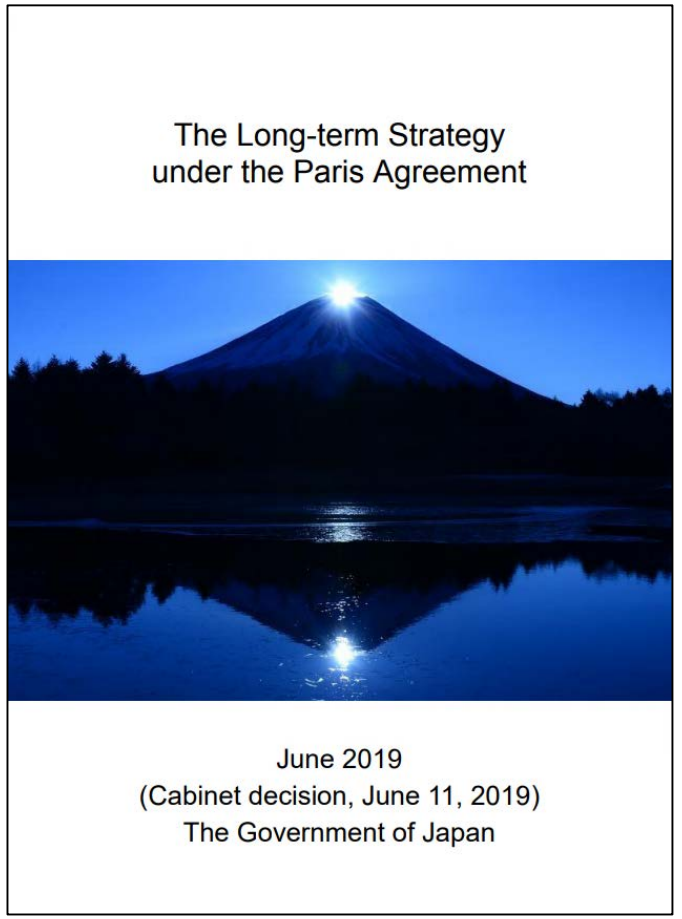
Japan's Long-term Strategy under the Paris Agreement

- **Basic Concept**

✓ Accomplish "decarbonized society" as early as possible in the second half of this century

✓ Take measures towards the reduction of GHGs emissions by 80% by 2050

✓ Realize "a virtuous cycle of environment and growth"

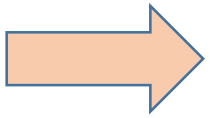


Japan's Long-term Strategy specifies
CCUS as one of the key technologies
for accomplishing "decarbonized society"

Two milestones for CCS in Japan

- [R]esearch and development will be conducted with a view to **practical use of the CCUS technology around 2020**
- 2020年頃のCO2回収・有効利用・貯留（CCUS）技術の実用化を目指した研究開発

The 5th Strategic Energy Plan (July 2018)

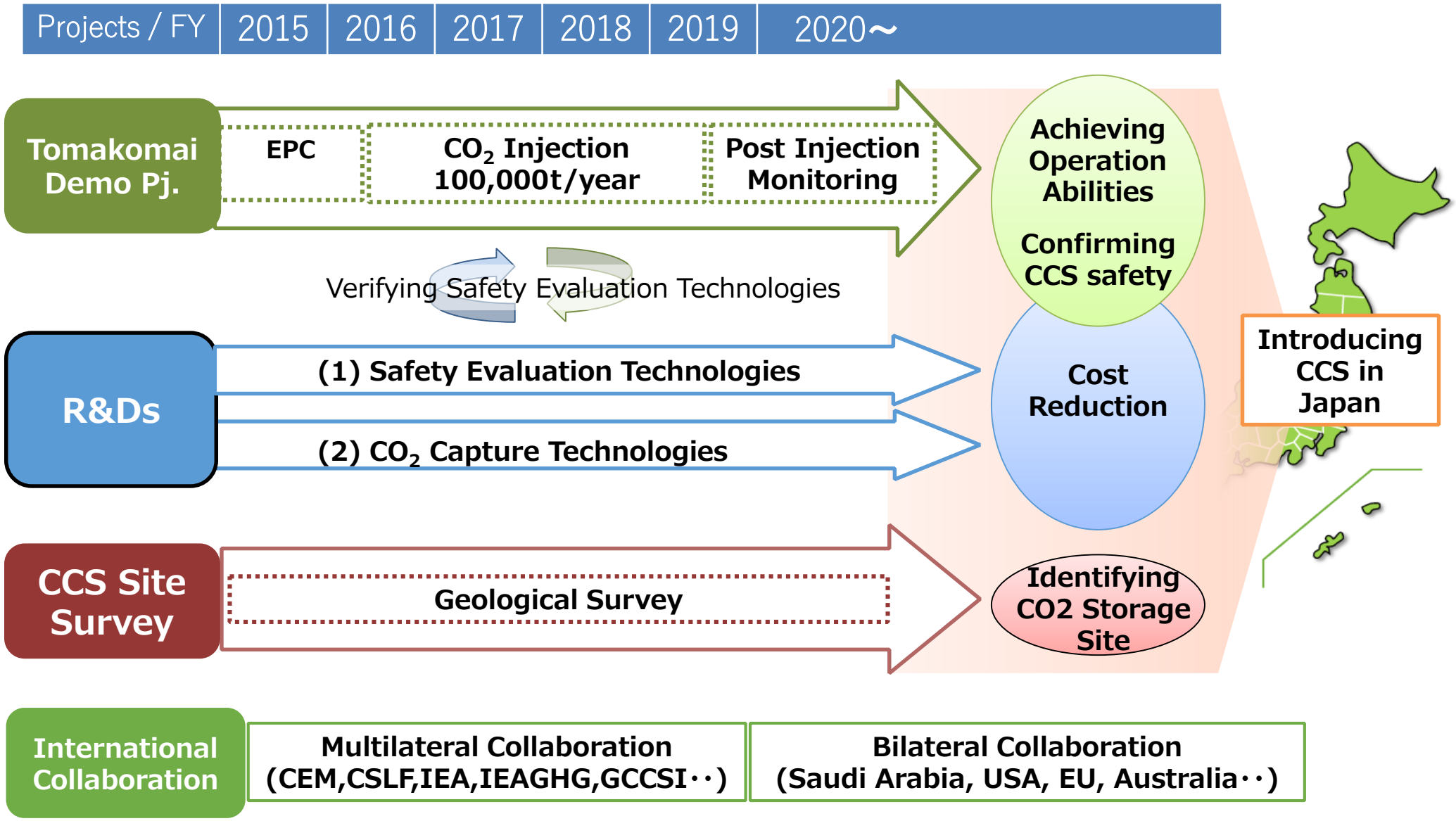


Achievement of 300,000 tonnes cumulative CO2 injection of Tomakomai CCS demonstration project proved CCS is a safe and secure system in Japan.

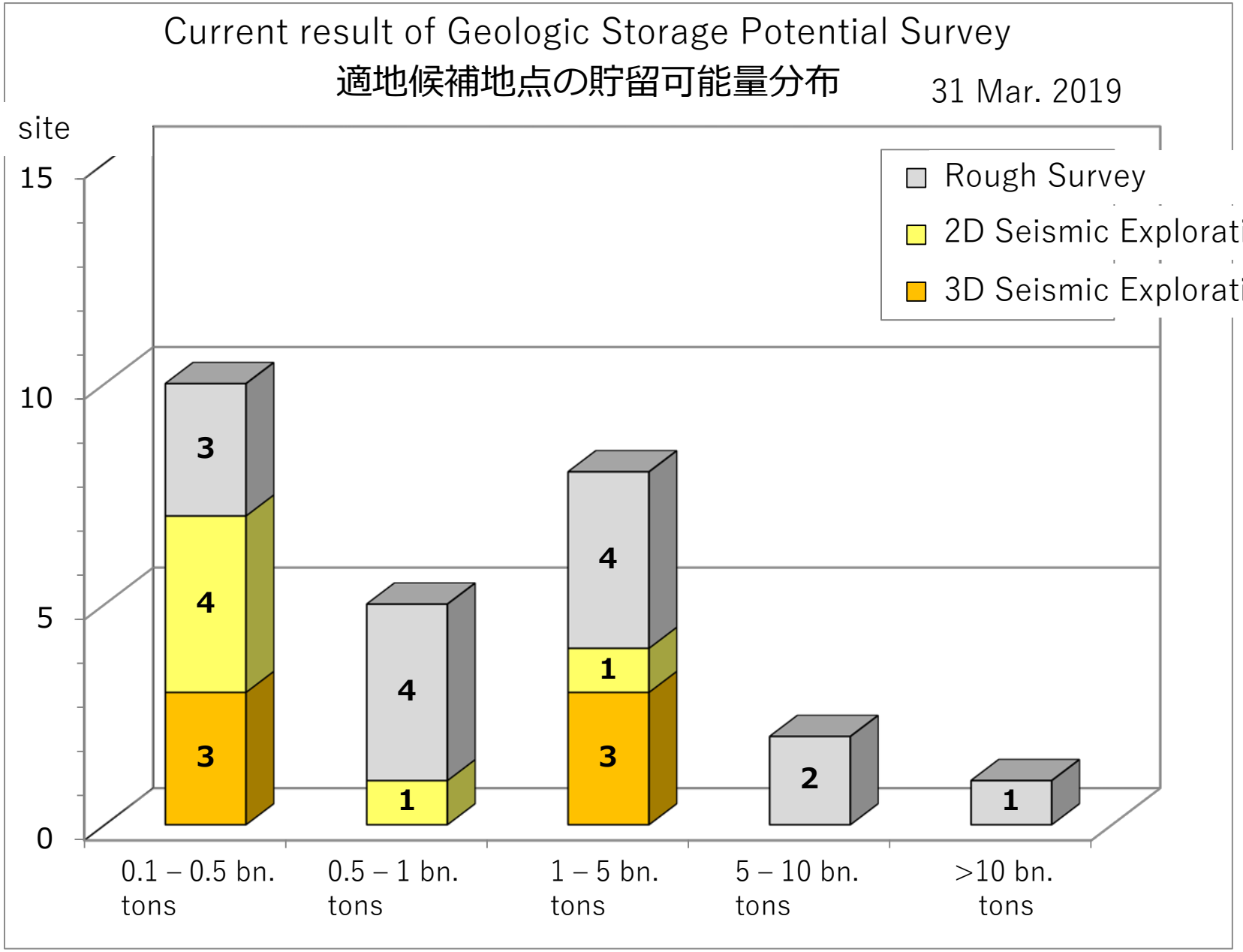
- **[I]ntroduction of the CCS by 2030** in the coal-fired power generation will be considered, with a view to **commercialization.**
- 石炭火力発電については、商用化を前提に、2030年までにCCSを導入することを検討

The Long-term Strategy
under the Paris Agreement (June 2019)

Overview of domestic CCS policy in Japan



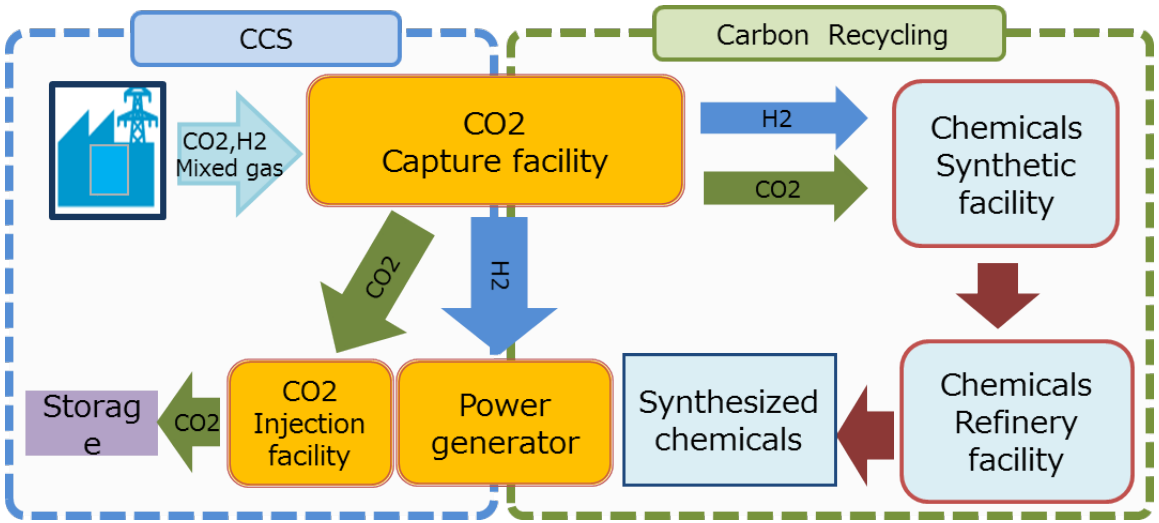
CO2 Storage potential in Japan



Tomakomai CCS Demonstration Project and Carbon Recycling

- **Achieved initial target** of approximately 300,000 tonnes cumulative injection in November 2019.
- Utilize the Tomakomai CCS facility effectively and promote the development of **"Carbon Recycling"**.

***Carbon recycling**: Considering CO2 as source for Carbon, capture CO2 then utilize and recycle it as Carbon compounds.



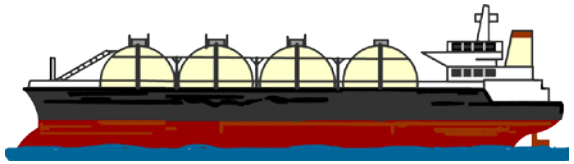
<The image of Carbon Recycling demonstration at Tomakomai>

CCUS demonstration projects in Japan

Source: Osaki Coolgen

IGCC with CO2 capture and carbon recycling facility

Capture started from Dec.2019.



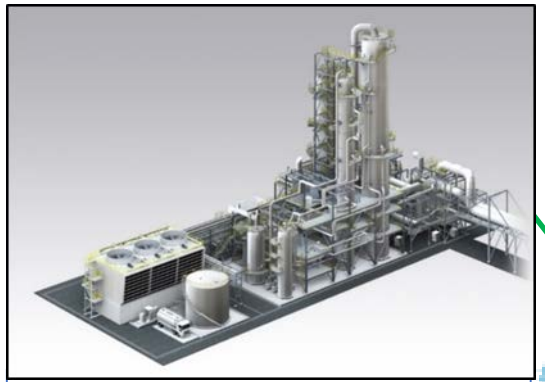
CO2 transport ship

Study started from 2020.

** This is a schematic illustration, which does not reflect the actual CO2 transport ship.*

Tomakomai CCS with Carbon Recycling

Source: Japan CCS



Source: Toshiba Energy Systems & Solutions

Biomass power plant with CO2 capture

Capture will start from Oct 2020.

Coal fired plant with solid sorbent for CO2 capture

Source: Kansai Electronic Power

Capture will start 2023.

Japan's Roadmap to "Beyond-Zero" Carbon

https://www.meti.go.jp/english/policy/energy_environment/global_warming/roadmap/index.html