Carbon Capture and Storage (CCS) Technology for Thailand's Energy Transition and Sustainability

> Mr.Rathakorn Kampanathsanyakorn Senior Executive Vice President, Corporate Sustainability PTT Public Company Limited

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Thailand sets Net Zero target within 2065, the key sector to focus is Energy and Transport



Fossil Fuel is still an important part in Thailand Energy Demand

- Thailand energy demand is increasing with renewables growing in proportion
- For sustainability, Natural Gas is still an important source (Transition fuel) because of its economic (reasonable price), and its reliability (energy security)



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Natural Gas, as Fossil Fuel, is an important energy source, Clean and domestically sourced which should be used along with Carbon Reduction

- E&P
- Power Plant
- Industry

Natural Gas is a must together with Carbon Reduction

• CCS

HydrogenReforestation

Renewable Energy is critical Yet, more developments are needed because of various limitations

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PTT Group Business



Market Cap : SET & PTT Group



PTT Group revenue



¹ 2023 Annual, BOT selling rate USD/THB of 34.96 (Avg. rate)

Fully Integrated & Highly Diversify over entire Oil & Gas Value Chain





/ Business with substantial social contributions

Thailand's Carbon Storage Potential

Highly suitable

Suitable

Unlikely

Source: GCCSI

Global CCS Institute (GCCSI) identified Gulf of Thailand as **"suitable"** to **"highly suitable"** to be CO₂ storage site.

Theoretical CO₂ Storage Potential ~7,000 ~1,400 million ton* million ton** Depleted gas Deep saline aquifer reservoir CO₂ capture Depleted reservoir focused on the Gulf of Thailand (Offshore) and onshore area Deep saline aquifer focused on the six basins in the northern Gulf of Thailand. nage: news.nus.edu.sg

*Estimated by ADB (2013) and SPE Symposium (2021) **Estimated by PTTEP (2022)

Eastern region is the densest carbon emitter area, hence the "Eastern Thailand CCS Hub"





Source: PTTEP

(40 MTPA)

Hat Yai and

(5 MTPA)

Working toward commercial Eastern CCS hub

PTT, as PMO, is driving all flagships in PTT Group, working with stakeholders and welcoming new partners, to provide the best fit and most cost-effective solution for Eastern CCS Hub initiative



Approaching different technologies to find the right match



Technology Leader

Mature Technology (TRL 7-9)

PTT Group Petrochemical



Power Plant

GPSC

Explore suitable CO₂ capture technology for PTT Group and other emitters in eastern hub area and relevant technologies throughout business chain

Pilot capture technology suitable for each industries and applications





Technology Pioneer

Emerging/Novel Technology (TRL 1-6)



Util



 Potential innovation area to further lower cost of carbon capture or find suitable utilization product





What Needed for CCS to be Successful?





Thank you