



**Asia-Pacific
Economic Cooperation**



Department of Mineral Fuels
MINISTRY OF ENERGY

Thailand's CCUS Development

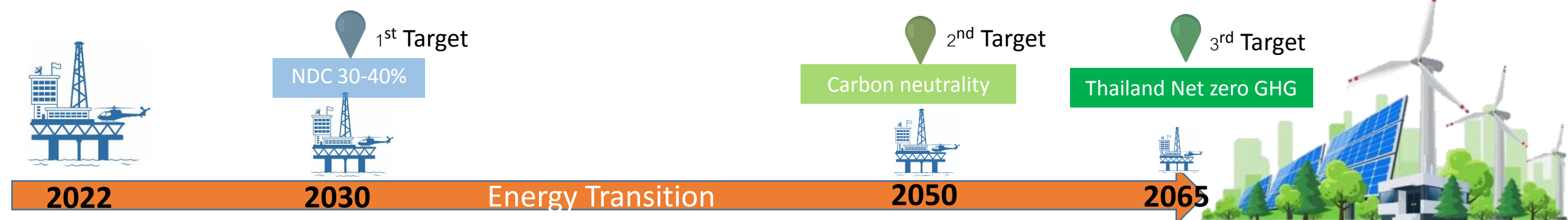
Apiradee Suwannathong

20 April 2023



Thailand's CCUS Strategy and Plan

Thailand's plan (strategy, priorities and actions) on CCUS technology and policy opportunities to reduce GHG emission



CCUS projects in Thailand

23 Projects: 10 Studies + 13 Pilot projects, covering 6 stages of CCUS value chain

Policy (3 Studies)

1. Long-Term Low Greenhouse Gas Emission development Strategy: LTS (ONEP)
2. CCUS TRM: Navigating Thailand towards Carbon Neutrality (NSTDA)
3. Thailand CCUS Roadmap (DMF)

Technical Development

Regulatory Framework

Commercial and Incentive

Stakeholder Engagement

3 Studies

1. Mitigation of each Industry (TGO)
2. DAC (PTT)
3. Environmental R&D study (EGAT)

2 Studies

1. CCS –Technical Guideline (PTTEP)
2. Oil and Gas E&P- Regulatory (DMF)

2 Studies

1. Discount rate for CCS/CCU (TGO)
2. Carbon credit Mechanism for CCUS (TGO)

Domestic and International stakeholders



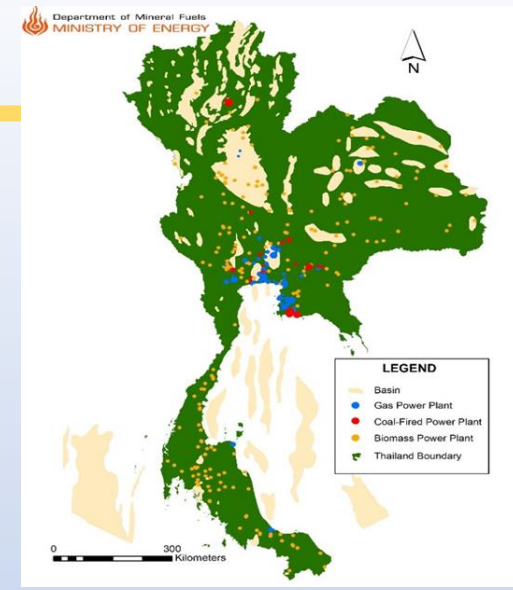
13 Pilot Projects

- 5 CCS pilot projects (E&P Business)
- 4 CCS pilot projects (beyond E&P Business)
- 4 CCU pilot projects (Power plant and cement)
- 1 Capture and Purification pilot project (other industries)

Six stages of CCUS Value Chain



CCUS Projects in Thailand



13 Projects in 5 Areas

Cover E&P business, Power plants (Gas and Coal fuels), Cement industry

A5

- 1. CCU: Artificial Carbonate : Mae Moh Coal-fired Power Plant - EGAT
- 2. **CCS: Mae Moh Project**
- 3. **CCS: Lampang Project**
(DMF, EGAT, PTTEP and DED take in charge project No. 2 and 3)

A4

- 1. CCS: S1 Pilot Project - PTTEP
- 2. CCU: Syngas and Hydrocarbon Chemical - SCG

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- 1. CCS: Phu Horm Pilot Project - PTTEP
- 2. CCS: Nam Phong Power Plant - EGAT

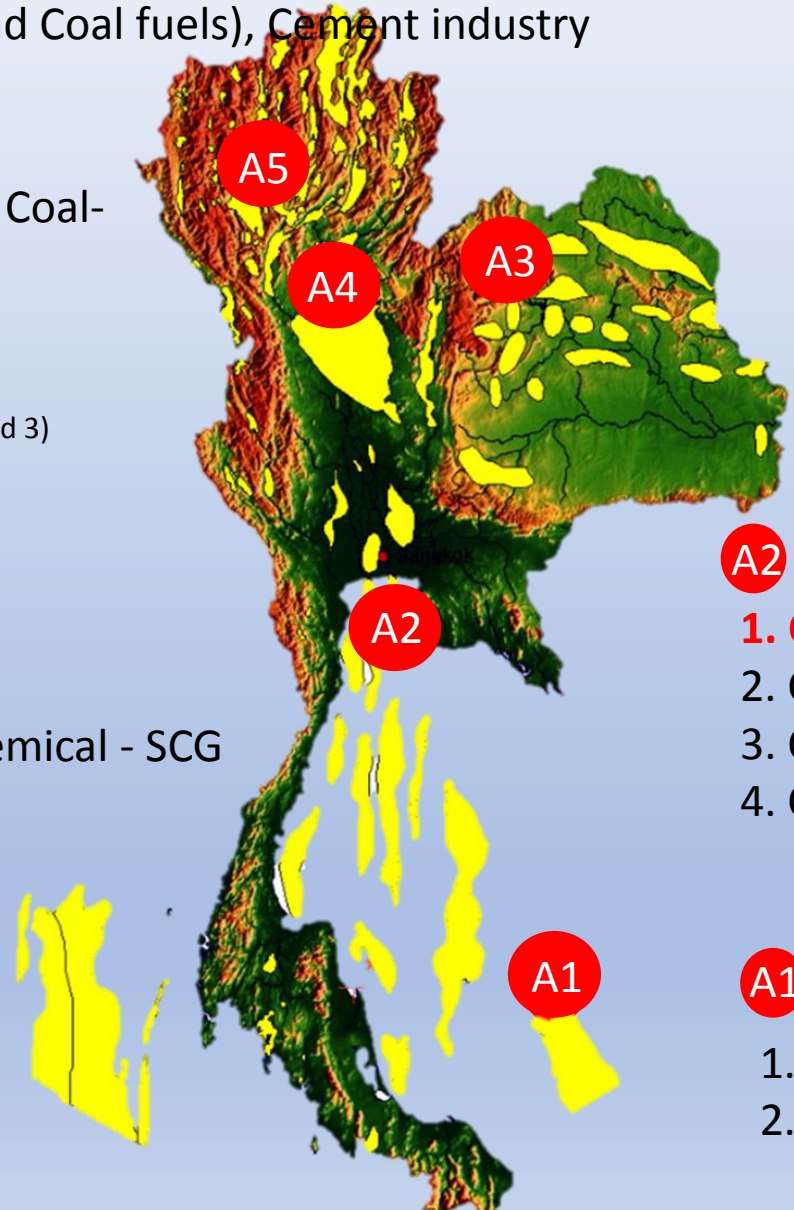
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- 1. **CCS: North GOT CCS - DMF**
- 2. CCU: Methanol Production - BLCPP
- 3. CCU: Ammonia Co-firing - BLCPP
- 4. Carbon Capture and Purification - PTT Group Industry

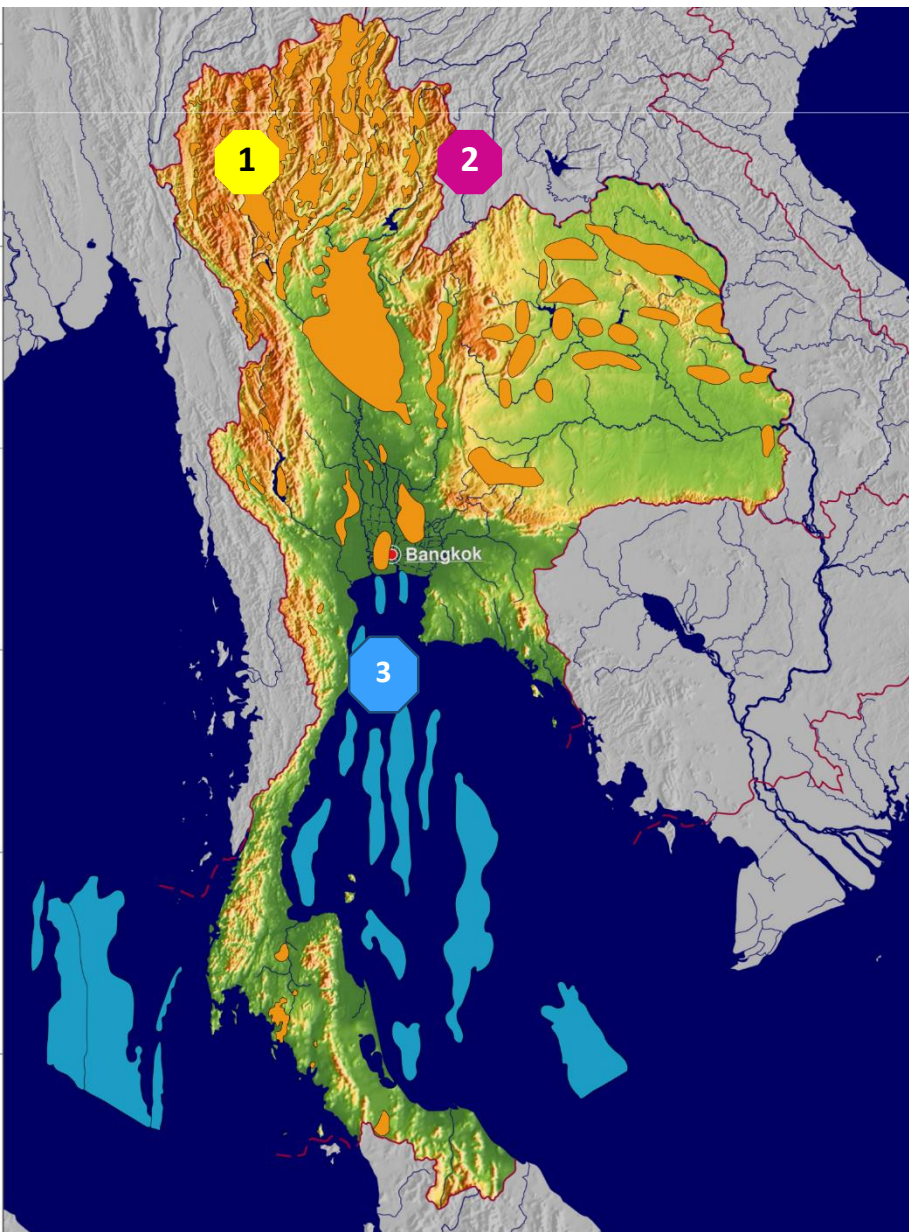
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A1

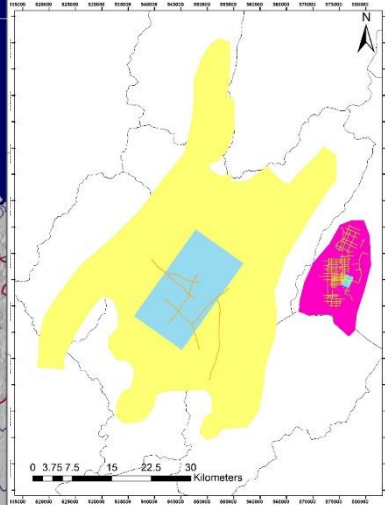
- 1. CCS: Arthit Project - PTTEP
- 2. CCS: A18 - MTJA



Project Highlights



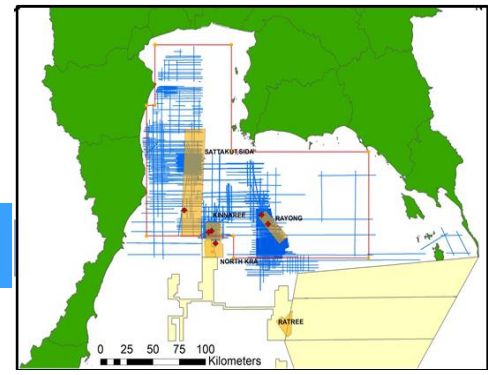
Site Screening for CO₂ storage capacity assessment for on-shore and off-shore



1 Lampang CCS Project

2 Mae Moh CCS Project

3 North Gulf of Thailand CCS



	2022	2023	2024	Current Status	Expected outcome
Lampang CCS Projects	↔			Data review	Potential area for CO ₂ storage capacity assessment
Mae Moh CCS Project	↔				
North Gulf Of Thailand	↔				
CCS Regulations		#1 st	#2 nd	Drafting Act relating to Petroleum activities	Support CCS development in E&P area

Work Progress

❖ Storage Capacity Assessment of Depleted oil and gas Reservoirs in 5 areas

North Malay Basin	①	Remark
Kra Basin	②	Based on practical storage capacity method
West Kra Basin	③	Saline Aquifer not included in assessment
Sinphuhorm and Namphong fields	④	
Phitsanulok Basin (S1)	⑤	

❖ Total Theoretical CO₂ storage capacity = **2.69 GtCO₂**

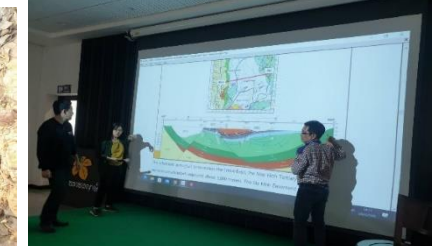
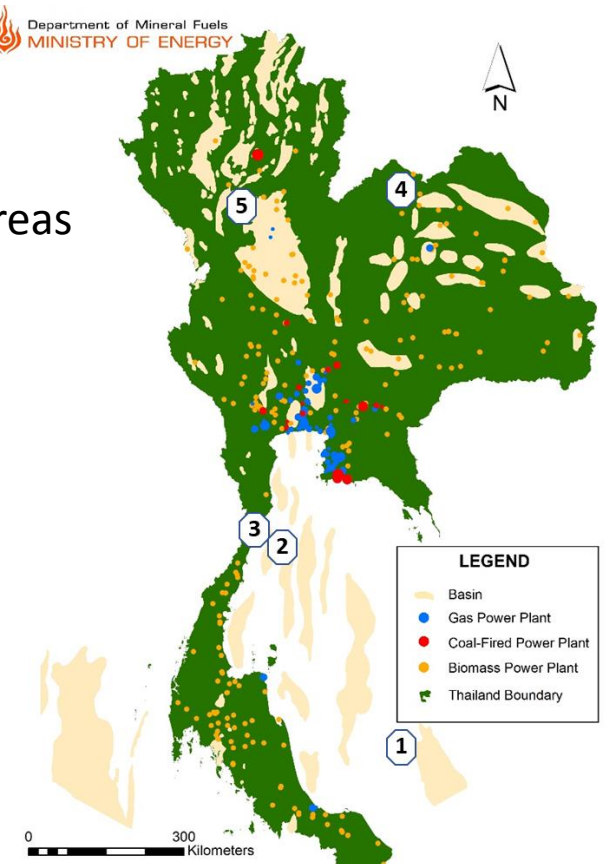
❖ CCUS Collaboration

1. Thailand and US Collaboration

- ❑ **Workshop** cooperated with CLDP on (1) industry roundtable on barriers to private investment in CCUS, (2) CCUS standards development and (3) global CCS/CCUS Legal and Regulatory Framework, hold on Thursday, March 2, 2023

2. Thailand and Japan Collaboration

- ❑ Propose to get financial and specialist support from METI on 12-13 January 2023
- ❑ Memorandums of Cooperation on CCS/CCUS between the Ministry of Energy of The Kingdom of Thailand and the Ministry of Economy, Trade and Industry of Japan on 4 March 2023 at Tokyo Japan
- ❑ Site visit in 3 areas of Mae Moh Basin, Lampang Basin and North Gulf of Thailand collaborating with INPEX cooperation



Way Forwards

- ❖ Assessing the geological formation, saline aquifer to store CO₂
- ❖ Hosting the 1st Southeast Asia CCS Accelerator (SEACA) Workshop on 15-16 May 2023
- ❖ Developing the CCS-specific laws and regulation
- ❖ Applying for member of ISO/TC 265
- ❖ Proposing CCUS activity to The Board of Investment of Thailand (BOI) to get support/incentive

**Technical
Development**

**Regulatory
Framework**

**Commercial
and Incentive**

**Stakeholder
Engagement**



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Thank you



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