

# TOGETHER FOR SUSTAINABLE



THAILAND



WORLD



Ensuring Thailand's Energy Security



# PTT enables a secure and balanced energy transition for Thailand under the Energy Trilemma



**PDP** | Increase renewable while ensuring balanced energy transition



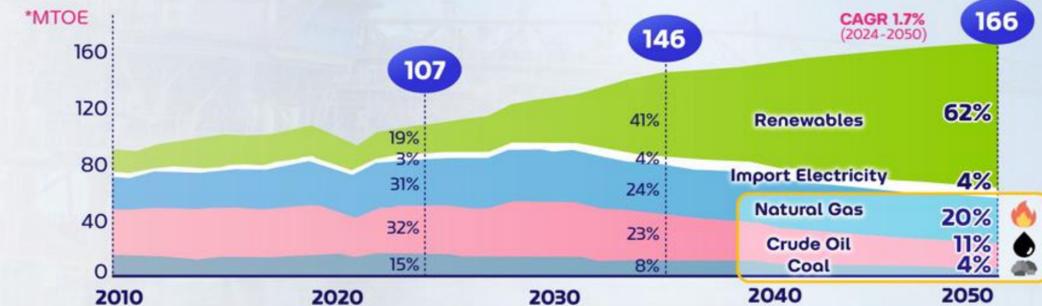
**PTT** | Together For Sustainable Thailand, Sustainable World



**NDC** | National Roadmap driving Thailand towards Net Zero in 2050

## Thailand Energy mix outlook

Source: Source: The 5 sub-energy plans draft 2024. Energy supply calculated by LEAP model.



• E&P • Power Plant • Industry



Use Natural Gas Alongside with Decarbonization

## Thailand's NDC 3.0

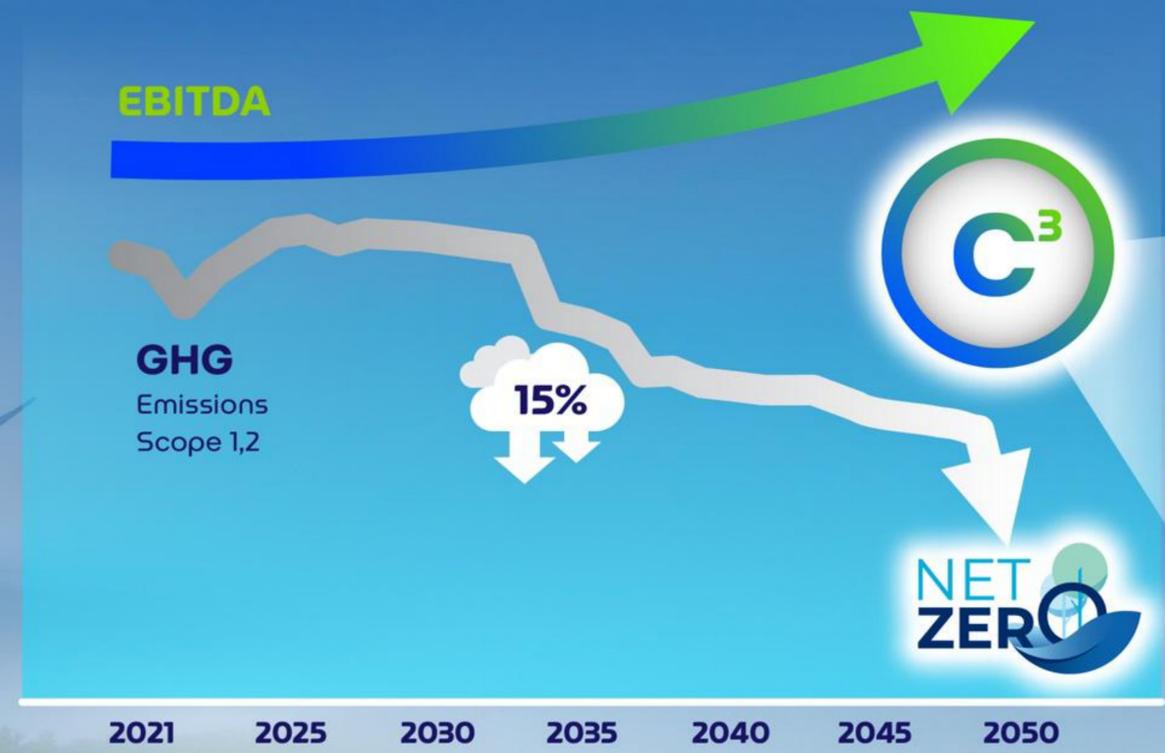
**47% GHG Reduction in 2035**

**Net Zero in 2050**

• CCS • Reforestation

Renewable Energy is important but further development is needed due to limitations

# PTT Group strives to balance business growth with our Net Zero commitment, ensuring energy security and long-term sustainability for the nation



- Proactively Managing Risks
- Capturing Full Upside
- Driving Climate Adaptation

**GHG Reduction (%)**

<p><b>C1</b> <b>20%</b> Climate-resilience business</p> <ul style="list-style-type: none"> <li>LNG</li> <li>RE Biz.</li> <li>Bioproducts (PLA, biojet, etc.)</li> <li>EV station</li> </ul>	<p><b>C2</b> <b>35%</b> Carbon-conscious asset</p> <p>MissionX</p> <ul style="list-style-type: none"> <li>Efficiency improvement</li> <li>Clean energy adaptation</li> <li>Adv. tech (CCU, SMR, etc.)</li> <li>Digitalization</li> </ul> <p>AiS</p>	<p><b>C3</b> <b>45%</b> Coalition, co-creation, and collective efforts for all</p> <ul style="list-style-type: none"> <li>CCS</li> <li>Hydrogen</li> <li>Carbon credit project &amp; mgmt.</li> <li>Forestation</li> <li>Water Mgmt.</li> </ul> <p><small>*Also support offsetting</small></p>
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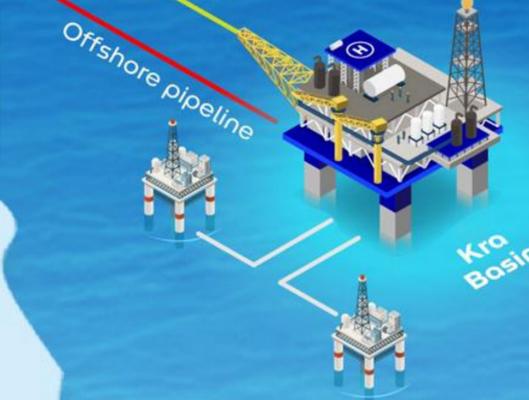
**Execution with Clarity and Flexibility in response to Signposts**

# Eastern Thailand CCS Hub

>5 MTPA, FID 2031 / COD in 2034



**CO<sub>2</sub> transportation via ship or subsea pipeline**  
determined by the scale and geographical location of emission sources



**Offshore storage in the Gulf of Thailand**  
up to ~ 10 MTPA during the initial phase

**Shipping for Cross-border Potential to support CO<sub>2</sub> transportation & Storage**  
Provides an opportunity for the country to position itself as a regional hub



LCO2 ship



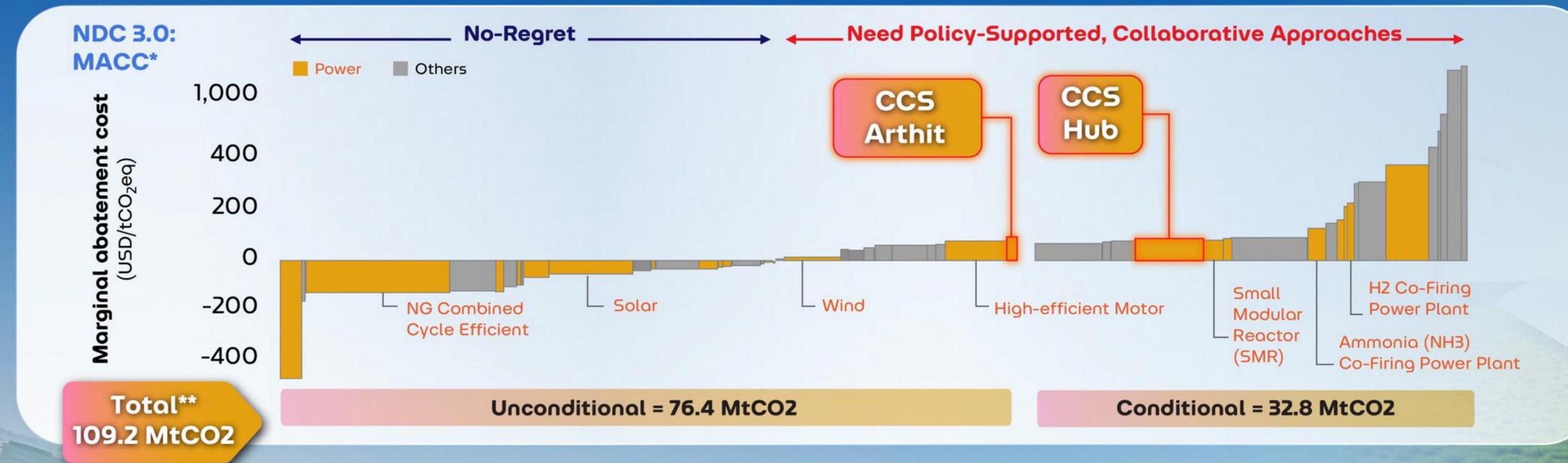
Arthit

**Arthit CCS Project**  
Pioneering Thailand's First Carbon Capture and Storage in The Gulf of Thailand  
**1 MTPA**  
FID 2025 / COD in 2028

**For Visualisation Purposes**

--- Onshore Pipe    — Offshore Pipe    — Shipping

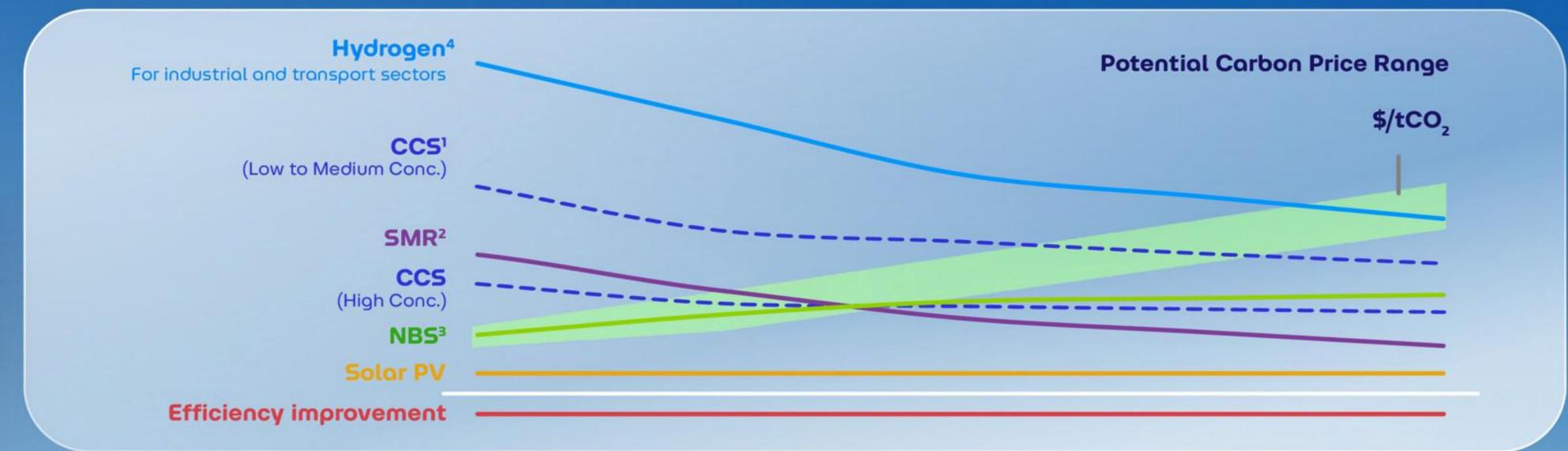
# CCS provides a cost-effective decarbonization pathway after conventional RE reach their limits, supporting Thailand's NDC 3.0



\*ข้อมูลคาดการณ์: ระบุถึงต้นทุน และค่า และประเภทของ GHG ของประเทศไทย ภายใต้ NDC 3.0 และรวมถึงเทคโนโลยี และประเภทของกิจกรรมที่มีส่วนร่วมในการกำหนด ศูนย์ 2 (NDC 3.0 ของประเทศไทย) และแบบจำลอง \*\*Excluding LULUCF

# PTT Group monitors technologies development alongside carbon pricing mechanism

Marginal Abatement Costs (\$/tCO<sub>2</sub>e abated)



**CCS helps lower carbon costs**  
when deployed at the right time.

**Cost of Inaction > Cost of Action**

**GHG reduction relies on portfolio of initiative**  
driven by carbon pricing



Remark: 1 Carbon Capture & Storage; 2 Small Modular Reactor (nuclear energy); 3 Nature-based Solutions; 4 For chemical sector  
Source: PTT Group database, Thailand NDC 3.0, BCG, IEA, IMF, World Bank, peer analysis

# 4 Key Factors are Required Across Stakeholders: Association, Institution, Government, Private

