GHG Management
Toward EP Net Zero

PTTEP | 40 YEARS

PTTEP Sustainability

Conducting business with the "Right Balance" of economic, social & environmental considerations

Vision

"Energy Partner of Choice"

through Competitive Performance and Innovation
for Long-term Value Creation

Mission

To operate globally for reliable energy supply
and sustainable values to all stakeholders

Sustainability Framework

SUSTAINABLE DEVELOPMENT GOALS

PTTEP Strategy Pillars

Strategy Remains Robust, “Embracing the Energy Transition and Reinforcing our Strategic Position as NOC”

DRIVE VALUE

- Ensure Thailand energy security
- Expand international growth for long term sustainability

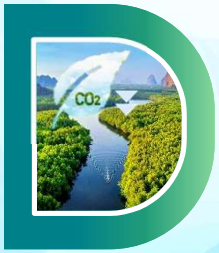
Lean

Competitiveness in foothold areas

Strategy Execution

- Maximize Production and Expedite Development
- Expand Growth in SEA and ME
- Maintain cost competitiveness

DECARBONIZE



- Pursue Net Zero pathway with rule and regulation support

Clean

Lower carbon for license to operate

- CCS Execution*
- GHG Reduction initiatives
- Offsetting

** Such as Arthit CCS, which is part of the Nationally Determined Contributions (NDC) Action Plan and was approved by the Cabinet on 11 December 2024.*

DIVERSIFY

- Build stronger portfolio for Energy Transition

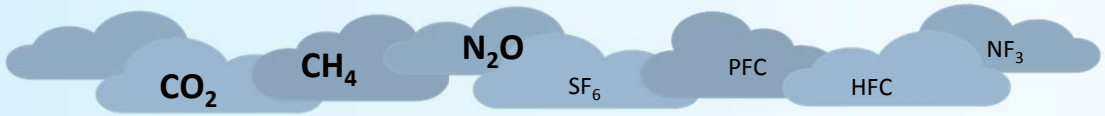
Green

Readiness for Energy Transition

- Invest in Offshore Wind, H2, CCSaaS
- Foster Growth in ARV
- Balance Portfolio Return

PTTEP's GHG Emissions Scope

Focusing on GHG under our direct control (Scope 1 & 2)



Direct Control by PTTEP

DIRECT EMISSIONS

SCOPE 1

Direct emission from source owned or controlled by the reporting company

Example

Flare, fuel consumption of generator / vehicles

INDIRECT EMISSIONS FROM PURCHASED ENERGY

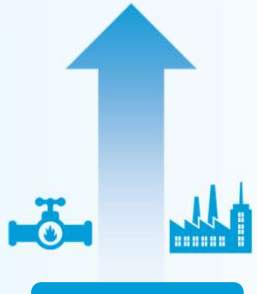
SCOPE 2

Emission from the generation of purchased electricity (or other form of imported energy or cooling)

Example

Purchased electricity / energy

OTHER INDIRECT EMISSIONS



SCOPE 3

Other indirect emission that occurs in the value chain of the reporting company

Example

Use of sold product, processing of sold product, business travel

Absolute vs Intensity

Absolute Emissions : Amount of greenhouse gas emissions

GHG Intensity : Amount of emissions per unit of production

Unit

tonne CO_2e

tonne CO_2e / K tonne Production

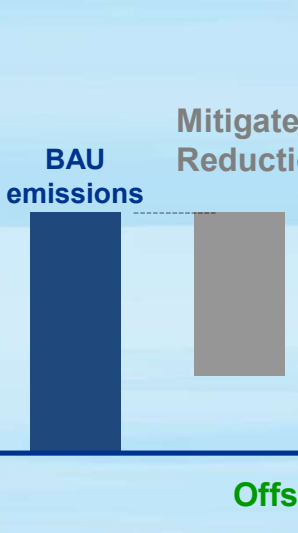
PTTEP Decarbonization Target and GHG Management

HPO High Performance Organization
GRC Governance, Risk Management and Compliance
SVC Sustainable Value Creation
Sustainability

EP NET ZERO 2050

2020 Base Year
2030 30% Intensity Reduction
2040 50% Intensity Reduction
2050 EP NET ZERO Operational Control Scope 1 + Scope 2

GHG Management



- Flare Recovery
- Energy Efficiency
- Renewable Energy
- CH_4 Reduction
- CCS
- Electrification
- CCU & H_2

- Forestation
- Blue Carbon
- DAC+CCS
- BECCS

Methane Emissions Detection and Quantification Tools

PTTEP has enhanced methane management across all operations, aligning with international frameworks. This effort is driven by 3 key initiatives:

ASEAN Energy Sector Methane Leadership Program (ASEAN MLP)

Oil & Gas Methane Partnership 2.0 (OGMP 2.0)

OGMP
Oil And Gas Methane Partnership 2.0

The Oil & Gas Decarbonization Charter (OGDC)

OGDC

2030 Target

- **Near-zero Upstream Methane Emissions**
- **Zero Routine Flaring***

*For oil assets according to World Bank's Zero Routine Flaring by 2030.

Technologies for detecting and quantifying emissions are chosen based on their intended use, whether at the source (component/equipment) or at the site level. Some technologies may be suitable for both levels.

Drone- and Robot- mounted Sensors for Methane Emissions Detection and Quantification

Public Access: PTTEP joins UNEP's Methane Partnership, supporting greenhouse gas emissions reduction | PTTEP

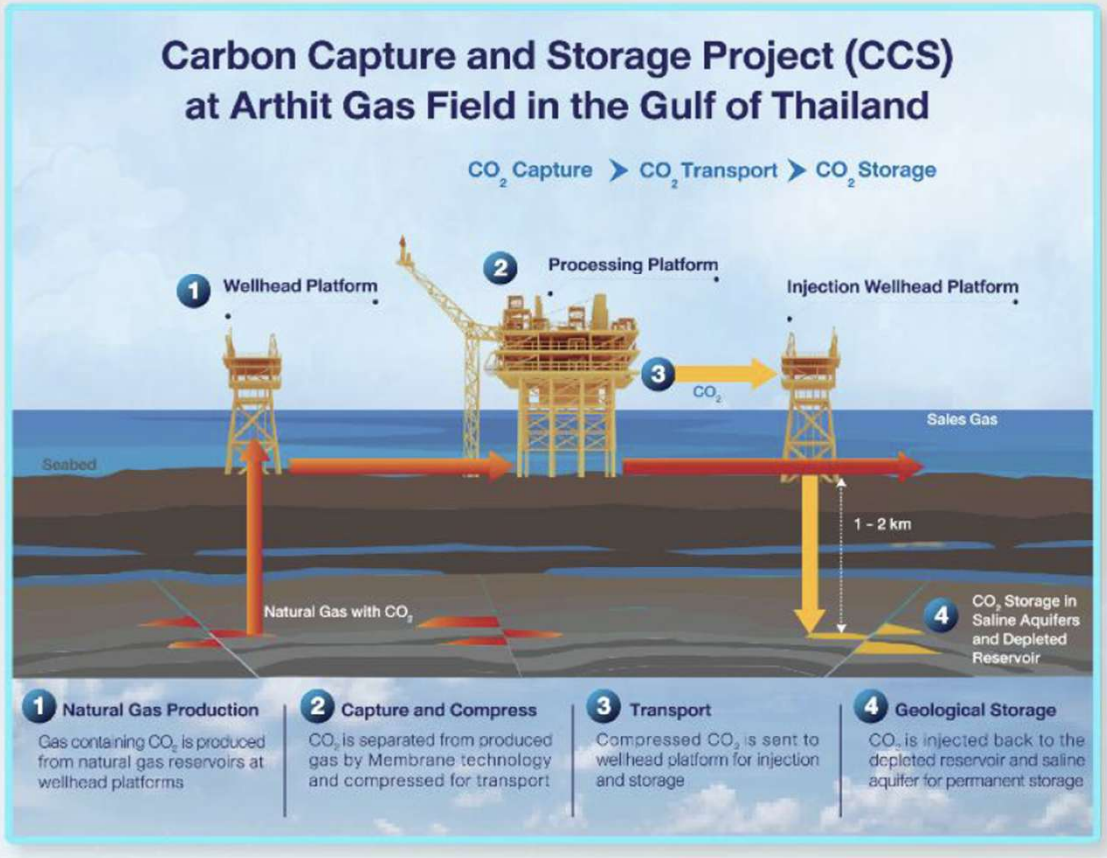
Extremely Low BTU Flare Tip

World' first **"Extremely Low BTU Flare Tip"** marks a groundbreaking RD&T achievement at PTTEP, offering a powerful solution to mitigate greenhouse gas emissions by reducing hydrocarbon burning.

The G2/61 Project in the Gulf of Thailand become the PIONEER FIELD for this technology's first offshore installation in July 2024. Building on its success at G2/61 Project, this technology has the potential to be implemented across other PTTEP gas production fields in the future.

Arthit CCS Project

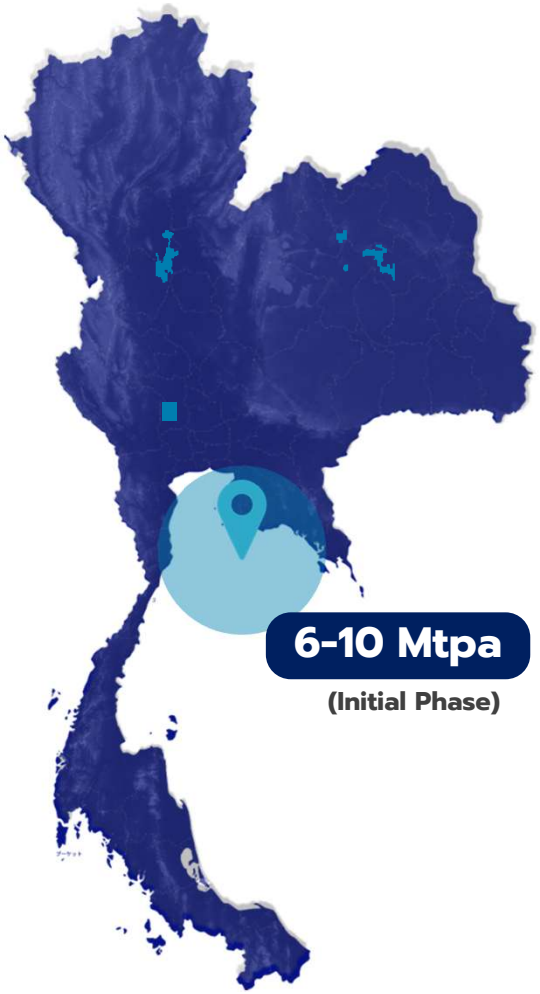
Thailand’s First Offshore CCS Project – A National Flagship for Decarbonization



Thailand’s first CCS development has recently reached Final Investment Decision (FID). The project will capture and store up to 1 million tonnes of CO_2 per year from its gas production process. Serving as a national flagship, proving offshore CO_2 storage concept and igniting momentum for future CCS projects.

PTTEP Initiatives to Support National Net Zero Target

Eastern Thailand CCS Hub



CCS** for **Thailand's decarbonization & beyond

Objectives

- Reducing emissions from the most emission intensive Eastern industrial cluster
- 1st Hub Model forming Key backbone for national CCS
- Paving way for future opportunities in CCS and energy transition projects