

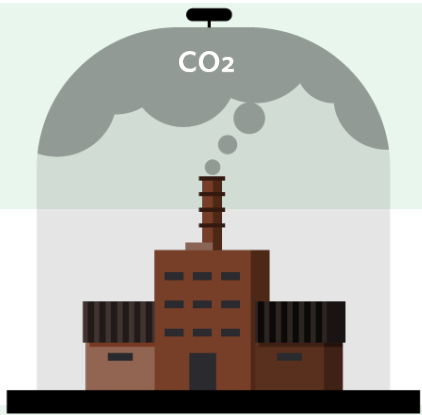
# Divestment Strategy for Coal Exposure

Study on the Energy Transition Mechanism, Ammonia Co-firing, and Carbon Capture, Utilization and Storage Retrofit in Indonesia

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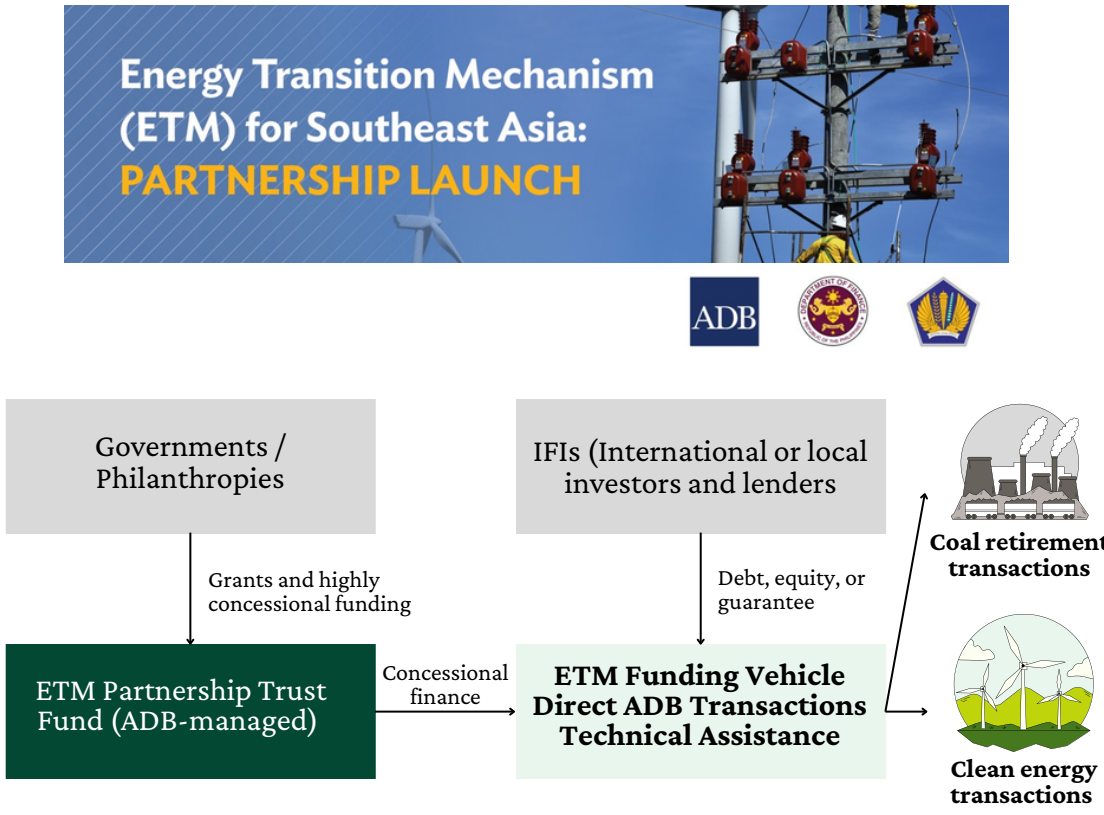
Indonesia has committed to achieve net zero greenhouse gas (GHG) emissions by 2060



## Energy Transition Mechanism (ETM)

Proposed by the Asian Development Bank (ADB) as a collaborative market-based approach that aims to accelerate the early retirement of coal-fired power plants and scale up investment in clean energy through public and private finance.

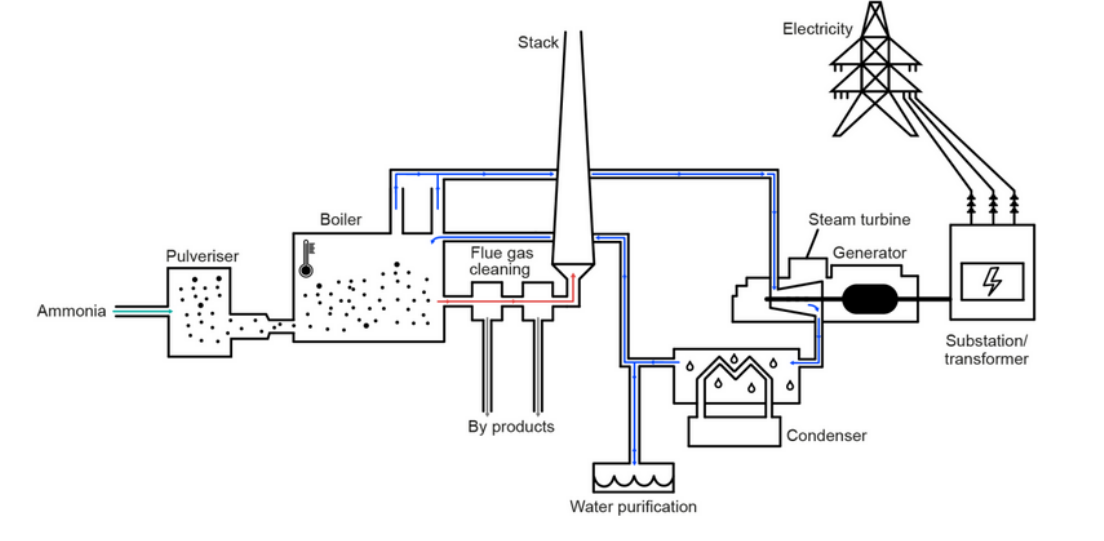
- Acquisition Model:** ETM acquires share capital in coal-fired power plants, takes roles as owner and operator of the coal plant, and agrees on an early termination date.
- Synthetic Model:** Equity ownership and operational responsibility stays with the current asset owner. Investment conditional on early termination being contractually agreed with the owner and appropriate scrutiny being provided.
- Portfolio Model:** ETM provides funding to the corporate sponsor with coal plants. Sponsor guarantees coal plants retired ahead of schedule. Most suitable for Utilities that owns a portfolio of plants.



## Ammonia Co-Firing

Ammonia Co-firing involves replacing a portion of the coal utilized in the combustion process with ammonia. Power plants can be modified to burn ammonia as fuel, allowing it to be combusted in conjunction with coal to produce electricity.

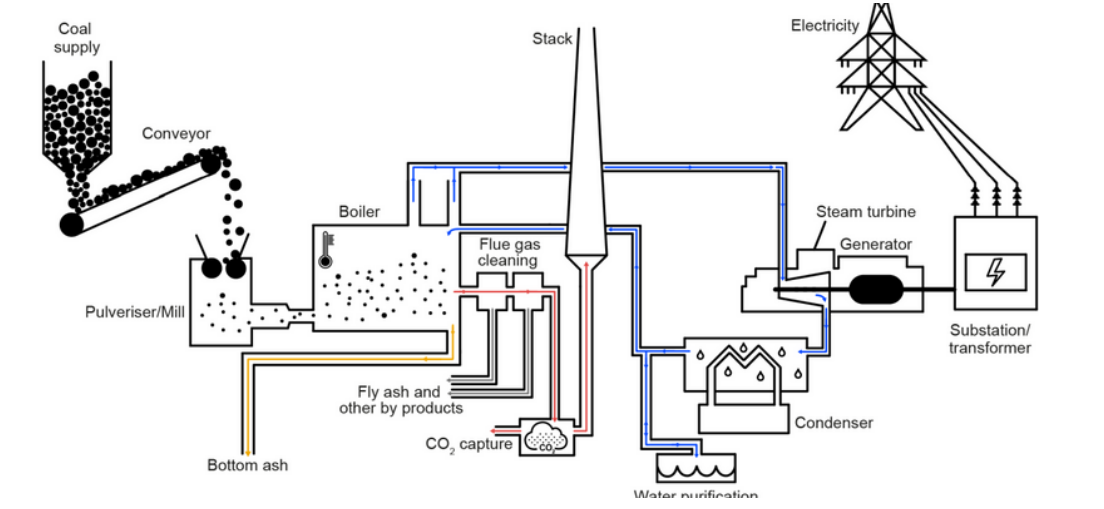
- IHI Corporation and Mitsubishi Heavy Industries Ltd (MHI) are conducting feasibility studies for ammonia co-firing on coal and gas power plants in Indonesia.
- Immature technology, nitrogen pollution and ammonia supply are three main obstacles of ammonia co-firing in Indonesia.



## Carbon Capture,Utilization and Storage (CCUS) Retrofit

CCS involves capturing and storing CO2 emissions from large point sources, CCUS goes a step further by not only capturing and storing the CO2 but also finding ways to reuse it.

- Ministry of Energy and Mineral Resources Regulation 2/2023 Carbon Captured Monetization
- The cost of carbon capture applied to the power sector is expected to decline more rapidly starting in the 2040s.



## CONCLUSION

Metrics	Energy Transition Mechanism	Ammonia Co-firing	CCUS Retrofit
Technology Maturity	-	▲	▲
Cost of Input Resources	-	▲	▲
Location Requirement (for facility)	▲	▲	▲
Initial Capital Investment	▲	▲	▲
Operating Cost	▲	▲	▲
Environmental Externalities	▲	▲	▲
Effect on Carbon Emissions Reduction	▲	▲	▲
Good ▲ Moderate ▲ Bad ▲			

Power demand will keep growing in Indonesia. A considerable number of coal-fired power plants have been built in recent years, and the average age of the coal power generation units is young.

Based on our analysis of each strategy, it is recommended that SMBC participates in the Energy Transition Mechanism in Indonesia. Meanwhile, discovering financing opportunities for CCUS Retrofit which outperforms the Ammonia Co-firing scheme in terms of technological maturity, return on investment, and carbon emissions reduction.

