The views expressed in this presentation are the views of the author/s and do not necessarily reflect the views or policies of the Asian Development Bank, or its Board of Governors, or the governments they represent. ADB does not guarantee the accuracy of the data included in this presentation and accepts no responsibility for any consequence of their use. The countries listed in this presentation do not imply any view on ADB's part as to sovereignty or independent status or necessarily conform to ADB's terminology.

REGIONAL CONFERENCE

INCLUSIVE ENERGY TRANSITION IN SOUTH ASIA AND BEYOND

7–9 MAY 2024 • Galle, Sri Lanka

Energy Transition Mechanism

Country and Private Sector Perspectives

Andrew Jeffries
Advisor, Energy Transition Mechanism and Partnerships

Overview of ETM - Rationale

Legacy coal-fired power plants constitute the single largest source of greenhouse gas (GHG) emissions from human activity.

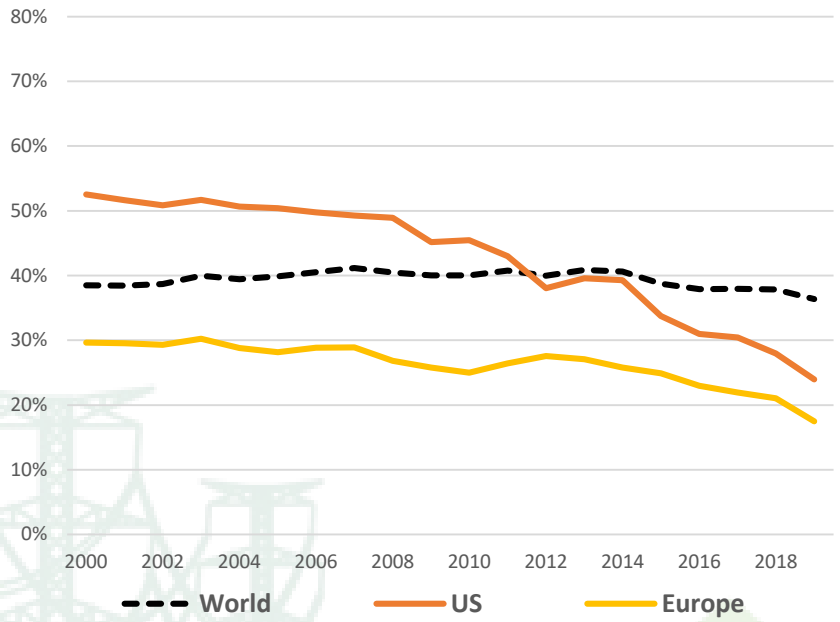
According to the International Energy Agency (IEA), phasing out unabated coal-fired power is an essential lever to decarbonize the global economy in line with the 1.5° C goal.

Without addressing them, **we will miss the Paris Agreement targets**.

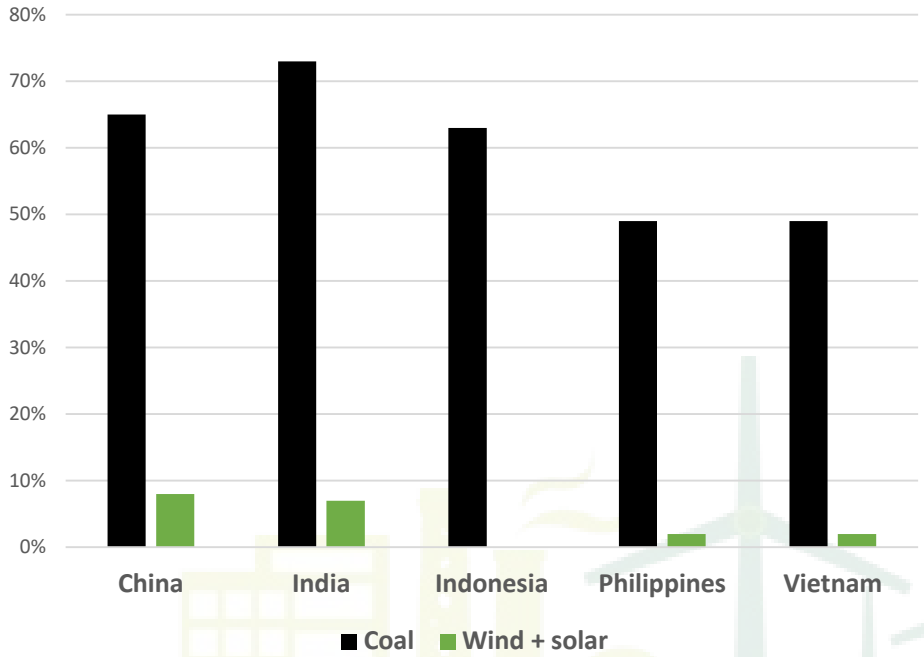
Overview of ETM - Rationale

Coal-fired electricity must drop, but remains significant in developing Asia

Share of coal-fired power generation dropped in Europe and the US…



…but remains very high in Asia (2019)



Large-scale solution needed to simultaneously and rapidly decarbonize and build up clean energy in Asian developing countries.

Source (left): Carbon Action Tracker 2020 and calculations based on IEA Data
Source (right) : BP “Statistical Review 2020”; IPCC “Special Report on Global Warming of 1.5°C”
Author: Donald Kanak (WEF blog "How to accelerate the energy transition in developing economies"

Overview of ETM - Definition

What is the ETM?

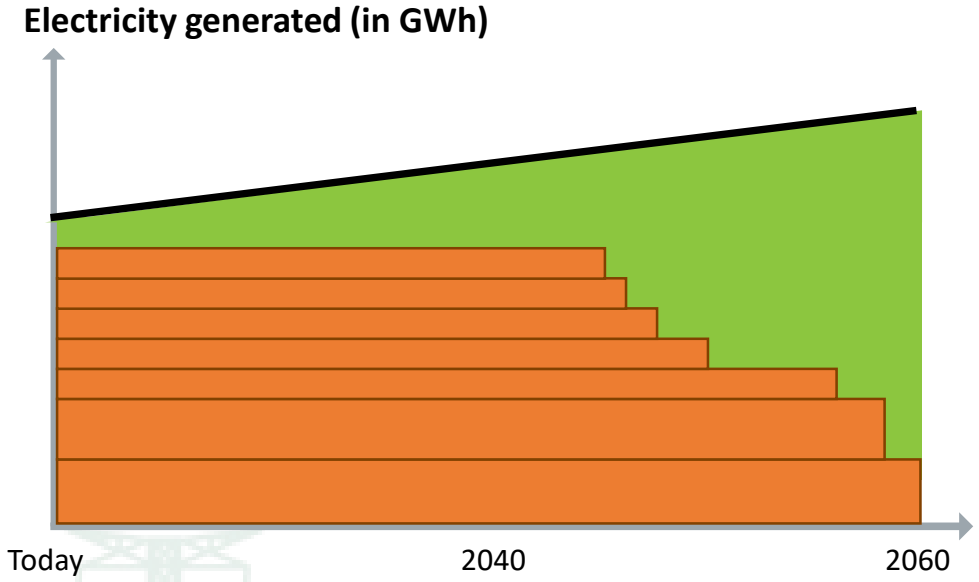
ADB launched the ETM as a **replicable and scalable market-based model** to help accelerate the transition from coal to clean power.

ETM definition: The Energy Transition Mechanism (ETM) is a program that utilizes concessional and commercial capital from various public and private sources to incentivize the early retirement or repurposing of coal-fired power plants and other carbon-intensive power generation (e.g., heavy fuel oil) while also unleashing new investments in clean energy, grid modernization, and energy storage.

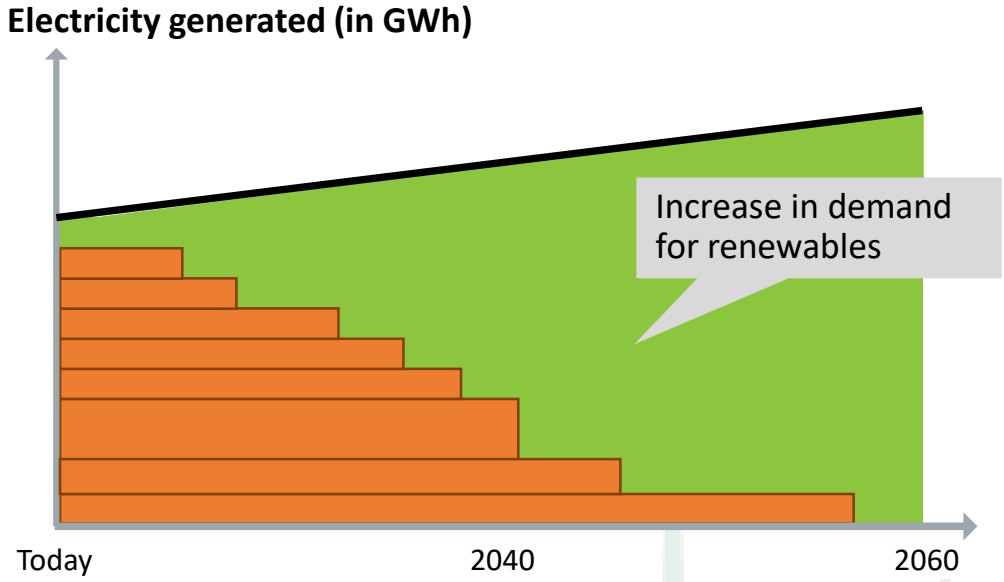
ADB's work on ETM promotes a just energy transition, protecting the livelihoods of any workers and communities affected by the transition.

ETM Pictorial

Business-as-Usual



With Energy Transition Mechanism



Total energy demand

Coal-fired generation

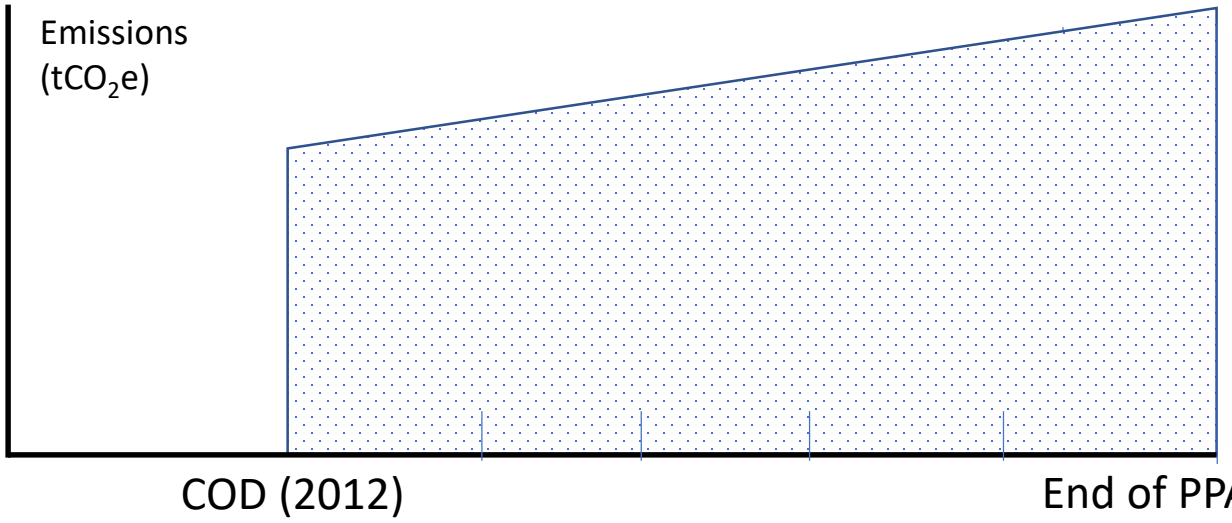
Renewable energy generation

Early retirement of existing coal-fired power plants can

- reduce emissions and improve population health,
- create additional demand for clean energy investments, and
- lower overall generation costs in the long-run.

ETM – Project Level Emissions Reduction

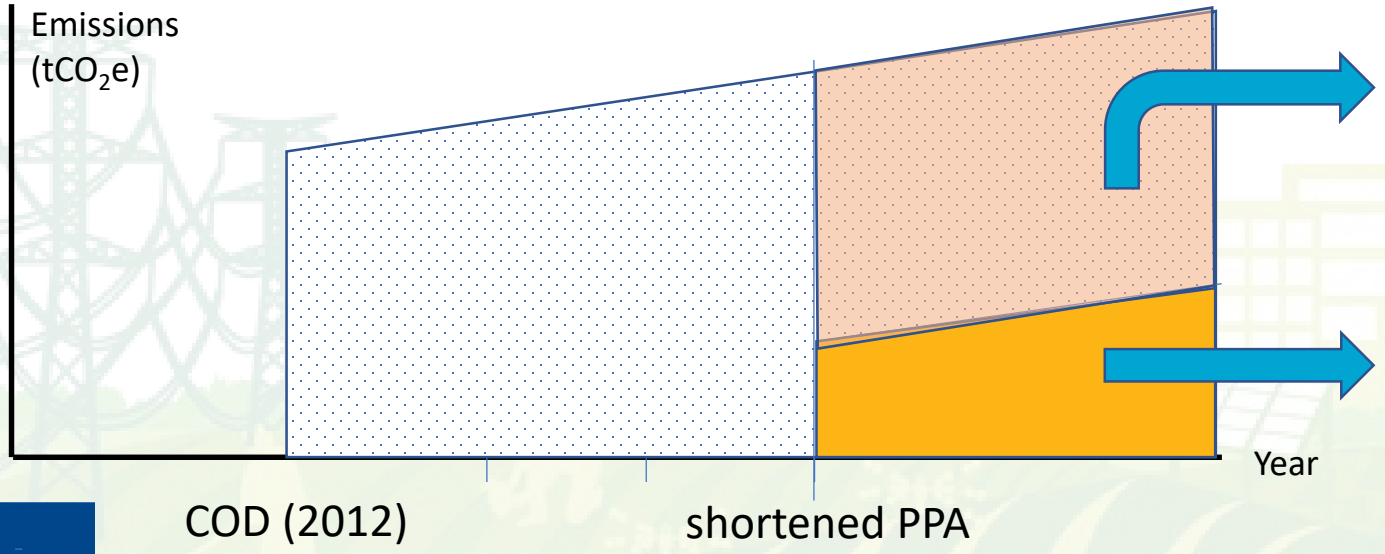
Baseline



Emission Reduction =
Baseline emissions – Project Emissions

Baseline emissions are the CO_2 generated by the combustion of coal in the power plant.

Project



Emission reduction from early coal retirement

Project emissions are CO_2 emissions due to replacement power generation once CFPP is retired.

CFPP = coal-fired power plant, CO_2 = carbon dioxide, COD = commercial operation date, PPA = power purchase agreement, tCO_2e = ton of carbon dioxide equivalent.

ADB ETM Program

- **Accelerate the retirement or repurposing** of coal-fired power plants using public and private finance through refinancing, acquisition, or sustainability-linked corporate loans
- **Scale up investment** in clean energy and energy storage
- Aim to achieve **just and affordable transition,** addressing impacts of coal retirement on people and communities

Governments and Philanthropies

Grants and highly concessional funding*

ETM Partnership Trust Fund
(ADB-administered)[1]

IFIs and global climate finance

International and local investors and lenders

Grant, debt, equity, or guarantee

Concessional finance**

ETM Funding Vehicle

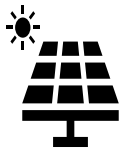
- **Carbon Reduction Facility (CRF)**
- **Clean Energy Facility (CEF)**

Direct ADB Transactions
(Sovereign or nonsovereign sectors with potential IFIs cofinancing)

Technical assistance (e.g.):

- Grid, technical, and financial analyses
- Just Transition (e.g., skills and livelihood development) and social/environmental safeguards
- Policy and regulatory support
- Carbon finance (e.g., carbon credit structuring)
- Measurement, reporting, and verification

Coal retirement transactions (asset level)



Clean energy transactions (asset level)

Corporate transactions (portfolio level)

❖ Just Transition activities to be supported in line with agreed JT plan.

* Grants and highly concessional funding (low-cost equity and debt) are critical to catalyze private capital and make ETM a success.

** Concessional finance may include concessional loans, evergreen debts, junior equities, and guarantees.

[1] ETMPTF has received contributions from the Governments of Japan ($25 million) and Germany (€30 million).

ETM Phased Approach

0 | PRE-FEASIBILITY STUDY

1 | FULL FEASIBILITY STUDY

2 | PILOT TRANSACTIONS

3 | SCALE UP

ETM Feasibility Study and Piloting

Project Selection

- Critical factors to focus on when selecting power plants:
  - Grid stability
  - Utilization
  - Plant age
  - Renewable replacement potential
  - Transactional appetite

Transaction Structuring and Financial Analysis

- Commercial and legal structure to efficiently retire the assets
- Valuation approach
- Role of existing stakeholders
- Cost of capital needed to achieve a significant lifetime reduction
- Potential additional revenue sources or costs (e.g., carbon and decommissioning)

Funding Vehicle Structuring

- Legal structure of ETM entity
- Capital structure and sources of funding
- Management structure
- Incentive structure
- Return expectations
- Major risks
- Safeguard policy
- Governance requirements

Environmental, Social, and Governance

- Replacement plan for retired capacity to ensure ETM has positive climate impacts
- Socioeconomic impact assessment of direct, indirect, and induced impacts in the coal value chain due to CFPP early retirement
- Planning of Just Transition activities and funding needs over short- and long-term
- Regional or country strategic environmental and social assessment of ETM options
- Asset-level audits

ADB
THE UNIVERSITY OF MELBOURNE
Nossal Institute for Global Health
IEEE SA STANDARDS ASSOCIATION
IEEE SSIT SOCIETY ON SOCIAL IMPLICATIONS OF TECHNOLOGY

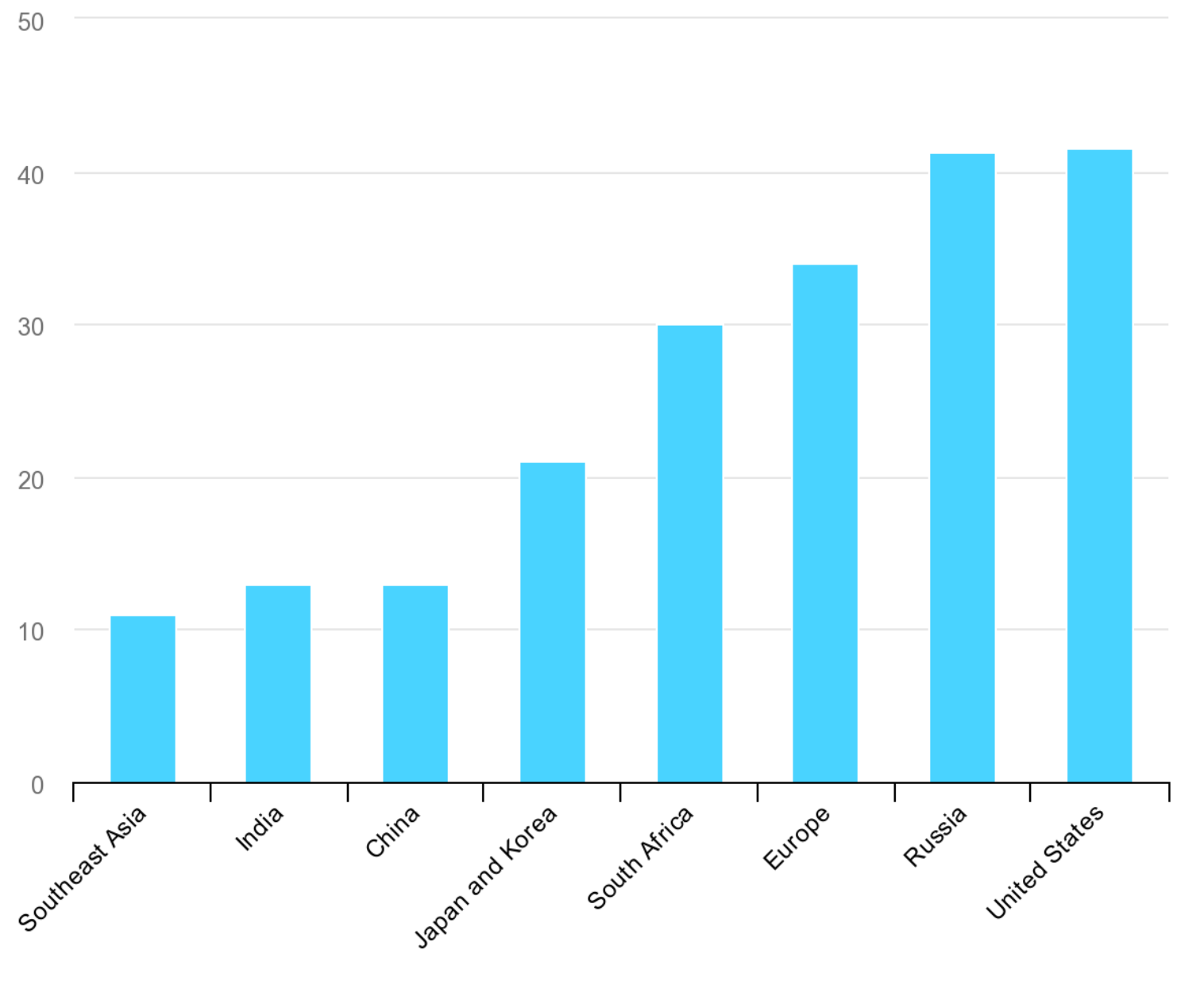
ETM - Opportunities

- Renewable energy costs are rapidly declining. The cost of operating existing coal plants is expected to be higher than the levelized cost of new renewable energy plants in the next 10–15 years.
- Increases in coal prices in recent years introduced energy security concerns among countries dependent on imported coal.
- Strategic, government-level incentives and collaboration to decarbonize
- Corporate level net zero targets

ETM - Challenges

- However, in many developing economies, coal power plants have secured long-term power offtake agreements.
- Long-term take-or-pay contracts would require renegotiation to shorten the PPA term.
- Fast growing economies with tight power supply makes early coal retirement more difficult.
- The relatively young age of coal plants in the Asian region makes it harder to retire early (see next slide).
- Thus, Intervention is needed.

Average Age of Existing Coal Plants in Selected Regions (2020)



The average age of coal plants in many parts of Asia are up to three decades younger than in the United States or Europe.

Source: IEA, World Energy Outlook 2021

ADB

IEEE SA STANDARDS ASSOCIATION

IEEE SSIT SOCIETY ON SOCIAL IMPLICATIONS OF TECHNOLOGY

Key Policy and Other Measures for Implementing ETM

- Government plan or commitment on no new coal and/or coal phase out.
- Power development plan moving towards clean energy
  - Enabling environment to deploy renewable energy
  - Energy supply plan and implementation capability
- Utility support (grid studies and development, PPA renegotiations)

ETM Implementation in Developing Member Countries

Indonesia

Phase 2 | PILOT TRANSACTIONS

- Support for the Indonesia ETM Country Platform
- Ongoing studies (captive power analysis, grid impact analysis, generation planning)
- MOUs for precedent transaction (Cirebon-1) signed in COP27 and COP28; Ongoing due diligence
- CIF ACT Investment Plan approved in June 2023 ($500M concessional funding to leverage $4.5B+ of MDB and other cofinancing/investment)
- Institutional support (TA) for JETP Secretariat

Philippines

Phase 1 | FULL FEASIBILITY STUDY

- Progressed from pre-feasibility to full ETM study, finalizing $500 million CIF-ACT Investment Plan.
- Pipeline development for private sector transaction opportunities (e.g., Mandated for Mindanao CFPP)

Kazakhstan

Phase 1 | FULL FEASIBILITY STUDY

- Completed pre-feasibility study with stakeholder consultation focused on combined heat and power.
- Ministry of Energy agreed to proceed with full feasibility

Viet Nam

Phase 0 | PRE-FEASIBILITY STUDY

- Ongoing discussions with government (Commission for the Management of State Capital at Enterprises) for launching a feasibility study
- JETP announced in Dec. 2022; Donor engagement

Pakistan

Phase 0 | PRE-FEASIBILITY STUDY

- Completed pre-feasibility study with stakeholder consultation
- Awaiting government direction for full feasibility

Expanding to new DMCs

- **Cambodia, India, Malaysia, Thailand:** Exploring private sector transactions.
- **Kyrgyz Republic and Mongolia:** Preliminary discussions for combined heat and power efforts.

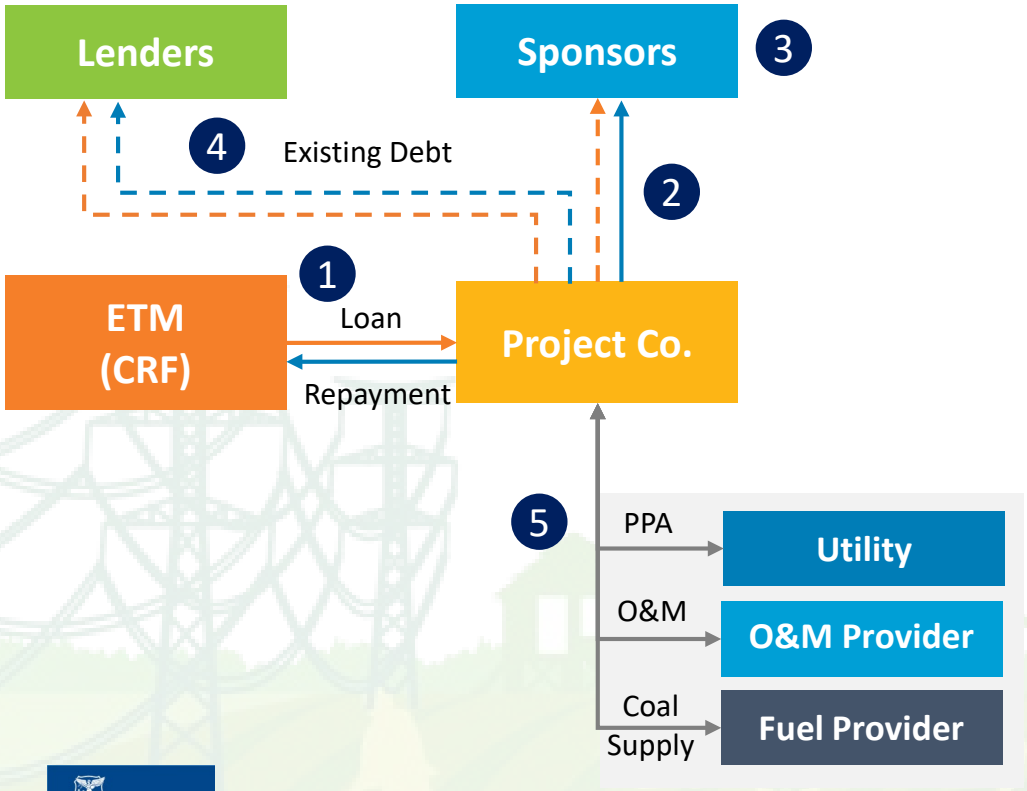
$ = United States dollar, CIF ACT = Climate Investment Funds Accelerating Coal Transition, ETM = Energy Transition Mechanism, JETP = Just Energy Transition Partnership, MDB = multilateral development bank, MOU = memorandum of understanding, SESA = strategic environmental and social assessment, TA = technical assistance.

Appendices

ETM - Transaction Models

Synthetic Model: ETM will re-leverage CFPPs with low-cost capital while existing owners remain involved as equity owners and operator

ETM Synthetic Transaction Structure



1. **ETM invests in debt-like instrument** into the project company and receives repayment based on sculpted cash flow (% of CFADS) over the investment horizon

2. **Proceeds from ETM investment are paid to existing shareholders as a special dividend** as a form of equity return. Existing shareholders continue to receive equity dividends (but at a lower level than without CRF)

3. **Existing shareholders remain as 100% common shareholders** until the end of the shortened PPA tenure

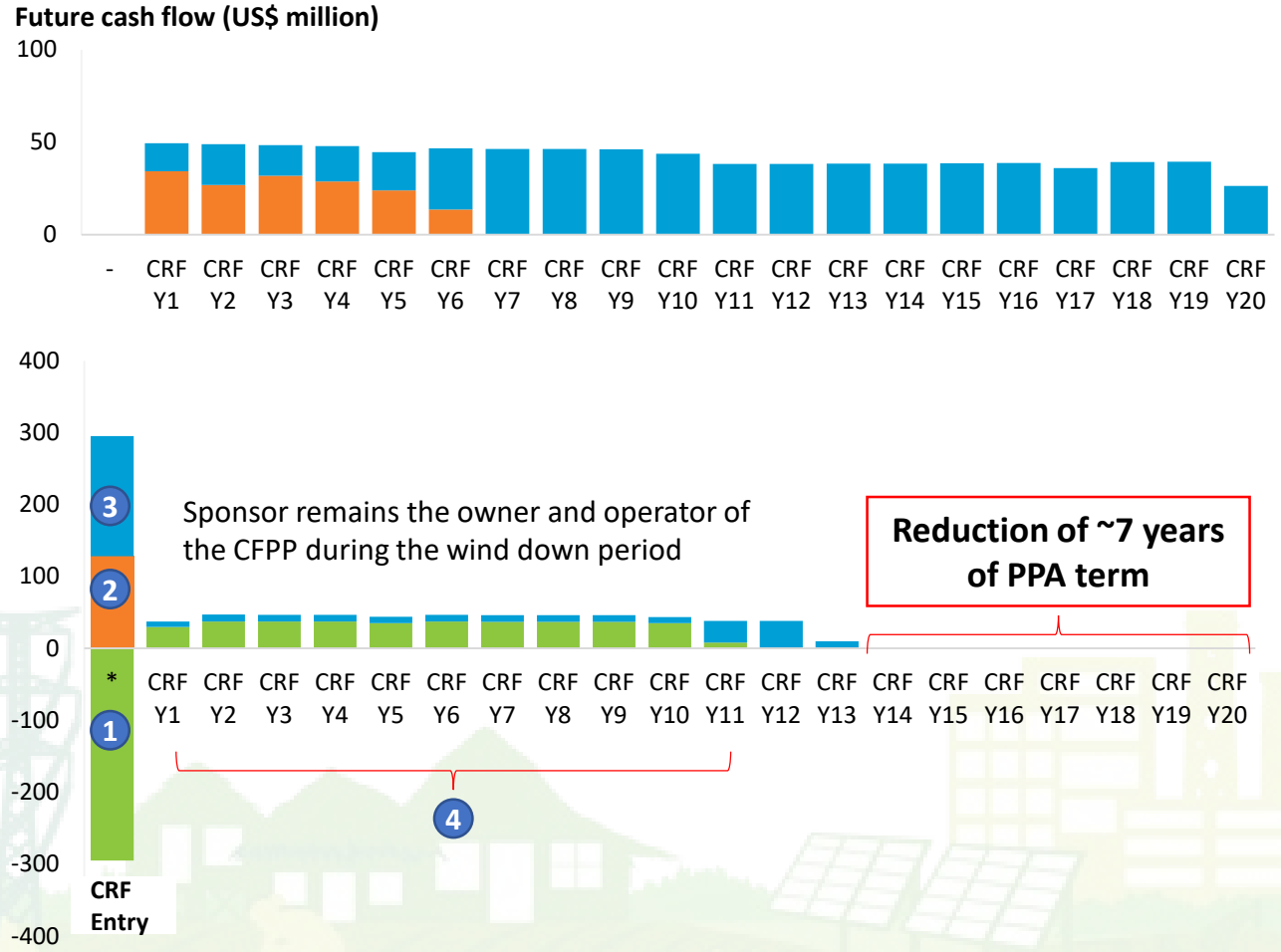
4. Transaction to be structured for **existing financing arrangement to remain** (e.g., pari-pasu with CRF) **or fully exit**

5. **Shortening of PPA tenure to be contractually agreed with the Utility**; major project agreements (O&M, Fuel) to remain as is but with shorter tenor

Synthetic Model: Illustrative cash flow model

Business as Usual (without CRF entry refinancing)

After CRF Investment



1. $300m ETM 10Y loan (funded by ~25% concessional capital) is provided to the project.
2. ETM loan proceeds are used to repay existing lenders.
3. Remaining ETM loan proceeds are used to pay a special dividend to sponsors, to compensate them for the economic loss due to the shortened operation period (same IRR as BAU scenario).
4. Project cash flows are used to repay ETM loan.

Legend

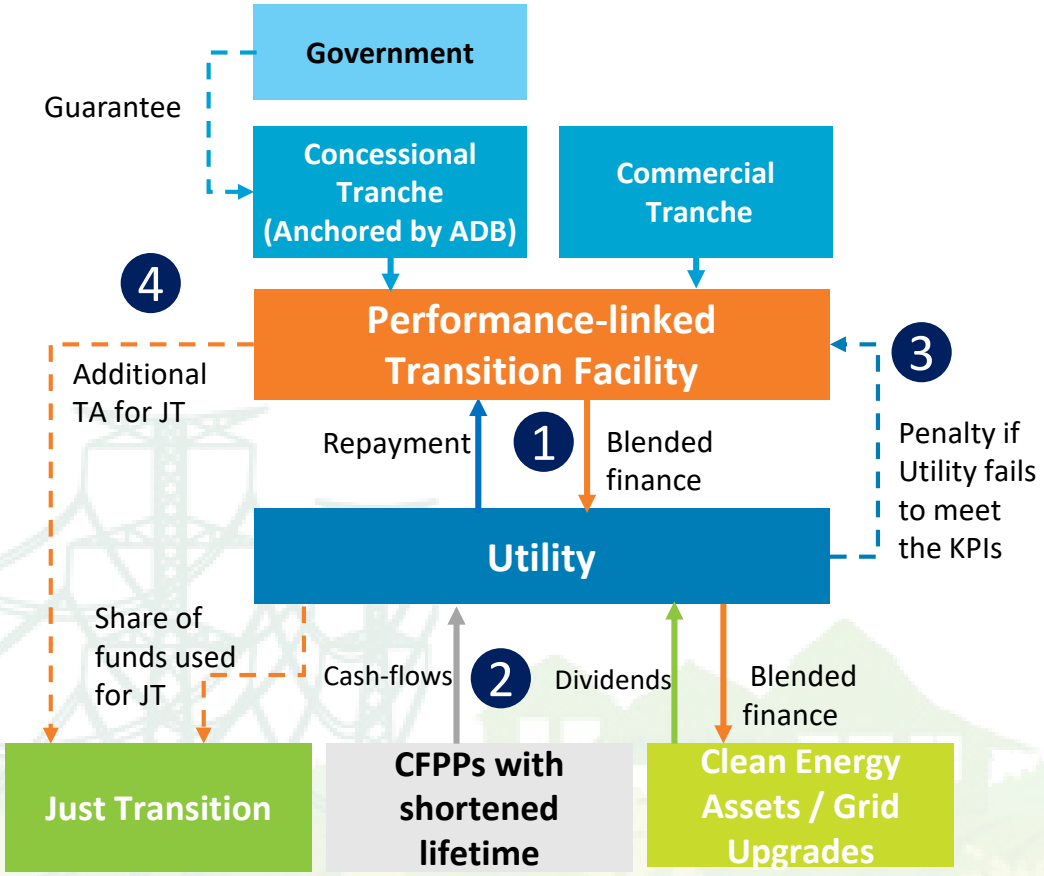
- Net equity cashflow
- Net debt cashflow
- Net CRF cashflow

ETM's market-based approach will significantly reduce coal plant life by re-leveraging with lower-cost capital from governments, multilateral banks, philanthropies, and private sector investors

ETM - Transaction Models

Portfolio Model: ETM will provide a performance-linked transition facility with financing provided at the corporate level.

ETM Portfolio Transaction Structure



1. ETM to provide a corporate loan facility to Utility. KPIs could include items such as:
   - Individual coal plant shutdown (identified CFPP(s) to close)
   - Overall GW of coal plants closure by a certain date (Utility choose CFPP(s) to close)
   - CO2 reduction achievement - Utility and ADB/Financiers to agree a mechanism for calculating current emissions baseline and achieved CO2 reductions vis-à-vis this baseline
2. Utility uses cash receipt to shut CFPPs over time and use funding for renewable energy and grid upgrade projects
3. Utility to pay penalty for not meeting Key Performance Indicators (KPIs) which may include
   - Penalty interest – level of concessionality of the loan would be reduced if KPIs are not met by applying a penalty interest (potentially cumulative since the inception of the loan)
   - Default – inappropriate use of funds or failure to meet KPIs could provide financiers the right to withhold future drawdowns and/or immediate repayment
4. Additional concessional capital/TA could be provided to help fund Just Transition activities