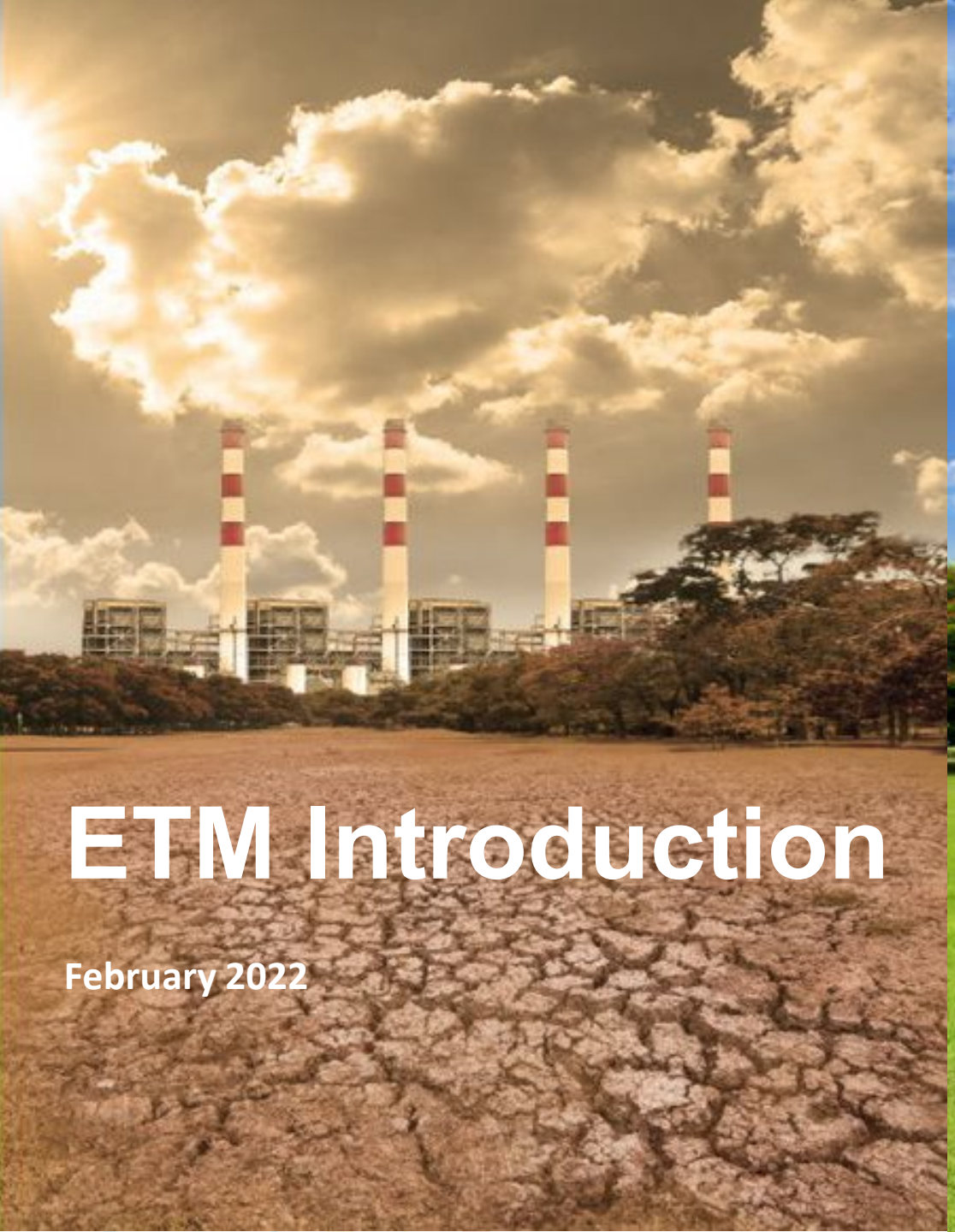


ETM Introduction

February 2022

Executive Summary

- Legacy coal-fired power plants constitute the single largest source of greenhouse gas (GHG) emissions from human activity. Without addressing them, **we will miss the Paris Agreement targets**.
- Renewable energy costs are rapidly declining. It is estimated that in the next 10–15 years, it will be more costly to operate existing coal plants compared to the levelized cost of new renewable energy plants. However, in many developing countries the coal power plants have **secure long-term power offtake agreements**, so **they will not be stranded**. Hence **an intervention is needed**.
- ADB is exploring the Energy Transition Mechanism (ETM), originally proposed under the World Economic Forum umbrella in 2018, that is a **replicable and scalable market-based model** to help accelerate the transition from coal to clean power.
- Accelerating retirement of coal plants that are so dominant in these grids will not only abate significant carbon emissions but can unlock significant investment in renewables, storage, hydrogen, electric vehicles, and other clean technologies.
- **Technical and financial feasibility work is underway** focusing on three Southeast Asian countries with high share of coal power – Indonesia, Philippines, and Viet Nam. The scheme could be applicable to other countries with high coal share and similar market barriers.
- ADB's role is to help crowd in **public and private sector partners**, support a **just transition** for affected communities, ensure **climate credentials**, and harness **carbon offsets**.

ETM Southeast Asia Partnership Launch at COP26, Glasgow UK

- Joined by Indonesia and Philippines as key partners to launch the pilot study for ETM.
- $25 million grant announcement by Japan's Ministry of Finance, the first seed financing for the mechanism.
- The partnership was endorsed by senior cabinet-level officials from Denmark, the United Kingdom, and the United States, as well as leading global financial institutions and philanthropies.
- MOU signed with Rockefeller Foundation, with a % of support towards the ETM

Philippine Finance Secretary Carlos G. Dominguez, Indonesian Finance Minister Sri Mulyani Indrawati and ADB President Masatsugu Asakawa during the ETM Launch at COP26, Glasgow on 3rd Nov, 2021

"I am pleased by the Asian Development Bank's work to accelerate the decommissioning of coal facilities. The world needs forward-thinking creative approaches to financing, especially from the multilateral development banks. And we need to find creative solutions so that our public funds crowd in additional private investment, as the bank is aiming to do here."

- Janet Yellen, Secretary, US Department of the Treasury

"I want to thank the Asian Development Bank for its work, which will help bring many benefits. Cutting coal use doesn't just reduce the risks we face from climate change, it also reduces air pollution that kills so many people, including in Asia. Today's announcement will help to jumpstart more climate finance that helps to retire coal plants faster and improve many lives."

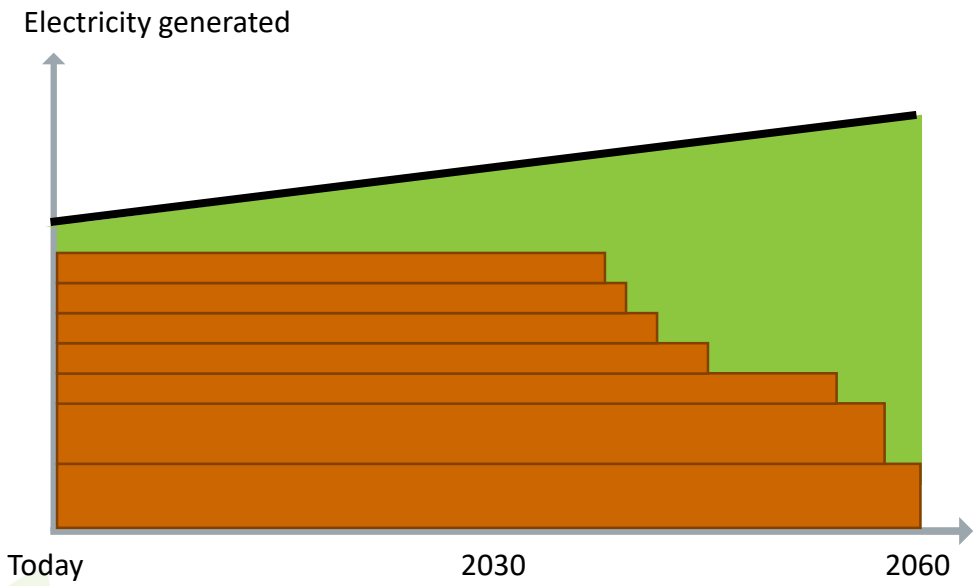
- Michael Bloomberg, UN Secretary General's Special Envoy on Climate Ambitions and Solutions

Ongoing Global Dialogue on Coal Phase-out

ETM Concept Introduction	• The ETM concept was first proposed in 2018 by Donald Kanak, Chairman, Prudential Insurance Growth Markets and Co-Chair of Steering Group of the Sustainable Development Investment Partnership ASEAN at: How to accelerate the energy transition in developing economies.
Powering Past Coal Alliance	• Created in November 2017 to accelerate the fossil-fuel phase out of coal-fired power stations. Founding members include Canada, UK and several other governments and private entities.
G7 Commitment	• In May 2021, the G7 reaffirmed their stance to end the support for new overseas coal development. The group members have committed to de-carbonize their energy sectors in the 2030s. • The US, the UK, Canada & Germany, in June 2021, pledged a USD 2 Billion support to the Climate Investment Funds, part of which will go to financing coal phase out - (Accelerating Coal Transition window – ACT). Further commitments are being considered by existing and other countries.
Coal Phase-out in Germany	• The coal exit law was adopted in July 2020 which mandates the retirement of the German coal fleet by 2038. • The government has planned investments of EUR 40 BN in the affected areas to promote economic activity.
Chile's Decarbonisation Initiatives	• In June 2019, partnered with the major power producers in the country to retire its entire coal fleet by 2040 as part of its larger effort to become carbon neutral by 2050. Financing support from IADB.
South Africa's stance on Coal Phase-out	• Announced in 2020 that it intends to become a net zero carbon economy by 2050. • A Presidential Climate Change Coordinating Commission has been set up to advise the government on how to ensure a just and fair transition away from coal. AfD engaged in policy dialogue.
Philippines' Moratorium for Coal Plants	• Philippines announced a moratorium in October 2020 on new coal-fired power plants.
Indonesia's Net Zero Target	• Indonesia's power utility PLN in May 2021, announced that it is aiming to phase out coal-fired power as part of its larger efforts to achieve carbon neutrality by 2060.

Speeding up the retirement of coal-fired power plants can increase the demand for clean energy investment 2-3x, reduce emissions, and lower generation costs in the long run

Business as usual

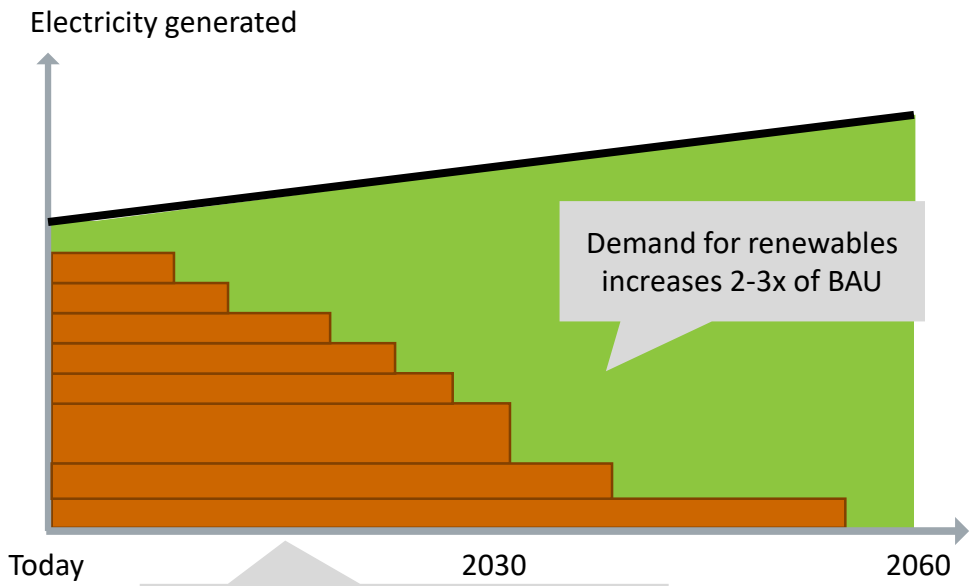


Total energy demand

Coal-fired assets generation and retirement over time

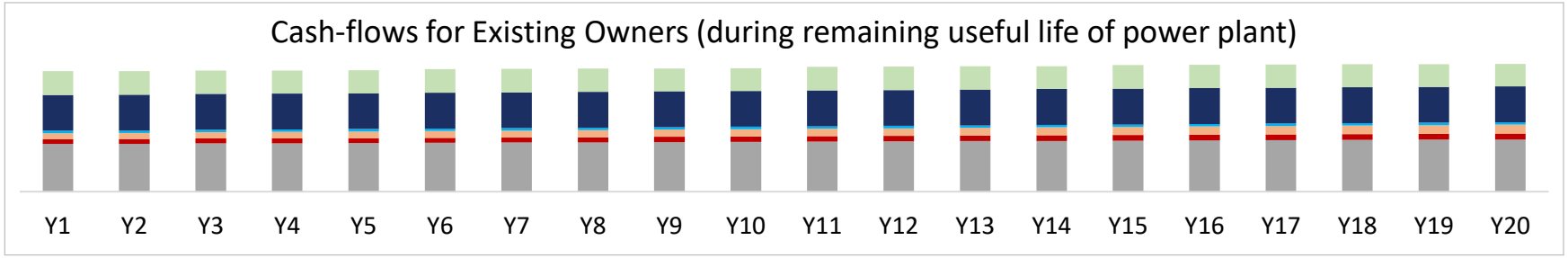
Renewable energy generation over time

With the Energy Transition Mechanism

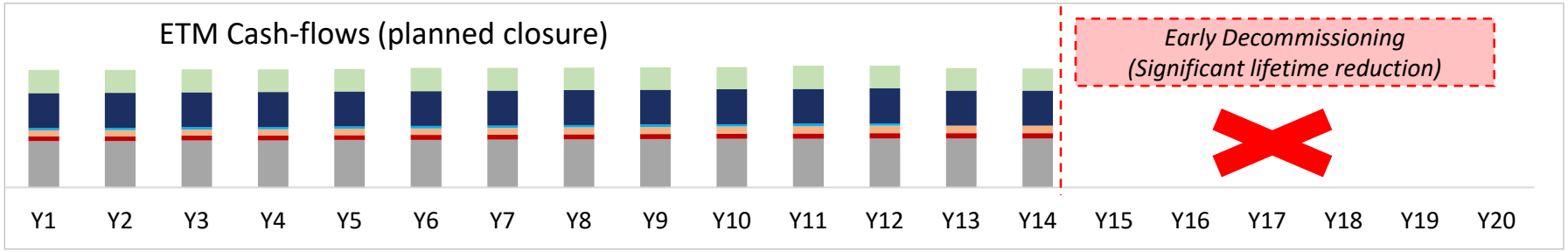


Energy Transition Mechanism (ETM) intends to overcome lock-in challenges by pooling low cost capital to to reduce asset lifetimes

Coal asset value based on owners (high) WACC



Swap owner's capital for (low cost) finance to create value which is used for early termination



Date of closure to be assessed taking into account all revenue and costs streams

Additional revenues could advance closure, such as:

- Carbon credits
- Repurposing opportunities

Additional expenditures could delay closure such as:

- Decommissioning and Termination costs

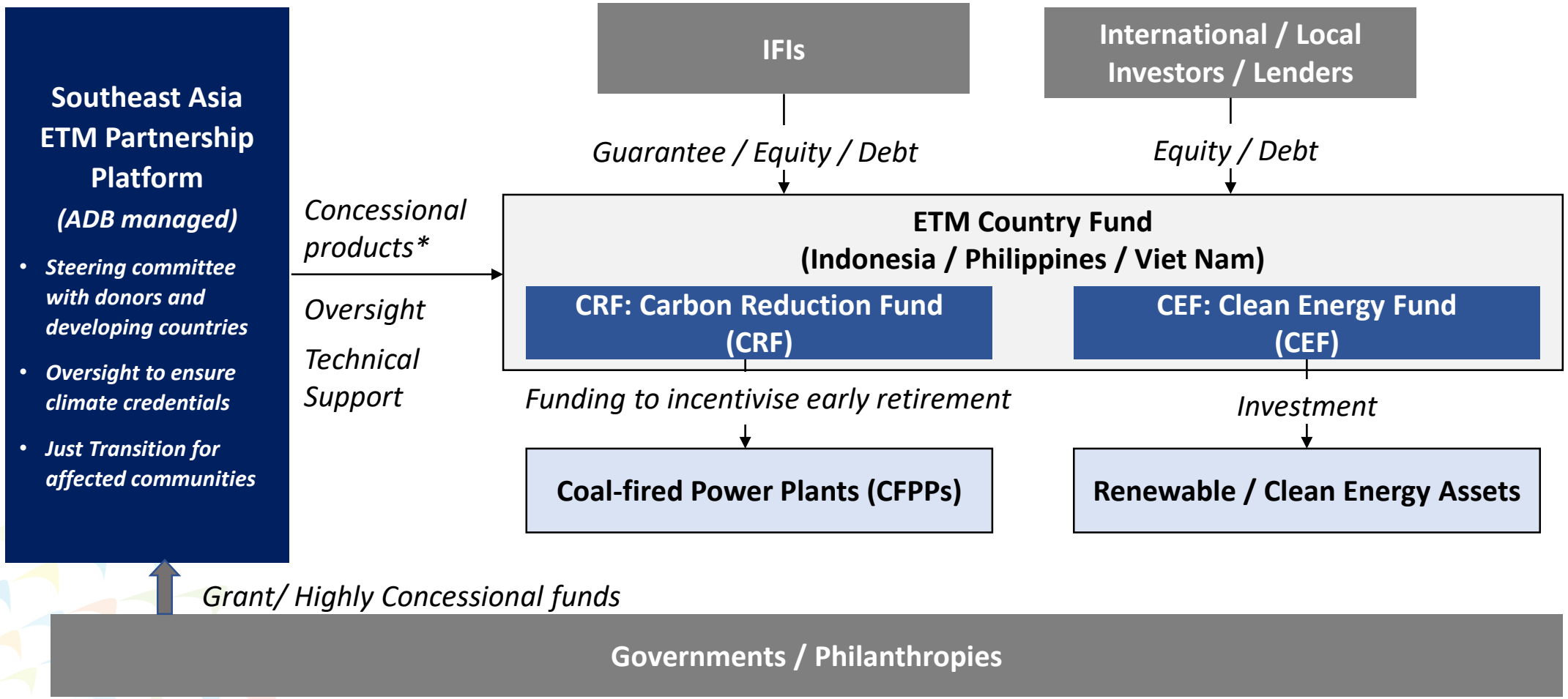
Fuel Cost | Variable O&M | Fixed O&M | Tax | Debt Service | Cash Flow to Equity

ETM will explore various funding/transaction models to achieve earlier retirement

01 Acquisition Model (SPV Level)	02 Synthetic Model (SPV Level)	03 Portfolio Model (Corporate Level)
ETM acquires share capital in CFPP	ETM invests senior/junior debt and/or other mezzanine capital to the CFPP	ETM provides funding to the corporate sponsor with CFPPs and greenfield clean energy projects
ETM to take role as owner and operator of the coal plant	Equity ownership and operational responsibility kept with the current asset owner	Sponsor guarantees greenfield clean energy projects will be built and coal plants retired ahead of schedule
ETM agrees an early termination date with the utility and operates the plant until that date and then closes it or repurposes	Investment conditional on early termination being contractually agreed with owner and utility and appropriate security being provided	Incentives (such a penalty interest) can be used to ensure that the transition occurs
Most suitable for **IPP plants with international bankable PPA**	Most suitable for **IPP plants with international bankable PPA**	Most suitable for **Utilities with a portfolio of plants**

While multiple transaction options exist, ETM will seek commitments from current project investors to not develop any new coal and host country commitment to energy transition ***as a pre-condition for any deal***

ETM to leverage public/private finance to develop a pilot Coal Reduction Facility of ~ $3bn



* Concessional products could include evergreen debt, junior equity, and guarantees.

KPMG, Mott MacDonald and Pinsent Masons have been appointed to help ADB further develop the vision for the ETM

Pre-FS (concluded in September 2021)

- Identify the coal plants to be prioritized;
- Initial estimate the size of the ETM for the pilot phase;
- An initial policy/regulatory analysis to understand how the ETM could operate for Indonesia, the Philippines and Vietnam

Full FS (initiated in September 2021)

- Detailed techno-financial analysis and stakeholder consultations to identify potential pilot assets
- Full regulatory and legal analysis to determine overall ETM structure and transaction structures
- Assessment of Just Transition activities
- Support to reach closure of the pilot scheme by end of 2022

ADB ASIAN DEVELOPMENT BANK

ADB

Feasibility study is investigating how best to tackle the large variety of key issues that the ETM poses

01 Project Selection

- Critical factors to focus on when selecting power plants
  - Grid stability
  - Utility vs IPP
  - Utilization
  - Plant Age
  - Renewable replacement potential
  - Transactional appetite

02 Environmental, Social and Governance

- Replacement plan for retired capacity to ensure the ETM has positive climate impacts
- Climate impact through GHG reduction
- Assessment of Employee, Community and Supply Chain related concerns
- Assessment of Just Transition activities
- Funding source for Just Transaction activities to be enacted by the ETM

03 Financial Analysis and Transaction Structuring

- 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/costs (e.g. carbon, decommissioning)

04 ETM Structuring

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

We look forward to working with all stakeholders over the coming months to receive feedback and address key issues in our analysis

Utilities and Government

- Critical factors to focus on when selecting power plants
- How to repurpose plants and/or overcome grid issues in a cost effective manner
- Potential impacts of early coal retirement across the value chain and Just Transition activities
- Approach to decommissioning/ environmental liabilities

Asset Owners and Lenders

- Commercial and legal feasibility of coal power plant transfers, including licensing requirements and costs of early closure
- Asset transaction structure and financial analysis
- Post-ETM contractual arrangement
- Willingness to maintain a role within the project
- Assessment of additional revenue sources/costs

Investors and Managers

- Fund scope, setup and management structure
- Public and private financing capital structure
- Level of multilateral support and contributions
- Standards, Methodologies and Approaches to ESG
- Key risk management principles
- Expected compliance requirements (including safeguards)

Donors and Philanthropies

- Level of ETM support available
- Fund scope, setup and management structure
- Required impact for investment in ETM
- Expected compliance requirements (including safeguards and Just Transition activities)
- Level of support and technical assistance beyond pilot fund and scalability

NGOs / CSOs

- Just Transition plan to address employment and livelihood implications, environmental and social aspects
- Climate mitigation impacts through GHG reduction
- ETM impact on the communities and citizens in the developing countries
- Expected compliance requirements (including safeguards)

A successful ETM will require all stakeholder concerns to be addressed

ADB

Indicative timeline to reach first close for pilot in Q4 2022

Planning and Validation

Structuring and Pipeline Development

Pilot Fund Start of Operation

Pilot Operation And Full ETM

COP 26
Announcement of partnership for joint feasibility study and investigating the potential for a pilot ETM

G20 and COP 27
Targeting US$2.5 – 3.5 billion from public and private investors; as well as grants and highly concessional funds from philanthropies and governments

Q4 2021	Q1 2022	Q2 2022	Q3 2022	Q4 2022	Q1 2023	Q2 2023	From Q3 2023
Preliminary market sounding with wide group of stakeholders	Firm ETM structure options based on market sounding feedback	Finalize pilot CRF structure and pilot power plant retirement deals		Funding commitment for pilot ETM	Due diligence and disbursement of pilot funds		Learn from the pilot and first transactions, adjust and scale

Thank you!

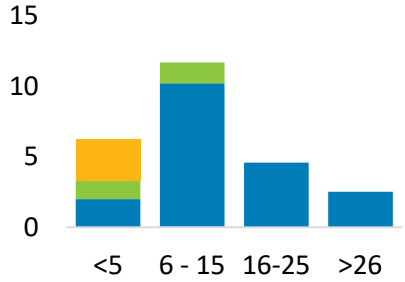
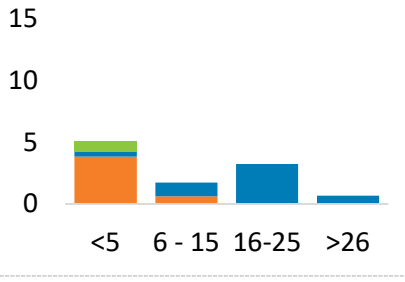
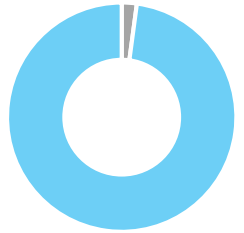
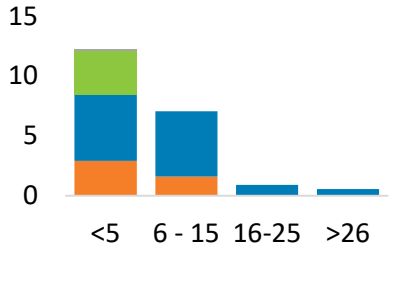
Pradeep Tharakan, PhD

Unit Head, Sovereign Energy Operations

Greater Mekong subregion,

Asian Development Bank

Overview of Electricity Markets and Coal-fired power plants

Country	Market Summary	CFPP (GW) by Age	Utility vs IPP
Indonesia	▪ Single buyer market under PLN with a mix of utility owned plants and IPPs with CFPP capacity accounting for ~ 50% of total installed capacity ▪ Archipelagic nation but 87% of CFPP capacity in Java-Bali and Sumatra (largest grids) ▪ IPPs are contracted under PPA (usually build-own-transfer (BOT) or build-own-operate-transfer (BOOT) scheme) with guaranteed capacity payments ▪ Java-Bali expected to have a continued oversupply for the coming years ▪ Engagement with PLN and Indonesia government for ETM concept		
Philippines	▪ More liberalised market with three main power grids; Luzon and Visayas which are interconnected, while Mindanao grid is independent. ▪ Total CFPP capacity accounts for ~ 43% of total installed capacity. ▪ Most CFPPs are concentrated in Luzon and owned by a few conglomerates. ▪ CFPPs can operate under merchant conditions but many have bilateral agreement with distribution utilities ▪ Engagement with DOF and DOE for ETM concept		
Vietnam	▪ The integrated state-owned utility EVN acts as the single buyer for the market. ▪ Vietnam's CFPPs are dominated by major state-owned-enterprises (SOEs), and thus mainly controlled by the government although BOT IPPs also exist. ▪ Total CFPP capacity accounts for around 29% of total installed capacity. ▪ Strong power demand growth and vibrant existing solar market means that grid security is a major concern for EVN and Vietnam government ▪ Transition from coal to clean impacts are being carefully deliberated		

Source: Pre-FS Report "Opportunities to Accelerate Coal to Clean Power Transition in Selected Southeast Asian Developing Member Countries", September 2021