Green Grids Rising

Project duration

Start date:
July 2025

Expected close date:
December 2026

Lead implementing partner

Economic Consulting Associates (ECA)

Consortium partner

PT Castlerock Consulting, KPMG Management and Risk Consulting Sdn Bhd

Overview of the initiative

The project aims to strengthen the flexibility and resilience of ASEAN's energy infrastructure and regulatory frameworks. It will ensure a smooth transition away from coal-dominated grids while addressing the challenges of integrating variable renewable energy (VRE).

The project's specific goals include creating an evidence base for repurposing or decommissioning young Coal-Fired Power Plants (CFPP), smart grid design and investing in RE-enabling technologies. It will also enhance the capacity of regional and national stakeholders to implement policies and market mechanisms that enable the achievement of these goals.

Additionally, it seeks to address critical barriers to ASEAN's energy transition. These include the adoption of clean energy technologies, the establishment of robust regulatory frameworks and market mechanisms, affordability and equity challenges, limited expertise in energy transition planning and the need for greater public awareness and engagement.

ASEAN Member States and Timor-Leste face rapidly growing electricity demand as a result of economic growth and accelerating electrification. Most fossil fuel plants are relatively modern, with many years of operating life remaining. This raises questions on how to compensate for the impact of early retirement.

Furthermore, ASEAN power grids require strengthening to meet the growth in demand, which investment in transmission and distribution has struggled to match. In addition to location-dependent resources, the previously mentioned issues further amplify challenges in Variable Renewable Energy (VRE) integration. Overall, this project promotes a coordinated regional approach, enabling ASEAN to attract greater investment through a harmonised regulatory environment and cross-border financing mechanisms.

Key objectives

This project will address the challenge of a smooth and sustainable transition away from ASEAN's coal-dominated grids through four activities:

- Conducting research on alternative uses of young Coal-Fired Power Plants (CFPPs);
- Identifying case studies on grid connection repurposing and exploring partnership opportunities for pre-feasibility studies;
- Assessing the feasibility of a regional coal power cap-and-trade market, using case studies to inform market design and regulation that promote cleaner energy development and reduce coal dependency across the region;
- Exploring case studies and assessing how regional institutions can strengthen power trading and grid flexibility, while reviewing power planning across ASEAN. This includes conducting stakeholder surveys with national transmission companies to identify support needs for the ASEAN Power Grid (APG), explore alternative business models for ancillary services and assess market mechanisms and energy storage solutions. The project will also identify best practices in smart grid design and the technical assistance required, leveraging expertise in grid modernisation and resilience.

Alignment with ASEAN vision, plan and priorities

This project closely aligns with ASEAN's vision and key priorities. This includes supporting the sustainable growth agenda, which promotes clean and green energy across ASEAN Member States and Timor-Leste, by identifying pathways to accelerate the transition away from coal-dominated grids and enhance the integration of renewable energy resources. It also directly advances ASEAN's priority of developing the ASEAN Power Grid (APG) by exploring cross-border market mechanisms.

More broadly, this project aligns with the central components of the ASEAN Community Vision 2045, which focuses on a resilient, innovative, dynamic and people-centred ASEAN.

It will support the development of resilience by exploring options to improve the resilience of the power systems, facilitating the transition to green energy sources and enhancing socioeconomic and financial resilience in the face of the technological shifts associated with the energy transition. Building on this, the initiative is innovative in its focus on new approaches and solutions — such as the repurposing of coal-fired power plants (CFPPs) and the development of smart grids. It remains dynamic, responding flexibly to pressing and emerging needs while placing stakeholders, particularly affected communities, at the heart of analysis.

"ASEAN's energy future depends on a resilient, regionally integrated transition from coal to renewables and this project plays an important role in this transition by tackling infrastructure, policy and market barriers together."

William Derbyshire
Executive Director, Economic Consulting Associates

Long-term outcomes

1. ASEAN regional and national regulatory and policy frameworks, along with market mechanisms, enable greater adoption of clean energy technologies.
2. ASEAN national and cross-border energy infrastructure maintains resilience amid the increased adoption of clean energy technologies.
3. Enhanced local expertise across ASEAN enables the effective implementation of policies and market mechanisms that reduce coal dependence and strengthen smart grid development for greater clean energy integration.