Early Warning System

ADB-59459-001

Building Knowledge-Based Innovative Solutions for Sustainable and Clean Energy in Asia and the Pacific

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Quick Facts

Financial Institutions	Asian Development Bank (ADB)
Status	Approved
Bank Risk Rating	U
Voting Date	2025-12-12
Sectors	Energy, Law and Government
Investment Type(s)	Advisory Services
Investment Amount (USD)	$ 1.50 million

Project Description

As stated by the ADB, the proposed TA aims to advance innovative clean energy development solutions to strengthen energy security and resilience across Asia and the Pacific. It will:

(i) identify and assess innovative clean energy technologies, business models, and financing solutions;
(ii) support governments in strengthening enabling energy policy and regulatory frameworks;
(iii) improve access to high-quality data, knowledge, and analytical tools for evidence-based decision-making.

The TA will also strengthen institutional and technical capacity through structured capacity building program and regional and global knowledge-sharing platforms, including support to the Asia Clean Energy Forum (ACEF) and other international forums. These interventions will contribute to the development of knowledge-based solutions that enable ADB's developing member countries (DMCs) to diversify their energy portfolios and accelerate the adoption of clean energy, thereby supporting universal access to affordable, reliable, sustainable and modern energy services.

PROJECT RATIONALE AND LINKAGE TO COUNTRY/REGIONAL STRATEGY

Asia and the Pacific is the world's largest center of energy demand, accounting for 41% of global energy consumption and 46% of global energy-related emissions. The region's energy mix is 20% more carbon-intensive than the global average, making accelerated clean energy development critical to achieving global net-zero goals. Despite strong progress in renewable energy deployment, fossil fuels remain the backbone of the energy sector, with coal providing about half of the region's primary energy supply in 2020, followed by crude oil (20%) and natural gas (10%). This structural dependence has led to a 151% increase in energy-related emissions between 2000 and 2023, driven by rapid industrialization, urban expansion, and rising energy demand from steel manufacturing, logistics, and digital infrastructure. At the same time, heightened geopolitical instability is intensifying energy security risks, as most countries in the region rely heavily on imported fossil fuels, exposing them to price volatility and supply chain disruptions. Persistent high energy demand growth, continued reliance on fossil fuel-based generation, heavy dependence on imported fuels, and the dominance of hard-to-abate industries underscore the scale and complexity of decarbonizing the region's energy systems. However, reducing reliance on fossil fuels while maintaining energy security, resilience, affordability, and inclusivity remains a major challenge for developing economies in the region.

First, technological barriers persist. Emerging clean energy technologies such as digital and smart grid systems, scalable clean cooking, cooling, and heating solutions, advanced energy storage systems, and AI and digital twin technologies, offer promising pathways to build a cleaner, more flexible, and climate-resilient energy system. Yet despite growing interest, these solutions are not yet commercially viable at scale, particularly for large industrial or utility-level applications, due to limited demonstration projects, and underdeveloped innovation ecosystems.

Second, financing barriers further constrain the adoption. The high upfront cost of clean energy infrastructure and grid modernization required innovative financing solutions and business models to mobilize private sector participation at scale. Some countries have already introduced mechanisms such as blended finance platforms, contract-for-difference schemes, performance-based revenue models, grid-as-a-service, to de-risk investments and accelerate private capital mobilization. However, such instruments remain limited in most DMCs, resulting in financing gaps and slow deployment of clean technologies.

Third, policy and regulatory barriers hinder the enabling environment for clean energy development. Some countries have established clear and predictable frameworks, such as energy efficiency obligation schemes, emissions trading schemes, special act on offshore wind power deployment, and energy storage system auctions, which successfully attract private investment and accelerate clean energy deployment. However, many DMCs still face regulatory gaps, weak enforcement capacity, and limited private sector participation. The absence of such frameworks leads to policy uncertainty, investor hesitation, and fragmented market development. International experience shows that a comprehensive and well-sequenced

Investment Description

- Asian Development Bank (ADB)

Contact Information

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ACCESS TO INFORMATION

You can submit an information request for project information at: https://www.adb.org/forms/request-information-form

ADB has a two-stage appeals process for requesters who believe that ADB has denied their request for information in violation of its Access to Information Policy. You can learn more about filing an appeal at: https://www.adb.org/site/disclosure/appeals

ACCOUNTABILITY MECHANISM OF ADB

The Accountability Mechanism is an independent complaint mechanism and fact-finding body for people who believe they are likely to be, or have been, adversely affected by an Asian Development Bank-financed project. If you submit a complaint to the Accountability Mechanism, they may investigate to assess whether the Asian Development Bank is following its own policies and procedures for preventing harm to people or the environment. You can learn more about the Accountability Mechanism and how to file a complaint at: http://www.adb.org/site/accountability-mechanism/main.

Bank Documents

- Technical Assistance Report