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Power, politics, and finance: how multilateral development banks shape ASEAN’s energy transition - insights from Viet Nam and Indonesia

Power, Politics, and Finance: How Multilateral Development Banks Shape ASEAN's Energy Transition - Insights from Viet Nam and Indonesia

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ABSTRACT

This thesis examines the effectiveness of multilateral development banks (MDBs) in shaping ASEAN's energy transition through climate finance, focusing on Viet Nam and Indonesia between 2016 and 2023. Using a mixed-methods approach that integrates project-level data analysis with qualitative policy review, the study evaluates how the Asian Development Bank (ADB), Asian Infrastructure Investment Bank (AIIB), and the World Bank Group (WBG) mobilize financial and technical resources in two of ASEAN's largest economies. The study finds that although Indonesia received more funding, MDB financial commitments contributed a greater share to Viet Nam's climate finance needs, GDP, and renewable energy (RE) targets. Indonesia had a higher share of technical assistance projects, reflecting the country's complex regulatory environment. The findings highlight the importance of institutional capacity, and streamlined regulatory and policy frameworks in shaping MDB effectiveness. Regional initiatives such as the ASEAN Catalytic Green Finance Facility (ACGF) illustrate MDBs' potential to catalyze coordinated efforts in ASEAN's energy transition. The study concludes that MDB success depends not only on the scale of financial contributions, but also on how well MDBs navigate national and regional policy environments to accelerate the energy transition.

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LIST OF ACRONYMS & ABBREVIATIONS

ACE: Annual Contracted Energy

ADB: Asian Development Bank

AEBF: ASEAN Energy Business Forum

AEC: ASEAN Economic Community

AIIB: Asian Infrastructure Investment Bank

AMS: ASEAN Member States

APAEC: ASEAN Plan of Action for Energy Cooperation

APG: ASEAN Power Grid

APSC: ASEAN Political-Security Community

ASCC: ASEAN Socio-Cultural Community

ASEAN: Association of Southeast Asian Nations

COD: Commercial Operation Date

CPS: Country Partnership Strategy

DEN: Dewan Energi Nasiona

DMO: Domestic Market Obligation

DPPA: Direct Power Purchase Agreement

FiT: Feed-in Tariff

GDP: Gross domestic product

GHG: Greenhouse gases

GW: Gigawatts

IEA: International Energy Agency

IFC: International Finance Corporation

IPG: International Partners Group

IPP: Independent power producers

JETP: Just Energy Transition Partnership

KEN: Kebijakan Energi Nasional

LNG: Liquified natural gas

LTMS-PIP: Lao PDR-Thailand-Malaysia-Singapore Power Integration Project

LTS-LCCR: Long-Term Strategy for Low Carbon and Climate Resilience

MDB: Multilateral development bank

MIGA: Multilateral Investment Guarantee Agency

MOIT: Ministry of Industry and Trade

MONRE: Ministry of Natural Resources and Environment

Mtoe: Million tonnes of oil equivalent

MW: Megawatts

NDC: Nationally Determined Contribution

ODA: Overseas development assistance

PDP8: 8th Power Development Plan

PLN: Perusahaan Listrik Negara

PPA: Power Purchase Agreement

PPP: Public-private partnerships

PV: Photovoltaic

RUED: Rencana Umum Energi Daerah

RUEN: Rencana Umum Energi Nasional

RUKN: Rencana Umum Ketenagalistrikan Nasional

TPES: Total primary energy supply

TWh: Terawatt hour

UNFCCC: United Nations Framework on the Convention of Climate Change

WBG: World Bank Group

GLOSSARY OF TERMS

Adaptation: The process of adjusting to the effects of climate change by reducing risks and vulnerabilities.

Bankability: Whether a project has sufficient cash flow and a high probability of success to be acceptable to institutional investors for financing.

Blended finance: The use of development finance and philanthropic funds to mobilize private capital flows. Blended finance facilitates the scaling up of commercial financing for developing countries.

Blue bond: A debt instrument that development banks use to raise finance for marine and ocean-related projects.

Climate change: Long-term shifts in temperatures and weather patterns.

Climate finance: Financial resources, whether local, national, or international, dedicated to climate change adaptation and mitigation. Drawn from public, private, and alternative sources of financing, climate finance is critical in helping countries reduce the impacts of climate change.

Co-finance: A project funded by multiple entities, including the development bank itself and other partners. The aim is to mobilize funding and reduce transaction costs.

Concessional loan: Loans offered at terms more favorable than market rates, such as lower interest rates or extended repayment periods, often used by multilateral development banks (MDBs) to finance climate projects in developing countries.

Commercial Operation Date (COD): The date a project officially begins generating revenue and delivering power to consumers.

Conference of the Parties (COP): The supreme decision-making body of the United Nations Framework on the Convention of Climate Change (UNFCCC). Held annually, COP is where member nations gather to negotiate and review progress on climate action.

Decarbonization: The process where countries and entities aim to achieve a low-carbon economy.

Direct Power Purchase Agreement (DPPA): An agreement made between a renewable energy generator and an end user, where electricity produced by a renewable energy facility is is physically delivered to power the corporate buyer's operations.

Domestic Market Obligation (DMO): A policy that requires a certain portion of a resource, such as coal or oil that produced within a country to be sold or used domestically, ensuring domestic needs are met.

Energy transition: A shift from from fossil-fuel based systems of energy production and consumption towards renewable energy sources to reduce carbon emissions and address climate change.

Feed-in-Tariff (FiT): A policy tool that encourages renewable energy production by guaranteeing a fixed price for electricity generated from renewable sources that is fed into the grid.

Grant: A non-repayable form of financial assistance provided by development banks.

Green bond: A type of debt instrument that is used to finance projects that have positive environmental benefits.

Mitigation: Human interventions to reduce greenhouse gas emissions and slow down the rate of climate change.

Multilateral Development Banks (MDBs): An international financial institution chartered by two or more countries to encourage economic development in lower and middle-income countries.

Nationally Determined Contribution (NDC): Climate action plans submitted by countries under the Paris Agreement that outlines their commitments to reduce greenhouse gas emissions and adapt to climate change.

Non-sovereign loans: Any loan, guarantee, equity investments, or other financing arrangement that is not guaranteed by a government.

Non-concessional loan: Loans that have a market-based interest rate with less generous terms than concessional loans.

Official development assistance (ODA): Financial aid provided by developed countries to developing countries to promote economic growth and welfare.

Paris Agreement: A legally binding international treaty on climate change, adopted by 196 countries at the United Nations Climate Change Conference (COP 21) in Paris, France, on December 12, 2015.

Power Purchase Agreement (PPA): A long-term contract where a buyer (offtaker) agrees to purchase electricity from a seller (energy supplier) at a predetermined price for a specified period, often used in renewable energy projects.

Public-Private Partnership (PPP): A collaboration between a government and private entity to deliver a public service or infrastructure project.

Sovereign loans: Loans extended to the government or guaranteed by the government.

Technical assistance: Non-commercial support provided by multilateral development banks (MDBs) for capacity-building purposes.

1. INTRODUCTION

As Southeast Asia experiences rapid economic growth and growing energy demand, the Association of Southeast Asian Nation (ASEAN) faces massive challenges in transitioning to renewable energy. This section introduces ASEAN's institutional structure and energy priorities, discusses challenges in the region's energy landscape, and examines past and present policy initiatives.

1.1 Introduction to ASEAN and Thesis Topic

ASEAN is a 10-member regional bloc that was established on August 8, 1967, following the signing of the ASEAN Declaration (Bangkok Declaration) by the founding countries: Indonesia, Malaysia, Philippines, Singapore and Thailand.[1] Since then, ASEAN has expanded to include Brunei Darussalam, Vietnam, Lao PDR, and Myanmar, making up the ten member states of ASEAN today.[2] In 2022, ASEAN leaders agreed to include Timor-Leste as the 11th member of the bloc, and at the 42nd ASEAN Summit in May 2023 they established a plan for Timor-Leste's full membership in ASEAN.[3] ASEAN's objectives are to promote economic growth and regional stability through "consultation, consensus, and cooperation based on the ASEAN charter."[4] In achieving these objectives, the ASEAN Community consists of three pillars: the ASEAN Political-Security Community (APSC), the ASEAN Economic Community (AEC), and the ASEAN Socio-Cultural Community (ASSC) that help promote a peaceful, stable, and resilient region.[5] ASEAN holds two annual summits, along with ministerial meetings,

[1] "About ASEAN," Association of Southeast Asian Nations, Accessed October 19, 2024, https://asean.org/about-asean.
[2] Ibid.
[3] East-West Center, US-ASEAN Business Council, and ISEAS-Yusof Ishak Institute, "ASEAN Matters for America / America Matters for ASEAN", 6 (2023): 5, https://www.usasean.org/why-asean-matters.
[4] Ibid., 5
[5] "Our Communities," Association of Southeast Asian Nations, Accessed October 19, 2024, https://asean.org/our-communities/

working-level meetings, and forums to support its community-building efforts. These include the ASEAN Regional Forum, the ASEAN Energy Business Forum (AEBF), and the ASEAN Defence Ministers' Meeting Plus, to name a few.

One key focus of the AEC and the ASSC is addressing climate change and energy transition, which are critical issues affecting ASEAN's regional sustainability and economic development. With its rapidly growing energy demands, ASEAN faces challenges transitioning from fossil fuels to renewable energy (RE). This thesis explores the research question: **To what extent are multilateral development banks (MDBs) effective climate financing sources in catalyzing ASEAN's energy transition?** This thesis will examine the effectiveness of MDBs in mobilizing climate finance sources within ASEAN, assessing their contributions to RE projects and the challenges they encounter in the region's energy landscape. Subsequently, this thesis aims to provide insights into how MDBs can enhance their role to support ASEAN's efforts towards a sustainable and RE future.

1.2 ASEAN's Current Energy Landscape

The current energy landscape of ASEAN is defined by a high dependency on fossil fuels, growing efforts to expand RE, and the pressures of a rapidly increasing population, urbanization, and economic activities. As of 2022, ASEAN's population stood at approximately 680 million people, representing 8.7% of the global population. This figure is expected to continue rising over the long term.[6] The urbanization rate among ASEAN Member States (AMS) has surged significantly since 2005. In 2022, 348 million people resided in urban areas—accounting for 51% of the total AMS population—up from 231 million in 2005.[7] By 2050, the urban population

[6] ASEAN Centre for Energy, "8th ASEAN Energy Outlook (AEO8)", (2024), 25, https://aseanenergy.org/publications/the-8th-asean-energy-outlook/.
[7] Ibid., 25

is projected to reach 521 million, or 66% of the total, indicating that most of ASEAN's population growth will be driven by urbanization.[8]

ASEAN's shift toward urbanization is accompanied by rapid economic growth. The region is recognized as one of the fastest-growing economies globally, with a combined GDP of $3.62 trillion, making it the world's fifth-largest economy.[9] In 2023, ASEAN's GDP is expected to grow at 4.7%, significantly higher than the projected global average of 2.7%, reflecting its dynamic economic development. Although the region's GDP declined by about 3% in 2020 due to the COVID-19 pandemic, it rebounded with a growth rate of 5.3%, surpassing the pre-pandemic level of 5% in 2019.[10] This economic recovery was accompanied by a surge in energy demand, which has now exceeded pre-pandemic levels. After energy consumption dropped by 7.6% in 2020 and 0.2% in 2021 due to the pandemic, 2022 witnessed a sharp 15.2% rise in energy demand compared to 2021, reaching 432 million tonnes of oil equivalent.[11] Among all fuel types, coal saw the highest demand increase in 2022, rising by 80.5% from 2021, followed by oil, which grew by 10.6%.[12] This spike, however, is not representative of long-term trends, as coal demand has been stable over the past decade. Thus, these figures should be understood in the context of the post-pandemic recovery.

Regarding total primary energy supply (TPES), ASEAN experienced a strong rebound in 2022, reaching approximately 698 million tonnes of oil equivalent (Mtoe).[13] However, this recovery has been heavily reliant on fossil fuels. Coal accounted for the largest share of the region's energy mix at 31.5% in 2021, while RE contributed only 15.6%, a marginal increase

[8] Ibid., 25
[9] East-West Center, US-ASEAN Business Council, and ISEAS-Yusof Ishak Institute, "ASEAN Matters for America / America Matters for ASEAN", 6 (2023): 7, https://www.usasean.org/why-asean-matters.
[10] ASEAN Centre for Energy, "8th ASEAN", 27, https://aseanenergy.org/publications/the-8th-asean-energy-outlook/.
[11] Ibid., 27
[12] Ibid., 28
[13] Ibid., 29

from 15.4% in 2021.[14] Conversely, global trends from the International Renewable Energy Agency (IRENA) show that RE contributed 29.1% of the global energy mix in 2021[15], highlighting ASEAN's continued reliance on coal despite energy transition efforts. Concerns about energy security and resilience persist, as demand continues to outpace domestic supply, increasing the region's dependence on fossil fuels. Given significant pressure on ASEAN's energy security, this has led to a rising demand for reliable energy sources. Oil has emerged as the primary imported energy source for the region, driven by industrial activity, increased vehicle ownership, and improved living standards across AMS. The surge in domestic oil consumption has exceeded local production capabilities, creating a critical energy security challenge for ASEAN. Due to decreased domestic oil supply, largely due to aging oil fields and insufficient discoveries or investments in exploration and production, ASEAN has increasingly turned to oil imports to bridge the gap. Since 2005, the region has become a net importer of petroleum, with import volumes rising at an average annual rate of 16%.[16] By 2022, net import dependency had surged to 96%, compared to 81% in 2021, highlighting ASEAN's growing dependence on external oil sources.[17]

ASEAN is also a huge coal exporter, accounting for 68% of the region's net exports in 2022.[18] However, the region's coal export patterns have been volatile due to fluctuations in global coal prices, market conditions, regional geopolitical factors, and trade policies, impacting stability in supply. Variations in coal exports and ASEAN's status as a net oil importer illustrate the contrasting challenges faced in securing a stable energy supply for different resources. In

[14] Ibid., 29
[15] International Renewable Energy Agency (IRENA), "Renewable energy highlights", July 11, 2024, 1, https://www.irena.org/-/media/Files/IRENA/Agency/Publication/2024/Jul/Renewable_energy_highlights_FINAL_July_2024.pdf.
[16] ASEAN Centre for Energy, "8th ASEAN", 29, https://aseanenergy.org/publications/the-8th-asean-energy-outlook/.
[17] Ibid., 29
[18] Ibid., 30

contrast, the region's net natural gas exports have been relatively stable. Aside from rising domestic demand and declining outputs, this trend also shows limitations in infrastructure for processing and transporting natural gas, hindering the ability to export. This can be seen through bottlenecks in pipelines or liquefied natural gas (LNG) terminals.[19]

For electricity, the installed capacity in 2022 returned to pre-pandemic levels after the energy downturn due to COVID-19. From 2018 to 2022, total installed capacity grew by 27%, reaching 315.4 Gigawatts (GW) in 2022.[20] Within that time frame, solar photovoltaic (PV) had grown tremendously, contributing 19.5 GW in just five years from 2018.[21]

While the share of bioenergy has yet to experience significant development, with only an average of 2.2% of total ASEAN installed capacity, there have been substantial increases in solar PV, hydro, and wind.[22] The RE share of ASEAN's installed capacity rose from 26.4% in 2018 to 33.6% in 2022, reflecting substantial growth in solar, wind, and hydro energy.[23] Most notably, during 2020-2021, newly installed RE capacity surpassed fossil fuels due to project delays resulting from the pandemic. In 2022, the trend was reversed as the implemented additional capacity of fossil fuels exceeded 9 GW from the planned one, with RE falling short by 2.7 GW.[24] This was mainly due to the completion of several delayed fossil-fuels-based projects due to the pandemic, along with new demands for coal-powered plants in industrial sectors.

There was also an increase in total electricity generation among AMS, reaching a production record of 1,263 Terawatt Hour (TWh) in 2022, with significant increases from solar, hydro, and coal.[25] While fossil fuels continued dominating ASEAN electricity generation, their

[19] Ibid., 30
[20] Ibid., 32
[21] Ibid., 32
[22] Ibid., 32
[23] Ibid., 32
[24] Ibid., 32
[25] Ibid., 33

share decreased to 71.2% compared to 85.5% in 2005.[26] In contrast, 29.2% of electricity was generated from RE sources in 2022, comprising hydro (19.5%), bioenergy (3.2%), solar PV (3.1%), geothermal (2.1%), and wind (1.1%).[27] These figures indicate that RE is in the process of replacing fossil fuels in the electricity generation mix.

1.3 ASEAN-wide Policies and Initiatives to Facilitate Energy Transition

AMS have initiated various policies to facilitate energy transition in response to energy challenges. The ASEAN Plan of Action for Energy Cooperation (APAEC) 2016-2025 is the regional platform responsible for the energy sector within the ASEAN Economic Community (AEC) framework. The APAEC has seven areas of focus: ASEAN Power Grid (APG), Trans-ASEAN Gas Pipeline (TAGP), Coal and Clean Coal Technology (CCT), Energy Efficiency and Conservation, RE, Regional Policy and Planning, and Civilian Nuclear Energy.[28] As part of the program, ASEAN aims to increase the share of RE energy to 23% in its TPES.[29] It also aims to reduce energy intensity by 20% by 2020 and 30% by 2025 compared to 2005.[30] The APG program area has already seen results in achieving this goal. The APG program aims to "expand regional multilateral electricity trading, strengthen grid resilience and modernization, and promote clean and RE integration."[31] Within APAEC Phase I: 2016-2020, the Lao PDR-Thailand-Malaysia-Singapore Power Integration Project (LTMS-PIP) was successfully

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[26] Ibid., 33
[27] Ibid., 33
[28] Association of Southeast Asian Nations, "Priority Areas of Cooperation," Association of Southeast Asian Nations, Accessed October 14, 2024. https://asean.org/our-communities/economic-community/asean-energy-cooperation/priority-areas-of-cooperation/.
[29] East-West Center, US-ASEAN Business Council, and ISEAS-Yusof Ishak Institute, "ASEAN Matters for America / America Matters for ASEAN", 6 (2023): 20, https://www.usasean.org/why-asean-matters.
[30] Ibid., 20
[31] ASEAN Centre for Energy, "ASEAN Plan of Action for Energy Cooperation (APAEC) 2016-2025 Phase II: 2021-2025", (2021), 2, https://asean.org/book/asean-plan-of-action-for-energy-cooperation-apaec-2016-2025-phase-ii-2021-2025/.

initiated. The project saw the import of up to 100 megawatts (MW) of hydropower from Lao PDR to Singapore via Thailand and Malaysia.[32] However, despite this progress, achieving the 23% RE target requires substantial financial investments. The region requires an annual investment of approximately USD 27 billion in RE, yet from 2016 to 2021, ASEAN was only able to attract USD 8 billion annually, creating a significant investment gap.[33] Despite being one of the most attractive global investment destinations since 2015 and having RE policies that are more favorable than the rest of the world, the region has one of the slowest development rates for renewables, both in terms of investment and electricity generation capacity.[34] Multiple policy initiatives have been implemented to fill this investment gap. Feed-in-tariffs (FITs), a policy that encourages the use of RE technologies by offering long contracts to energy producers, have been implemented by ASEAN countries to increase RE deployment. Early adopters of the FIT scheme such as the Philippines and Thailand saw notable increases in RE capacity, particularly solar and wind.[35] After its introduction, Vietnam's FIT for solar energy led to a rapid expansion of RE.[36] Malaysia eventually transitioned to other schemes such as Large-Scale Solar (LSS) once their FIT quotas were met.[37] However, challenges persist in countries like Indonesia, where grid issues and regulatory barriers impede progress.[38] Overall, across the region, investment gaps and infrastructure limitations prevent the potential of FITs from being fully realized.

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[32] Ibid., 5
[33] Roman Vakulchuk, Indra Overland, and Beni Suryadi. "ASEAN's Energy Transition: How to Attract More Investment in RE," *Energy, Ecology and Environment* 8, no. 1 (November 14, 2022): 1, https://doi.org/10.1007/s40974-022-00261-6.
[34] Ibid., 2
[35] Mujammil A. Rahmanta, Ari Permana, Wilson Susanto, Endiarjati D. Sadono, Irine H. Ikasari, and Muhammad A. Muflikhun. "The feed-in tariff (FIT) policy to improve RE utilization: An analysis of FIT implementation in ASEAN countries from RE growth, decarbonization, and investment perspective," *International Journal of RE Development* 12, no. 5 (2023): 869-870. https://doi.org/10.14710/ijred.2023.55929
[36] Ibid., 869
[37] Ibid., 869
[38] Ibid., 869

Addressing these investment and infrastructure gaps requires continued support for the RE transition and mechanisms that ensure a fair and equitable shift. This is where the Just Energy Transition Partnerships (JETPs) come into play. JETPs are agreements with the International Partners Group (IPG), whose members include the European Union, United Kingdom, United States, Japan, Germany, France, Italy, Canada, Denmark, and Norway.[39] The goal of JETPs is to "coordinate financial and technical assistance to accelerate the transition from fossil fuels to RE" while ensuring social and economic equity for workers and communities reliant on fossil fuel industries.[40] In supporting the implementation of JETPs, multilateral development banks (MDBs) play a critical role by mobilizing funds and providing technical and local expertise. Indonesia and Vietnam are two of the four countries globally that have committed to JETPs, signing in 2022—the others being South Africa and Senegal.[41] The signing of these JETP deals signals a significant shift in financing, enabling these coal-dependent countries to transition to cleaner energy.

In summary, despite ASEAN's progress in advancing regional cooperation through energy transition initiatives, challenges associated with financing, policy, and infrastructure persist. In meeting its renewable energy goals, utilizing external support mechanisms becomes essential. The following sections explore MDB engagement with ASEAN to attract climate finance and contribute to a sustainable energy future.

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[39] "Just Energy Transitions in Southeast Asia," Climateworks Centre, March 7, 2024. https://www.climateworkscentre.org/project/just-energy-transitions-in-southeast-asia/.
[40] Ibid.
[41] Victoria Milko and Aniruddha Ghosal, "Are Indonesia and Vietnam's Multibillion-Dollar Clean Energy Deals Stuck? Experts Say Not Yet," *AP News*, September 12, 2024, https://apnews.com/article/indonesia-vietnam-climate-finance-energy-deals-jetp-fa03bd606f48ee2ab79f6cb93d845488.

2. LITERATURE REVIEW

The literature review looks at existing studies on the role of MDBs in facilitating climate finance and supporting the energy transition in ASEAN. It focuses on MDBs' efforts to bridge the public-private gap, mobilize capital, and promote renewable energy projects. The review also discusses the challenges that MDBs face, such as regulatory barriers and limited private sector participation. Overall, it offers insights into MDB strategies and challenges in supporting ASEAN in transition to a low-carbon economy.

2.1 The Role of MDBs in Climate Finance and Energy Transition

Several studies have examined the role of MDBs in climate finance, with a primary focus on their ability to bridge the gap between the public and private sectors. In *The Role of Multilateral Development Banks in Climate Finance for Developing Countries*, Ester Choi and Valerie Laxton identify key mechanisms MDBs use to mobilize private-sector investments, such as syndication, guarantees, risk transfers, and public-private partnerships (PPPs).[42] However, the authors argue that these instruments are underutilized, and MDBs have not attracted sufficient private investment relative to expectations. They suggest that MDBs should leverage their ability to finance projects at below-market rates and their influence in convening public and private stakeholders to maximize development and climate outcomes. This highlights a key challenge in MDB operations: while they possess the tools for risk mitigation, their impact on unlocking private sector capital remains limited. [43]

[42] Ester Choi and Valerie Laxton, "The Role of Multiltateral Development in Climate Finance for Developing Countries," *Bridging the Climate Finance Gap: Catalysing Private Capital for Developing and Emerging Economics* (March 2023): 63, https://www.orfonline.org/public/uploads/posts/pdf/20230405144001.pdf
[43] Ibid., 63

Similarly, in the working paper *Financing the Energy Transition: Are World Bank, IFC, and ADB Energy Supply Investments Supporting a Low Carbon Future?*, authors from the World Resources Institute (WRI) discuss how MDBs play a central role in the global climate finance architecture, mobilizing significant amounts of public and private capital for climate mitigation and adaptation.[44] The report identifies three key approaches MDBs use to finance energy projects: (1) direct investment through loans, equity, and guarantees to de-risk projects, (2) indirect investment via credit lines and on-lending mechanisms with local financial institutions, and (3) technical assistance to support policy development and institutional capacity-building.[45] While these strategies facilitate energy transition in developing countries, the effectiveness of indirect financing mechanisms is debatable, as local financial institutions lack the expertise or incentives to allocate funds efficiently towards RE.

In the context of the Paris Agreement, *Aligning finance flows with the Paris Agreement: the role of multilateral development banks* by Anja Carolin Gebel, Aki Kachi, and Lauren Sidner highlights MDBs' commitments to scaling up climate finance by designating specific financing volumes for climate mitigation and adaptation. At the Conference of the Parties (COP) 24 in Katowice, Poland, MDBs introduced a joint framework for aligning their activities with the goals of the Paris Agreement structured around six building blocks: alignment with mitigation targets, adaptation and resilience financing, scaling up climate finance, policy engagement, enhanced reporting, and internal alignment of MDB activities.[46] While the framework shows potential, the

[44] Giulia Christianson, Allison Lee, Gaia Larsen, and Ashley Green, "Financing the Energy Transition: Are World Bank, IFC, and ADB Energy Supply Investments Supporting a Low-Carbon Future?," *World Resources Institute* (May 2017): 6, https://www.wri.org/research/financing-energy-transition-are-world-bank-ifc-and-adb-energy-supply-investments.
[45] Ibid., 7
[46] Anja Carolin Gebel, Aki Kachi, and Lauren Sidner, "Chapter 11: Aligning finance flows with the Paris Agreement: the role of multilateral development banks," *Handbook of International Climate Finance* (October 2022): 257-258, https://doi-org.ezproxy.bu.edu/10.4337/9781784715656.00019.

authors indicate that there remain unanswered questions on how the framework will be implemented in practice.

2.2 MDB Involvement in ASEAN's Climate Finance and Energy Transition

MDBs play a significant role in ASEAN's climate finance architecture, supporting the region's energy transition. Through financial and technical assistance, MDBs facilitate the scaling of RE infrastructure, regulatory reforms, and private sector engagement.

In *Mitigating Climate Change via Clean Energy Financing: An Assessment of the Asian Development Bank's Mitigation Efforts in Southeast Asia*, Laurence L. Delina examines ADB's country strategies in Thailand, Indonesia, the Philippines, and Vietnam. The study finds that while ADB has established climate mitigation indicators, goals, and targets across these four countries, its strategies and plans inconsistently address vulnerabilities and lack clear frameworks for expanding RE technologies.[47] Delina notes that ADB's engagement with clean energy financing and climate change has improved over time but remains uneven.[48]

In terms of energy sector lending, data from ADB's online database shows a lack of recorded energy-related projects before 2002. However, after the Bank launched new energy and climate change programs in 2007, project documentation began incorporating climate change considerations.[49] An assessment of projects between 2000 and 2008 shows that only 7 out of 17 projects (42%) included RE components.[50] This aligns with findings on ADB's climate finance approach, where RE investments have increased but require further scaling. Although ADB has

[47] Laurence L. Delina, "Mitigating Climate Change via Clean Energy Financing: An Assessment of the Asian Development Bank's Mitigation Efforts in Southeast Asia," *The Economic, Social, and Political Elements of Climate Change* (January 2010): 62, https://link.springer.com/book/10.1007/978-3-642-14776-0.
[48] Ibid., 63
[49] Ibid., 63
[50] Ibid., 63

made progress in incorporating climate concerns in its lending portfolio, it needs to align its operational strategies to prioritize RE expansion.

MDBs have also played a crucial role in energy governance in Southeast Asian countries. *Asia, the Multilateral Development Banks and Energy Governance* by Smita Nakhooda looks into MDB engagement in the Greater Mekong Subregion, which comprises Thailand, Laos, Cambodia, Viet Nam, China, and Myanmar. ADB's investments in energy security and productivity have focused on large scale projects, such as the Nam Theun 2 hydropower dam in Laos, supplying electricity to Thailand while generating foreign exchange revenue for Laos.[51] Unfortunately, these projects have raised concerns over environmental degradation and the displacement of local communities.[52] Responding to criticisms, the ADB has implemented initiatives to strengthen environmental governance and integrate poverty alleviation measures.[53] Overall, however, MDBs' ability to enforce governance that is transparent, inclusive, and accountable is constrained by each member states' national priorities, which prioritize energy security over environmental and social concerns.

2.3 Climate Finance Needs and Policy Approaches in ASEAN Member States' Nationally Determined Contributions

A review of each AMS' Nationally Determined Contributions (NDCs) reveals substantial climate finance needs and varied policy strategies to meet emissions reductions and adaptation targets. While each AMS has different requirements that reflect its economic, environmental, and

[51] Smita Nakhooda, "Asia, the Multilateral Development Banks and Energy Governance," *Global Policy* 2 (September 2011): 129, https://onlinelibrary.wiley.com/doi/epdf/10.1111/j.1758-5899.2011.00133.x.
[52] Ibid., 129
[53] Ibid., 129

social priorities, they all reflect a reliance on both domestic and international funding sources to drive climate action within the region.

Several AMS, such as Indonesia and Vietnam, have dedicated significant national resources to climate action while expressing the need for extensive international support. For example, Indonesia allocated USD 55.01 billion to climate action between 2015 and 2019 and predicted further funding requirements of USD 285 billion for conditional climate goals and USD 281 billion for unconditional targets from 2018-2030.[54] At the same time, Indonesia has received international support from multilateral channels, such as the World Bank, along with other bilateral partners, receiving a total of USD 1.2 billion in the form of loans and grants during the 2015-2016 period.[55] Similarly, Vietnam has implemented policies to mobilize resources from the public and private sectors, along with developing green finance instruments such as green bonds and investment funds. With an identified need of USD 59.7 billion[56], the Vietnamese government has mentioned improving policies and regulations to create favorable conditions for green finance investment and improve climate finance within the country, specifically focusing on RE development and energy efficiency.[57]

Cambodia and Laos PDR have also mentioned Overseas Development Assistance (ODA) as an important source in helping them meet their climate goals. Additionally, both countries have focused on building climate monitoring frameworks to better track and utilize climate funding. On the other hand, Myanmar highlights the need for concessional loans and grant-based financing due to limited domestic resources, relying on international partners, MDBs, and private sector partners to support its adaptation and mitigation efforts. According to Myanmar's NDC,

[54] Republic of Indonesia, "Enhanced Nationally Determined Contribution," 2022, 19, https://unfccc.int/sites/default/files/NDC/2022-09/23.09.2022_Enhanced%20NDC%20Indonesia.pdf.
[55] Ibid., 18
[56] NDC Partnership, "Viet Nam", Accessed November 18, 2024, https://ndcpartnership.org/country/vnm.
[57] Socialist Republic of Viet Nam, "Nationally Determined Contribution," 2022, 35, https://unfccc.int/sites/default/files/NDC/2022-11/Viet%20Nam_NDC_2022_Eng.pdf

the country applied for a soft loan of USD 400 million for power sector development.[58] The Ministry of Electricity and Energy (MOEE) also outlined financing needs of USD 874 million to promote RE.[59]

Thailand and the Philippines prioritize enhancing climate finance resilience and refining funding strategies. The Philippines integrates climate finance into its broader national plans, including the Philippine Development Plan 2017-2022 and the Philippine Energy Plan 2018-2040, among other frameworks.[60] Thailand, meanwhile, focuses on developing a national monitoring and evaluation system for climate finance to track funding sources better and ensure effective allocation.[61]

Despite targets set by AMS in their NDCs, these countries continue to face a substantial climate finance gap. From 2018 to 2019, ASEAN only received 5% of the total share of climate finance flows in Asia and the Pacific ($27.8 billion), with most of the finances sourced from national, multilateral, and bilateral development finance institutions (DFIs).[62] The ADB was the largest contributor to the region, offering one-third of tracked multilateral finance. Approximately 84% of these finances went to mitigation efforts.[63] To fill this gap, ASEAN would require $210 billion annually to meet its climate-resilient infrastructure needs.[64] Mitigation needs are significant as the cost to transition from a fossil fuel-based economy to a low-carbon economy is high, requiring substantial investments in RE systems. This cost would

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[58] Republic of the Union of Myanmar, "Nationally Determined Contribution," 2021, 54, https://unfccc.int/sites/default/files/NDC/2022-06/Myanmar%20Updated%20%20NDC%20July%202021.pdf
[59] Ibid., 54
[60] Republic of the Philippines, "Nationally Determined Contribution," 2021, https://unfccc.int/sites/default/files/NDC/2022-06/Philippines%20-%20NDC.pdf
[61] Kingdom of Thailand, "2nd Updated Nationally Determined Contribution", 2022, https://unfccc.int/sites/default/files/NDC/2022-11/Thailand%202nd%20Updated%20NDC.pdf.
[62] Meera Gopal and Kate Logan, "Asia's Climate Finance Needs & Opportunities: Advancing a Shared Vision," *Asia Society Policy Institute*, July 27, 2024, 25, https://asiasociety.org/policy-institute/asias-climate-finance-needs-opportunities-advancing-shared-vision
[63] Ibid., 25
[64] Ibid., 25

constitute roughly 4% to 5% of ASEAN economies' GDP. According to estimates by the International Energy Agency (IEA), for a net zero scenario in ASEAN countries, clean energy investments of about $180 billion annually will be required by 2030; this figure is expected to rise to $240 billion by 2035.[65] This underscores the need to engage the private sector more effectively.

2.4 The Role of MDBs in Facilitating Private Sector Participation

MDBs are critical in bridging the financing gap for climate action in ASEAN by facilitating private sector participation through targeted financial mechanisms and strategic support. Their effectiveness is due to their ability to de-risk projects, create favorable investment environments, and mobilize additional capital for RE and climate resilience projects. Three MDBs operate in ASEAN - the Asian Development Bank (ADB), the Asian Infrastructure Investment Bank (AIIB), and the World Bank Group - and they address the region's energy challenges by bridging the investment gap needed to achieve ASEAN's energy goals.

2.4.1 Financial Assistance

MDBs provide financial assistance through concessional loans, grants, blended finance initiatives, and guarantees to reduce financial risks associated with RE investments. For AMS, attracting private-sector investment in RE is difficult due to currency exchange risks. AMS are susceptible to significant fluctuations and long-term depreciation as a result of political instability, economic uncertainties, and global prices.[66] These risks pose challenges to RE finance as it raises the cost of RE infrastructure, making it more difficult for RE projects to be

[65] Ibid., 25
[66] ASEAN Centre for Energy, *ASEAN Energy Investment 2024,* ASEAN Centre for Energy, 2024, 35, https://aseanenergy.org/wp-content/uploads/2024/09/ASEAN-Energy-Investment-2024.pdf

economical.[67] The region's small market size and limited capital account convertibility further exacerbate barriers to private-sector investment as there is limited-to-no currency hedging to support investors in managing risk. [68]

MDBs have proven effective in de-risking investments in various ways to help attract private capital. This can include providing grants, low-interest loans, and blended finance options. An example of this can be seen through ADB's Lotus Wind Power Project, located in Huong Hoa District, Quang Tri Province, Vietnam. In 2021, ADB arranged and syndicated a $173 million financing package for the development of three wind farms - Lien Lap, Phong Huy, and Phong Nguyen, with a total capacity of 144 megawatts (MW).[69] The project marks ADB's first financing of a wind power project in Vietnam. As the mandated lead arranger and book-runner for the financing package, ADB addressed risks related to Vietnam's Power Purchase Agreements (PPAs) and attracted international co-financiers for long-term USD financing, which is typically unavailable in the country.[70] By developing a limited-recourse financing structure, ADB enabled private sector participation despite regulatory challenges with VND-denominated tariffs.[71] The B-loan structure attracted international banks and investors unfamiliar with Vietnam's renewable sector, including the Japan International Cooperation Agency (JICA) and Export Finance Australia (EFA).[72]

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[67] Ibid.
[68] Ibid.
[69] Asian Development Bank, "Viet Nam : Lotus Wind Power Project, " Accessed October 28, 2024, https://www.adb.org/projects/54211-001/main.
[70] Asian Development Bank, *Proposed Loans: Lien Lap Wind Power Joint Stock Company, Phong Huy Wind Power Joint Stock Company, and Phong Nguyen Wind Power Joint Stock Company Lotus Wind Power Project*: (February, 2021), 1, https://www.adb.org/projects/documents/vie-54211-001-rrp.
[71] Ibid., 1
[72] Asian Development Bank, "Viet Nam: Lotus."

2.4.2 Technical Assistance and Capacity-Building

Aside from financial assistance, MDBs provide technical assistance and capacity-building programs to facilitate the necessary infrastructure and policy environment to promote RE development. Although clean energy projects, mainly wind and solar, have risen, many ASEAN countries need more grid and transmission infrastructure to switch to clean energy.[73] Implementing RE requires modernized battery storage, transmission, distribution, and power management systems, as without them a grid will have to resort to fossil fuels when sun and wind are scarce.[74] An advanced grid is important for balancing energy supply and demand, ensuring energy is available exactly when and where it's most needed. However, due to public ownership of grid infrastructure, which state-owned enterprises often manage, grid modernization projects often face greater obstacles to private investment. Upgrading grid infrastructure requires navigating complex issues with landowners, permits, and numerous local authorities.[75]

This is where MDBs step in, helping address these challenges to facilitate the completion of these projects. In 2023, the World Bank approved a USD 750 million financing package for the Philippines First Sustainable Recovery Development Policy Loan (DPL).[76] The DPL supports ongoing government reforms in various sectors, including attracting private investment in RE projects. With the support of the World Bank, the Philippines Department of Energy (DOE) amended the RE Act regulations by removing the previous 40% cap on foreign equity for wind and solar projects.[77] This allows for greater foreign investment, which is crucial for scaling up

[73] Valerie Laxton, Kamal Ali, and Laura Van Wie McGory, "Development Banks Can Catalyze the Clean Energy Transition, Starting in South and Southeast Asia, " *World Resources Institute*, June 28, 2024. https://www.wri.org/insights/how-mdbs-can-catalyze-clean-energy-in-south-southeast-asia.
[74] Ibid.
[75] Ibid.
[76] World Bank Group, *Philippines - First Sustainable Recovery Development Policy Loan (Washington, D.C. : World Bank Group)*,1, http://documents.worldbank.org/curated/en/099052223125515330
[77] Ibid., 22

RE capacity in the Philippines. The World Bank has also assisted with streamlining regulations to speed up RE projects by establishing frameworks that minimize bureaucratic obstacles and ensure compliance with environmental standards, helping attract more private sector participation and unlock substantial capacity for RE growth.[78] On a regional scale, in September 2024, the World Bank approved a 5 million technical assistance grant to support the ASEAN Power Grid. This initial grant is intended to support further the APAEC implementation, which is key in advancing energy security, accessibility, affordability, and sustainability in the region.[79]

2.5 MDB Climate Financing Challenges in ASEAN

While MDBs employ various mechanisms to de-risk investments and engage the private sector, internal and external challenges unique to ASEAN often limit their effectiveness. In the chapter "RE Investment in Southeast Asia" in *China's Cooperation with Southeast Asia to Support an Ambitious Clean Energy Transition by 2030* by the Asia Society Policy Institute, infrastructure, and regulatory challenges are highlighted as the main contributing factors that affect the feasibility and profitability of RE projects. Across ASEAN, expanding the grid infrastructure to accommodate the integration of RE requires a longer time frame compared to stand-alone solar and wind projects, which only take six to eight months to complete.[80] As mentioned by one expert, ASEAN governments' lack of experience with managing new technologies means that it would take longer for them to plan to integrate variable RE in the primary energy mix. Multiple experts also cited land acquisition as a key challenge faced by

[78] Ibid., 6
[79] ASEAN Centre for Energy, "ASEAN Centre for Energy Secures World Bank's Technical Assistance Programme Grant to Support the ASEAN Power Grid," October 4, 2024, https://aseanenergy.org/post/asean-centre-for-energy-secures-world-banks-technical-assistance-programme-grant-to-support-the-asean-power-grid/.
[80] Alistair Ritchie and Betty Wang, "China's Cooperation with Southeast Asia to Support More Ambitious Clean Energy Transition by 2030," *Asia Society Policy Institute*, March 20, 2024, 15, https://asiasociety.org/policy-institute/china-southeast-asia-clean-energy-cooperation.

many RE developers. Fragmented land ownership dispersed across multiple landowners makes acquiring large land parcels difficult.[81] Although this issue affects all energy projects, it affects more land-intensive, utility-scale solar projects.[82] Overall, the issue mainly affects unconventional renewable technologies, such as solar and wind. This is because many investors have acquired extensive experience with conventional RE projects in the region, such as hydro, and therefore understand the costs and risks associated with the permitting process. [83]

Regulatory constraints have often been cited as a key issue impacting clean energy investment in Southeast Asia. Regarding Viet Nam, one expert noted that multiple administrative processes need to be completed, including the environmental impact assessment, construction license, and grid connection approval.[84] Procedures for obtaining approval for these processes are often unclear and vague. As an alternative to reduce risks, some investors resorted to collaborating with local partners and used low-quality materials that are available at lower prices.[85] Another strategy involved building smaller-scale solar projects that are easier to implement.

The bankability of power purchase agreements (PPAs) is another concern that affects clean energy investment in Southeast Asia. In Indonesia, an obstacle to solar uptake is associated with unfavorable PPAs with investors forced to take excessive risks.[86] Only companies listed in the selected supplier list can join the auction process by the State Electricity Company (PLN), which limits the scope of private participation.[87] Furthermore, private investors are also concerned that they may not be given enough time to prepare for their bidding, limiting their

[81] Ibid. 15
[82] Ibid. 15
[83] Ibid. 15
[84] Ibid., 15
[85] Ibid., 15
[86] Ibid., 15
[87] Ibid., 15

scope of participation.[88] Challenges associated with PPAs are further exacerbated by macroeconomic conditions in Southeast Asia, as they are often denominated in local currencies while project equipment costs are priced in foreign currencies.[89] Due to the capital-intensive nature of these projects, these risks, while common for all projects, are more pronounced for RE projects.

Beyond financial and regulatory hurdles, MDB effectiveness is further influenced by political and economic factors. State-owned enterprises (SOEs) such as Perusahaan Listrik Negara (PLN) in Indonesia and Viet Nam Electricity (EVN) have significant influence over energy markets, often prioritizing domestic energy policies that might not align with MDB priorities.[90] While MDBs try to engage with governments to encourage investment-friendly regulatory environments, their ability to enforce policy alignment is limited. Moreover, MDB-backed projects often face similar bureaucratic delays as privately funded initiatives, raising concerns about the scalability and efficiency of MDB interventions in the region.[91]

Compared to other developing regions, such as Latin America, where MDBs are more active in facilitating PPPs, their effectiveness in Southeast Asia remains constrained by governance and regulatory challenges.[92] Latin American countries, for instance, have implemented clean energy auctions to support RE procurement. These auctions are supported by MDBs such as the Inter-American Development Bank (IADB) and have helped de-risk

[88] Ibid., 15
[89] Ibid., 16
[90] Agora Energiewende, "Electricity market designs in Southeast Asia: Harnessing opportunities for RE growth – Indonesia, Thailand, Viet Nam and the Philippines," *NewClimate Institute, Energy Research Institute* (October 2024): 14, https://caseforsea.org/post_knowledge/electricity-market-designs-in-southeast-asia/.
[91] Valerie Laxton, Kamal Ali, and Laura Van Wie McGory, "Development Banks" , https://www.wri.org/insights/how-mdbs-can-catalyze-clean-energy-in-south-southeast-asia.
[92] International Renewable Energy Agency (IRENA), "RE Market Analysis: Southeast Asia," January 2018, 16, https://www.irena.org/publications/2018/Jan/Renewable-Energy-Market-Analysis-Southeast-Asia.

investments and attract foreign capital.[93] In contrast, ASEAN countries struggle with policy inconsistency and regulatory uncertainty, which make it difficult for MDBs to create a stable investment environment. While MDB-led initiatives have successfully financed large-scale RE projects, these structural barriers impact their ability to systematically de-risk investments and mobilize private sector participation. Addressing these constraints requires governance reforms and institutional capacity-building to create a more enabling environment for clean energy investment.

[93] Lisa Viscidi and Ariel Yepez, "Clean Energy Auctions in Latin America," *Inter-American Development Bank*, December 2019, https://publications.iadb.org/en/clean-energy-auctions-latin-america.

3. METHODOLOGY

This thesis employed a mixed-methods approach to evaluate the effectiveness of MDBs in facilitating climate finance and mobilizing private sector participation within ASEAN countries. The methodology integrated both qualitative and quantitative analyses to provide a comprehensive understanding of the strategies MDBs utilize and their outcomes. A comprehensive literature review was conducted, drawing from NDCs, journal articles, policy documents, and case studies. This review contextualized the broader roles of MDBs in climate finance, highlighting financial mechanisms, policy alignment, and regional challenges.

Based on insights from the literature review, **Viet Nam** and **Indonesia** were selected as primary case studies due to their pivotal roles in ASEAN's energy transition and significant engagement with MDBs in climate finance. Viet Nam has demonstrated a strong commitment to RE expansion, especially in solar and wind power, and has been a major recipient of MDB funding to scale clean energy infrastructure. As the largest economy in ASEAN, Indonesia presents an interesting case due to its reliance on coal and its engagement with MDBs to finance RE projects and carbon reduction initiatives. These countries serve as critical focal points for analyzing how MDBs contribute to national and regional energy transitions.

To answer the research question—**To what extent are multilateral development banks (MDBs) effective climate financing sources in catalyzing ASEAN's energy transition?**—the analysis was structured around two key streams: **policy analysis** and **financial analysis**. These streams were further broken down into five comparative dimensions: (1) national policies, (2) MDB policies, (3) MDB investments, (4) project outcomes, and (5) implementation challenges.

Dimension	**Explanation**
Government Policies	Current RE policies and their strengths, weakness, bottlenecks

MDB Policies	Alignment of MDB policies with national policies and NDCs
MDB Investments	Grants, loans, other financial mechanisms provided by MDBs
Outcomes	Progress in energy transition
Challenges	Institutional, regulatory, or socio-political barriers impacting MDB projects

Table 1. Dimensions of Comparison

The policy analysis examined how MDB strategies align with national energy frameworks, drawing from Viet Nam's 2050 National Climate Change Strategy (NCCS) and Power Development Plan VIII (PDP8), and Indonesia's Long-Term Strategy for Low Carbon and Climate Resilience 2050 (LTS-LCCR 2050), National Energy Plan (Kebijakan Energi Nasional - KEN), National Energy General Plan (Rencana Umum Energi Nasional - RUEN), and National Electricity General Plan (Rencana Umum Ketenagalistrikan Nasional - RUKN). MDB country partnership strategies were also assessed to determine how MDBs tailor their initiatives to each country's policy needs and long-term energy goals. This analysis provided insights into the extent to which MDBs integrate national policy frameworks into their climate finance strategies.

For the financial analysis, climate finance data from each MDBs project list were examined to quantify their financial contributions to renewable energy-related projects from 2016-2023, starting from the year following the Paris Agreement's adoption. The financial analysis only focused on active and closed projects that were already in operation or had concluded. In calculating the total financial contributions of MDBs, this thesis only included funds directly provided or administered by MDBs. Contributions from other donors or unclassified sources were excluded from the MDB total for analytical clarity purposes and to avoid overestimating MDB financing.

This data was cross-referenced with each country's estimated financial needs, as outlined in the NDCs, to assess the extent to which MDB financing contributed to the required investment. MDB-funded energy projects were further evaluated using these quantitative indicators:

Indicator	**Explanation**
Total number of MDB energy projects (2016-2023)	Sum of the number of MDB energy projects.
Share of investment vs. technical assistance projects (%)	The distribution of investment-related projects and technical assistance projects.
Total financial commitments across MDB projects (USD billion)	Total amount of money invested in MDB projects.
Identified total financial need (USD billion)	Financial need of each country, identified in the NDCs.
Demonstrated need contributed by MDBs (%)	MDB financial commitments divided by identified total financial need.
Average GDP between 2016 to 2023 (USD billion)	The sum of GDP and divided by the number of years.
GDP contributed by MDB financial commitments (%)	MDB financial commitments divided by average GDP between 2016 and 2023.
Total recorded RE generated capacity across MDB projects (MW)	Sum of all recorded RE capacity in MDB projects.
RE generated capacity for every USD billion committed (MW/USD billion)	Total RE generated capacity divided by financial commitments.
RE target (GW)	RE target identified in each country's national energy plan.
Record RE generated capacity contributed towards national RE targets (%)	RE generated capacity divided by RE target.

Table 2. Quantitative Indicators to Measure MDB Project Outcomes

These indicators allowed for an assessment of whether MDB projects effectively catalyzed private investment and advanced the energy transition in Viet Nam and Indonesia.

To supplement the policy and financial analyses, semi-structured interviews were conducted with MDB officials and think tank experts. Interviewees were selected based on their expertise and direct involvement in climate finance initiatives. These interviews provided first-hand insights into the effectiveness of MDB strategies and the challenges in mobilizing private sector participation. For a full list of interview questions, refer to Appendix 2.

By integrating policy analysis, financial data assessment, and stakeholder perspectives, this study provides a comprehensive evaluation of MDB effectiveness in advancing ASEAN's energy transition.

4. MDB EFFECTIVENESS IN CATALYZING CLIMATE FINANCE: CASE STUDIES OF VIET NAM AND INDONESIA

This section presents a comparative case study analysis on how MDBs engage with Viet Nam and Indonesia to support RE development and climate finance mobilization. Drawing from policy frameworks, MDB strategies, financial commitments, and project-level outcomes, this section explores how institutional and regulatory environments shape MDB effectiveness in each country.

4.1 Viet Nam: MDB Engagement in Renewable Energy

4.1.1 Viet Nam's Renewable Energy Policies

The 2050 NCCS was approved by the Prime Minister Nguyen Xuan Phuc via Decision 1055/QĐ-TTg.[94] Aligned with the country's commitments under its NDC, the strategy focuses on adapting losses and damages caused by climate change, reducing GHGs with a net-zero emissions goal by 2050, collaborating with the international community to protect the climate, and developing climate strategies to bolster Viet Nam's economic resilience and competitiveness.

Aligned with these commitments, the NCCS emphasizes green credit that focuses on three key sectors: agriculture, RE, and other sectors - including sustainable water management and sustainable forestry, with an annual financing average of USD 12.91 billion from 2018-2020.[95] The government anticipates that the issuance of a Green Taxonomy, which includes a screening criteria with thresholds for projects and economic activities will enable Viet Nam to

[94] Thủ tướng Chính phủ, *Quyết định số 1055/QĐ-TTg của Thủ tướng Chính phủ: Về việc ban hành Kế hoạch quốc gia thích ứng với biến đổi khí hậu giai đoạn 2021–2030, tầm nhìn đến năm 2050* [Decision No. 1055/QĐ-TTg of the Prime Minister: On the promulgation of the National Climate Change Adaptation Plan for the period 2021–2030, with a vision to 2050], ngày 20 tháng 7 năm 2020, https://vbpl.vn/TW/Pages/vbpq-toanvan.aspx?ItemID=142879.
[95] Bộ Tài nguyên và Môi trường, "Báo cáo: Kế hoạch quốc gia thích ứng với biến đổi khí hậu giai đoạn 2021-2030, tầm nhìn đến 2050," 48, https://www.undp.org/vietnam/publications/national-adaptation-plan-period-2021-2030-vision-2050.

increase the mobilization of international credit resources for climate mitigation and adaptation efforts.[96] This framework is expected to attract development assistance (ODA) and concessional loans for climate-related projects that provide socio-economic benefits and GHG emissions reduction.

As part of Viet Nam's broader climate agenda, decarbonization of the power sector remains a priority. Given that energy production is one of the biggest contributors to GHG emissions, achieving net-zero emissions requires a shift in the country's electricity mix. In this context, Viet Nam has adopted the 8th Power Development Plan (Quy hoạch điện VIII - PDP8), approved on May 15, 2023 under Decision 500/ QĐ-TTg, to serve as the country's national strategy for the power sector between 2021 and 2030, with a vision to 2050.[97] While introduced at the end of the study period, PDP8 is a culmination of Viet Nam's policy developments over the years and provides context for understanding Viet Nam's evolving energy priorities - especially on transitioning to cleaner energy sources such as solar and wind power and reducing reliance on coal and fossil fuels.

PDP8 outlines multiple energy transition goals. By 2030, RE sources are intended to make up 30.9% - 39.2% of Viet Nam's energy mix, aiming to reach 47%, as long as international partners fulfill JETP commitments.[98] Additionally, the government plans to establish two zones dedicated to RE-related businesses, and RE services and RE equipment manufacturing.[99] By 2050, the share of renewables is intended to reach 67.5 - 71.5%.[100] Viet Nam also plans to

[96] Ibid., 48
[97] Thủ tướng Chính phủ, *Quyết định số 500/QĐ-TTg của Thủ tướng Chính phủ: Phê duyệt Quy hoạch phát triển điện lực quốc gia thời kỳ 2021 - 2030, tầm nhìn đến năm 2050* [Decision No. 500/QĐ-TTg of the Prime Minister: Approval of the Power Development Plan for the period 2021-2030, with a vision to 2050] ngày 15 tháng 5 năm 2023, https://vanban.chinhphu.vn/?pageid=27160&docid=207889
[98] Ibid., 3
[99] Ibid., 3
[100] Ibid., 3

prioritize biomass energy from wood pellets, aiming to reach 2.27 GW of power generation by 2030.[101]

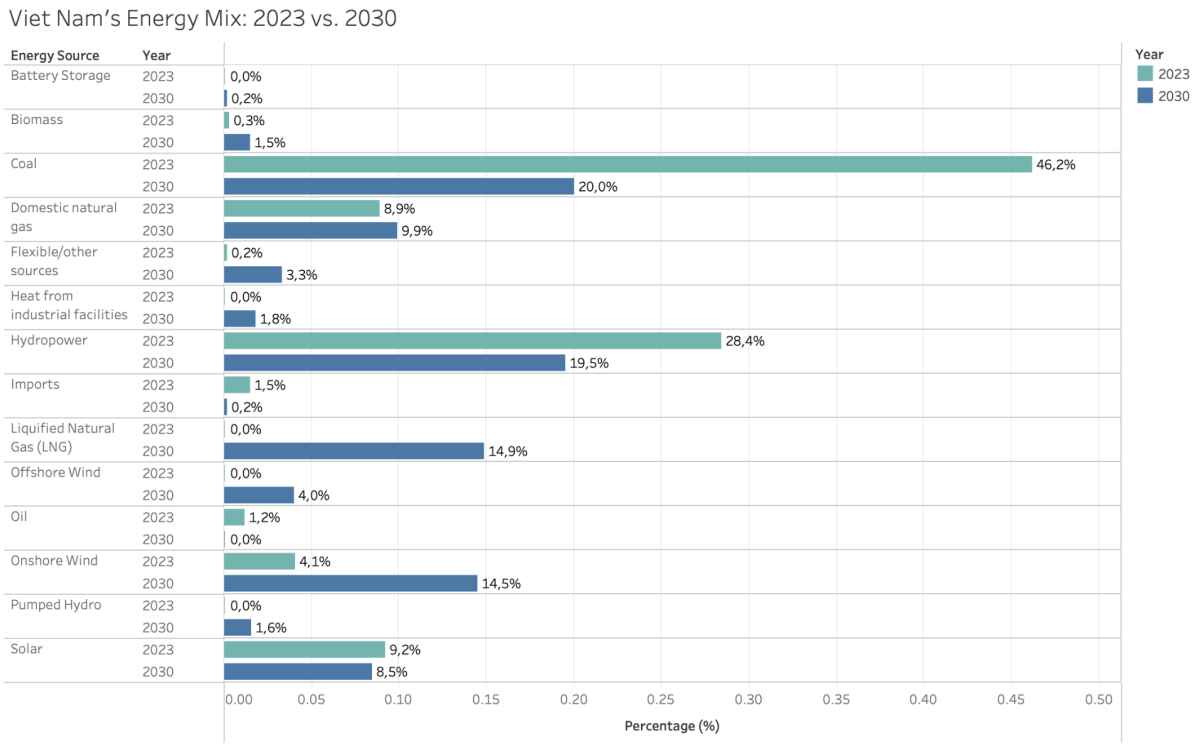

Figure 1. Comparison of Viet Nam's Energy Mix: 2023 vs. 2030 (Data Source: Vietnam Electricity, Vietnamese Government)

A comparison of Viet Nam's energy mix between 2023 and 2030 shows differences in energy sources. In 2023, coal accounted for 46.2% of the energy mix, making it the dominant source of power. However, by 2030, the share of coal is expected to drop down to 20.0%, reflecting a major policy shift toward decarbonization and energy diversification. At the same time, RE is expanding. The government plans to increase onshore wind from 4.1% in 2023 to 14.5% in 2030, while offshore wind will account for 4.0% in 2030. While hydropower has been at the core of Viet Nam's power mix for decades, its development is relatively tapped out and is

[101] Ibid., 5

expected to decrease from 28.4% to 19.5%. Viet Nam appears to be shifting investments toward wind and solar as they offer more scalability and lower environmental risks.

The most notable change in the 2030 energy mix is the introduction of LNG as a key transition fuel to replace coal while maintaining energy security. Other energy sources such as biomass and pumped hydro will see modest increases, highlighting Viet Nam's efforts to diversify its energy supply. Meanwhile, oil will be completely phased out (from 1.2% to 0.0%) and energy imports will decline (from 1.5% to 0.2%). However, Viet Nam's LNG development has raised concerns among experts. According to an expert from the Centre for Strategic and International Studies (CSIS), the investment community - including MDBs - is hesitant to finance LNG infrastructure given its fossil-based nature and the risk of asset stranding. This calls into question how LNG fits into the country's net-zero plans and MDB engagement strategies moving forward. [102]

4.1.2 MDB Policies

A review of each MDB's partnership strategy for Viet Nam reveals that each bank's goal is to work in tandem with the Vietnamese government to strengthen its regulatory framework and technical capacity to respond to climate and energy challenges.

The ADB, through its Country Partnership Strategy (CPS) (2016-2020), focused on promoting a more inclusive and environmentally-sustainable economic growth. One of its three pillars focused on enhancing environmental sustainability and climate change response.[103] At the request of the Vietnamese government, ADB provided regulatory and institutional support,

[102] Author interview with CSIS expert, January 19, 2025.
[103] Asian Development Bank, *Viet Nam: Country Partnership Strategy, 2023–2026—Fostering More Inclusive and Environmentally Sustainable Growth* (Manila: ADB, 2022), 1, https://www.adb.org/documents/viet-nam-country-partnership-strategy-2023-2026.

especially in the renewable energy sector and climate finance frameworks. The Bank's approach emphasized climate-proofing infrastructure investments, supporting adaptation and mitigation through partnerships like the Green Climate Fund, and helping the government meet its Paris Agreement commitments.[104]

With regards to climate finance, ADB played pivotal role in mobilizing concessional co-financing and facilitating access to climate-related funds. ADB focused on climate-proofing infrastructure and mainstreaming climate mitigation and adaptation. In the energy sector, ADB provided technical assistance and policy support to encourage renewable energy investment and improve energy efficiency.[105] Although green bonds and finance facilities were still in development during this period, ADB advised on regulatory frameworks and encouraged private sector investment through blended finance PPP models.[106] These efforts contributed to Viet Nam's readiness to attract global and regional climate investments.

ADB's CPS demonstrated that the Bank works at the request of the Vietnamese government, primarily in an advisory capacity rather than as a direct fund allocator. An interview with an ADB expert reinforced this, emphasizing that ADB's financial and technical assistance is structured around national climate needs rather than independently determined allocation strategies. According to this expert, "allocation of climate finance to ADB developing member countries is based on country demand, determined by the climate needs of the country - Nationally Determined Contributions (NDCs) or the National Adaptation Plan (NAP) priority areas."[107] This statement highlights the demand-driven nature of ADB's climate financing

[104] Ibid., 10
[105] Ibid., 11
[106] Ibid., 6
[107] Author interview with ADB expert, January 10, 2025.

approach. Rather than establishing predetermined funding levels, ADB aligns its financial instruments with Vietnam's policy frameworks and development goals.

While the ADB has been a long-standing partner in Viet Nam's development, the AIIB recently emerged as a significant player in the country's infrastructure financing landscape. In August 2024, the Bank announced a USD 5 billion investment pledge to Viet Nam for a range of transport and RE projects in Viet Nam.[108] This commitment marks a significant increase from AIIB's previous investments in Viet Nam, which totaled USD 233 million.[109]

AIIB's approach to Viet Nam's development needs is multifaceted. In supporting Viet Nam's energy transition, AIIB is involved in the Thuan Bac Solar Project, providing long-term financing for 200 MW solar PV plants. AIIB also supports projects that increase climate resilience, such as upgrading existing solar PV assets to mitigate climate vulnerability.[110] In June 2024, AIIB committed USD 75 million to support green and blue bonds issued by SeABank, making this Viet Nam's first blue bond issuance.[111] This demonstrates AIIB's commitment to innovative financing solutions for sustainable development. Although AIIB doesn't offer concessional loans like other MDBs, it provides various financing options, including sovereign-backed loans, which Viet Nam might find attractive. Additionally, AIIB has expressed interest in joining Viet Nam's USD 15.5 billion JETP deal, highlighting its commitment to support Viet Nam's green transition and infrastructure development.[112]

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[108] James Guild, "The AIIB's $5 Billion Investment Pledge to Vietnam, Explained," *The Diplomat,* August 20, 2024, https://thediplomat.com/2024/08/the-geopolitics-of-the-aiibs-5-billion-investment-pledge-to-vietnam/.
[109] Ibid.
[110] Asian Infrastructure Investment Bank, *Viet Nam: Thuan Bac Solar Project*, accessed March 2, 2025, https://www.aiib.org/en/projects/details/2023/proposed/Viet-Nam-Thuan-Bac-Solar-Project.html.
[111] Asian Infrastructure Investment Bank, "AIIB Commits USD75M to Green and Blue Bonds of Viet Nam's SeABank," news release, July 12, 2024, https://www.aiib.org/en/news-events/news/2024/AIIB-Commits-USD75M-to-Green-and--Blue-Bonds-of-Viet-Nams-SeABank.html.
[112] Tri Duc, "Multilateral infrastructure bank AIIB willing to join Vietnam's $15.5-bln energy initiative JETP," *The Investor VAFIE Magazine,* July 16, 2024, https://theinvestor.vn/multilateral-infrastructure-bank-aiib-willing-to-join-vietnams-155-bln-energy-initiative-jetp-d11244.html.

Similar to ADB, the WBG developed a comprehensive strategy for supporting Viet Nam's development through its Country Partnership Framework (CPF) for the fiscal years 2018-2022. The CPF was closely aligned with Viet Nam's strategic priorities, as outlined in Viet Nam's Socio- Economic Development Strategy (SEDS) 2021-2030 and aims to support the country's goal of becoming a higher middle-income country by 2030 and a high-income country by 2045.[113]

The WBG's approach focused on several key areas. Firstly, it sought to address macroeconomic vulnerabilities, enhance productivity growth, and strengthen competitiveness, with a particular emphasis on private sector development.[114] The WBG focused on improving the complementary roles of the public and private sectors in infrastructure development.[115] Secondly, the WBG committed to promoting sustainable models for natural resource use and management. This includes new engagements with low carbon energy sources, including renewables.[116] It applied the Cascade approach in Viet Nam's energy sector, strengthening private sector participation while promoting low carbon energy generation. [117]

The WBG's energy sector program in Viet Nam assisted the country's transition in its energy mix. This involved increasing energy efficiency on the demand and supply sides, scaling up non-hydropower RE, promoting the financial viability of EVN and the power sector, including competition in gas and the electricity markets and improving sector governance.[118] Additionally, through the International Finance Corporation (IFC), the WBG collaborated with selected banks to develop their sustainable energy portfolios and tailor financing products to

[113] World Bank Group, *Country Partnership Framework for the Socialist Republic of Vietnam for the Period FY18-FY22,* (Washington, D.C.: WBG, 2017), 1, https://openknowledge.worldbank.org/entities/publication/6899573f-b514-5723-9c79-f7ffd8006abe.
[114] Ibid., 24
[115] Ibid., 24
[116] Ibid., 32
[117] Ibid., 25
[118] Ibid., 33

support these initiatives.[119] This comprehensive approach demonstrated the WBG's commitment to supporting Viet Nam's sustainable development and transition to a greener, more competitive economy.

While all three MDBs - ADB, AIIB, and WBG seek to align their strategies with Viet Nam's national priorities and NDC commitments, their approaches to climate finance and energy transition differ in scope of implementation. Each bank plays a distinct role in shaping Viet Nam's regulatory environment, mobilizing financial resources, and supporting infrastructure development. To better understand how each MDB operates within Viet Nam's climate finance landscape, the table below provides a comparative overview of their key strategic approaches.

Aspect	**ADB**	**AIIB**	**WBG**
Strategic focus	Policy and regulatory support; mobilizing finance for green transition.	Infrastructure financing, large-scale project financing.	Macroeconomic stability, competitiveness, private sector-led energy transition.
Role in Viet Nam's energy transition	Works at the request of the Vietnamese government, advising on national climate policies.	Direct project-based investment, supporting infrastructure-based projects.	Implements the Cascade approach to increase private sector participation in energy and finance.
Climate finance modalities	Supports access to green finance facilities and concessional financing.	Provides non-concessional financing and sovereign-backed loans.	Offers concessional loans and private sector financing backed by the IFC.
Green bonds	Explores green bonds issuance and green finance facility.	Invested in blue bonds and sustainable instruments.	Works with the Vietnamese government to develop green finance portfolios.
Institutional role	Serves primarily as	Directly finances	Integrates

[119] Ibid., 33

	an advisory partner to the government, shaping policy frameworks.	physical infrastructure projects.	macroeconomic reforms combined with sectoral development.

Table 3. Comparative overview of each MDBs strategic approaches in Viet Nam's climate finance and energy transition

This comparison table illustrates that while all three institutions align with Viet Nam's climate priorities, their approaches vary in financing mechanisms, policy influence, and engagement with the private sector.

4.1.3 MDB Financial Commitments

While all three institutions align with Viet Nam's climate priorities, their contributions alone cannot fully meet Viet Nam's investment requirements for a sustainable energy transition. Viet Nam continues to face financing gaps in scaling RE, enhancing infrastructure resilience, and meeting its net-zero commitments.

Year	**ADB (USD million)**	**AIIB (USD million)**	**WBG (USD million)**	**Total (USD million)**
2016	0	0	93	**93**
2017	100.23	0	101.7	**201.93**
2018	42	0	0	**42**
2019	37.8	0	11.3	**49.1**
2020	186	0	85.9	**271.9**
2021	276.5	95	221.5	**593**
2022	43	0	4.1	**47.1**
2023	0	0	527.72	**527.72**
Total	**685.53**	**95**	**1,045.22**	**1,825.75**

Table 4. Financial Commitments from MDBs in Viet Nam's Energy Sector (Sources: ADB Climate Change Financing Dataset, AIIB Project List, WBG Projects & Operations)

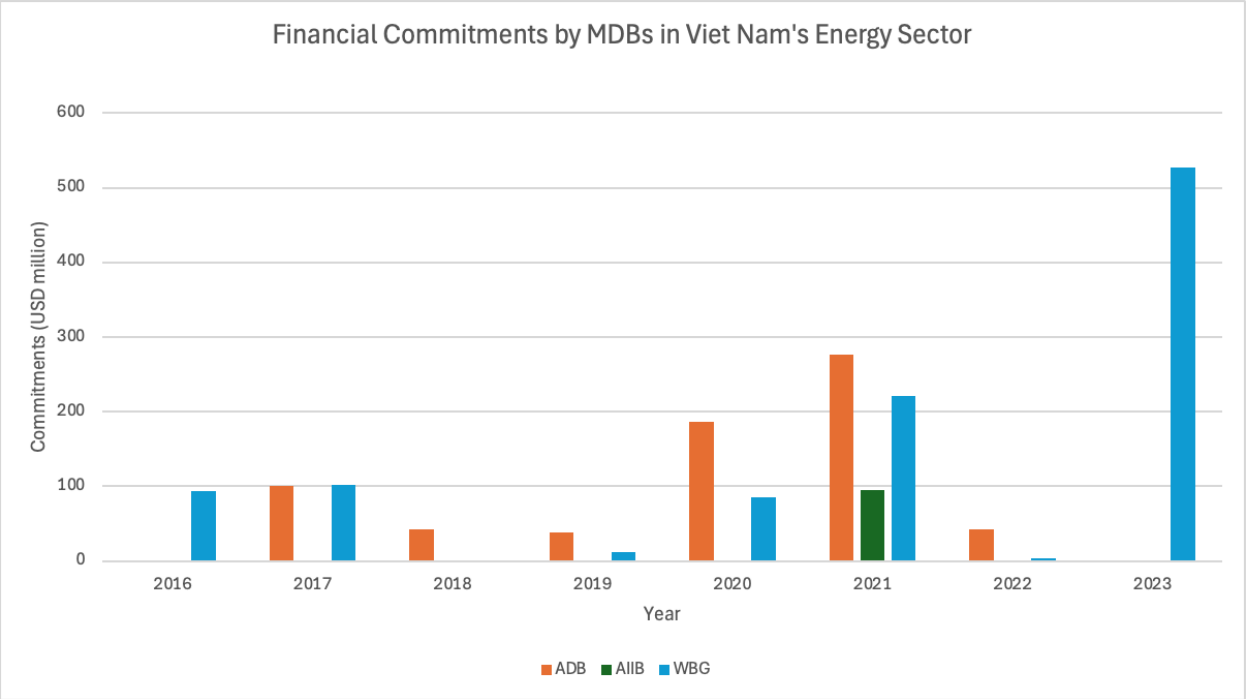

Figure 2. Financial Commitments from MDB Projects in Viet Nam's Energy Sector (Sources: ADB Climate Change Financing Dataset, AIIB Project List, WBG Projects & Operations)

The graph illustrates financial commitments from MDB projects in Viet Nam's Energy Sector between 2016 and 2023, with contributions from ADB, AIIB, and WBG. Between 2017 and 2022, ADB maintained consistent funding, with its largest commitment occurring in 2021 (USD 276.5 million). This steady investment pattern reflects ADB's sustained engagement in Viet Nam's energy transition. However, there is a decline in 2023, as the bank's energy-related projects had only been approved but not committed yet. Despite moderate funding commitments in 2017, 2018, 2019, and 2022, ADB's approach appears more gradual and stable compared to WBG's more volatile investment pattern.

AIIB's presence is minimal, only appearing in 2021 with the Dakdrinh 125 MW Hydropower Plant project. This indicates that AIIB plays a smaller role in MDB financing in the country and focuses more on non-sovereign funding, although it has expressed interest in joining JETP.

In contrast, WBG presents the highest peaks in funding, particularly in 2021 (USD 221.5 million) and 2023 (USD 527.72 million). This fluctuation highlights a project-specific investment approach rather than continuous annual engagement. There was minimal funding in 2018, 2019, and 2022, further reinforcing the idea that WBG's investments are tied to large-scale strategic projects rather than a consistent funding flow. Looking at the project titles and descriptions, it is clear that WBG has a more macro focus compared to ADB, often focusing on large-scale initiatives. WBG also focuses more on sovereign loans, with implementing agencies such as the Ministry of Industry and Trade (MOIT) and the Ministry of Natural Resources and Environment (MONRE). The massive spike in 2023 (USD 527.72 million) is tied to the second operation of the Inclusive and Sustainable Recovery Development Policy Financing (DPF), which supports the Vietnamese government in sustaining a more inclusive, green, and digital-friendly economy by supporting the expansion of RE.

Year	**ADB Loans (USD million)**	**ADB Technical Assistance (USD million)**	**ADB Co-Financed Loans (USD million)**	**ADB Co-Financed Grants (USD million)**
2016	0	0	0	0
2017	100	0.3	0	0
2018	20	0	22	0
2019	11.3	0	26.5	0
2020	27.9	0	158.1	0

2021	59.5	0	217	0
2022	32	0	5	6
2023	0	0	0	0

Table 5. ADB's Financial Commitments in Viet Nam's Energy Sector by Financing Type (2016-2023)

An examination of ADB's financial commitments by financing type reveals a transition from direct loans to increased co-financing. While ADB initially focused on direct loans, with its largest standalone loan being USD 100 million in 2017 for the Municipal Waste-to-Energy Project[120], the years 2018, 2020 and 2021 saw a major shift towards co-financed loans. In 2020, ADB only provided USD 27.9 million in loans, but this was supplemented by a substantial USD 158.1 million in co-financed loans, making it the highest funded year overall. A similar trend continued in 2021, with USD 59.5 million in direct loans and USD 217 million in co-financed loans, further reinforcing ADB's growing reliance on external partnerships.

Despite these investment peaks, ADB provided no technical assistance beyond in 2017 and no recorded co-financed grants until 2022 (USD 6 million). This suggests that ADB's support for Viet Nam's energy sector has been primarily driven by loan-based financing. The growing importance of co-financing in 2020 and 2021 reflects ADB's role as a facilitator rather than a sole financier, aligning its strategy with broader multilateral funding efforts.

Year	**WBG Loans (USD million)**	**WBG Co-Financed Grant (USD million)**
2016	90	3
2017	101.7	0
2018	0	0

[120] Asian Development Bank, "Municipal Waste-to-Energy Project," Accessed March 2, 2025, https://www.adb.org/projects/50371-001/main.

2019	0	11.3
2020	84.4	1.5
2021	221.5	0
2022	0	4.1
2023	527.72	0

Table 6. WBG's Financial Commitments in Viet Nam's Energy Sector by Financing Type (2016-2023)

On the other hand, WBG's financial commitments in Viet Nam's energy sector from 2016 to 2023 reveal a project-driven funding strategy that can be tied to large-scale initiatives rather than continuous sectoral support. This is different from ADB, which maintained a stable presence and gradually increased its reliance on co-financing. Notably, loan commitments were the highest in 2021 (USD 221.5 million) and 2023 (USD 527.72 million). In contrast, 2018, 2019, and 2022 saw no direct loan commitments, indicating that WBG allocates funding for specific, large-scale projects.

Another key distinction in WBG's financing strategy is its limited use of co-financing. Unlike ADB, which had huge co-financing commitments in 2020 and 2021, WBG's co-financing commitments remained minimal. Only four years - 2016, 2019, 2020, and 2022 recorded co-financing contributions, with the highest being USD 11.3 million in 2019. Notably, WBG didn't engage in co-financing during its peak investment years - 2017, 2021, and 2023, suggesting that the bank skewed more towards direct lending rather than partnership-driven financing models. This approach contrasts ADB, which relied on co-financing to expand its impacts in Viet Nam's energy sector.

4.1.4 Outcomes & Challenges

The analysis of financial commitments reveals that between 2016 and 2023, MDBs contributed a total of **USD 1.8 billion** to Viet Nam's energy sector across its projects. However, this figure only accounts for **3.02%** of Viet Nam's **USD 59.7 billion** identified financial needs in its NDC. Given the average GDP within this time period was **USD 342 billion**, MDBs contributed only **0.53%** of Viet Nam's GDP. These figures highlight an investment gap between MDB financing and Viet Nam's RE investment needs, reinforcing the necessity for increased private-sector engagement and alternative funding mechanisms.

Several challenges hinder the effectiveness of MDB financing in Viet Nam's energy transition. In 2017, under Decision No.11 /2017/QĐ-TTg, Viet Nam introduced a competitive FiT policy for solar and wind energy at USD 9.35 cents per kilowatt hour.[121] This attracted significant interest in solar projects in Viet Nam, particularly in the southern regions which had the highest levels of irradiation.[122] However, the FiT was only available to projects that achieved commercial operations by 2019, causing uncertainty surrounding projects that would not be commissioned by this date. In 2019, the government released a Draft Decision to replace Decision No. 11, stipulating that new FiTs will be introduced for an additional two years, from July 1, 2019 to 2021.[123] Under the Draft Decision, the revised FiTs ranged from USD 6.67 cents per kilowatt hour to USD 10.87 US cents per kilowatt hour depending on the type of solar power technology and region of deployment.[124] These adjustments gave developers little time to qualify

[121] Thủ tướng Chính phủ, *Quyết định số 11/2017/QĐ-TTg của Thủ tướng Chính phủ: Về cơ chế khuyến khích phát triển các dự án điện mặt trời tại Việt Nam* [Decision No. 11/2017/QĐ-TTg of the Prime Minister: On the mechanism of encouraging the development of solar power projects in Viet Nam], ngày 11 tháng 4 năm 2017, https://vanban.chinhphu.vn/default.aspx?pageid=27160&docid=189336

[122] Watson Farley & Williams, "New Feed-in Tariff Mechanism for Vietnamese Solar Energy Projects," March 2019, 1, https://www.wfw.com/wp-content/uploads/2019/03/WFW-Briefing-New-Feed-in-tariff-mechanism-for-Vietnamese-solar.pdf

[123] Ibid., 1

[124] Ibid., 1-2

for the new FiT, with there being long gaps of without an official FiT at times. Although these revised regulations were due to Viet Nam's rapidly developing solar market, such uncertainty over which FiT would apply posed a huge risk to investors.

While FiTs for solar and wind energy were set in USD with a mechanism to convert revenue from Vietnamese dong (VND) to USD, Viet Nam's current PPA law requires tariffs to be denominated in VND without consideration of USD inflation.[125] Because most loans coming from international lenders for the projects are in USD, this creates a currency mismatch, increasing financial risk and deterring investment. While the MOIT establishes a price framework from solar and wind PPAs annually, the exchange rate remains fixed once the PPA is signed, regardless of fluctuations with the USD-VND exchange rate.[126] Therefore, if the VND depreciates against USD, VND revenue may not be enough to repay USD loans.

Because of these reasons, international investors do not see current PPAs as bankable. The current PPA structure does not guarantee a minimum purchase obligation from EVN; instead, EVN follows a take-and-pay obligation, purchasing electricity only when received with no minimum purchase guarantee[127]. This lack of long-term certainty discourages investors and limits bankability. To mitigate issues with the PPA, on July 3, 2024, the government issued

[125] Bộ Công thương, *Thông tư số 19/2023/TT-BCT của Bộ Công thương: Quy định phương pháp xây dựng khung giá phát điện áp dụng cho nhà máy điện mặt trời, điện gió* [Circular No. 19/2023/TT-BCT of the Ministry of Industry and Trade: Providing the methodology for determining the electricity price framework applicable to solar and wind power plants], ngày 01 tháng 11 năm 2023, https://vanban.chinhphu.vn/?pageid=27160&docid=208962.
[126] Ibid.
[127] Bộ Công thương, *Thông tư số 01/2023/TT-BCT của Bộ Công thương: Bãi bỏ một số quy định tại Thông tư số 02/2019/TT-BCT ngày 15 tháng 01 năm 2019 của Bộ trưởng Bộ Công Thương quy định thực hiện phát triển dự án điện gió và Hợp đồng mua bán điện mẫu cho các dự án điện gió và Thông tư số 18/2020/TT-BCT ngày 17 tháng 7 năm 2020 của Bộ trưởng Bộ Công Thương quy định về phát triển dự án và hợp đồng mua bán điện mẫu áp dụng cho các dự án điện mặt trời* [Circular 01/2023/TT-BTC of the Ministry of Industry and Trade: Repealing certain provisions of Circular No. 02/2019/TT-BCT dated January 15, 2019, of the Minister of Industry and Trade on the development of wind power projects and the model power purchase agreement for wind power projects, and Circular No. 18/2020/TT-BCT dated July 17, 2020, of the Minister of Industry and Trade on the development of solar power projects and the model power purchase agreement applicable to solar power projects], ngày 19 tháng 1 năm 2023, https://chinhphu.vn/?pageid=27160&docid=207378.

Decree 80/2024/NĐ-CP on the Direct Purchase Power Agreement (DPPA).[128] Unlike PPAs which are tied to EVN, DPPAs allow private buyers to purchase energy directly, either through a Physical DPPA (dedicated line) or a Virtual DPPA (national grid).[129] The introduction of the DPPA provides economic benefits for Viet Nam, by 1) supplying the industrial sector with sufficient energy for a GDP growth rate of 5% - 6% per annum, 2) retaining multilateral manufacturers and companies with corporate RE regulations, and 3) stabilizing energy costs as RE offers fixed upfront investment and zero fuel costs.[130]

Some MDB-backed projects have successfully navigated PPA uncertainty by leveraging risk mitigation strategies. One such example is the ADB Floating Solar Energy Project. On October 2, 2019, ADB signed a USD 37 million loan agreement with the Da Nhim–Ham Thuan–Da Mi Hydro Power Joint Stock Company (DHD) for the installation of a 47.5 megawatt (MV) peak floating PV solar power facility on the man-made reservoir of DHD's existing 175 MW Da Mi hydropower plant.[131] As the first large-scale installation of floating solar PV panels in Viet Nam and the largest installation in Southeast Asia, the project aims to boost the share of RE in Viet Nam's overall energy mix, thus decreasing the dependence on fossil fuels.

The financing package consists of USD 17.6 million loan from ADB's ordinary capital resources. This was combined with USD 19.4 million of blended concessional co-financing by

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[128] Chính phủ Việt Nam, *Nghị định số 80/2024/NĐ-CP của Chính phủ: Quy định về cơ chế mua bán điện trực tiếp giữa Đơn vị phát điện năng lượng tái tạo với Khách hàng sử dụng điện lớn* [Decree No. 80/2024/NĐ-CP of the Government: Providing regulations on the direct power purchase mechanism between renewable energy generators and large electricity consumers], ngày 3 tháng 7 năm 2024, https://vanban.chinhphu.vn/?pageid=27160&docid=210545&classid=1&orggroupid=2.

[129] Eli Mazur and Huong Giang Nguyen, "Making a Model PPA Bankable: Revisions to Vietnam's PPA for Onshore and Offshore Wind Required," *YKVN Law,* June 21, 2024, https://ykvn-law.com/making-a-model-ppa-bankable-revisions-to-vietnams-ppa-for-onshore-and-offshore-wind-required/.

[130] Thu Nguyen and Marlon Joseph Apanada, "Vietnam's Renewable Energy Policy Is Spurring Decarbonization of Global Brands," *World Resources Institute,* November 1, 2024, https://www.wri.org/insights/vietnam-direct-power-purchase-agreement.

[131] Asian Development Bank, "Viet Nam: Floating Solar Energy Project," Accessed March 2, 2025, https://www.adb.org/projects/51327-001/main.

the Canadian Climate Fund for the Private Sector in Asia (CFPS), the Canadian Climate Fund for the Private Sector in Asia II (CFPS II), and the Leading Asia's Private Infrastructure Fund (LEAP).[132]

ADB was able to mobilize a financing package that made this project commercially viable. Limitations associated with Viet Nam's PPA laws along with the inexperience of local banks in U.S. dollar renewable energy financing made it difficult to attract international investors.[133] As one of Viet Nam's first independent power producers (IPP) projects, ADB's role as the mandated lead arranger and bookrunner facilitated a financing model that mitigated PPA risks and attracted international co-financiers.[134] Concessional loans provided by CFPS and CFPS II were crucial in helping close the financing gap, move returns closer to private-sector norms, and demonstrate a viable model for scale-up.[135]

Overall, MDBs have played a catalytic but differentiated role in Viet Nam's energy transition. ADB has served as a technical and financial facilitator, focusing on co-financing and policy advisory. While relatively a new actor, AIIB has expressed interest in increasing its presence through sovereign-backed investments. Through its strategic partnerships and large-scale lending, the WBG has contributed to macroeconomic and infrastructure-level reforms. Despite MDBs' efforts, Viet Nam's complex regulatory environment continue to limit the full potential of MDB investments. Although MDBs have responded by adapting financing mechanisms, policy reforms and private sector enablement are necessary in closing the finance gap and realizing Viet Nam's renewable energy ambitions.

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[132] Ibid.
[133] Asian Development Bank, "Proposed Loan and Administration of Loans Da Nhim - Ham Thuan - Da Mi Hydro Power Joint Stock Company Floating Solar Energy Project (Viet Nam)," September 2018, 5, https://www.adb.org/projects/documents/vie-51327-001-rrp.
[134] Ibid., 5
[135] Ibid., 6

4.2 Indonesia: MDB Engagement in Renewable Energy

4.2.1 Indonesia's Renewable Energy Policies

In 2021, Indonesia submitted its Long-Term Strategy for Low Carbon and Climate Resilience 2050 (Indonesia LTS-LCCR 2050) to the United Nations Framework on the Convention of Climate Change (UNFCCC). The strategy aims to reach net-zero emissions by 2050, balancing emissions reduction and economic development, placing emission reduction, economic growth, justice or fairness and climate resilient development as a core part of the LTS-LCCR's goal.[136] As part of developing a long-term low carbon strategy in the energy sector, four guiding pillars were taken into account: i) adoption of energy efficiency measures, ii) integration of low-carbon electricity in the transportation and building sectors, iii) transition from coal to natural gas and renewable sources in industrial operations, and iv) expansion of RE across the power, transport, and industrial sectors.[137]

Complementing this long-term vision is the KEN, Indonesia's highest level energy strategy, established under Presidential Regulation No. 79/2014.[138] The KEN defines national priorities for energy security, affordability, and sustainability through 2050. A central focus of the plan is the transformation of Indonesia's primary energy mix, with 23% of renewables by 2025 and 31% of renewables by 2050.[139] However, this plan was reduced to 17-19% in the revised KEN that was approved in 2024, citing the need for a more realistic and achievable approach given current energy sector constraints.[140] The plan also outlines a gradual phase-out of

[136] Republic of Indonesia, "Indonesia: Long-Term Strategy for Low Carbon and Climate Resilience 2050," 2021, 2, https://unfccc.int/sites/default/files/resource/Indonesia_LTS-LCCR_2021.pdf.
[137] Ibid., 2
[138] President of the Republic of Indonesia, *Presidential Regulation No.79/2014*, 2014, https://policy.asiapacificenergy.org/node/3016.
[139] Ibid., 5
[140] Institute for Essential Services Reform, "Reducing KEN's Renewable Energy Target Risks Hindering the Growth of a Low-Carbon Economy," June 24, 2024, https://iesr.or.id/en/draft-government-regulation-on-national-energy-policy-rpp-ken-slashes-nre-target-to-19-percent-in-2025/.

oil and coal, along with a transition toward greater reliance on natural gas as an interim solution in Indonesia's energy shift. Regarding oil, Indonesia aims for it to be less than 25% by 2025 and less than 20% by 2030.[141] Coal should be at least 30% by 2025 and 25% at the minimum in 2050. For natural gas, Indonesia seeks to achieve at least 22% by 2025 and 24% in 2050.[142]

Based on the target set in the KEN, the government created the RUEN through Presidential Regulation No. 22/2017.[143] The RUEN serves as an implementation plan of the KEN and details energy management across various sectors. RUEN sets a target of 23% of RE in the primary energy mix by 2025, while still relying on fossil fuels. Despite this goal, RUEN projects in Indonesia will still depend on fossil fuels, with coal making up 30%, natural gas at 22% and crude oil at 25%.[144] Although RUEN is a national policy, the Presidential Regulation stipulates that every province should also have its own energy plan.[145] This led to the creation of the RUED, which follows a top-down approach where provincial strategies align with national priorities. The National Energy Council (Dewan Energi Nasional - DEN) oversees this process and provides guidance to regional governments in drafting their respective RUEDs.[146]

While RUEN sets national energy targets, RUKN translates these goals into detailed plans for power generation, transmission and distribution. The most recent version, RUKN 2024-2060, emphasizes a just and sustainable energy transition, economic growth, and the achievement of net-zero emissions by 2060 or earlier.[147] As opposed to the 2050 net-zero target

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[141] President of the Republic of Indonesia, *Presidential Regulation No.79/2014,* 5
[142] Ibid., 5
[143] President of the Republic of Indonesia, *Presidential Regulation No. 22/2017,* 2017, https://policy.asiapacificenergy.org/node/4173.
[144] Rahmantara Trichandi, "A Brief Review on Indonesia's National Energy Policy," *The Purnomo Yusgiantoro Center,* December 31, 2018, https://staging.purnomoyusgiantorocenter.org/opinion/a-brief-review-on-indonesias-national-energy-policy/.
[145] Ibid.
[146] Ibid.
[147] Dody Setiwan, "Captive coal expansion plan could undermine Indonesia's climate goals," *Ember Energy*, February 20, 2025, https://ember-energy.org/latest-insights/captive-coal-expansion-plan-could-undermine-indonesias-climate-goals/#captive-coal-capacity-set-to-increase-by-180-in-se.

outlined in LTS-LCCR, this extended timeline suggests Indonesia's gradual approach to decarbonization and the need for flexibility in implementation.

According to RUKN, Indonesia plans to deploy 75.6 GW of renewables by 2035.[148] The RE share is expected to reach approximately 21% by 2030 and 41% by 2040.[149] However, the plan also reveals increases in coal capacity by 26.8 GW in seven years, reaching a total coal capacity of 76.5 GW.[150] As a result, coal generation is expected to increase and reach its peak in 2037. This reflects the challenges of balancing economic growth with climate goals.

4.2.2 MDB Policies

ADB committed to supporting Indonesia's energy and transport infrastructure development while fostering sustainable urbanization. Support for ADB's energy sector focused on policy reforms aimed at strengthening governance, promoting clean energy and energy efficiency, and increasing private sector engagement.[151] The bank's investments prioritized sustainable power generation, power transmission systems, and electricity grids. Additionally, ADB integrated climate mitigation and adaptation strategies into its infrastructure investments, aligning with Indonesia's NDC target of achieving 23% RE in its energy mix by 2025.[152] It explored Indonesia's geothermal potential, expanding large-scale solar PV and wind resources, and improving gas-fired infrastructure to provide backup capacity for intermittent renewables while replacing diesel reliance.[153] ADB sought to further support private investment in low-carbon technologies that enable efficient renewables, enhance knowledge-sharing through

[148] Ibid.
[149] Ibid.
[150] Ibid.
[151] Asian Development Bank, *Country Partnership Strategy: Indonesia, 2020-2024 - Emerging Stronger (Manila: ADB, 2020)*, 11, https://www.adb.org/documents/indonesia-country-partnership-strategy-2020-2024.
[152] Ibid., 11
[153] Ibid., 11

the Environmental Trust Agency, and mobilize domestic and international climate finance.[154] To facilitate private sector engagement, ADB leveraged its sovereign and non sovereign modalities, technical expertise, and PPP models to enhance the bankability of PPP projects and attract private investments.[155]

Alongside ADB, AIIB has become an increasingly significant player in Indonesia's energy transition. AIIB's investments prioritize large-scale projects that focus on grid modernization, clean energy deployment, and climate resilience. The East Java & Bali Power Distribution Strengthening Project is one of AIIB's key contributions, with an approved USD 310 million loan in 2021.[156] The project aims to improve power distribution infrastructure and increase grid access. Another major project is the Development of Pumped Storage Hydropower in the Java-Bali System, in which AIIB contributed USD 230 million in sovereign loans.[157] As Indonesia's first large-scale pumped storage hydropower, the project improves storage capacity of the Java-Bali grid and strengthens PLN's capacity for hydropower development. Furthermore, AIIB also plays a role in policy support and mobilizing private sector investments, partnering with PLN and PT Sarana Multi Infrastruktur (PT SMI) to implement Indonesia's NDC and JETP.[158]

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[154] Ibid., 11
[155] Ibid., 11
[156] Asian Infrastructure Investment Bank, "Indonesia: PLN East Java & Bali Power Distribution Strengthening Project," https://www.aiib.org/en/projects/details/2021/approved/Indonesia-PLN-East-Java-Bali-Power-Distribution-Strengthening-Project.html.
[157] Asian Infrastructure Investment Bank, "Indonesia: Development of Pumped Storage Hydropower in Java Bali System (the Project)," https://www.aiib.org/en/projects/details/2022/approved/Indonesia-Development-of-Pumped-Storage-Hydropower-in-Java-Bali-System.html.
[158] Asian Infrastructure Investment Bank, "AIIB Partners With PT PLN, PT SMI for Indonesia Energy Transition," news release, September 27, 2023, https://www.aiib.org/en/news-events/news/2023/AIIB-Partners-With-PT-PLN-PT-SMI-for-Indonesia-Energy-Transition.html.

Beyond ADB and AIIB's support, International Finance Corporation (IFC) of the WBG played crucial role in mobilizing private sector investments to support RE and clean energy projects during the CPF 2016-2020 period. The IFC prioritized improving the investment environment and supporting the engagement of the private sector in climate-related sectors.[159] During this period, IFC strengthened Indonesia's sustainable finance ecosystem, including support for green bonds and sustainable capital market instruments.[160] It also offered advisory services in corporate governance and climate risk.[161]

The Multilateral Investment Guarantee Agency (MIGA) also played a key role in de-risking foreign investment in Indonesia through its political risk insurance and guarantee instruments.[162] With one of the highest expenditures in the region, MIGA supported projects that targeted Indonesia's development goals. This included guarantees to incentivize private sector participation in energy generation and financing for Perusahaan Listrik Negara (PLN) - Indonesia's state electricity company.[163] In line with the CPF's strategy of catalyzing private sector involvement for inclusive growth, MIGA's instruments were aimed at drawing on private capital flows while mitigating risks in politically sensitive and challenging sectors.[164]

Aspect	**ADB**	**AIIB**	**WBG**
Strategic focus	Energy and transport infrastructure, urban sustainability, policy reforms	Large-scale clean energy projects, grid modernization	Mobilizing private-sector involvement, clean energy financing
Role in Indonesia's energy transition	Supporting RE	Investing in	Focusing on the

[159] World Bank Group, *Country Partnership Framework for the Republic of Indonesia for the Period FY16-FY20 (Washington D.C: WBG 2015),* 7, https://openknowledge.worldbank.org/server/api/core/bitstreams/01e6ad46-22b1-5c00-8b0d-7c71cdb4879f/content.
[160] Ibid., 149
[161] Ibid., 15
[162] Ibid., 26
[163] Ibid., 27
[164] Ibid., 42

	expansion, grid modernization	large-scale power distribution projects, smart grids, pumped storage hydropower	integration of private capital into RE
Climate finance modalities	Sovereign and non-sovereign loans, technical assistance, co-financing	Sovereign loans, co-financed infrastructure projects	Blended finance, risk guarantees, technical assistance, policy support
Green bonds	Not a primary focus	Limited direct involvement	The IFC plays a significant role in issuing green and blue bonds
Institutional role	Acting as a key lender and policy advisor, mobilizing domestic and international climate finance	Facilitating large scale infrastructure financing and collaborating with government agencies for energy transition	Supporting financial sector development, providing risk mitigation tools, encouraging climate-friendly investments

Table 7. Comparative overview of each MDBs strategic approaches in Indonesia's climate finance and energy transition

4.2.3 MDB Financial Commitments

Year	ADB (USD million)	AIIB (USD million)	WBG (USD million)	Total (USD million)
2016	113.19	0	0	**113.19**
2017	1,596.25	0	55.25	**1,651.5**
2018	269.47	0	0	**0**
2019	3.5	0	325	**328.5**
2020	941	0	0	**941**
2021	1,007	310	1,186.59	**2,503.59**
2022	515	230	0	**745**
2023	15.4	0	582	**597.4**

Total	**4,460.81**	**540**	**2,148.84**	**7,149.65**

Table 8. Financial Commitments by MDBs in Indonesia's Energy Sector

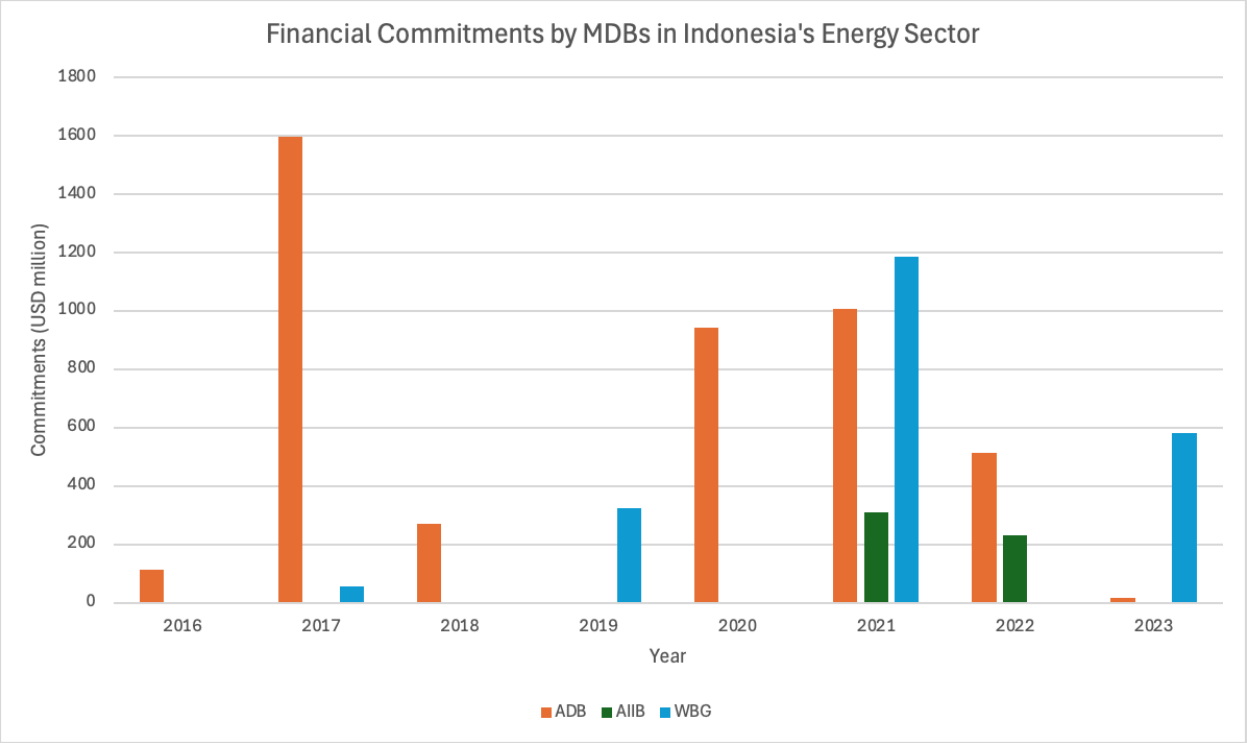

Figure 3. Financial Commitments by MDBs in Indonesia's Energy Sector

Similar to Viet Nam, financial commitments from MDB projects in Indonesia's energy sector between 2016 to 2023 also highlight significant variations in funding patterns. ADB has consistently been the dominant contributor, notably peaking in 2017 (USD 1.57 billion), 2020 (USD 941 million), and 2021 (USD 1 billion). One stand out project in 2017 was the Sustainable Energy Access in Eastern Indonesia-Electricity Grid Development Program, where ADB committed USD 910 million[165]. The project is dedicated to improving electricity distribution networks to connect businesses and households, thus enhancing the quality of life in Indonesia. Phase 2 of this project began in 2020, with an additional USD 606 million committed by ADB, the Japan Fund for a Prosperous and Resilient Asia-Pacific and the Pacific and the Asian Clean

[165] Asian Development Bank, "Sustainable Energy Access in Eastern Indonesia-Electricity Grid Development Program," Accessed March 1, 2025, https://www.adb.org/projects/50016-001/main.

Energy Fund under the Clean Energy Financing Partnership Facility. The continuation of this project, in addition to the USD 335 million commitments to the Geothermal Power Generation Project, explains the spike in financial contributions in 2020.[166]

In contrast, the WBG has displayed an irregular funding pattern, contributing USD 325 million in 2019, followed by a commitment of USD 1.19 billion in 2021. Based on the project titles and descriptions, WBG focuses more on large-scale strategic projects and sovereign loans, with implementing state-owned enterprises such as the PT Sarana Multi Infrastruktur and PT Geo Dipa Energi. PT Sarana Multi Infrastruktur focuses on financing infrastructure projects through PPPs to achieve sustainable development objectives and PT Geo Dipa Energi specializes in geothermal energy.

On the other hand, AIIB entered the scene much later, with no recorded commitments until 2021, when it provided USD 310 million for the PLN East Java & Bali Power Distribution Strengthening Project, followed by USD 230 million for the Development of Pumped Storage Hydropower in Java Bali System Project in 2022.[167] Despite its relatively limited involvement, AIIB's contributions indicate a growing interest in supporting Indonesia's energy transition.

Year	Loans (USD million)	Technical Assistance (USD million)	Co-Financed Loans (USD million)	Co-Financed Grants (USD million)	Co-Financed Technical Assistance
2016	70	0	39.25	0	3.94
2017	1,056.35	0	538.9	0	1
2018	189.99	0	77.68	0	1.8
2019	0	0	0	0	3.5

[166] Asian Development Bank, "Indonesia: Geothermal Power Generation Project," Accessed March 10, 2025, https://www.adb.org/projects/52282-001/main.
[167] Asian Infrastructure Investment Bank, "Indonesia: PLN East Java", https://www.aiib.org/en/projects/details/2021/approved/Indonesia-PLN-East-Java-Bali-Power-Distribution-Strengthening-Project.html.

2020	900	0	35	6	0
2021	600	0	0	0	2
2022	500	0	15	0	0
2023	0	1	0	10	4.4

Table 9. ADB's Financial Commitments in Indonesia's Energy Sector by Financing Type (2016-2023)

Analyzing closely by financing type, ADB's financial commitments highlight significant fluctuations across different financing types. Loan commitments from ADB's ordinary capital resources (ODR) saw a peak in 2017 at USD 1.06 billion, followed by a decline in 2018 (USD 189.99 million) and 2019 (USD 0 million), before rebounding to USD 900 million in 2020. After this peak, however, loan commitments decreased to USD 600 million in 2021 and USD 500 million in 2022. This trend suggests a shift in ADB's financing strategy, moving away from direct lending towards co-financed or alternative financing mechanisms.

Regarding co-financed loans and grants, there was a notable spike in 2017 (USD 538.9 million). Co-financed technical assistance was steady across all years, with the highest in 2016 (USD 3.94 million) and 2023 (USD 4.4 million), showing an interest in capacity-building.

The data indicates that ADB's financial strategy in Indonesia's energy sector has shifted from direct lending to a mix of co-financing, with a significant increase in co-financed initiatives in 2020 and 2021.

Year	**Loans (USD million)**	**Co-Financed Grants (USD million)**	**Co-Financed Technical Assistance (USD million)**
2016	0	0	0
2017	0	55.25	0
2018	0	0	0

2019	150	175	0
2020	0	0	0
2021	1,180	0.69	5.9
2022	0	0	0
2023	500	82	0

Table 10. WBG's Financial Commitments in Indonesia's Energy Sector by Financing Type (2016-2023)

Compared to ADB's consistent funding, WBG's financial commitments are concentrated in specific years rather than sustained annual support. From 2016 to 2018, loan financing was absent, with the first recorded loan in 2019 (USD 150 million), a surge in 2021 (USD 1.18 billion) and a notable commitment in 2023 (USD 500 million)

Co-financed grants followed a similar pattern, with notable contributions in 2017 (USD 55.25 million), 2019 (USD 175 million), and 2023 (USD 82 million). The peak in 2021 aligns with the increased loan commitments, suggesting a coordinated push for RE or infrastructure projects.

4.2.4 Outcomes & Challenges

According to *Table 8,* MDBs contributed a total of **USD 7.1 billion** to Indonesia's energy sector across its projects. This figure accounts for **1.25%** of the **USD 566 billion** needed to meet Indonesia's NDC targets between 2018 and 2030. With an average GDP of **USD 1.13 trillion** between 2016 and 2023, MDBs contributed **0.62%**. While MDBs have made notable contributions, there remains a significant funding gap required to meet Indonesia's energy and climate goals.

Although the Indonesian government has introduced regulations to encourage private investment, restrictive policies and weak regulatory implementation continue to prevent investment. Despite its ambitious renewable energy and decarbonization goals, the Indonesian government has continued to promote reliance on coal and natural gas by continuing the Domestic Market Obligation (DMO), detracting from renewable energy development.[168] According to the Ministry of Energy and Natural Resources (Kementerian Energi dan Sumber Daya Mineral - Kementerian ESDM), the DMO requirement for 2024 was 220 million tons, larger than the 2023 requirement of 213 million tons.[169] These institutional constraints are further exacerbated by the political influence of fossil fuels. As a CSIS expert noted in an interview, the coal industry in Indonesia holds significant political power and influence.[170] This has made it difficult to phase out coal regardless of national commitments, and undermines efforts by MDBs and international partners in promoting energy transition.

Another issue involves a mandatory partner scheme with PLN. In 2017, the government issued PR No. 14, allowing independent power producers (IPPs) to work with any PLN subsidiary, under the condition that the PLN subsidiary must have 51% of its shares owned by PLN.[171] This policy ensured that while private sector engagement was encouraged, the government still had majority control over power development. Interpretations of this regulation, however, vary. PLN asserts that one of its subsidiaries must act as a majority shareholder in any IPP-led renewable energy project. Alternatively, some stakeholder argue that IPPs can work with

[168] Mutya Yustika, *Unlocking Indonesia's Renewable Energy Investment Potential* (Valley City, Ohio: Institute for Energy Economics and Financial Analysis, 2024), 18, https://ieefa.org/resources/unlocking-indonesias-renewable-energy-investment-potential.
[169] Ibid., 18
[170] Author interview with CSIS expert, January 19, 2025.
[171] Arfyana Citra Rahayu, "Up 3.2%, Indonesia Targets Coal DMO at 220 Million Tons in 2024," Kontan, February 18, 2024, https://english.kontan.co.id/news/up-32-indonesia-targets-coal-dmo-at-220-million-tons-in-2024.

any PLN subsidiary where the national utility owns 51%, but PLN's ownership in the project should depend on its financial capabilities.[172]

The 51% ownership presents multiple challenges. Firstly, PLN must secure funding and manage its debt, despite heavy reliance on government subsidies.[173] Secondly, the equity contribution requirement means that PLN must seek carried interest or shareholder loans from private investors, discouraging investment overall.[174] Lastly, PLN's dual role as both a project owner and off-taker creates a conflict of interest where it becomes difficult to impose penalties or uphold contractual obligations.[175] Investors see this as undesirable as it overlooks underperformance and undermines the purpose of the IPP program. In response to these issues, PLN has adjusted its approach by reducing its ownership stake in certain renewable energy projects, up to 35% equity.[176] However, even with a smaller share, its dual role raises concerns of transparency among investors.

Beyond ownership challenges, PLN's financial burden is further exacerbated by contractual obligations under various PPAs. To attract power generation investment, former President Susilo Bambang Yudhoyono's administration implemented a take-or-pay scheme. This required PLN to either purchase a minimum amount of electricity from IPPs or alternatively pay a penalty for failing to do so, ensuring a steady revenue stream for IPPs.[177] Unfortunately, this arrangement also placed financial strain on PLN, requiring it to buy electricity regardless of demand. Because excess generation capacity has exceeded 40%, PLN has had to absorb surplus electricity from IPPs for years.[178]

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[172] Mutya Yustika, *Unlocking Indonesia's Renewable,*18
[173] Ibid., 19
[174] Ibid., 19-20
[175] Ibid., 20
[176] Ibid., 20
[177] Ibid., 24
[178] Ibid., 24

The government introduced the deliver-or-pay scheme to mitigate this issue. The scheme applies to renewable energy projects under an Annual Contracted Energy (ACE) arrangement and forces IPPs to supply a contracted amount of electricity to PLN.[179] There are also penalties - if an IPP fails to meet its contractual obligations, delay its Commercial Operation Date (COD), or fail to meet the ACE arrangement due to grid disruptions, it is required to compensate PLN.[180] On the other hand, PLN must also pay penalties for not being able to absorb electricity, except in cases of a natural force majeure.[181] Furthermore, if PLN requests an early COD, IPPs can receive incentives.

Although the deliver-or-pay scheme addresses PLN's financial burden, it is still considered less favorable than the take-or-pay commitment for fossil fuel plants, which still requires PLN to purchase surplus electricity. The penalty structure for renewable energy developers also increases financial risks and deters investors. These challenges highlight a need to revise such penalties and the overall framework of the scheme to ensure a more balanced investment environment.

Indonesia's renewable energy tariff structure further discourages investment by limiting profitability and not taking into account long-term financial stability. While there have been efforts for an FiT scheme, the government introduced a ceiling tariff instead.[182] The ceiling tariff varies depending on technology type and geographical location. The tariff is staggered over two periods - a higher ceiling tariff in the first 10 years to allow IPPs to recover costs and pay debts, followed by a significant reduction in the next 10 years.[183] The nearly 50% decrease in the

[179] Ibid., 24
[180] Ibid., 24
[181] Ibid., 24
[182] Mutya Yustika, "Addressing regulatory barriers will boost renewable energy investment in Indonesia," *Institute for Energy Economics and Financial Analysis,* July 23, 2024, https://ieefa.org/articles/addressing-regulatory-barriers-will-boost-renewable-energy-investment-indonesia-1.
[183] Ibid.

second period tariff raises concerns for investors, because the debt tenor may be more than 10 years and inflation-driven increases in operational costs are not accounted for.[184]

Moreover, PLN's procurement process for RE projects, either through direct selection or direct appointments, further lowers tariffs. In direct selection, at least two offers or bids are compared, where the winner is determined by the lowest tariff proposed.[185] Because of this, auctions for new renewable energy projects remain unpopular, as electricity prices are not competitive enough. Under direct appointment, tariffs are negotiated but cannot exceed the ceiling tariff.[186] Low tariffs impact the attractiveness of RE, making it difficult for investors to achieve a reasonable return on equity, causing projects to be unprofitable.[187]

To address the above mentioned challenges, MDBs have stepped in to support large-scale projects that enhance renewable energy adoption and grid stability. One such example is the WBG and AIIB co-financed Development of Pumped Storage Hydropower in Java Bali System Project. In 2021, The World Bank's Board of Executive Directors approved a USD 380 million loan to develop Indonesia's first pumped storage hydropower plant to improve power generation during peak times and support the country's energy transition and decarbonization goals. AIIB committed an additional USD 230 million.[188] The majority of the power generated for the Java-Bali grid, which supplies electricity to 70% of Indonesia's population, comes from fossil fuels. As such, pumped storage hydropower is key in developing energy storage that supports the integration of RE into the grid.[189] The loan supports the construction of the Upper Cisokan

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[184] Ibid.
[185]
[186] Mutya Yustika, *Unlocking Indonesia's Renewable Energy Investment Potential,* 25
[187] Ibid., 25
[188] World Bank Group, "Indonesia's First Pumped Storage Hydropower Plant to Support Energy Transition", press release, September 10, 2021, https://www.worldbank.org/en/news/press-release/2021/09/10/indonesia-s-first-pumped-storage-hydropower-plant-to-support-energy-transition
[189] Ibid.

pumped storage hydropower plant, located between Jakarta and Bandung, with an expected capacity of 1,040 MW.[190] The facility will have power generation capacity to meet peak demand, provide storage capacity to facilitate the larger incorporation of RE and alleviate increasing transmission loads on the grid.

MDBs have made significant financial contributions to Indonesia's energy transition, yet their impact is limited due to persistent regulatory and institutional challenges. ADB has honed in on large-scale infrastructure and policy reform, and AIIB has focused on grid modernization and pumped hydropower storage. The WBG has emphasized private sector participation and risk mitigation. Unfortunately, restrictive ownership policies, competitive tariffs, and PLN's dual role deter private investment and hinder MDB effectiveness. Despite efforts such as the deliver-or-pay scheme and ceiling tariffs, they still do not provide long-term financial guarantee needed to catalyze renewable energy development. Nonetheless, MDBs have played an important role in risk mitigation and supporting innovative projects such as pumped hydropower storage, illustrating their potential to contribute to Indonesia's energy transition if greater regulatory reforms are realized.

[190] Ibid.

5. COMPARATIVE ANALYSIS: MDB EFFECTIVENESS IN VIET NAM VS. INDONESIA

Based on individual case studies of Viet Nam and Indonesia, this section presents a comparative analysis of MDB effectiveness across both countries. It discusses how MDBs differ in their financing strategies, policy approaches, and institutional roles within each context. The first part of the comparison evaluates quantitative indicators, including financial commitments, project efficiency, and contributions to RE; the second explores qualitative indicators, including regulatory challenges and MDB interventions. By incorporating both quantitative and qualitative comparisons, this section offers a holistic understanding of how MDBs catalyze climate finance in two of ASEAN's largest economies, and how effectiveness is shaped not only through investments but also through policy.

5.1 Comparison of indicators

Indicator	Viet Nam	Indonesia
Total number of MDB energy projects (2016-2023)[191]	18	33
Share of investment vs. technical assistance projects (%)	94.4 investment / 5.6 technical assistance	66.7 investment / 33.3 technical assistance[192]
Total financial commitments across MDB projects (USD billion)	1.8	7.1

[191] Some MDB projects are multi-phased. Subphases with distinct project IDs and financial commitments were counted separately as individual entries for consistency.
[192] For the Sustainable and Inclusive Energy Program (Subprogram 2) in 2017, there is an additional technical assistance package attached. The project was double-counted for this reason.

Identified total financial need (USD billion)	NDC: 59.7	NDC: 566
Demonstrated need contributed by MDBs (%)	3.02	1.25
Average GDP between 2016 to 2023 (USD billion)	342	1,131.5
GDP contributed by MDB financial commitments (%)	0.53	0.62
Total recorded RE generated capacity across MDB projects (MW)	1,491.5	2,085
RE generated capacity for every USD billion committed (MW/USD billion)	828.61	293.66
RE target (GW)	74.73 by 2030[193]	75.6 by 2035[194]
Record RE generated capacity contributed towards national RE targets (%)	1.88	2.76

Table 11. Summary of MDB Climate Finance and Renewable Energy Outcomes in Viet Nam and Indonesia (2016-2023)

Table 11 summarizes the outcomes of MDB commitments for Viet Nam and Indonesia, revealing key insights into the relative effectiveness and efficiency of climate finance in both

[193] Thủ tướng Chính phủ, *Quyết định số 500/QĐ-TTg của Thủ tướng Chính phủ,* https://xaydungchinhsach.chinhphu.vn/toan-van-quy-hoach-phat-trien-dien-luc-quoc-gia-11923051616315244.htm.
[194] Katherine Hasan and Lauri Myllyvirta, "Seize the moment: Indonesia can surpass national renewables targets by fast-tracking prospective projects," *Centre for Research on Energy and Clean Air,* February 4, 2025, https://energyandcleanair.org/publication/indonesia-can-surpass-national-renewables-targets-by-fast-tracking-prospective-projects/

countries. Although Viet Nam received less funding compared to Indonesia - USD 1.8 billion compared to USD 7.1 billion, there is greater efficiency in translating this finance into recorded RE capacity. While MDB projects in Viet Nam delivered less RE than Indonesia - 1,401.5 MW compared to 2,085 MW, Viet Nam generated 778.61 MW of renewable capacity per USD billion committed, while Indonesia achieved just 293.66 MW. Based on the data, this means that Viet Nam delivered over 2.65 times more RE capacity per dollar of MDB financing.

In addition to capacity outcomes, project composition also explains these differences. Between 2016 and 2023, Viet Nam recorded 18 MDB-supported projects, the majority of which were investment-focused (94.4%). Conversely, Indonesia had a higher number of MDB-supported projects, with a substantial portion of them being technical assistance projects (33.3%). These difference illustrate contrasting focuses on MDB engagement strategies in each country. MDB projects prioritized project implementation in Viet Nam, while in Indonesia, there was a heavier focus on institutional reform and capacity-building.

The discrepancy becomes clearer when MDB contributions are assessed against each country's national targets. Viet Nam aims to install 74.73 GW of renewable energy by 2030, while Indonesia targets 75.6 GW by 2035. MDBs have supported 1.88% for Viet Nam and 2.75% for Indonesia. Despite the larger financial commitments for Indonesia, MDB projects play a more catalytic role in facilitating Viet Nam's energy transition. Moreover, MDB funding accounts for a larger share of Viet Nam's climate finance needs (3.02%) compared to Indonesia (1.25%). These figures reveal that MDB climate finance is not equally impactful across all contexts.

5.2 Comparison of policy approaches and challenges

Although these quantitative indicators reflect differences in MDB impact between Viet Nam and Indonesia, a closer examination of each country's policy frameworks, regulatory environments, and MDB engagement offers insights into the drivers of these outcomes.

In both countries, MDB have aligned their strategies and interventions closely with national renewable energy and climate goals. However, their engagement reflects each country's distinct policy framework and investment environment. In Viet Nam, national strategies such as the 2050 NCSS and PDP8 have enabled MDBs to align closely with government priorities. ADB and WBG have served in advisory and co-financing roles, supporting Viet Nam's demand-driven approach to development assistance. However, regulatory instability, such as irregular FiT schemes and unbankable PPAs with currency mismatch, have exacerbated investment risks. While the DPPA is a solution towards improving bankability, ongoing policy inconsistencies and regulatory barriers continue to limit scalability. The WBG has contributed significantly to Viet Nam's energy transition through policy-based loans to improve the country's regulatory and institutional framework for sustainable energy development.

On the other hand, Indonesia deals with a more centralized, state-centric energy policy landscape, where the state-owned utility PLN acts as both an off-taker and project owner. Along with ownership requirements and ceiling tariffs, this structure discourages private investment and makes it more difficult for MDBs to draw in capital. This was emphasized in an interview with an expert from the Asia Society Policy Institute, highlighting the fact that Indonesia's high costs of renewables stems not from market limitations, but from domestic regulatory structures and political risks.[195]

[195] Author interview with ASPI expert, January 6, 2025.

To mitigate this issue, MDBs have focused on large-scale public sector projects and long-term infrastructure investment, especially in geothermal energy. Co-financed initiatives, such as the pumped hydropower storage project, highlight how MDBs are supporting grid stability and renewable integration despite there not being a private sector pipeline. WBG contributed more project-based loans in Indonesia compared to Viet Nam, focusing on large-scale infrastructure and public sector financing to overcome investment barriers. Notably, ADB provided more technical assistance in Indonesia than Viet Nam, highlighting efforts for policy reform and capacity-building. ADB also stood out as the most consistent contributor across both countries, crowding in private sector engagement over time.

These two cases illustrate the effectiveness of MDB strategies and policies are heavily dependent on not only financing but institutional adaptability. In enabling environments, MDBs can carry out strategic partnerships and risk mitigation to accelerate progress. In more constrained settings, MDBs can shift their role to technical assistance, gradual reform, and innovation to lay the foundation for future investments. This comparison illustrates that MDB engagement must be context-specific and adaptive to national policy frameworks and regulatory environments.

Beyond national contributions, ADB projects have implemented regional projects that include both Viet Nam and Indonesia. These projects are focused on technical assistance and regional integration, and are not disaggregated by country. Nonetheless, they encapsulate ADB's broader strategy of supporting energy transition on a regional level. However, the effectiveness of these regional commitments depends on each country's institutional capacity as well. A detailed list of these projects are included in Appendix 5.

6. CONCLUSION, LIMITATIONS & IMPLICATIONS

This thesis set out to answer the research question: **To what extent are multilateral development banks (MDBs) effective climate financing sources in catalyzing ASEAN's energy transition?**, with a focus on their engagement with Viet Nam and Indonesia between 2016 and 2023. Through a comparative lens, it explored how ADB, AIIB and WBG mobilize financial and technical resources to support energy transition in ASEAN's two largest economies. The study also sought to understand how differences in policy frameworks, regulatory environments, and institutional capabilities impact the outcomes of MDB interventions.

The findings show that while Indonesia received four times more MDB climate finance than Viet Nam during the study period, Viet Nam's MDB projects were able to translate more of that finance into renewable energy capacity, generating over 2.65 times more MW per dollar committed than Indonesia's. MDB contributions also accounted for a larger share of Viet Nam's climate finance needs and its national renewable energy target. Such variations reflect differences in financial commitments as well as the nature and structure of MDB engagement. For Viet Nam, a larger proportion of projects were investments, whereas in Indonesia, technical assistance took up a significant share of MDB involvement.

The comparative analysis underscores that institutional adaptability, and regulatory and policy coherence are important factors in shaping MDB effectiveness. For Viet Nam, MDBs implemented blended finance, co-financing models, and risk mitigation strategies to scale up renewable energy. On the other hand, MDBs focused on capacity-building, long-term infrastructure projects, and regulatory support in Indonesia. The nature of MDB engagement was

also influenced by each country's sectoral priorities - with a focus on solar and wind for Viet Nam and geothermal for Indonesia.

This study, while offers valuable insights into MDB effectiveness in ASEAN, is not without limitations. The analysis relied heavily on publicly available project data, which may not fully encapsulate the nuances of MDB engagement, such as undisclosed financial contributions or informal technical assistance. This limitation also applied to regional projects, as the lack of disaggregated financial data did not allow for a full assessment of their impact on individual countries. Furthermore, due to access constraints, interviews could not be conducted AIIB officials, government officials and private sector actors - three key stakeholders in the MDB climate finance landscape. Such interviews could have offered additional insights into AIIB's operations, along with the policy and regulatory challenges that widen the public-private gap in climate finance and RE implementation. Future research should engage these stakeholders to add nuance into the challenges and opportunities in advancing energy transition in ASEAN. Moreover, exploring additional ASEAN countries and including other sectors such as agriculture and transport could offer valuable insights regarding the roles of MDBs in the region's climate finance landscape.

Looking ahead, it is imperative for MDBs to continue tailoring their approaches to national contexts. In enabling environments, they should focus on risk mitigation and strengthening project pipelines. In more complex governance circumstances, their ability to influence institutional reform, policy regulation, and regional cooperation would be key.

At the regional level, ASEAN has made significant progress in developing frameworks that focus on climate action and energy transition, such as the APAEC, ASEAN Taxonomy for Sustainable Finance, and APG. MDBs have the ability to contribute a catalytic role in advancing

these frameworks by investing in cross-border infrastructure, harmonizing standards, and facilitating regional knowledge-sharing. The ASEAN Catalytic Green Finance Facility (ACGF), led by the ADB, offers an example of how MDBs can de-risk projects and mobilize commercial finance on a regional scale.[196] The comparative analysis from Viet Nam and Indonesia exemplifies the need for differentiated engagement strategies, but also demonstrates the potential for MDBs to support a more integrated and cohesive regional energy transition.

Ultimately, MDBs remain important players in global climate governance. However, as insights from Viet Nam and Indonesia show, their effectiveness cannot be evaluated solely on financial commitments. It is also highly dependent on how well they address institutional and regulatory bottlenecks, and how they adapt their strategies to advance the energy transition agenda and contribute to a more sustainable and resilient future.

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APPENDICES

Appendix 1. Selected Indicators for Dataset

ADB and AIIB

Sector	Energy
Timeframe	2016 - 2023

WBG

Status	Active, Closed
Sector	Energy Transmission and Distribution, Other Energy and Extractives, Public Administration - Energy and Extractives, Renewable Energy Solar, Renewable Energy Wind, Renewable Energy Geothermal
Timeframe	01/01/2016 - 12/31/2023

Appendix 2. Semi-Structured Interview Questions

Stakeholder	**Question**
Think Tank Experts	What are the key factors enabling or hindering the RE transition in ASEAN?
	How do you evaluate the role of MDBs in addressing transition risks, such as high financing costs and coal dependency?
	From your perspective, how successful have MDB-backed RE projects been in achieving their stated mitigation goals?
	What metrics or indicators do you believe are most effective for evaluating the impact of MDB-funded projects?
	What opportunities exist for MDBs to expand their influence in the RE transition?

	What lessons can be learned from MDB interventions in ASEAN that could inform future climate finance strategies?
MDB Officials	What factors influence the allocation of climate finance across ASEAN countries?
	How does your institution ensure RE projects align with host countries' national policies?
	What innovative financing tools or structures (e.g., green bonds, blended finance) has your MDB introduced to support RE?
	How does your MDB address concerns about the high cost of capital for RE projects?
	What are the biggest barriers to mobilizing private sector investment in RE in ASEAN?
	How does your MDB evaluate the success of funded projects in achieving mitigation goals?

Appendix 3. MDB Energy Projects in Viet Nam

Approval Year	MDB	Project Name	Financing Type	Financing Amount (USD million)	Category	Installed Capacity (MW)
2016	WBG	Climate Change and Green Growth in Vietnam	Loan	90.0	Investment	690.0
2016	WBG	Vietnam-Partnership for Market Readiness	Grant	3.0	Investment	
2017	ADB	Enhancing Readiness for Solar Power	Technical Assistance	225	Technical Assistance	

		Deployment in Viet Nam				
2017	ADB	Municipal Waste-to-Energy Project	Loan	100.0	Investment	90.0
2017	WBG	Vietnam Energy Efficiency for Industrial Enterprises(VEEIE)	Loan	101.7	Investment	
2018	ADB	Floating Solar Energy Project	Loan	20.0	Investment	47.5
2018	ADB	Floating Solar Energy Project	Loan	5.0	Investment	
2018	ADB	Floating Solar Energy Project	Loan	6.0	Investment	
2018	ADB	Floating Solar Energy Project	Loan	11.0	Investment	
2019	ADB	Gulf Solar Power Project	Loan	11.3	Investment	50.0
2019	ADB	Gulf Solar Power Project	Loan	18.9	Investment	
2019	ADB	Gulf Solar Power Project	Loan	7.6	Investment	
2019	WBG	Vietnam Scaling Up Energy Efficiency Guarantee	Grant	11.3	Investment	
2020	ADB	B.Grimm Viet Nam Solar Power Project (Phu Yen Project)	Loan	27.9	Investment	257.0

2020	ADB	B.Grimm Viet Nam Solar Power Project (Phu Yen Project)	Loan	9.3	Investment	
2020	ADB	B.Grimm Viet Nam Solar Power Project (Phu Yen Project)	Loan	148.8	Investment	
2020	WBG	Climate Change and Green Growth DPF	Loan	84.4	Investment	
2020	WBG	Vietnam Solar Transition Accelerator (VISTA)	Grant	1.5	Investment	
2021	ADB	Lotus Wind Power Project	Loan	11.867672	Investment	144.0
2021	ADB	Lotus Wind Power Project	Loan	11.56664	Investment	
2021	ADB	Lotus Wind Power Project	Loan	11.565688	Investment	
2021	ADB	Lotus Wind Power Project	Loan	27.465183	Investment	
2021	ADB	Lotus Wind Power Project	Loan	26.76851	Investment	
2021	ADB	Lotus Wind Power Project	Loan	26.766307	Investment	
2021	ADB	B.Grimm Viet Nam Solar Power Project (Dau Tieng Project)	Loan	24.5	Investment	
2021	ADB	B.Grimm Viet Nam Solar	Loan	128.0	Investment	

		Power Project (Dau Tieng Project)				
2021	ADB	B.Grimm Viet Nam Solar Power Project (Dau Tieng Project)	Loan	8.0	Investment	
2021	AIIB	Dakdrinh 125MW Hydropower Plant	Loan	47.5	Investment	125.0
2021	AIIB	Dakdrinh 125MW Hydropower Plant	Loan	47.5	Investment	
2021	WBG	The Vietnam Inclusive and Sustainable Recovery Development Policy Operation	Loan	221.5	Investment	
2022	ADB	AC Energy Wind Power Project	Loan	25.0	Investment	88.0
2022	ADB	AC Energy Wind Power Project	Grant	5.0	Investment	
2022	ADB	Binh Duong Waste Management and Energy Efficiency Project	Loan	7.0	Investment	
2022	ADB	Binh Duong Waste Management and Energy	Loan	6.0	Investment	

		Efficiency Project				
2022	WBG	Vietnam's Decarbonization and Energy Transition	Grant	3.0	Investment	
2022	WBG	Vietnam's Decarbonization and Energy Transition	Grant	1.1	Investment	
2023	WBG	Vietnam inclusive and sustainable recovery DPF (2nd Operation)	Loan	527.72	Investment	

Appendix 4. MDB Energy Projects in Indonesia

Approval Year	MDB	Project Name	Financing Type	Financing Amount (USD million)	Category	Installed Capacity (MW)
2016	ADB	Muara Laboh Geothermal Power Project	Loan	70.0	Investment	80.0
2016	ADB	Muara Laboh Geothermal Power Project	Loan	19.25	Investment	
2016	ADB	Muara Laboh Geothermal Power Project	Loan	20.0	Investment	
2016	ADB	Sustainable and Inclusive Energy Program	Technical assistance	1.537375	Technical assistance	
2016	ADB	Eastern Indonesia	Technical assistance	1.4	Technical assistance	

		Sustainable Energy Access Sector Project				
2016	ADB	Banten and South Sulawesi Wind Power Development	Technical assistance	0.5	Technical assistance	
2016	ADB	Pilot Carbon Capture and Storage Activity in the Natural Gas Processing Sector	Technical assistance	0.5	Technical assistance	
2017	ADB	Sustainable Energy Access in Eastern Indonesia-Electricity Grid Development Program	Loan	600.0	Investment	
2017	ADB	Sustainable Energy Access in Eastern Indonesia-Electricity Grid Development Program	Loan	310.0	Investment	
2017	ADB	Sustainable and Inclusive Energy Program (Subprogram 2)	Loan	100.0	Investment	
2017	ADB	Sustainable and Inclusive Energy Program (Subprogram 2)	Loan	400.0	Investment	

2017	ADB	Scaling Up Energy Efficiency [attached TA to Sustainable and Inclusive Energy Program (Subprogram 2)]	Technical assistance	1.0	Technical Assistance	
2017	ADB	Eastern Indonesia Renewable Energy Project (Phase 1)	Loan	56.35	Investment	72.0
2017	ADB	Eastern Indonesia Renewable Energy Project (Phase 1)	Loan	16.2	Investment	
2017	ADB	Eastern Indonesia Renewable Energy Project (Phase 1)	Loan	112.7	Investment	
2017	WBG	ID-Geothermal Energy Upstream Development	Grant	6.25	Investment	3.0
2017	WBG	ID-Geothermal Energy Upstream Development	Grant	49.0	Investment	
2018	ADB	Rantau Dedap Geothermal Power Project (Phase 2)	Loan	177.5	Investment	90.0
2018	ADB	Rantau Dedap Geothermal	Loan	50.0	Investment	

		Power Project (Phase 2)				
2018	ADB	Eastern Indonesia Renewable Energy Project (Phase 2)	Loan	5.97	Investment	42.0
2018	ADB	Eastern Indonesia Renewable Energy Project (Phase 2)	Loan	2.2	Investment	
2018	ADB	Eastern Indonesia Renewable Energy Project (Phase 2)	Loan	2.19	Investment	
2018	ADB	Eastern Indonesia Renewable Energy Project (Phase 2)	Loan	2.13	Investment	
2018	ADB	Eastern Indonesia Renewable Energy Project (Phase 2)	Loan	0.99	Investment	
2018	ADB	Eastern Indonesia Renewable Energy Project (Phase 2)	Loan	4.79	Investment	
2018	ADB	Eastern Indonesia Renewable Energy Project (Phase 2)	Loan	21.9	Investment	
2018	ADB	Pilot Carbon Capture and	Technical assistance	1.8	Technical Assistance	

		Storage Activity in the Natural Gas Processing Sector				
2019	ADB	Sustainable Infrastructure Assistance Program Phase II - Supporting Sustainable and Efficient Energy Policies and Investments (Subproject 2)	Technical assistance	1.5	Technical assistance	
2019	ADB	Sustainable Infrastructure Assistance Program Phase II - Supporting Sustainable and Universal Electricity Access Phase 2 (Subproject 3)	Technical assistance	2.0	Technical assistance	
2019	WBG	Indonesia Geothermal Resource Risk Mitigation Project (GREM)	Loan	150.0	Investment	48.0
2019	WBG	Indonesia Geothermal Resource Risk Mitigation Project (GREM)	Grant	100.0	Investment	
2019	WBG	Indonesia Geothermal Resource Risk Mitigation	Grant	75.0	Investment	

		Project (GREM)				
2020	ADB	Sustainable Energy Access in Eastern Indonesia — Electricity Grid Development Program (Phase 2)	Loan	600.0	Investment	
2020	ADB	Sustainable Energy Access in Eastern Indonesia — Electricity Grid Development Program (Phase 2)	Grant	3.0	Investment	
2020	ADB	Geothermal Power Generation Project	Loan	300.0	Investment	110.0
2020	ADB	Geothermal Power Generation Project	Loan	35.0	Investment	
2021	ADB	Sustainable and Reliable Energy Access Program - Western and Central Java	Loan	600.0	Investment	
2021	ADB	Sustainable Infrastructure Assistance Program Phase II - Supporting Sustainable and Efficient Energy Policies and	Technical assistance	2.0	Technical Assistance	

		Investments (Subproject 2)				
2021	AIIB	PLN East Java & Bali Power Distribution Strengthening Project	Loan	310.0	Investment	
2021	WBG	Indonesia Investment and Trade Reforms DPL	Loan	800.0	Investment	
2021	WBG	Indonesia EITI Transition and Mainstreaming Support	Grant	0.69	Investment	
2021	WBG	Indonesia Sustainable Least-cost Electrification Technical Assistance (ISLE TA)	Technical assistance	2.45	Investment	
2021	WBG	Indonesia Sustainable Least-cost Electrification Technical Assistance (ISLE TA)	Technical assistance	3.45	Investment	
2021	WBG	Development of Pumped Storage Hydropower in Java Bali System Project	Loan	380.0	Investment	1040.0
2022	ADB	Sustainable and Inclusive Energy Program	Loan	500.0	Investment	

		(Subprogram 3)				
2022	ADB	Sustainable and Inclusive Energy Program (Subprogram 3)	Loan	15.0	Investment	
2022	AIIB	Development of Pumped Storage Hydropower in Java Bali System	Loan	230.0	Investment	
2023	ADB	Geothermal Power Generation Project (Additional Financing)	Grant	10.0	Investment	
2023	ADB	Institutional and Capacity Building Support for the Just Energy Transition Partnership Secretariat	Technical assistance	2.0	Technical assistance	
2023	ADB	Building Capacity for Low-Carbon Power Infrastructure Development	Technical assistance	1.0	Technical assistance	
2023	ADB	Building Capacity for Low-Carbon Power Infrastructure Development	Technical assistance	0.2	Technical assistance	

2023	WBG	Indonesia Sustainable Least-cost Electrification-1 (ISLE-1) Program	Loan	500.0	Investment	600.0
2023	WBG	Indonesia Sustainable Least-cost Electrification-1 (ISLE-1) Program	Grant	34.5	Investment	
2023	WBG	Indonesia Sustainable Least-cost Electrification-1 (ISLE-1) Program	Grant	47.5	Investment	

Appendix 5. List of ADB Regional Projects Involving Viet Nam and Indonesia

Approval Year	Countries	Project Name	Financing Type	Financing Amount (USD million)	Category
2018	Regional (Cambodia; Indonesia; Myanmar; Philippines; Viet Nam)	Southeast Asia Energy Sector Development, Investment Planning and Capacity Building Facility	Technical assistance	4	Technical assistance
2018	Regional (Cambodia; Indonesia; Myanmar; Philippines; Viet Nam)	Southeast Asia Energy Sector Development, Investment Planning and Capacity Building Facility	Technical assistance	0,4	Technical assistance

2018	Regional (Cambodia; Indonesia; Myanmar; Philippines; Viet Nam)	Southeast Asia Energy Sector Development, Investment Planning and Capacity Building Facility	Technical assistance	1	Technical assistance
2018	Regional (Cambodia; Lao People's Democratic Republic; Myanmar; People's Republic of China; Thailand; Viet Nam)	Integrated Resource Planning with Strategic Environmental Assessment for Sustainable Power Sector Development in the Greater Mekong Subregion	Technical assistance	0,5	Technical assistance
2018	Regional (Cambodia; Lao People's Democratic Republic; Myanmar; People's Republic of China; Thailand; Viet Nam)	Integrated Resource Planning with Strategic Environmental Assessment for Sustainable Power Sector Development in the Greater Mekong Subregion	Technical assistance	0,5	Technical assistance
2018	Regional (Cambodia; Lao People's Democratic Republic; Myanmar; People's Republic of China; Thailand; Viet Nam)	Integrated Resource Planning with Strategic Environmental Assessment for Sustainable Power Sector Development in the Greater Mekong Subregion	Technical assistance	0,05	Technical assistance
2019	Cambodia; Indonesia;	Support for Innovation and	Technical assistance	1,5	Technical assistance

	Maldives; Mongolia; Pakistan; Papua New Guinea; Philippines; Tajikistan; Thailand; Timor-Leste; Uzbekistan; Viet Nam; Regional	Technology Partnerships in Asia and the Pacific - Energy Sector High-Level Technology Application (Subproject 2)			
2019	Regional (Indonesia; Philippines; Viet Nam)	AC Energy Green Bond Project	Loan	20	Investment
2020	Bhutan; Indonesia; Regional	Development of a Legal Framework and Documentation Conducive to Viable Private Sector Renewable Energy and Energy Efficiency Projects	Technical asssistance	0,5	Investment
2021	Cambodia; Indonesia; Lao People's Democratic Republic; Philippines; Regional; Thailand; Timor-Leste; Viet Nam	Accelerating the Clean Energy Transition in Southeast Asia	Technical asssistance	2,25	Technical assistance
2021	Cambodia; Indonesia; Lao People's Democratic Republic; Philippines; Regional; Thailand;	Accelerating the Clean Energy Transition in Southeast Asia	Technical asssistance	1,72	Technical assistance

	Timor-Leste; Viet Nam				
2021	Cambodia; Indonesia; Lao People's Democratic Republic; Philippines; Regional; Thailand; Timor-Leste; Viet Nam	Accelerating the Clean Energy Transition in Southeast Asia	Technical asssistance	1	Technical assistance
2021	Cambodia; Indonesia; Lao People's Democratic Republic; Philippines; Regional; Thailand; Timor-Leste; Viet Nam	Accelerating the Clean Energy Transition in Southeast Asia	Technical asssistance	0,5	Technical assistance
2021	Cambodia; Indonesia; Lao People's Democratic Republic; Philippines; Regional; Thailand; Timor-Leste; Viet Nam	Accelerating the Clean Energy Transition in Southeast Asia	Technical asssistance	0,3	Technical assistance
2021	Cambodia; Indonesia; Lao People's Democratic Republic; Philippines; Regional; Thailand; Timor-Leste; Viet Nam	Accelerating the Clean Energy Transition in Southeast Asia	Technical asssistance	0,5	Technical assistance

2021	Cambodia; Indonesia; Lao People's Democratic Republic; Philippines; Regional; Thailand; Viet Nam	Developing Private Sector Next-Generation Renewable Energy Opportunities in Southeast Asia	Technical asssistance	0,8	Technical assistance
2021	Cambodia; Indonesia; Philippines; Regional; Thailand; Timor-Leste; Viet Nam	Southeast Asia Energy Sector Development, Investment Planning and Capacity Building Facility, Phase 2	Technical asssistance	2,5	Technical assistance
2021	Cambodia; Indonesia; Philippines; Regional; Thailand; Timor-Leste; Viet Nam	Southeast Asia Energy Sector Development, Investment Planning and Capacity Building Facility, Phase 2	Technical asssistance	0,26	Technical assistance
2022	Cambodia; Indonesia; Lao People's Democratic Republic; Philippines; Regional; Thailand; Timor-Leste; Viet Nam	Accelerating the Clean Energy Transition in Southeast Asia	Technical asssistance	1,0	Technical assistance
2022	Cambodia; Indonesia; Lao People's Democratic Republic; Philippines; Regional (Southeast Asia);	Integrating Gender and Social Inclusion Dimensions in Climate Change Interventions in Southeast Asia	Technical asssistance	1,35	Technical asssistance

	Thailand; Timor-Leste; Viet Nam				