

FINANCING ENERGY TRANSITION FOR A MORE SUSTAINABLE FUTURE - THE CASE OF VIETNAM*

XUAN DUC MAI ^a, THANH THAO TRAN ^a, QUANG TO LE ^a,
TRAN TUAN ANH LE ^a, MANH HUNG NGUYEN ^b AND XUAN VINH VO ^a

^a *University of Economics Ho Chi Minh City, Vietnam*

^b *Ho Chi Minh Academy of Politics, Vietnam*

This paper examines Vietnam's energy transition and the structural financial systems required to achieve its COP26 commitment to reach net-zero emissions by 2050. To unpack this transition within Vietnam's context as a key emerging market, the study analyzes the nation's current policy landscape alongside the requirements for capital mobilization. By evaluating the intersection of these regulatory frameworks and financial needs, the research identifies the specific mechanisms necessary to facilitate a successful green transition. Ultimately, the findings offer strategic policy implications to bridge the country's financing gap and ensure Vietnam meets its ambitious climate and energy security objectives.

Keywords: Green Finance; Energy Transition; Financial Mechanisms; International Capital Mobilization; Green Central Banking; Green Taxonomy; Vietnam
JEL Classification: Q56; G28; F21; O53; G21

1. INTRODUCTION

The contemporary economic landscape of Vietnam is the result of a profound structural transformation initiated by the “Doi Moi” (Renovation) reforms of 1986, which gradually consolidated its position as one of the world's most dynamic emerging markets (OECD, 2025, p.9). This pivotal policy shift transitioned the nation from a centrally planned state to an open, market-oriented economy, facilitating one of the most successful

* This paper is a scientific product of the Ministry-level Science and Technology Project – Code B2024-KSA-04, funded by the Ministry of Education and Training of Vietnam. Artificial intelligence tools (Gemini, NotebookLM) were employed solely for language refinement and information extraction from some extensive source texts, with all outputs thoroughly verified by the author(s) against the original documents to ensure accuracy and full research accountability.

industrialization and poverty-reduction efforts in modern history. Over the past four decades, Vietnam has strategically leveraged its demographic advantages and geographic position to further integrate into the global value chain. This includes significant achievements such as joining the World Trade Organization (WTO) in 2007 and subsequently entering numerous high-standard Free Trade Agreements (FTAs), such as the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP) and the EU-Vietnam Free Trade Agreement (EVFTA) (OECD, 2025, p.19). This historical “economic miracle” is evidenced by Vietnam’s meteoric rise in GDP per capita, which rose from under \$100 in the mid-1980s to over \$4,700 by 2024, effectively propelling the nation into the ranks of lower-middle-income countries.¹

In the last few decades, Vietnam has been among the fastest-growing economies in Asia (OECD, 2025, p.96), driven by significant trade openness and a transformation into a primary destination for global investors and businesses, particularly within the electronics and high-tech manufacturing sectors (OECD, 2025, p.97). Following a period of resilient post-pandemic recovery, the nation continued to achieve robust GDP growth in the last few years, notably 8.02% in 2025, with projections suggesting an ambitious acceleration to 10% by the end of 2026, according to the Government². This economic performance is primarily fueled by a continuously surging manufacturing sector, which maintained an average annual growth rate of more than 9%, and is supported by an unprecedented expansion in international trade³. The Vietnamese economy is supported by a solid trade base, with total trade turnover exceeding \$930 billion in 2025⁴, reflecting deep integration into global markets and a trade-to-GDP ratio among the highest globally (B-Company Inc., 2025, p.38).

While Vietnam’s open economic model brings several growth and development benefits, it also exposes the macroeconomic landscape to shifting international regulatory standards, making future resilience increasingly contingent upon the ability to decouple industrial growth from carbon intensity (Climateworks Centre and Asialink, 2024, p.5). As global trade partners implement strict environmental mandates, such as the EU’s Carbon Border Adjustment Mechanism (CBAM), the nation must navigate these pressures to maintain its comparative advantage (World Bank, 2025, pp.51-52). Consequently, maintaining the nation’s historical export momentum now requires a strategic alignment of its macroeconomic policies with its 2050 Net Zero commitments, ensuring that its competitive advantage in the global supply chain remains sustainable in a

¹ <https://www.nso.gov.vn/en/data-and-statistics/2026/01/socio-economic-situation-in-the-fourth-quarter-and-2025/>

² <https://en.vietnamplus.vn/vietnams-gdp-growth-scenario-for-2026-post337079.vnp>

³ <https://www.nso.gov.vn/en/data-and-statistics/2026/04/press-release-socio-economic-situation-in-the-first-quarter-of-2026/>

⁴ <https://www.nso.gov.vn/en/data-and-statistics/2026/01/socio-economic-situation-in-the-fourth-quarter-and-2025/>

low-carbon era.⁵

This rapid economic development and the continuous global climate commitments have fundamentally affected Vietnam's energy landscape, necessitating a rigorous transition fundamentally shifting from carbon-intensive fossil fuel reliance toward sustainable, low-carbon energy systems (International Energy Agency, 2024, p.11). Historically, Vietnam has maintained its traditional energy supply thanks to its rich natural resources; however, the continuously increasing energy demand is putting pressure on the need for more green and renewable energy projects. Vietnam has performed remarkably well in this regard, structurally shifting its energy source from traditional to more renewable sources. For example, the electricity demand growth rate relative to GDP growth is currently lower than in previous years, clearly showing that this shift has brought early successes.

Despite these early successes, securing adequate financing for the energy transition remains a critical, multifaceted challenge that requires immediate government priority to meet the ambitious goals of global commitments. For an emerging economy like Vietnam, this transition necessitates not only the massive deployment of wind, solar, and energy storage technologies but also a comprehensive modernization of the national power grid to ensure long-term energy security (World Bank, 2022, p.25). This huge transformation requires substantial capital investment, especially for implementing large-scale energy infrastructure projects. Because these types of projects are characterized by significant initial capital expenditure (CAPEX), extended payback periods, and inherent sensitivity to the cost of capital and perceived regulatory risks, the mobilization and management of investment capital are ultimately the most vital facets of the energy transition for Vietnam (UNDP, 2024a, p.3).

This paper makes several critical contributions to the discourse on emerging-market energy transitions by evaluating the fiscal architecture needed to operationalize Vietnam's green economy strategy and positing that a comprehensive policy mix is indispensable for Vietnam's decarbonization. By synthesizing regulatory shifts with capital mobilization requirements, the study offers a comprehensive evaluation of the mechanisms necessary to bridge the current financing gap. We contend that the mobilization and management of investment capital are the most vital facets of the energy transition for Vietnam, requiring coordinated policies, ranging from dedicated fiscal strategies to a specialized financial system, to support and promote green investments systematically.

The study also identifies and emphasizes the central role of large-scale financial mobilization as the primary prerequisite for achieving Vietnam's international climate commitments and positioning decarbonization at the center of its national development strategy. To align with the COP26 commitment to achieve Net Zero emissions by 2050, capital mobilization has emerged as the most acute challenge for the national energy

⁵ <https://vir.com.vn/green-finance-offers-passport-for-vietnamese-construction-building-materials-firms-142779.html>

sector.⁶ Under the structural mandates of the National Power Development Plan VIII (PDP8), the short-term financial requirement is estimated at approximately US\$134.7 billion through 2030, while the long-term total capital investment requirement is estimated at between USD 368 billion and USD 700 billion.⁷ The staggering magnitude of Vietnam's energy financing gap necessitates a paradigm shift away from traditional reliance on constrained public budgets.

To transform these climate mandates into a fundable volume of infrastructure projects, the research provides a localized assessment of the transition process. It proposes a multifaceted framework integrated across three primary pillars: attracting international climate finance, implementing a domestic carbon pricing model, and institutionalizing green finance initiatives. The study argues that the development of this sophisticated policy mix is not merely a regulatory adjunct but a critical necessity to secure multi-layered financing. This includes leveraging international frameworks like JETP to mobilize private commercial lending, facilitating the systematic internalization of externalities through domestic carbon pricing and "revenue recycling", and utilizing technical standards like the National Green Taxonomy to "de-risk" capital-intensive projects. Ultimately, the efficacy of Vietnam's transition depends upon the maturation of this robust financial ecosystem to secure long-term energy security and maintain its status as a premier global supply chain hub.

2. GLOBAL ENERGY TRANSITION LANDSCAPE AND GLOBAL EXPERIENCE IN FINANCING

2.1. Carbon Pricing and Revenue Recycling Mechanisms

The global regulatory landscape has shifted the perception of carbon pricing from a punitive environmental tax to a strategic financial engine, offering a powerful tool to mobilize finance and secure investment outcomes (Berahab, 2024, p.4). Several obstacles and uncertainties create immense pressure on economic development worldwide, which strongly affects the government's fiscal resilience and economic performance (OECD, 2021b, p.34). Mature frameworks, such as the European Union Emissions Trading System (EU ETS), alongside expanding national markets, have demonstrated that internalizing the social cost of carbon is essential for mobilizing the high-density private capital required to meet net-zero obligations (GIZ, 2021, p.38). Rather than serving as a static deterrent for pollution, carbon pricing operates as a dynamic market signal that

⁶ <https://laodong.vn/kinh-doanh/pha-bo-rao-can-ve-co-che-mo-duong-cho-nang-luong-tai-tao-phat-trien-1514472.lido>

⁷ <https://vietnamnet.vn/en/vietnam-needs-700-billion-for-green-growth-capital-market-must-awaken-2473022.html>

corrects the “green premium” (the cost disparity between fossil fuels and clean technology), thereby enhancing the bankability of low-carbon infrastructure projects (Sachs et al., 2019, pp.216-217).

Carbon pricing is a fundamental regulatory instrument that internalizes the negative externalities of greenhouse gas emissions by assigning a financial cost to carbon emissions (Heine et al., 2019). As of 2026, the global policy landscape has reached a significant milestone, with approximately 30% of global greenhouse gas emissions covered by direct carbon pricing mechanisms, reflecting an accelerated expansion into emerging and middle-income economies⁸. The selection between primary instruments, such as a carbon tax or an Emissions Trading System (ETS), represents a strategic policy trade-off between fiscal predictability and environmental integrity; while the carbon tax provides a fixed price-anchor to drive steady efficiency gains (GIZ, 2021, pp.173-174), the ETS establishes “quantity scarcity” through a declining cap to guarantee specific ecological outcomes (Berahab, 2024, p.9). In the current governance framework, many jurisdictions are moving toward a synthesized hybrid model that integrates “price corridors”, which include minimum price floors and maximum safety valves, driving into market-based systems to mitigate extreme volatility while maintaining the environmental rigor of an absolute emissions ceiling (Berahab, 2024, p.10).

The efficacy of carbon pricing as a financial engine is maximized through the strategic implementation of revenue recycling (Heine et al., 2019, p.4), which creates a self-sustaining fiscal architecture by transforming environmental externalities into liquid fiscal assets for the energy transition. Governments generate these revenues primarily through direct tax collection or the monetization of emission allowances via competitive auctions, with global carbon revenues now consistently exceeding \$100 billion annually.⁹ By redirecting these proceeds, policymakers can fund large-scale green infrastructure (Berahab, 2024, p.10) while maintaining social equity through “climate dividends” or subsidies for energy-efficient upgrades in small and medium enterprises (SMEs). This approach allows nations to achieve climate and energy security objectives at little to no net fiscal cost, as the generated revenue effectively bridges the funding gap without placing an undue burden on the national treasury. This market-based approach de-risks the energy transition for institutional investors by providing the long-term price predictability necessary to reallocate capital away from carbon-intensive assets, ensuring that the transition to a net-zero economy remains viable (Dombret and Kenadjian, 2022, p.165).

Beyond domestic fiscal benefits, the global alignment of carbon pricing is increasingly reinforced by cross-border mechanisms and geopolitical realities that elevate the necessity of national energy security. The implementation of CBAM by major trading partners has emerged as a powerful external catalyst, compelling global exporters to adopt

⁸ <https://netzero.vn/en/robust-carbon-market-to-play-net-zero-part/>

⁹ <https://www.worldbank.org/en/news/press-release/2025/06/10/global-carbon-pricing-mobilizes-over-100-billion-for-public-budgets>

domestic carbon pricing to maintain market competitiveness and avoid punitive border surcharges.¹⁰ Simultaneously, governments are increasingly including crediting frameworks in their policy mix to support both compliance and voluntary markets, expanding the carbon price signal to harder-to-abate sectors and providing vital climate finance to developing economies (Trüby et al., 2026, p.13). Moreover, recent geopolitical tensions, especially the Iran war, have raised concerns about national energy security and economic fluctuations, as the rising costs of energy consumption put pressure on inflation and economic downturns (Fornaro et al., 2024, p.2). While advancements in technology and regulatory mechanisms are beginning to mitigate these inflationary pressures, nations are quickly taking actions to maximize short-term fossil fuel consumption to maintain domestic economic stability while reinforcing the long-term strategic and national security cases for diversifying into domestic renewable energy (Shittu et al., 2025). Ultimately, these mechanisms provide predictable price signals to the private sector, de-risking green investments, preventing the accumulation of stranded assets in carbon-intensive industries, and supporting a resilient macroeconomic environment (OECD, 2021a, p.24).

2.2. The Role of Green Finance in Energy Transition

Building a successful green finance mechanism is viewed as a critical task and a catalyst for facilitating the energy transition to achieve net-zero carbon emissions by 2050 for all countries.¹¹ The role of green finance has been identified as critical to a successful energy transition since the Paris Agreement (World Economic Forum, 2025, p.8). In this paper, we view green finance as a hybrid: using financial instruments and focusing on financial issues. Because it facilitates and accelerates successful transitions, this sector has been significantly improved over the last decade. Several instruments have been developed, ranging from green loans and green bonds to green indices and other capital-raising instruments and activities.¹² Furthermore, the development of green finance mechanisms globally involves organizations across the private and public sectors.

International experience shows that green finance plays several essential roles in building a global ecosystem to accelerate the energy transition and move towards the Net-zero target by 2050. First, green finance serves as a crucial catalyst by mobilizing large pools of private capital and directing them toward clean energy technologies and sustainable infrastructure, thereby bridging a funding gap that public budgets alone cannot fill (Campiglio et al., 2021, p.7). Second, through innovative tools such as blended finance, green bonds, and risk-mitigation guarantees, it significantly lowers the cost of capital and de-risks renewable energy projects, transforming them into bankable and attractive opportunities for risk-averse institutional investors (Center for Climate and

¹⁰ <https://trungtamwto.vn/an-pham/31416-cbam-va-bai-toan-chi-phi-cho-tam-ve-vao-thi-truong-eu>

¹¹ <https://www.pwc.com/vn/en/insights-hub/perspective-blog/green-finance-development.html>

¹² <https://www.pwc.com/vn/en/insights-hub/perspective-blog/green-finance-development.html>

Energy Solutions, 2025, pp.15-17, 37-38). Finally, by integrating environmental, social, and governance (ESG) criteria into global financial decision-making, green finance effectively restricts funding for highly polluting activities and forces carbon-intensive industries to undergo necessary low-carbon transformations (Xu and Lin, 2024).

In recent years, green finance for energy transition development has evolved from a niche market into a mainstream global strategy. It explicitly redirects public and private capital away from fossil fuels toward renewable energy, electric vehicles, and climate-resilient infrastructure to achieve net-zero targets. Global climate finance has experienced remarkable growth, with total tracked flows reaching a record \$1.9 trillion in 2023 and estimated to have surpassed \$2 trillion in 2024 (Climate Policy Initiative, 2025). Within this expanding landscape, the sustainable debt market remains a primary financial engine, achieving an aligned cumulative volume of \$6.8 trillion by the end of 2025 (Climate Bonds Initiative, 2026, p.3). Green-labeled instruments consistently dominate this sector, accounting for 64% of all aligned sustainable debt deals in 2025 and surpassing the \$4 trillion cumulative volume mark by the end of that year (Climate Bonds Initiative, 2026, p.6). Geographically, the market exhibits significant concentration; while Europe leads as a broader region, the United States and China stand as the top individual countries for cumulative aligned green bond volume. Despite these historic milestones and rapid market maturation, current global investments still fall drastically short of the estimated \$4.5 trillion needed annually by 2030, or the \$7 to \$8.1 trillion required by 2035, to fully finance the transition to a net-zero economy (Asian Development Bank, 2025).

While the green finance sector has developed significantly, realizing its full potential requires navigating the risks of socioeconomic misalignment and establishing a common global consensus framework on methodologies, requirements, and disclosures. It is important to be cautious about misalignment across other sectors that can cause socioeconomic risk (UNDP, 2024a, p.3). For example, prioritizing green projects can be risky while the economy also needs to balance high-emitting (brown) sectors and stranded assets. Even though it is widely agreed that the green finance sector has been significantly developed, there is no consensus across countries and stakeholders on these perspectives. Even though green finance is a global concept, each country has different reporting standards and taxonomies, leading to different treatments in some cases for similar green investment projects or instruments. Hence, it is clearly important to reach a global consensus framework on methodologies, requirements, and disclosures to ensure consistency (Raihan and Sarker, 2026).

3. VIETNAM ENERGY TRANSITION LANDSCAPE AND THE NECCESITY OF GREEN FINANCE

3.1. Current Policy Framework

Vietnam's energy transition is fundamentally anchored in its proactive engagement with the global climate agenda, characterized by a dual strategy that balances aggressive decarbonization targets with the immediate need to power a manufacturing-intensive economy.¹³ In this section, we discuss Vietnam's energy transition landscape to provide an overview of the current policy mix and the financial needs required to achieve these goals. This trajectory shifted significantly following the 26th United Nations Climate Change Conference (COP26), where Vietnam signaled a paradigm shift in its national development strategy by committing to achieve net-zero emissions by 2050 (Ministry of Industry and Trade of Vietnam and Danish Energy Agency, 2022, p.3). This pledge, formalized through an updated Nationally Determined Contribution (NDC), serves as the primary mandate for the country's decarbonization pathway and necessitates a comprehensive decoupling of economic growth from fossil fuel consumption (Jindal et al., 2024). An important achievement is that the nation has transitioned from a passive adoption of renewables to an active management phase, embarking on several policy initiatives to promote this green energy transition.

To operationalize these international climate obligations, the Vietnamese government has successfully deployed a comprehensive policy framework, anchored by the Just Energy Transition Partnership (JETP), to rigorously reduce greenhouse gas emissions. Vietnam entered into the JETP Declaration in December 2022 with the International Partners Group (IPG), which is viewed as a cornerstone to operationalize international commitments (UNDP, 2024a, p.3). Furthermore, the government institutionalized this agreement through a definitive implementation engine (Decision No. 458/QĐ-TTg), which approves the updated scheme for the JETP Declaration.¹⁴ Under this integrated framework, Vietnam has committed to quantitative milestones that significantly exceed original baseline projections.

Regarding overarching strategies and the energy plan, Resolution No. 55-NQ/TW (2020) serves as the foundational orientation for Vietnam's energy strategy up to 2030, establishing a clear mandate to prioritize the rapid development of renewable energy sources and to encourage private investment. The following evolution of the recent PDP8 serves as the structural cornerstone of Vietnam's decarbonization strategy, representing a sophisticated reconciliation of national energy security with international climate mandates.¹⁵ Approved in 2023, PDP8 outlines a definitive shift away from fossil fuels, mandating that no new coal-fired power plants be built after 2030 and detailing a gradual reduction of the coal fleet thereafter. Following its initial ratification via Decision No. 500/QĐ-TTg in 2023, the framework established a "renewable-first" hierarchy. Instead of fossil fuels, the plan prioritizes the massive expansion of renewable energy, particularly

¹³ <https://www.confexhub.com/2025/07/28/forging-vietnams-carbon-market-from-policy-framework-to-practical-action/>

¹⁴ <https://vanban.chinhphu.vn/?pageid=27160&docid=217269>

¹⁵ <https://www.evn.com.vn/d/vi-VN/news/Lam-chu-cong-nghe-la-dong-luc-then-chot-tang-toc-chuyen-dich-nang-luong-ben-vung-60-12-506992>

targeting significant increases in solar and wind capacity to reach up to 71.5% of the total energy mix by 2050. To fulfill this vision, the PDP8 sets ambitious targets for grid expansion and renewable capacity, which will require an estimated capital investment of \$134.7 billion to \$142 billion between 2021 and 2030.¹⁶ Alongside these energy-specific plans, the National Green Growth Strategy (2021-2030)¹⁷ provides a broader macroeconomic framework by aiming to green key economic sectors, reduce greenhouse gas emission intensity per unit of GDP, and mobilize comprehensive sustainable financing.

To accommodate the rapid expansion of high-tech manufacturing, specifically within the semiconductor and green electronics sectors, the framework was aggressively scaled through the 2025 revision, effectively shifting the energy transition from a domestic environmental roadmap to a regional economic strategy. This revision under Decision No. 768/QĐ-TTg (2025) increased the projected total generation capacity to 236,000 MW by 2030.¹⁸ Additionally, it introduced pioneering provisions for the re-integration of nuclear power alongside¹⁹ the large-scale deployment of Battery Energy Storage Systems (BESS).²⁰

Achieving the ambitious targets set forth in Vietnam's overarching energy and green growth strategies require the government to rapidly cultivate a robust ecosystem of green finance, sustainable banking, and standardized environmental classification. In the realm of green finance, the market is experiencing strong momentum, with outstanding green credit surpassing VND 704 trillion by early 2025, representing 4.3% of total economic loans, alongside a surge in domestic green bond issuances, which reached approximately VND 10.3 trillion in 2024 alone.²¹ Concurrently, green banking practices are maturing as the State Bank of Vietnam mandates the integration of Environmental, Social, and Governance (ESG) factors, prompting 57 credit institutions to successfully implement comprehensive environmental and social risk assessments across their lending portfolios.²² Providing a vital foundation for these capital flows, the long-awaited Vietnam Green Taxonomy was officially issued in July 2025 via Decision 21/2025/QĐ-TTg, establishing uniform environmental criteria and verification procedures for 45 eligible project types across seven key sectors (FiinRatings, 2025, p.1). Ultimately, the synchronized

¹⁶ <https://www.undp.org/vietnam/blog/viet-nams-path-integrated-climate-financing-national-imperative>

¹⁷ <https://en.baohinhphu.vn/national-green-growth-strategy-for-2021-2030-vision-towards-2050-11142515.htm>

¹⁸ <https://vanban.chinhphu.vn/?pageid=27160&docid=213388>

¹⁹ <https://vietnamnews.vn/politics-laws/1721083/revised-atomic-energy-law-paves-way-for-viet-nam-s-first-nuclear-power-plant.html>

²⁰ <https://energyalliance.org/pioneering-innovation-with-vietnams-bess-pilot-project/>

²¹ <https://vccinews.com/news/62119/mobilizing-green-finance-for-sustainable-and-productive-growth.html>

²² <https://vccinews.com/news/62119/mobilizing-green-finance-for-sustainable-and-productive-growth.html>

advancement of these financial and regulatory frameworks mitigates the risk of greenwashing and establishes a transparent, credible environment to attract the massive international and domestic capital required for Vietnam's net-zero transition.

Beyond establishing a robust domestic framework for green finance and banking, Vietnam is actively leveraging innovative market mechanisms and forging strategic international partnerships to bridge the massive financing gap for its net-zero transition (Nghiem Xuan Khoat, 2025; Vu et al., 2026). On the international front, the Just Energy Transition Partnership (JETP) serves as a cornerstone initiative, through which G7 nations and global financial institutions have pledged an initial \$15.5 billion in public and private finance to accelerate the country's shift from coal to renewable energy (UNDP, 2024b, p.3). Additionally, multilateral development banks and bilateral partners, such as the World Bank and the Asian Development Bank, continue to provide critical technical assistance and concessional loans to de-risk green investments and improve the bankability of local clean energy projects (OECD, 2021a, p.141). Domestically, the government is preparing to launch a pilot Emissions Trading System (ETS) by 2025, with full operations targeted for 2029, that will impose mandatory emission quotas on heavy industries such as steel, cement, and thermal power to incentivize low-carbon technologies. Furthermore, the recent rollout of the Direct Power Purchase Agreement (DPPA) mechanism allows large corporate consumers to procure renewable electricity directly from private developers, fostering market competition and diversifying revenue streams beyond the state utility (OECD, 2025, p.83). Ultimately, the synergistic combination of global financial backing and transparent domestic market mechanisms is essential to alleviate the burden on the state budget and position Vietnam as a highly competitive destination for international climate capital.

3.2. Ensuring a Just and Inclusive Transition

As Vietnam's energy transition moves from policy formulation to implementation, creating a new landscape for investors and developers, it is crucial to find a policy mix that achieves a more inclusive transition that balances the benefits for all stakeholders, especially the vulnerable ones. This shift to net-zero must be fair and socially responsible, encompassing critical issues such as gender equality, energy access, workforce transition, and community well-being. Different stakeholders inherently hold different priorities in this new landscape; investors focus on social risks and supply chain transparency, governments prioritize workforce reskilling and social protection, and communities seek resilient livelihoods and shared benefits.²³ Developers must therefore navigate these rising ESG (environmental, social, and governance) expectations, regulatory reforms, and market restructuring to build projects that are both inclusive and sustainable. The gradual phase-out of fossil fuels poses significant socioeconomic challenges, particularly by threatening the livelihoods of tens of thousands of workers in coal-dependent regions like

²³ <https://en.vneconomy.vn/vietnams-energy-transition-to-go-ahead.htm>

Quang Ninh and risking disproportionate financial burdens on vulnerable, low-income households (Climate Strategies, 2023, pp.7-8). Vietnam has established a foundational commitment to social equity within its climate agenda, most notably through the JETP Resource Mobilization Plan, which explicitly prioritizes affordable energy access for vulnerable groups and mandates comprehensive reskilling programs for affected workers (Climate Strategies, 2023, p.7). Such initiatives like the Just Energy Transition Partnership (JETP) explicitly emphasize the need for comprehensive reskilling programs, the creation of quality green jobs, and the maintenance of affordable energy access, although Vietnam is still in the process of building the robust legal and social safety frameworks required to fully operationalize these protections (Ha-Duong, 2023, p.83). Additionally, the country has partially achieved early socioeconomic benchmarks by initiating collaborations with international organizations and the private sector to operationalize these vital vocational training and workforce upskilling initiatives (Ayas et al., 2025). However, significant “implementation gaps” persist, as actual implementation is currently hindered by the absence of concrete financial compensation mechanisms, limited community participation in decision-making, and an incomplete legal framework that effectively protects marginalized populations from socioeconomic shocks (Ayas et al., 2025). In conclusion, placing social equity at the core of the energy transition through continuous stakeholder dialogue and targeted support is not merely an ethical consideration but a fundamental prerequisite for achieving a sustainable, politically viable net-zero future.

3.3. Financial Requirements for Decarbonization

The transition of Vietnam’s energy landscape necessitates a sophisticated financial scheme and mechanism capable of reconciling rapid economic development with the nation’s commitment to achieve Net Zero emissions by 2050. In this section, we first introduce the context of Vietnam’s energy transition strategy and the expected budget to finance it, followed by the suggested policies to meet the financing demand. Vietnam’s decarbonization trajectory involves two distinct financial horizons.

In the short term (2021-2030), the focus remains on the structural mandates of the PDP8, which requires a total investment of USD 134.7 billion (United Nations in Viet Nam, 2022, p.13). This is devised into an initial phase of USD 57.1 billion (2021-2025) and a subsequent escalation to USD 77.6 billion (2026-2030) to meet the generation demands of a burgeoning manufacturing sector. These figures underscore a pressing need for private-sector participation and Public-Private Partnerships (PPPs) to mitigate state budgetary constraints while ensuring grid reliability for the integration of intermittent renewable sources (Raihan and Sarker, 2026).

In the long term (2031-2050), the financial objective shifts toward total decarbonization and climate resilience, with total investment requirements estimated at

USD 368-700 billion.²⁴ As commercial electricity demand is projected to reach 1,254.6 billion kWh by 2050, nearly double the 2030 baseline, success depends on the maturation of “soft infrastructure,” including carbon pricing mechanisms and green taxonomies, to secure the institutional and international financing necessary for sustainable growth (International Energy Agency, 2024, p.7).

4. POLICIES TO FINANCE THE ENERGY TRANSITION FOR VIETNAM

In this section, we discuss the multiscalar financial requirements necessitated by the global energy transition, transitioning from a macroeconomic perspective to the specific requirements of the Vietnamese context. More specifically, we propose that, to finance the energy transformation, there are three main pillars: the active mobilization of international capital, the internalization of environmental costs through carbon pricing, and the development of a regulated domestic green finance market.

4.1. Mobilization of International Funding

To finance the energy transition, an important strategy for middle-income countries, including Vietnam, is to actively leverage international partnerships and cooperation to mobilize capital. For example, to achieve the targets set out in the PDP8, Vietnam requires an estimated USD135 billion to USD150 billion in power sector investments by 2030 alone.²⁵ Because the state budget can cover only a small fraction of this massive requirement, unlocking international resources is necessary. Beyond bridging this critical financing gap, international funding and foreign direct investment serve as strategic enablers, transferring advanced clean technologies, providing essential operational expertise, and driving institutional reforms to help the country achieve its net-zero emissions targets (Vietnam Business Forum, 2025, p.26).

To accelerate capital mobilization for the energy transition, Vietnam must prioritize de-risking investments by improving the bankability of Power Purchase Agreements (PPAs) and streamlining administrative procedures (Vietnam Business Forum, 2025, pp.51-53). Current standard PPAs lack sufficient protections for investors, as they do not offer sovereign guarantees for the off-taker’s payment obligations, exclude international arbitration for dispute resolution,²⁶ and lack clear compensation mechanisms for power

²⁴ <https://vietnamnet.vn/en/vietnam-needs-700-billion-for-green-growth-capital-market-must-awaken-2473022.html>

²⁵ <https://laodong.vn/kinh-doanh/pha-bo-rao-can-ve-co-che-mo-duong-cho-nang-luong-tai-tao-phat-trien-1514472.lido>

²⁶ <https://b-company.jp/vietnam-renewable-energy-market-a-market-entry-guide-for-foreign-investors/>

curtailment (Dutt and Sidhu, 2022, pp.6-8). Revising these contracts to include fair risk-sharing mechanisms, such as “take-or-pay” or deemed generation clauses (er, 2023, p.9), is essential to make projects bankable and attract non-recourse international project finance. Simultaneously, the government should establish a centralized “one-stop-shop” mechanism to streamline complex project approvals, permitting, and land-use conversions, thereby drastically reducing administrative costs and shortening development timelines. As a crucial supplementary measure, Vietnam must successfully transition from fixed Feed-in-Tariffs (FiT) to transparent, competitive bidding and auction mechanisms, alongside the full implementation of the DPPA framework, to foster a competitive market and diversify revenue streams beyond the state utility.

Alongside project-level reforms, Vietnam must strengthen its institutional and financial infrastructure by building a National Emissions Database and enhancing the PPP framework (Raihan and Sarker, 2026). Establishing a transparent national database on emissions, energy, and biodiversity, supported by standardized Measurement, Reporting, and Verification (MRV) regulations, is vital for financial institutions to assess green credit and mitigate greenwashing risks accurately (International Carbon Action Partnership, 2018, p.5). This data infrastructure should be actively paired with mandates for domestic banks to adopt comprehensive Environmental and social risk management systems in their lending operations. Furthermore, while the current legal framework for PPPs permits investments in power generation and grids, it must be significantly strengthened by clarifying government guarantee undertakings, particularly regarding currency convertibility and minimum revenue security. Enhancing these PPP risk-sharing mechanisms is critical for attracting private and foreign capital into complex, high-cost areas traditionally dominated by the state, such as urgently needed transmission grid upgrades and the deployment of large-scale battery energy storage systems.

To overcome the limitations of a banking sector reliant on short-term deposits and a government constrained by a self-imposed public debt ceiling, Vietnam must strategically deploy new institutional and blended finance mechanisms. A top priority is establishing a specialized, public-purpose “Climate Bank” or a national green guarantee fund designed to provide concessional refinancing, absorb long-term project risks, and mobilize large-scale private capital. Furthermore, the government should initiate the issuance of Sovereign Green Bonds; doing so will not only raise affordable debt capital for critical low-carbon infrastructure but also set a vital pricing benchmark to stimulate the broader corporate green bond market. Because the government’s capacity to provide direct sovereign guarantees is highly restricted, Vietnam must heavily leverage “blended finance” by utilizing international public capital, such as the \$15.5 billion pledged under the Just Energy Transition Partnership (JETP), which is playing an important role to absorb initial project risks and “crowd-in” private investment in the early stage of Vietnam transition. To further reassure international financiers, introducing specialized de-risking tools like an Exchange rate coverage facility (ERCF) is crucial to protect foreign investors from local currency depreciation risks, which remains a major hurdle for global capital.

Beyond large-scale infrastructure funding, Vietnam must activate market-based instruments to unlock private capital for demand-side energy efficiency and emission reductions. The energy service company (ESCO) model (Southeast Asia Energy Transition Partnership, 2023, p.24), which has immense potential for industrial and building energy efficiency, is currently hindered by regulatory barriers; the government must urgently create clear legal frameworks for energy performance contracting (EPC),²⁷ including tax incentives, accounting rules, and specialized arbitration procedures. Additionally, a critical priority for Vietnam in the current period is the rapid operationalization of the domestic carbon market, with the Emissions Trading System (ETS) set to launch fully by 2028, providing new revenue streams through carbon credit trading that will make renewable projects significantly more bankable. Finally, the success of all these new financial mechanisms, from green bonds to ESCO investments, hinges on the strict and transparent application of the newly issued National Green Taxonomy to verify eligible projects, prevent greenwashing, and build enduring trust with international investors.

While multilateral funds provide catalytic capital, Foreign Direct Investment (FDI) plays a pivotal role in accelerating the energy transition in developing countries by bridging massive domestic financing gaps and supplying the long-term capital required for large-scale renewable infrastructure projects (Vietnam Business Forum, 2025, pp.26-27). Beyond supplying long-term capital, FDI brings advanced technological expertise and fosters powerful “spillover effects” that establish local supply chains and green jobs. However, to attract these investors amid regional competition, Vietnam must urgently address structural bottlenecks. A primary hurdle is the standard PPA, which lacks sufficient investor protections to secure non-recourse international finance and must be revised to ensure clear risk-sharing regarding curtailment and dispute resolution. Therefore, the newly introduced DPPA framework should be fully leveraged, enabling foreign developers to sell electricity directly to large corporate consumers seeking 100% renewable energy. Furthermore, to alleviate severe grid congestion, the government must aggressively expand transmission networks, clarify regulations for private sector investments in grids and energy storage, and establish a “one-stop shop” to simplify complex administrative and permitting procedures (Vietnam Business Forum, 2025, p.52). Finally, to remain a top destination for green capital, Vietnam must continue to optimize targeted fiscal incentives, including preferential reductions in Corporate Income Tax (CIT), import duty exemptions for renewable equipment, and land-use fee reductions for high-impact clean energy projects (Vietnam Business Forum, 2025, p.15).

4.2. Domestic Carbon Pricing and the Revenue Recycling Engine

Internalizing environmental costs through robust carbon pricing mechanisms is a

²⁷ <https://vietnambiz.vn/mo-hinh-kinh-doanh-esco-energy-service-company-business-model-la-gi-20200608105158896.htm>

crucial step to disincentivize reliance on fossil fuels and stimulate green investments (Heine et al., 2019, p.3). By putting a price on carbon emissions, the economic burden of climate damage is shifted directly to the emitters, which naturally incentivizes businesses to invest in low-carbon technologies and energy efficiency to reduce their compliance costs (Berahab, 2024, p.5). Meanwhile, the revenue recycling engine ensures a just and politically feasible transition by redirecting these generated funds to subsidize renewable infrastructure, alleviate the financial burden on vulnerable populations, and mitigate broader macroeconomic impacts (Berahab, 2024, p.18; Yang et al., 2025).

Domestic carbon pricing acts as a dual-purpose financial engine for Vietnam's energy transition. Vietnam is currently preparing to launch a pilot Emissions Trading System (ETS) by mid-2025 with full operations planned for 2029, while should simultaneously exploring the introduction of an explicit carbon tax by reforming its existing Environmental Protection Tax, which currently does not price fossil fuels based on their actual carbon content (World Bank, 2025, p.45).

On the one hand, to ensure the effective development of the ETS, policymakers must swiftly finalize the legal and technical frameworks, standardize MRV systems and GHG inventories, then establish clear guidelines for quota allocations on a centralized exchange. While current regulations such as Decree 06/2022/ND-CP²⁸ and Decision 13/2024/QĐ-TTg²⁹, successfully mandate over 2,100 major emitting facilities to conduct regular GHG inventories, Vietnam still struggles with a fragmented and unstandardized MRV infrastructure.³⁰ To ensure the foundation of the upcoming carbon market is solid and that emission data and carbon credits are credible, transparent, and internationally recognized, the government must urgently standardize MRV protocols and enforce rigorous, independent third-party auditing.

On the other hand, a direct carbon tax can be introduced for fragmented sectors excluded from the ETS (such as transport, agriculture, and small-scale manufacturing). Drawing from models in Singapore and South Africa, Vietnam could implement a manageable introductory rate of \$5 to \$10 per ton of CO₂ to allow businesses to adapt, accompanied by a transparent roadmap for gradual price increases over time (GIZ, 2021, p.75). Crucially, the ultimate success of these pricing mechanisms relies heavily on implementing a "Revenue Recycling" strategy to ensure a Just Transition. Because carbon pricing inevitably raises energy costs and can face public resistance, the government must strategically reinvest the massive revenues generated from the ETS and carbon taxes back into the economy. These funds should be strictly allocated to finance means-tested cash transfers for low-income households struggling with higher electricity bills, retrain workers displaced from the coal industry, and capitalize domestic green infrastructure funds, thereby maintaining social equity and public support.

Drawing on international successes, Vietnam could implement a hybrid mechanism,

²⁸ <https://vanban.chinhphu.vn/?pageid=27160&docid=205039>

²⁹ <https://vanban.chinhphu.vn/?pageid=27160&docid=210939>

³⁰ <https://vneconomy.vn/cac-giai-phap-cot-loi-phat-trien-van-hanh-thi-truong-carbon-viet-nam.htm>

such as establishing a carbon price floor within the ETS to ensure stable investment signals, or applying a carbon tax to broader sectors outside the trading scheme to maximize emissions coverage. By combining the broad revenue-generating reach of a carbon tax with the absolute emission limits of an ETS, Vietnam can effectively internalize environmental costs and channel the generated funds toward a just clean energy transition. Furthermore, establishing a transparent and predictable roadmap for pricing adjustments is crucial to prevent macroeconomic shocks and provide long-term certainty for green investments.

To mitigate the financial impacts of international trade policies like the EU's CBAM (Southeast Asia Energy Transition Partnership, 2023, p.25), Vietnam should design its domestic carbon pricing system to align with the standards of its key export markets closely. By implementing a robust domestic carbon tax or ETS, Vietnamese exporters can prove that a carbon price has already been paid during production, allowing this amount to be fully credited and deducted from the CBAM certificates required at the border. This strategic alignment will prevent local businesses from facing steep international carbon penalties, which could otherwise reach 20-35% of a product's value,³¹ while effectively safeguarding Vietnam's export competitiveness in the global green supply chain.

4.3. The Development of the Green Finance Mechanism

In the context of Vietnam's ambitious energy transition, a robust domestic green finance mechanism serves as the primary strategic enabler to bridge the massive investment gap³² and effectively channel the raised capital for the just transition. Therefore, in order to fully scale the green financial market, the government must proactively encourage broad participation of all economic sectors, including public, private sectors, institutional investors and third-party service providers. Above all, the State Bank of Vietnam (SBV) acts as the central enabler and the regulatory architect driving sustainable domestic capital through direct financial mechanisms and macroprudential incentives, and additionally the coordinator within the financial ecosystem, guiding commercial banks, corporations, and households toward the energy transition by establishing foundational policies and frameworks for green banking and sustainable credit. The successful deployment of these green finance mechanisms relies heavily on seamless inter-ministerial coordination, yet Vietnam's current regulatory landscape remains highly fragmented. Responsibilities are currently spread across multiple agencies, including the Ministry of Finance, the State Bank of Vietnam, the Ministry of Agriculture and Environment, and the Ministry of Industry and Trade, which often leads to overlapping standards, information silos, and regulatory bottlenecks that stall project approvals. These regulatory bodies should coordinate with SBV, where the Ministry of Finance (MOF) develops fiscal policies and the carbon exchange platform, the

³¹ <https://en.vneconomy.vn/businesses-and-carbon-market.htm>

³² <https://vir.com.vn/green-transition-to-close-20-billion-annual-investment-gap-143973.html>

Ministry of Agriculture and Environment manages emissions quotas and environmental criteria, the Ministry of Industry and Trade (MOIT) designs renewable energy investment frameworks like feed-in tariffs and power purchase agreements, and the Ministry of Planning and Investment (MPI) coordinates national green growth strategies and international climate finance. These ministries closely collaborate with the State Bank of Vietnam (SBV) to integrate sectoral policies into a cohesive, sustainable finance ecosystem, ensuring that the national green taxonomy, carbon markets, and investment incentives align to effectively unlock domestic capital, such as green credit and green bonds.

Commercial banks play a decisive role by mobilizing private capital for clean energy markets and enforcing environmental standards. Concurrently, large enterprises spearhead utility-scale renewable projects and corporate green bonds, while small and medium enterprises (SMEs) and households serve as critical implementers by massively adopting clean technologies such as distributed rooftop solar.

In our viewpoint, under the guidance role of SBV and other regulatory parties to mobilize and channel the capital for energy transition, green credit and green bonds remain the two primary pillars in mobilizing capital for energy transition in developing countries (Choi et al., 2020, p.2), and Vietnam is no exception.

To successfully access these emerging green credit and bond markets, these economic actors must proactively enhance their corporate governance and transparently adopt rigorous Environmental, Social, and Governance (ESG) reporting standards (Asian Development Bank, 2024, p.57). Green credit currently serves as the primary engine for sustainable investments in Vietnam, accounting for approximately 4.2% of the economy's total outstanding debt in 2025.³³ To actively scale this market, the State Bank of Vietnam (SBV) must transition to supportive role by deploying targeted monetary tools, such as specialized green refinancing lines, and introducing macroprudential incentives like mandatory green credit quotas and lower capital requirements for sustainable assets. Additionally, the SBV should coordinate to establish a National green credit guarantee fund to absorb the “first-loss” risks of innovative clean energy projects.³⁴ Operating as the financial gatekeepers, commercial banks must strictly integrate Environmental and social risk management systems (ESMS)³⁵ into their credit appraisals to confidently steer capital toward low-carbon technologies (Dikau and Volz, 2018, p.6). On the demand side, large enterprises driving utility-scale renewable projects must be required to adopt mandatory ESG disclosures to demonstrate their environmental benefits and prevent “greenwashing transparently”. Meanwhile, small and medium enterprises (SMEs) and households, which are crucial to adopting decentralized clean technologies such as rooftop solar, often struggle to access green loans due to complex procedures and high verification costs. To stimulate this grassroots demand, the government must provide

³³ <https://en.mae.gov.vn/green-credit-lending-reaches-nearly-780-trillion-vnd-9245.htm>

³⁴ <https://vietnamnet.vn/en/capital-sources-expanded-for-sustainable-growth-2480871.html>

³⁵ <https://vietnamlawmagazine.vn/state-bank-launches-tool-to-facilitate-green-finance-74266.html>

direct financial incentives, such as tax reductions and interest rate subsidies, while simplifying project verification through tools like a digital “Taxonomy Compass”.³⁶

The second pillar, green bonds, serves as the critical financial mechanism to mobilize large-scale, long-term debt capital for transformative, long-gestating infrastructure such as offshore wind farms and grid upgrades. To scale this nascent market, the government and the State Bank of Vietnam (SBV) must accelerate the issuance of Sovereign Green Bonds to establish benchmark pricing, while the SBV should actively accept high-rated corporate green bonds as eligible collateral. Commercial banks act as vital intermediaries in this ecosystem, issuing their own green bonds to address structural maturity mismatches and secure long-term funds to on-lend to domestic sustainable projects. Meanwhile, large enterprises driving capital-intensive renewable projects are the primary corporate issuers, but they must be mandated to adopt internationally aligned ESG disclosure requirements to build investor trust and prevent greenwashing. Conversely, small and medium enterprises (SMEs) and households often struggle to access bond-financed green loans due to complex procedures and prohibitively high third-party verification costs. To resolve this and stimulate demand, policymakers must directly subsidize these high issuance and verification costs for private companies while strictly applying the newly issued National Green Taxonomy. Together, these coordinated actions will foster a transparent ecosystem that successfully attracts the global institutional capital necessary for Vietnam’s energy transition.

According to global experience (Sachs et al., 2019, pp.266-267; UNDP, 2024a, p.22), to centrally coordinate the massive capital required to achieve Vietnam’s Net-Zero 2050 target, Vietnam should also establish a specialized, policy-driven green bank (GB) that prioritizes emissions reductions over commercial profit. The first role of this institution is that it would directly address the structural limitations of domestic commercial banks by providing patient, long-term concessional financing to eliminate maturity mismatches (OECD, 2021a, pp.144-145). Moreover, placed as the central catalyst in the country’s green finance ecosystem, the GB would serve as the primary vehicle to absorb massive international climate funds via issuing green sovereign bonds or managing international assistance, such as the \$15.5 billion JETP pledge, and then efficiently deploy them through an “on-lending” strategy that provides low-cost, concessional loans to domestic commercial banks (UNDP, 2024a, pp.8, 26-27). Furthermore, the green bank would actively engage with the private sector by structuring tailored financial packages and aggregating projects, thereby effectively de-risking innovative green investments to attract broader private capital (Dang and Nguyen, 2021). Finally, policymakers must position this bank as the nation’s premier knowledge hub for climate finance, leveraging its permanent, in-house technical expertise to independently handle complex project due diligence, preparation, and capacity building (Dang and Nguyen, 2021).

Along with the two pillars, there are several important mechanisms that play an

³⁶ <https://www.wfw.com/articles/vietnams-green-taxonomy-new-legal-framework-green-credit-green-bonds>

equally important role in mobilizing the medium and long-term capital needed for the energy transition. First and foremost are green equity (Feng et al., 2023) and green investment funds (GIZ, 2021, p.25) play a pioneering role in providing long-term capital and sharing risks, acting as catalysts to mobilize robust private and international financial flows into enterprises and projects focused on clean technology and environmental protection. To effectively develop these initiatives, Vietnam must translate the newly issued green taxonomy framework into tangible actions by building transparent emission databases and standardized ESG reporting systems to reliably guide green investment funds, therefore expanding concrete financial incentives and establish credit guarantee or risk-sharing funds to mitigate financing risks and confidently attract private capital into green equities. Furthermore, regulatory bodies should promote stock market transparency by strengthening Environmental, Social, and Governance (ESG) commitments for listed companies and enhancing sustainability indices like the Vietnam Sustainability Index (VNSI) to build confidence and attract long-term institutional investors. The government also needs to foster a robust financial ecosystem by establishing independent rating agencies, improving centralized trading platforms, and offering targeted incentives to attract professional asset management companies and international institutional investors into the green capital market.

Innovative financing mechanisms like crowdfunding (Dang and Nguyen, 2021), green fintech, and blockchain (Climate Policy Initiative, 2021, p.28) play a vital role in complementing traditional finance by expanding access to capital, lowering transaction costs, mobilizing funds from retail investors, and ensuring transparency in allocating capital to sustainable projects. To successfully develop these initiatives in Vietnam, policymakers should implement a “test-and-learn” regulatory sandbox approach for fintech and crowdfunding platforms to encourage digital innovation while effectively managing financial and cybersecurity risks. Furthermore, the government should offer targeted financial incentives for ESG-focused tech startups, establish public-private co-investment funds, and leverage these technologies to build a transparent, standardized national database for measuring and reporting emissions to build trust among green investors.

At the micro level, Hometown investment trusts (HITs) (Sachs et al., 2019, p.10) and village funds³⁷ serve as innovative community-based financing vehicles that mobilize micro-investments through digital platforms, empowering local individuals to fund regional clean energy projects driven by both financial returns and a local symbolic value of supporting their own community’s sustainable development. To effectively scale these initiatives to support Vietnam’s energy transition, the government should integrate them with macro-level fiscal policies by allocating spillover tax revenues (generated by the economic expansion surrounding new green energy supplies) back into these funds to increase their rate of return and attract a broader base of local investors. Furthermore,

³⁷ <https://seads.adb.org/articles/electrifying-last-mile-community-based-renewable-energy-eastern-indonesia>

policymakers can use these funds to bridge micro-initiatives with macro-finance by allowing HITs to bear the initial risks of small-scale renewable projects, thereby establishing a successful track record that de-risks the assets and allows them to secure larger loans from traditional commercial banks eventually.

5. CONCLUSION

The global energy transition represents an inexorable paradigm shift, necessitating a fundamental structural realignment for both advanced and emerging economies. While the momentum for decarbonization has accelerated significantly over the last decade, mobilizing adequate financial resources remains a formidable barrier, particularly for middle- and low-income nations striving to reconcile developmental imperatives with climate objectives. This study has analyzed the intersection of global policy frameworks and Vietnam's specific socioeconomic context to delineate a viable pathway for sustainable energy transformation.

A critical finding of this research is that successful transitions are rarely the result of isolated interventions but rather depend on a strategic policy mix that integrates fiscal signals, market incentives, and regulatory mandates. A comparative analysis of advanced economies reveals a sophisticated reliance on "revenue recycling" from carbon pricing as a primary fiscal engine to catalyze the energy transition. Furthermore, the maturation of these economies has been supported by the proactive development of green finance markets and standardized mechanisms that bridge the gap between institutional capital and sustainable infrastructure.

Drawing upon these global insights and tailoring them to the Vietnamese landscape, this paper concludes that the Government of Vietnam must adopt a tripartite policy architecture. First, the formulation of clear, scientifically grounded policy objectives that anchor in the PDP8 is essential to provide market predictability. Second, implementing a domestic carbon pricing mechanism, specifically designed to accommodate local industrial structures, is necessary to internalize environmental externalities and generate recurring revenue for green reinvestment. Third, the aggressive development of green finance instruments, including green bonds and credits supported by a national taxonomy, will mainstream climate considerations into the banking system. Finally, the strategic utilization of international funding, through frameworks such as the Just Energy Transition Partnership (JETP), remains an indispensable catalyst for de-risking large-scale infrastructure projects and ensuring a socially equitable transition. Ultimately, the synergy between these domestic reforms and international cooperation will determine Vietnam's capacity to meet its ambitious Net Zero commitments while maintaining long-term economic competitiveness.

REFERENCES

- Asian Development Bank (2024), “Viet Nam Financial Markets 2023 and Outlook 2024,” ADB.
- Asian Development Bank (2025), “Transition Finance: Trends, Challenges, and Opportunities for Asia and the Pacific,” ADB.
- Ayas, C., N. Vo, B. Khuat, D. Hu, J. Giwangkara, M. Dolan and T. Nguyen (2025), “Building Blocks for a Successful Just Energy Transition: A Stocktake Analysis of Indonesia and Vietnam,” *IOP Conference Series: Earth and Environmental Science*, 1511(1), 012010.
- B-Company Inc. (2025), “Vietnam Business Whitebook 2025,” B-Company Inc.
- Berahab, R. (2024), “From Theory to Practice: Making Carbon Pricing Work,” Policy Paper PP-07/24.
- Campiglio, E., Y. Dafermos, P. Monnin, J. Ryan-Collins, F. Schotten and M. Tanaka (2021), “Greening Central Banking: A Framework for Analysing the Financial Stability Implications of Environmental Degradation,” NEF.
- Center for Climate and Energy Solutions (2025), “Navigating the Finance Sector Net-Zero Transition: Levers for Decarbonizing in a Complex Landscape,” C2ES.
- Choi, J., D. Escalante and M.L. Larsen (2020), “Green Banking in China - Emerging Trends,” Climate Policy Initiative (CPI).
- Climate Bonds Initiative (2026), “Sustainable Debt Global State of the Market 2025: Post-Issuance Reporting and Transition Update,” Climate Bonds Initiative.
- Climate Policy Initiative (2021), “The Potential for Scaling Climate Finance in China,” Climate Policy Initiative.
- Climate Policy Initiative (2025), “Global Landscape of Climate Finance 2025,” Climate Policy Initiative.
- Climate Strategies (2023), “Just Transitions and Coal Power Phase-Out in Vietnam,” Climate Strategies.
- Climateworks Centre and Asialink (2024), “Enabling Investment for Vietnam’s Energy Transition,” Monash University and The University of Melbourne.
- Dang, T.T. and T.T. Nguyen (2021), “Developing Green Bank Operation in India and Vietnam: Comparison and Evaluation,” *Asian Journal of Business Environment*, 11(3), 33-43.

- Dikau, S. and U. Volz (2018), “Central Banking, Climate Change, and Green Finance,” ADBI Working Paper No. 867.
- Dombret, A.R. and P.S. Kenadjian (2022), *Green Banking and Green Central Banking*, De Gruyter.
- Dutt, A. and G. Sidhu (2022), “Viet Nam Grid Integration Guarantee: A Financial Solution to Mitigate Curtailment Risk for Renewable Energy Projects,” Council on Energy, Environment and Water (CEEW) / CEEW Centre for Energy Finance (CEEW-CEF).
- Feng, W., P. Bilivogui, J. Wu and X. Mu (2023), “Green Finance: Current Status, Development, and Future Course of Actions in China,” *Environmental Research Communications*, 5(3), 035005.
- FiinRatings (2025), “Vietnam’s Green Taxonomy Officially Issued - Paving the Way for Sustainable Investment Waves,” FiinRatings / Viet Nam Circular Economy.
- Fornaro, L., V. Guerrieri and L. Reichlin (2024), “Monetary Policy for the Energy Transition,” Deutsche Bundesbank.
- GIZ (2021), “Financial Instruments for Green Growth in Viet Nam,” Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH.
- Ha-Duong, M. (2023), “Vietnam’s Just Energy Transition Partnership: A Background Report,” CIRED Working Paper Hal-04094268.
- Heine, D., W. Semmler, M. Mazzucato, J.P. Braga, M. Flaherty, A. Gevorkyan, E. Hayde and S. Radpour (2019), “Financing Low-Carbon Transitions through Carbon Pricing and Green Bonds,” Policy Research Working Paper No. 8991.
- International Carbon Action Partnership (2018), “The Benefits of Emissions Trading Systems,” ICAP Secretariat.
- International Energy Agency (2024), “Achieving a Net Zero Electricity Sector in Viet Nam: Exploring Decarbonisation Pathways,” IEA.
- Jindal, A., G. Shrimali, B. Gangwani and R.B. Lall (2024), “Financing Just Energy Transitions in Southeast Asia: Application of the Just Transition Transaction to Indonesia, Vietnam, and Philippines,” *Energy for Sustainable Development*, 81, 101472.
- Ministry of Industry and Trade of Vietnam and Danish Energy Agency (2022), “Vietnam Energy Outlook Report 2021,” Electricity and Renewable Energy Authority (EREA).
- Nghiem Xuan Khoat (2025), “Comparative Analysis of Green Finance Policies in the EU, China and ASEAN: Policy Implications for Vietnam,” *Journal of Forestry Science and Technology*, 10(2), 109-116.
- OECD (2021a), “Clean Energy Finance and Investment Policy Review of Viet Nam,” Organisation for Economic Co-operation and Development.
- OECD (2021b), “Transition Finance Compendium,” OECD Publishing / OECD Development Co-operation Directorate.
- OECD (2025), “OECD Economic Surveys: Viet Nam 2025,” Organisation for Economic Co-operation and Development.

- Raihan, A. and T. Sarker (2026), “Financial Mechanisms for Advancing Environmental Sustainability: A Comprehensive Review,” *Green Technology, Resilience, and Sustainability*, 6(1), 4.
- Sachs, J.D., W.T. Woo, N. Yoshino and F. Taghizadeh-Hesary (2019), *Handbook of Green Finance: Energy Security and Sustainable Development*, Springer Singapore.
- Shittu, I., A. Saqib, C.F. Tang and Y. Chen (2025), “Does Global Geopolitical Risk Jeopardize the Clean Energy Transition? New Evidence from a Global Panel,” *Renewable and Sustainable Energy Reviews*, 223, 116006.
- Singapore Green Finance Centre (2023), “Vietnam Renewables: Investment Priorities,” Singapore Green Finance Centre / Imperial College London and Singapore Management University.
- Southeast Asia Energy Transition Partnership (2023), “Diagnostic Study on Net-Zero for the Energy Sector in Vietnam: Deliverable 4 (Final Report),” Southeast Asia Energy Transition Partnership (ETP).
- Trüby, J., B. Lorentz, B. Shirizadeh, F. Deau Blanchet, M. de Froidefond, F.-K. Phillips and A. Hooda (2026), “Bridging the Climate Finance Gap: Reaching US\$1.3 Trillion Annually by 2035,” Deloitte Global / Deloitte Center for Sustainable Progress.
- UNDP (2024), “A Climate Bank for Viet Nam to Catalyse Green and Just Transitions,” UNDP Viet Nam.
- United Nations in Viet Nam (2022), “Viet Nam Development Finance Assessment,” United Nations / United Nations Viet Nam.
- Vietnam Business Forum (2025), “Made in Vietnam Energy Plan 4.0,” Vietnam Business Forum (VBF) Energy Working Group.
- Vu, T.P.M., N.M. Trinh, N.T. Dao and H. Doan (2026), “How Foreign Green Finance Drives ESG Outcomes in the Context of Global Value Chains: New Insights for Vietnam,” *Journal of International Economics and Management*, 1-16.
- World Bank (2022), “Energy Sector Decarbonization in Vietnam,” World Bank Group.
- World Bank (2025), “Viet Nam 2045-Growing Greener: Pathways to a Resilient and Sustainable Future,” World Bank Group.
- World Economic Forum (2025), “Financing the Energy Transition 2025,” World Economic Forum.
- Xu, B. and B. Lin (2024), “Green Finance, Green Technology Innovation, and Wind Power Development in China: Evidence from Spatial Quantile Model,” *Energy Economics*, 132, 107463.
- Yang, X., H. Fan and X. Ye (2025), “Carbon Tax Revenue Recycling Strategy Choices under Macroeconomic Uncertainty Based on Low-Carbon Technology Progress,” *Journal of Environmental Management*, 391, 126437.

Mailing Address: Xuan Vinh Vo, University of Economics Ho Chi Minh City, Institute of Business Research, 59C Nguyen Dinh Chieu Street, Ho Chi Minh City, Vietnam, E-mail: vinhvx@ueh.edu.vn.

Received December 27, 2025, Accepted April 06, 2026.