

ASSESSMENT OF THE POTENTIAL FOR GREEN FINANCE DEVELOPMENT IN VIETNAM'S ELECTRICITY INDUSTRY: CASE OF ELECTRICITY OF VIETNAM (EVN)

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Abstract: Green finance refers to financial activities that support projects and operations aimed at minimizing negative environmental impacts and promoting sustainable development. Green financial products include green bonds, green loans, and other financial instruments dedicated to renewable energy projects, clean energy, and environmental protection. This study focuses on assessing the potential for green finance development in the electricity sector, with particular attention to the current state of green capital mobilization at Vietnam Electricity (EVN), as well as the barriers and opportunities in the transition to sustainable energy. EVN has accessed several international funding sources with green components but has not yet issued green bonds. The main barriers include the lack of a legal framework for green finance, limited transparency in ESG reporting, and constraints on the financial capacity of state-owned enterprises in accessing these financial tools. To promote green finance, EVN needs to develop a clear green finance strategy and expand sustainable financial products such as green bonds. Government support is also necessary to improve the regulatory framework, including issuing a taxonomy of green activities and facilitating the issuance of green bonds by state-owned enterprises. Additionally, enhanced cooperation with international financial institutions is needed to leverage technical and financial assistance from global energy transition initiatives.

• Keywords: green finance, reducing CO2 emissions, green bonds, energy transition.

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1. Introduction

1.1. Background of the study

In the context that the world is facing increasingly serious impacts of climate change, the energy transition towards sustainability is not only an inevitable trend, but also an urgent requirement. Countries around the world, especially developing countries like Vietnam, are under great pressure to balance the need for economic growth and their commitment to reducing greenhouse gas emissions. With the commitment to achieve net zero emissions by 2050 made at COP26, Vietnam is accelerating the transformation of the energy system, in which the electricity sector plays a key role.

Green finance has emerged as an important tool for mobilizing resources for the energy transition. This is a form of financing aimed at financing projects that benefit the environment, including renewable energy, energy efficiency, green transportation, and climate-resilient infrastructure. In the electricity industry, green finance not only contributes to reducing pressure on the state budget but also creates

conditions for businesses to access preferential capital sources, promote technological innovation and improve operational efficiency.

Electricity of Vietnam (EVN) - a state-owned enterprise playing a key role in electricity production, transmission and distribution - is facing an urgent requirement to transform its development model towards green and sustainable development. With a large scale of assets and investment, EVN has the potential to become a leader in implementing green finance in the electricity industry. However, practice shows that access to and mobilization of green finance sources at EVN is still limited, and at the same time faces many barriers in terms of institutions, internal capacity and market conditions.

1.2. Research Objectives

This study aims to comprehensively assess the potential for green finance development in Vietnam's electricity sector through an in-depth case analysis of Vietnam Electricity (EVN).

The research focuses on addressing the following key questions:

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- What forms of green finance has EVN implemented or is currently implementing?

What is the scale and effectiveness of these initiatives?

- What are the main barriers that hinder EVN from effectively mobilizing green capital?

- What opportunities do the current policy and market contexts offer EVN for developing green finance?

- What actions should EVN take to effectively seize these opportunities and overcome challenges, while contributing to the national goal of achieving net-zero emissions?

2. Rationale and research overview

2.1. Rationale for green finance

Definition of green finance

According to the OECD, Green Finance is understood as financial flows that serve the goals of environmental sustainability, including investment in projects to mitigate climate change, renewable energy, efficient use of resources, protect ecosystems, etc and infrastructure to adapt to climate change.

In the energy sector, green finance is particularly focused on:

- Renewable energy development projects (solar power, wind power, small hydropower...)

- Energy Saving, Grid Modernization, and Rural Electrification Projects

- Initiatives to reduce emissions and achieve a sustainable energy transition

Popular green finance tools

- *Green Bonds:* Debt securities used to raise capital for environmental projects, subject to certain standards such as the ICMA Green Bond Principles, ASEAN Green Bond Standards, or the EU Taxonomy.

- *Green Loans:* A form of preferential or conditional loans associated with environmental objectives, usually provided by development financial institutions.

- *Green Credit:* Credit products from banks aimed at customers implementing environmentally friendly projects.

- *Climate Fund or Green Fund:* Non-refundable funding or technical assistance from organizations such as the Green Climate Fund (GCF), World Bank (WB), Asian Development Bank (ADB)...

- *Carbon credit mechanism:* Businesses can sell reduced emissions according to international

standards, creating more sources of income for reinvestment.

These tools are considered the foundation for businesses in the electricity industry to mobilize capital for energy transition.

Standards and legal framework for green finance

Currently, green finance is governed by international standards such as the *ICMA Green Bond Principles* (a set of voluntary principles for the issuance of green bonds), *ASEAN Green Bond Standards* (standards applied in Southeast Asia), and the *EU Taxonomy* (a classification system for sustainable economic activities). In Vietnam, green finance is governed by the *Green Growth Strategy for the period 2021-2030, the orientation for the development of the green finance market of the State Bank and the Ministry of Finance*, the *Law on Environmental Protection 2020* refers to environmental criteria in financial activities, Pilot guidelines on green bond issuance from the Ministry of Finance. However, a complete, synchronous and mandatory legal framework for green finance in Vietnam is still in the process of being built.

2.2. Research overview

The WB's report (2022) has analyzed the possibility of developing the green bond market in Vietnam, in which the energy sector is considered one of the most potential sectors. The report states that renewable energy is the leading sector in green bond investment in Vietnam in the next 3 years; Other sectors such as water management, sustainable agriculture, and clean transportation are also highly appreciated, but renewable energy remains a top priority in the green portfolio. However, the report also points to a major hurdle now being limited awareness of green bonds among the business community and other stakeholders. The World Bank has supported BIDV in issuing green bonds worth US\$104 million in 2023, marking an important step forward in the development of the domestic green bond market. International organizations such as the Global Green Growth Institute (GGGI) have also conducted surveys and research to promote the development of the green bond market in Vietnam

Samar S et al, (2023) provides evidence that green finance (green bonds) significantly fosters renewable energy production. Their results are robust to addressing cross-sectional dependence concerns, allowing structural breaks, and using several alternative specifications and estimation methods.

Compared to their baseline findings, the effect is higher for green bonds issued to finance alternative energy. The existing stock of technological capacity significantly fosters the impact of green finance on renewable energy production, particularly in the long run. The long-run impact of green finance is significant in countries with higher emissions per dollar GDP, higher levels of climate change exposure to the economy and human life, and better-developed credit markets. The effect is more pronounced in countries with low or net zero emission targets and following the post-Paris 2015 agreements.

Dongyang Zhang et al, (2023) measured the effects of green financing and energy transition on COP26 targets for 40 countries, namely, 14 economies with market-based financial systems and 26 countries with bank-based financial systems, from 2010 to 2020. The findings confirmed that, in the market-based financial system, GDP per capita has a positive coefficient, while for countries with a bank-based financial system, GDP per capita has a negative coefficient on greenhouse gas emissions. With a 1% improvement in the energy transition of countries under a market-based financial structure, greenhouse gas emissions will decrease by 0.08%. The central practical policies recommended by this research are enhancing green loans, bank financing, and green bank guarantees.

Ramla Khalidi (2022) makes specific recommendations on integrating green finance into national energy development strategies. This report highlights the role of green finance in promoting sustainable growth and supporting a just energy transition. Recommendations include building green finance tools, improving the regulatory framework, and strengthening the capacity of relevant agencies. The report also recommends the establishment of a National Energy Bank to invest in renewable energy projects such as solar and wind power, as well as support domestic businesses in manufacturing equipment and providing maintenance services for renewable energy systems. In addition, the report emphasizes the importance of modernizing agriculture, building climate-resilient housing, developing green transportation and green industry. Large-scale investment in renewable energy is expected to create a large domestic market for domestic businesses, promoting growth and creating jobs. The government is also recommended to provide additional support to domestic enterprises to develop production and service capacity in the renewable energy sector.

Le Mai Trang et al, (2024) analyzes the current situation of green finance in Vietnam, clarifies the barriers; from there, proposes several solutions to promote the development of this field. In Vietnam, green finance plays an essential role in mobilizing capital for environmentally friendly projects, such as renewable energy, green transportation, sustainable agriculture and green buildings. However, the development of green finance in Vietnam still faces many challenges, including an incomplete legal framework, limited awareness of businesses and a lack of diverse green financial products.

Nguyen Phan Yen Phuong (2025) mentioned that the green finance also is considered an important approach to promote green and sustainable growth. Encouraging green capital flows is one of the crucial factors that support businesses to focus on building and implementing sustainable development strategies, thereby creating a sustainable ecosystem and realizing The National Strategy for Green Growth in Vietnam

Although there have been many studies related to green finance and energy transition, there is still a gap in analyzing the specific case of the Electricity of Vietnam (EVN) - a key player in the national power system. An in-depth study of EVN will not only help to properly assess the potential and challenges in green finance mobilization, but also provide a basis for designing appropriate support policies at the macro level.

3. Research Methodology

The study employs a qualitative approach combined with a case study analysis to comprehensively assess the potential for green finance development in the electricity sector, using the specific case of Vietnam Electricity (EVN). This approach enables an in-depth examination of institutional context, corporate capacity, and financial trends influencing the energy transition process.

The researcher collected secondary data and conducted in-depth interviews with managers responsible for green finance and renewable energy at EVN.

Secondary data was drawn from the following sources:

- Financial statements, sustainability reports, and annual reports of EVN from 2017 to the present
- Legal documents and policies related to green finance and energy transition issued by the Government, Ministry of Industry and Trade, Ministry of Finance, and the State Bank of Vietnam

- Reports from international organizations such as the World Bank (WB), ADB, GIZ, UNDP, IEA, Climate Bonds Initiative, etc., related to green finance, electricity sector development, and energy transition

- Scientific studies and academic articles on green finance, ESG, and energy transition.

After data collection, the researcher conducted a preliminary comparison between EVN and other state-owned energy enterprises in the region, such as PLN in Indonesia and EGAT in Thailand, to highlight similarities and differences in their approaches to green finance.

4. The current situation of green finance mobilization at EVN

4.1. Overview of EVN's financial situation and investment orientation

Electricity of Vietnam (EVN) is a state-owned enterprise that plays a central role in the national power system, dominating about 60-70% of the power generation capacity and almost the entire power transmission grid. With a total asset scale of over VND 700,000 billion (as of 2023), EVN invests heavily annually in the development of power infrastructure, including: power plants, transmission grids, rural electrification, and recently operation system digitization projects.

However, according to the financial report and assessment of the Ministry of Industry and Trade, EVN is facing significant financial pressure such as a financial deficit for many years due to the electricity price policy not fully reflecting input costs, limited loan limits due to large outstanding loans and low credit index. highly dependent on ODA concessional loans and support from development finance institutions (DFIs).

Although EVN has declared its orientation for sustainable development, shifting to renewable energy, and actively investing in the digitalization of the power grid, the linking of investment strategy with green finance is still unclear and systematic.

4.2. Forms of green finance implemented or approached

EVN and its subsidiaries have approached a number of loans from international organizations with the goal of supporting the energy transition, although they are not always clearly identified as "green finance". Examples include: (i) Loans from the World Bank and ADB for projects to improve power grids, electrify rural areas, and improve electricity efficiency; (ii) The project "Smart Grid

for Renewable Energy Development" using capital from GIZ (Germany) and the German Bank for Reconstruction (KfW); (iii) Components on small-scale hydropower development and reduction of power losses with environmental factors within the framework of the power sector support program.

As of 2024, EVN has never issued green bonds domestically or internationally, despite the potential for implementation. The reasons can be mentioned such as the lack of an assessment, classification and reporting process in accordance with international standards, the lack of an internal mechanism to identify "green" projects or environmental benefits, the new Vietnamese green bond market, the lack of a reliable ESG credit rating system, etc state-owned enterprises such as EVN are subject to many legal constraints in debt issuance, especially in the form of international debt.

Although EVN has issued *the Sustainable Development Report* since 2021, the level of integration of *ESG* (Environment - Society - Governance) factors in the financial strategy is still in its infancy. The system of environmental indicators is incomplete; there is no independent report on carbon emissions or the environmental impact of investment projects.

4.3. Comparison with some regional businesses

Criteria	EVN (Vietnam)	PLN (Indonesia)	EGAT (Thailand)
Green Bonds	Unreleased	2023 Sustainable Bond Issued	Issued green bonds for renewable projects
ESG Disclosure	There is a sustainable report, lacking international standards	Have a specific ESG plan, cooperate with the World Bank	Integrated ESG, GRI compliant
Green finance loans	Some projects from WB, ADB, GIZ	Many projects from JICA, ADB	Funded by the ADB Climate Fund
Main Barriers	Incomplete legality, low project identification capacity	Lack of financial transparency	The green capital market is not deep

Through comparison, it can be seen that EVN has not fully exploited the potential of green finance mobilization compared to partners in the region, partly due to the incomplete legal system and limited internal capacity.

4.4. Assessment of barriers and opportunities for EVN's green finance development

EVN is facing barriers in mobilizing and implementing green finance such as institutional and legal barriers, barriers to Vietnam's financial market as well as barriers within EVN itself.

Currently, Vietnam does not have a uniform classification system for "green" activities (taxonomy) and binding regulations on the issuance of green bonds or green loans at the level of state-owned enterprises.

This makes it difficult for EVN to identify suitable projects and build a capital mobilization roadmap. EVN also faces a complicated approval process for international loans or bond issuance, which reduces flexibility and delays in accessing international financial opportunities. In addition, the lack of quantitative reporting requirements on environmental, social and governance makes it difficult for EVN to approach investors or international financial institutions that require transparent and comparable information.

The green bond market in Vietnam is still in its infancy, lacking independent ESG rating standards and specialized investors. The issuance of green bonds requires third-party assessments, environmental audits and continuous monitoring - creating an additional cost and human burden for EVN if there is no appropriate technical support.

On EVN's side, there are also specific barriers. Firstly, EVN has not yet developed or announced a green capital mobilization strategy or a strategy to integrate sustainable finance into medium and long-term investment. Secondly, EVN lacks a dedicated team in charge of green finance, the capacity for quantitative environmental impact assessment is still weak, and there is no process for selecting, screening and supervising projects according to international green criteria. Thirdly, the accumulated losses in recent years (due to the electricity price regulation mechanism) make it difficult for EVN to achieve high credit - a necessary factor when issuing bonds in the international market.

Besides the barriers, EVN still sees some opportunities to promote green finance at EVN. The first opportunity comes from the national energy transition policy. The Prime Minister of Vietnam pledged that Vietnam will achieve net zero emissions by 2050. This is a great motivation for state-owned energy enterprises such as EVN to shift to clean energy development and modernize the power system. Power Plan VIII (2023) has strongly prioritized renewable energy (solar, wind, biomass) and smart transmission systems - suitable areas for green finance mobilization. The National Green Growth Strategy and guidance from the Ministry of Finance have begun to shape the system, criteria and mechanisms to encourage green finance.

The second opportunity comes from abundant international finance. Many international financial institutions are prioritizing investment in the energy transition in Vietnam such as ADB, WB, JICA, GIZ, GCF, Climate Investment Funds, etc. These

organizations often provide concessional loans with long terms, technical support for the construction of green projects, co-financing or risk guarantees when issuing bonds. *In addition*, Vietnam is negotiating with development partners in the Just Energy Transition Partnership project and will have financial opportunities of up to tens of billions of USD if EVN and businesses are able to absorb it.

The third opportunity comes from the capital market and requests from investors. International investors are increasingly prioritizing "ESG-compliant" capital flows - that is, financing businesses with sustainable development strategies, environmental transparency and the ability to create positive impacts. EVN, as a leading enterprise in the electricity industry, if it soon improves the ESG framework and makes the strategy transparent, can attract a large amount of capital from development investment funds and the private capital market.

5. Recommendations

On the basis of the analysis of the current situation, barriers and opportunities above, the group of solutions is proposed at 3 levels: (1) EVN level, (2) national policy level, and (3) support level from international organizations.

5.1. Enterprise-level solution group (EVN)

EVN needs to *build a green finance strategy and integrate ESG*. Specific activities include: (i) promulgating a Green Finance Mobilization Strategy to 2030, which clearly defines green capital targets, a list of priority projects, a green bond issuance plan, and monitoring mechanisms; (ii) Integrate environmental-social-governance (ESG) indicators into the investment planning, project appraisal, and financial reporting process; (iii) Forming a specialized department on sustainable finance, with sufficient technical capacity to work with international organizations and financial institutions with high requirements for environmental transparency.

EVN should *choose one to two green infrastructure investment projects* (e.g. smart grid renovation, wind or solar power plants) to pilot the issuance of domestic or international green bonds. However, EVN needs to build a *Green Bond Framework* in accordance with international standards (ICMA, ASEAN Green Bond Standards), and at the same time invite third-party consulting and assessment organizations to participate in verification.

EVN needs to complete *EVN's annual Sustainable Development Report* in accordance with international

standards such as the *Global Reporting Initiative*, and at the same time integrate climate risk analysis (TCFD) and carbon emission reduction strategies. EVN also needs to publish quantitative data on greenhouse gas emissions, energy consumption, and the percentage of capital invested in green projects.

5.2. National policy-level solution group

To support EVN in particular and enterprises in the electricity industry in general, the Vietnamese Government needs to urgently promulgate a set of criteria for classifying green activities (Green Taxonomy), applied in the fields of energy, transport and construction, in order to create a legal basis for state-owned enterprises to issue green bonds. The Ministry of Finance needs to complete mechanisms to encourage the issuance of green bonds such as income tax exemption and reduction for individual investors, develop a co-guaranteed mechanism or support for green assessment costs for state-owned enterprises.

The Government needs to build a flexible financial mechanism for SOEs such as EVN when investing in green projects: concessional loans, risk-sharing mechanisms, or public-private partnership (PPP) models, or prioritize the allocation of ODA and non-refundable financing from international organizations for high-performance green projects in the power sector.

5.3. Cooperation with international organizations and mobilization of technical resources

EVN needs to actively cooperate with partners such as ADB, WB, GIZ, JICA in building a green finance framework, ESG reporting, and developing emission measurement/emission reduction mechanisms. At the same time, EVN should participate in networks such as *Green Finance Network Asia*, *Initiative for Climate Action Transparency (ICAT)* to update international practices.

EVN needs to actively play a core role in programs such as *JETP*, where international capital and technical sources will be prioritized for enterprises with the ability to absorb and deploy effectively.

5.4. Recommendations on the implementation roadmap

The author also recommends to EVN the roadmap for implementing the above solutions as follows:

Stage	Main objectives	Recommended Activities
2025-2026	Build the foundation	Develop a green finance strategy; Establishment of ESG department; Standardize reports
2026-2028	Pilot deployment	The first green bond issuance; Choose a smart infrastructure project to raise capital

Stage	Main objectives	Recommended Activities
2028-2030	Expansion and integration	Large-scale international capital mobilization; Active participation in the JETP and global initiatives

6. Conclusion

Promoting green finance in the electricity sector particularly within Vietnam Electricity (EVN) is a key factor in supporting the national energy transition toward sustainability, modernization, and low emissions. The study reveals that EVN has significant potential to mobilize green finance due to its operational scale, long-term investment orientation, and central role in the national power grid. However, its access to and implementation of green financial instruments remain limited, with no clear strategy, a lack of financial products such as green bonds, and numerous barriers stemming from institutional constraints, internal capacity, and the underdeveloped domestic green capital market.

Nevertheless, both the international and domestic contexts are creating favorable conditions, including the Just Energy Transition Partnership (JETP), funding opportunities from international financial institutions, and growing investor interest in ESG factors. Therefore, EVN must take strategic and systematic action and closely coordinate with regulatory agencies and international partners to build a supportive legal framework, enhance institutional capacity, and innovate its approach to finance.

In conclusion, for EVN to play a leading role in Vietnam's sustainable energy transition, developing green finance is not merely a strategic option it is a necessary condition. Coordinated efforts from the enterprise, government, and development partners will be key to realizing the goal of net-zero emissions by 2050.

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