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Power and Energy Working Group under Vietnam Business Forum

Made in Vietnam Energy Plan 4.0

IMPROVING BANKABILITY OF VIETNAM'S CLEAN ENERGY SECTOR

LABOR PUBLISHING HOUSE

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We hope that this Report serves as a valuable reference for policymakers, investors, and other stakeholders. We trust that the information and analysis contained within will contribute to the further development of Vietnam's renewable energy sector, strengthen the country's national competitiveness, and pave the way for a sustainable future for the next generation. We welcome any feedback to continuously enhance the report and better serve our shared goals.

Sincerely,

The Power and Energy Working Group

DISCLAIMER

The MVEP - fourth edition - reflects the collective views of PEWG members on Vietnam's power and energy sector and is not meant to represent the views of any individual company or nation. The primary aim of the MVEP is to facilitate constructive dialogue between businesses and the Government. It is intended for the use of PEWG members and interested parties and not a particular company, institution or nation.

The fourth edition of the MVEP contents was last edited in May 2025.

INTRODUCTION

Made-in-Vietnam Energy Plan 4.0 ***(MVEP 4.0)*** is a continuation of a series of strategic reports on sustainable energy transition led by Power and Energy Working Group ***(PEWG)*** under Vietnam Business Forum ***(VBF)***. The MVEP 4.0 report presents a comprehensive approach for Vietnam's energy transition, developed through: a long-term vision, mid-term legal framework, and short-term solutions with specific recommendations at each policy level. The report emphasizes enhancing Vietnam's competitiveness in attracting clean energy investment while underscoring the need to address administrative and legal barriers, simplify procedures, and improve transparency to accelerate the deployment of clean energy projects, contributing to Vietnam's sustainable development goals.

By analyzing global and regional energy transition trends, the role of renewable energy in emission reduction and energy security, the MVEP 4.0 report outlines a long-term vision for sustainable energy transition. Additionally, it evaluates Vietnam's ability to attract foreign direct investment ***(FDI)*** in clean energy, comparing it with economies like Taiwan (China), Indonesia, and the Philippines, while also assessing the development of local supply chains and technological capacity in the renewable energy sector in Vietnam.

In the mid-term, MVEP 4.0 proposes approaches to enhance investment efficiency, including risk mitigation for renewable energy projects through improved power purchase agreements ***(PPA)*** and financial mechanisms. The report also highlights the importance of promoting green finance and public-private partnerships ***(PPP)*** to mobilize capital, while assessing the impact of the global minimum tax on investments in the sector.

From a short-term perspective, the report provides specific solutions regarding establishment of a transparent and competitive bidding mechanism to select investors for renewable energy projects. Specifically, issuing regulations to ensure investor commitments and streamlining project permitting processes are identified as priorities.

This report was developed under a project funded by the Global Energy Alliance for People and Planet ***(GEAPP)*** and implemented by The Asia Foundation ***(TAF)*** and Pacific Rim Investment and Management Inc. ***(PRIM)***. It serves as a valuable resource for policymakers, investors, and stakeholders in Vietnam's clean energy sector.

LIST OF ABBREVIATIONS

Term	Description
ADB	The Asian Development Bank
AFD	The French Development Agency (Agence Française de Development)
The Civil Code	The Civil Code 91/2015/QH13 dated November 24, 2015 of the National Assembly,
COP27	The 27th UN Climate Change Conference
DPPA	The Direct Power Purchase Agreement
EIRR	The Expected Equity Internal Rate of Return
EVN	Vietnam Electricity
FDI	Foreign Direct Investment
FiT	Feed-in Tariff
GEAPP	The Global Energy Alliance for People and Planet
IEA	The International Energy Agency
JETP	The Just Energy Transition Partnership
JICA	The Japan International Cooperation Agency
KfW	The Development Bank of Germany (Kreditanstalt für Wiederaufbau)
The 2020 Investment Law	The Investment Law No. 61/2020/QH14 dated June 17, 2020 of the National Assembly
The 2024 Electricity Law	The Electricity Law No. 61/2024/QH15 dated November 30, 2024 of the National Assembly
MVEP	The Made in Vietnam Energy Plan
RE	Renewable Electricity
ODA	Official Development Assistance
OECD	Organisation for Economic Co-operation and Development
PDP7	National Power Development Plan for the period 2011-2020 with a vision to 2030 approved for adjustment in March 2016

Term	Description
PDP8	The National Power Development Plan for the 2021-2030 period, with a vision to 2050, was approved in May 2023.
PEWG	The Power and Energy Working Group under Vietnam Business Forum
PPA	Power Purchase Agreement
PPP	Public - Private Partnership
PRIM	Pacific Rim Investment and Management Inc.
TAF	The Asia Foundation
UNCTAD	United Nations Conference on Trade and Development
VBF	Viet Nam Business Forum
WB	World Bank

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1. OVERVIEW

The "Made in Vietnam" Energy Plan ***(MVEP)*** is a key publication released periodically by the Power and Energy Working Group ***(PEWG)*** under the Vietnam Business Forum ***(VBF)***. This initiative serves as a critical platform to promote dialogue and cooperation between the private sector and the Government of Vietnam, aiming to address challenges and leverage opportunities for the sustainable development of the national energy sector.

The first MVEP report was launched in 2016, at a time when Vietnam was intensifying its energy development with multiple strategic goals. The report provided important recommendations to promote the development of renewable energy and improve energy efficiency, aligned with the Revised National Power Development Plan VII ***(PDP7)***, targeting a balance between economic growth and environmental sustainability.

The initial edition of MVEP outlined the framework for a more sustainable future energy system, emphasizing renewable sources such as solar power, wind energy, and biomass, while also balancing with natural gas power generation. Additionally, the report underscored the role of energy efficiency measures in reducing electricity demand and optimizing the national power system.

In 2019, the second edition of MVEP was released, reflecting the rapid changes within Vietnam's energy sector and the global energy transition. MVEP 2.0 presented strong arguments for prioritizing the utilization of Vietnam's domestic energy resources, including solar, wind, and hydropower, while reducing reliance on energy imports and maintaining cost effectiveness.

The report also highlighted the urgent need to ensure energy security, and emphasized the critical role of the private sector in driving innovation and mobilizing capital for renewable energy projects. MVEP 2.0 particularly stressed the importance of establishing a favorable investment environment through regulatory adjustments and enhanced transparency in the energy sector.

In 2023, the third edition of MVEP was launched with a more comprehensive and long-term perspective. This version analyzed Vietnam's electricity and energy sector in the context of a stronger global energy transition, driven by the urgent pressures of climate change and the need to reduce greenhouse gas emissions.

MVEP 3.0 proposed strategic approaches to attract the necessary financing for Vietnam's energy transition, focusing on private sector investment. Key factors for mobilizing capital for renewable energy projects highlighted in the report included public-private partnerships (PPP), innovative financial mechanisms, and policy reforms. It also addressed the challenges of integrating intermittent renewable energy sources into the grid and emphasized the critical role of developing energy storage solutions to ensure the stability and reliability of the national electricity system.

Building on the foundations of its predecessors, the "Made in Vietnam Energy Plan" 4.0 (MVEP 4.0) marks a major milestone in this report series. The latest version offers policy recommendations based on three core approaches: a long-term vision, a medium-term policy framework, and short-term solutions.

The long-term vision is detailed in the report ***"National Competitiveness in Attracting FDI in the Clean Energy Sector"***, which focuses on positioning Vietnam as a leading regional hub for clean energy.

The mid-term policy framework is discussed in the report ***"De-risking Solutions for Renewable Energy Projects"***, aimed at identifying policies to reduce investment risks and improving financial accessibility for renewable energy projects.

The short-term solutions are addressed in the report ***"Tendering Mechanism for Investor Selection for Renewable Energy Projects"***, which proposes practical steps to streamline project approval processes and attract capable investors.

The MVEP 4.0 report sets out long-term strategic directions for the development of institutions and policies for the renewable energy sector in Vietnam. By identifying key barriers and proposing appropriate solutions, the report promotes the creation of a more transparent, attractive, and predictable investment environment for the private sector. This aims to accelerate the growth of renewable energy and contribute to Vietnam's long-term energy transition goals.

MVEP 4.0 not only strengthens the foundation of knowledge sharing and dialogue established by previous editions, but also reflects a significant shift in Vietnam's energy development strategy, focusing on attracting investment, minimizing risks, and improving transparency in the energy sector. Furthermore, MVEP 4.0 highlights the importance of aligning Vietnam's energy policies with international practices and standards. This includes implementing transparent and competitive bidding processes for renewable energy projects, enhancing the capacity of domestic regulatory bodies to supervise and regulate the energy market, and promoting technology transfer and knowledge sharing. By undertaking these reforms, Vietnam will not only increase foreign direct investment ***(FDI)*** but also develop a strong domestic clean energy industry, creating additional jobs and stimulating economic growth.

These studies and the development of MVEP 4.0 were conducted under the project "Enhancing Financial Access for Vietnam's Clean Energy Sector". This project is funded by the Global Energy Alliance for People and Planet ***(GEAPP)***, an alliance of international organizations committed to accelerating the clean energy transition in emerging economies. The project is implemented by The Asia Foundation ***(TAF)*** and Pacific Rim Investment and Management Inc. ***(PRIM)***, in collaboration with the Power and Energy Working Group ***(PEWG)*** under the Vietnam Business Forum ***(VBF)***.

2. LONG-TERM VISION FOR SUSTAINABLE ENERGY TRANSITION IN VIETNAM

2.1. Global and regional trends

The global energy transition toward net-zero emissions initially achieved certain successes, with strong consensus from the international community. However, the process has now stalled amid rising geopolitical tensions and significant differences in the energy transition pathways of individual countries, largely due to their unique national energy security considerations.

Outcomes from COP 29 also highlighted the challenges in mobilizing international financial resources for clean energy development in developing countries, including Vietnam. Although developed nations have pledged to provide USD 300 billion annually to support developing countries, this figure is still considered far too low compared to the actual needs required to meet global climate change targets.

Additionally, the United States' second withdrawal from the Paris Agreement[1] has raised concerns about global climate action efforts. As the world's second-largest greenhouse gas emitter, the U.S.'s withdrawal could have significant implications for maintaining commitments from other developed nations. This shift in U.S. environmental policies and commitments may affect investment flows into renewable energy in developing countries, including Vietnam. The impact could persist throughout the current U.S. presidential term, which extends until 2029.

Since 2000, emerging and developing countries have experienced a steadily increasing energy demand, while developed countries have witnessed an overall decline in energy consumption. In developed economies, fossil fuel demand has decreased, while renewable energy demand has risen. Over the past decade, total energy demand in these economies has declined by an average of 0.5% per year. Oil demand peaked in 2005, coal demand has been in structural decline since 2008, and natural gas demand has largely plateaued. Nuclear energy demand has declined by about 0.5% per year, while renewable energy has grown by 3% annually since 2013. In contrast, in emerging markets and developing economies, which account for approximately 85% of the world's population, energy demand has grown by around 2.6% per year over the past decade.

In the Asia-Pacific region, Southeast Asia is a key driver of global energy trends, with energy demand expected to increase rapidly in the coming decades, second only to India. Southeast Asian countries are at different stages of development, but most of the region's economies have doubled in size since 2000. The region's economy is projected to grow at an average rate of 5% per year until 2030, before slowing to an average of 3% per year from 2030 to 2050. As a result, energy demand in Southeast Asia has increased by an average of 3% per year over the past two decades, and this upward trend is expected to continue through 2030 under the STEPS scenario. The region has accounted for 11% of global energy demand growth since 2010 and is

[1] Thanh T, "US announces time to withdraw from Paris Agreement on climate change" Vietnam+ (VietnamPlus) (January 29, 2025) <https://www.vietnamplus.vn/my-thong-bao-thoi-diem-rut-khoi-thoa-thuan-paris-ve-bien-doi-khi-hau-post1009720.vnp>

projected to contribute over 25% of the increase through 2035.

The 2022-2024 global energy crisis has had a significant impact on power systems across Southeast Asia. Record-high coal and natural gas prices placed severe financial pressure on state-owned power companies, while also exacerbating challenges in securing fuel supplies for coal- and gas-fired power plants. Fuel shortages have negatively affected electricity supply reliability. For example, Vietnam faced coal shortages, leading to a doubling of coal imports and difficulties in securing LNG supply contracts. Meanwhile, in the Philippines, declining domestic gas production and difficulties in sourcing additional coal supplies further worsened electricity shortages.[2] These challenges have become key drivers for the region's shift toward renewable energy.

Although investment flows into renewable energy, energy storage batteries, and grids have increased significantly in recent years, the world still requires much more financing to meet the goal of tripling capacity by 2030. The growing trend of clean energy investment has been driven by global emissions reduction policies, urgent energy security needs (particularly within the European Union), and new industrial strategies from major economies aimed at boosting clean energy production and strengthening market positions.

However, there are signs that global investment in renewable energy is starting to slow, especially in emerging and developing economies. According to the STEPS scenario, investment in renewable energy over the next seven years will only cover about two-thirds of the required capital needs. This means there will be an annual shortfall of approximately USD 400 billion on average to meet renewable energy capital needs for the 2024–2030 period. For the power grid system, investment must increase by an average of 11% per year to meet demand. For battery manufacturing, the required annual investment growth rate is projected at 25% (Figure 2.1).

Unit: Billion USD

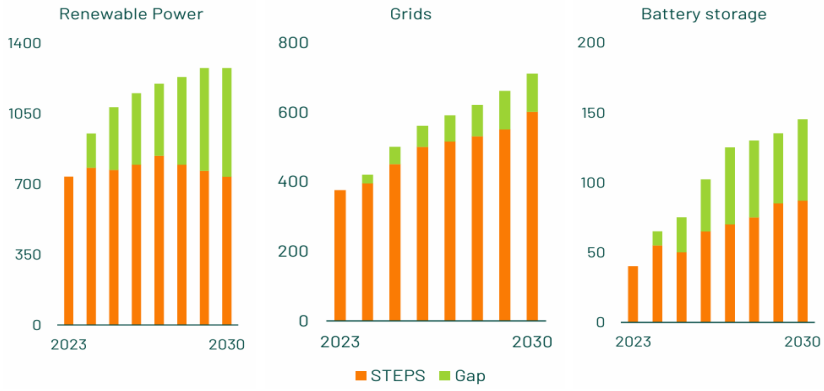

Figure 2.1. Gap in required investment to triple renewable energy capacity by 2030

Source: IEA (2024), World Energy Investment 2024

[2] IEA (2024), Southeast Asia Energy Outlook 2024, page 22

Energy investment flows are a critical indicator of the energy outlook for Southeast Asia. Currently, total investment across all energy sectors in the region has yet to return to pre-COVID-19 levels, making Southeast Asia an exception to the overall global trend. Investment in fossil fuel projects remains higher than in clean energy: for every dollar invested in fossil fuels today, only about 80 cents is invested in clean energy, compared to a 1:2 ratio in favor of clean energy globally. Overall, the region's spending on clean energy accounts for only about 2% of total global energy spending, which is significantly lower than the region's share of the global economy (6%), energy demand (5%), and population (9%). Between 2022 and 2023, installed capacity of solar and wind power increased by 7%, representing nearly 25% of additional capacity. However, investments in energy efficiency and end-use electrification accounted for less than 10% of total investment. This relatively low share compared to other countries and regions reflects a noticeable imbalance in investment priorities within the region.

Unit: Billion USD

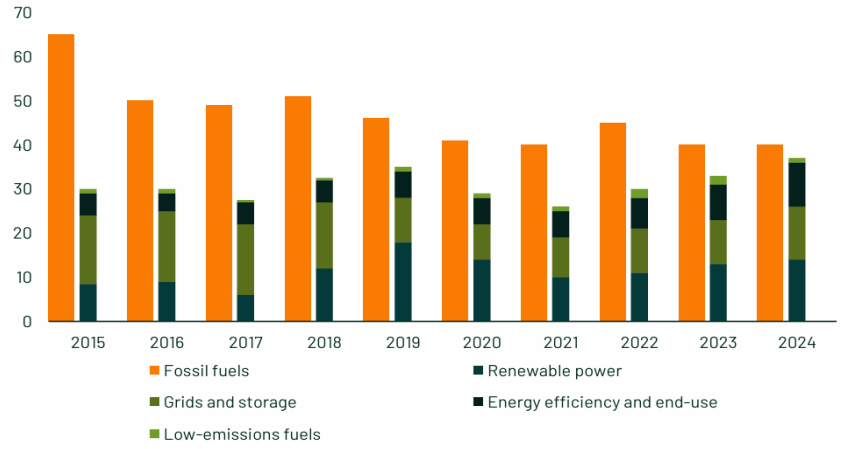

Figure 2.2. Investment in clean energy and fossil fuels in Southeast Asia, 2015-2024 (forecast)

Source: IEA (2024), World Energy Investment 2024

Based on the classification by source of investment, private capital accounts for the largest share of energy sector investment, in both fossil fuels and clean energy. However, this share is significantly higher in developed countries compared to emerging and developing economies ***(EMDE)***. In terms of capital structure, around 45% of current energy investments are financed through debt, primarily for grid infrastructure and clean power generation projects.

Equity financing has increased in end-use sectors such as residential solar, home energy storage systems, electric vehicles, and energy-efficient appliances. In addition, off-balance-sheet project financing tools for renewable energy projects have also expanded. These financing structures, such as the creation of special purpose vehicles ***(SPV)***, help distribute financial risk and attract more investors, as they do not increase

debt or directly impact the balance sheets of the parent companies involved.

The cost of capital in the energy sector has risen in many regions due to inflation, high interest rates, geopolitical conflicts, and other risk factors. The year 2023 marked a sharp increase in interest rates in many countries, including developed economies. During the COVID-19 pandemic period (2020–2022), interest rates fell sharply worldwide, but this trend reversed from late 2022 as rising inflationary pressures pushed capital costs higher.

This increase is also reflected in long-term government bond yields in some countries. For example, the yield on 10-year U.S. Treasury bonds rose by about 3% in 2023 compared to 2020 and climbed further in early April 2025 due to newly introduced tariff tensions. Some European countries also raised their government bond rates.

The sharp rise in U.S. interest rates has affected global investment flows, particularly in EMDEs. This is because most assets held by major international investors, asset managers, and financiers are denominated in USD, and most large-scale projects worldwide are also priced in USD. Even borrowing in local currencies has become more expensive in many EMDEs, such as Brazil, Mexico, India, and South Africa, where rising domestic interest rates have driven up equity financing costs.

Moreover, investors now demand higher project returns to compensate for increased risks, particularly market and regulatory risks, which has pushed up equity risk premiums. As capital costs rise, the internal rate of return ***(IRR)*** expected from energy projects—especially renewable energy—must also increase to attract investors. For example, in the U.S., expected equity IRRs for solar power projects rose from 8% to 9% in 2023. In contrast, IRRs for similar projects in EMDEs are typically twice as high as in the U.S., reflecting weaker regulatory environments and higher investment risks.

2.2. The energy transition landscape in Vietnam

Vietnam's economy is growing rapidly, with long-term socio-economic forecasts projecting average GDP growth of approximately 10.0% per year during 2026–2030, and around 7.5% per year during 2031–2050 (as per the Revised Power Development Plan VIII). To keep pace with this economic growth, energy demand, particularly electricity consumption, has also risen sharply over the past two decades. The share of electricity in total energy demand nearly doubled between 2010 and 2018, from 15% to 27%. Looking ahead, Vietnam's electricity demand is projected to grow by an average of 6.5% per year through 2050 to support socio-economic development.

Vietnam has undergone a strong shift toward the development and use of renewable energy ***(RE)***, starting in 2007 with the issuance of Resolution No. 18-NQ/TW by the Politburo, and accelerating significantly between 2017 and 2020 due to the introduction of attractive feed-in tariff ***(FIT)*** policies, which coincided with a sharp decline in investment costs for renewable energy technologies. In recent years, Vietnam has become a leading solar energy market in the region. With its vast potential in solar and wind energy, and the support of enabling policies, Vietnam

ranked 31st globally in 2021 among countries offering the most attractive opportunities for investment and deployment in the renewable energy sector.[3]

In November 2022, at the 27th Conference of the Parties ***(COP27)*** to the United Nations Framework Convention on Climate Change, Vietnam submitted its updated Nationally Determined Contribution (NDC), aligning with its commitments made at COP26 and strengthening its previous targets. Compared to the 2020 NDC, the 2022 update increased Vietnam's unconditional emissions reduction target (using domestic resources) by 2030 from 9% to 15.8%, and its conditional target (with international support) from 27% to 43.5%, relative to the business-as-usual ***(BAU)*** scenario.

To implement this commitment, Vietnam has continuously developed and updated its renewable energy strategy. The latest update is the Revised National Power Development Plan for 2021–2030 with a Vision to 2050 ***(Revised PDP8)***, approved in April 2025. According to the plan, non-hydro renewable sources will account for 28–36% of total installed capacity by 2030, rising to 74–75% by 2050, mainly from solar (35.3–37.8%) and wind power (25.6–27.5%). Offshore wind capacity is projected to reach up to 139 GW by 2050. The revised PDP8 also sets a target for 50% of office buildings and 50% of households to use self-generated, self-consumed rooftop solar by 2030. The amended Electricity Law, passed in November 2024, has created a supportive legal framework to promote renewable energy development, including incentives for different power sources and provisions for offshore wind development.

Renewable energy projects in Vietnam enjoy various incentives, such as import tax exemptions for materials, equipment, and vehicles used in forming fixed assets—significantly reducing upfront investment costs. The government also offers corporate income tax incentives, including a reduced 10% tax rate (compared to the standard 20%) for 15 years, tax exemption for the first four years, and 50% tax reduction for the following nine years. Additionally, renewable energy investors benefit from land rent, land use tax, and water surface rent exemptions or reductions for power plants, transmission lines, and substations.

Growth in solar and wind power has accelerated over the past five years, with several countries experiencing increased added capacity. Vietnam has surpassed Malaysia and Thailand to become the second-largest power producer in Southeast Asia. However, the sudden discontinuation of government pricing support policies has slowed this growth. Despite this, Vietnam is expected to remain the regional leader in the renewable energy market by 2035, followed by Indonesia and the Philippines.

Vietnam has yet to fully exploit its wind and solar power potential. Despite abundant renewable resources, they remain underutilized. Recent expansions in solar energy development have not fully tapped into the country's potential. Studies have

[3] "Renewable Energy in Vietnam – Proud Highlights" Finance Magazine (February 7, 2024) <https://tapchitaichinh.vn/nang-luong-tai-tao-o-viet-nam-nhung-diem-nhan-tu-hao.html>

identified an economic potential of 380 GW for solar power, concentrated in the southern, south-central, and Central Highlands regions.[4] Vietnam also possesses the best wind resources in Southeast Asia, with an estimated onshore wind potential of 217 GW, mainly in the southern, south-central, and Central Highlands regions.[5] Furthermore, Vietnam's 3,260 km coastline, excluding islands, presents attractive locations for offshore wind projects in both the northern and southern regions. Estimates for the technical potential of fixed-bottom and floating offshore wind projects vary but remain highly promising, ranging from 160 GW to 309 GW.[6]

Currently, Vietnam is well-positioned to use public funding to support renewable energy development thanks to low public debt-to-GDP ratio and low inflation. However, given the need to mobilize capital for various infrastructure projects, Vietnam will continue to rely heavily on commercial financing, especially international sources, to meet the capital needs for renewable energy development. Between 2011 and 2018, the capital structure for national power development investment by EVN came from: equity (41.5%), domestic loans (18.6%), foreign loans (31.6%), bonds (0.9%), and state budget allocations (0.3%).

In the past, foreign loans raised by EVN were guaranteed by the government. The period from 2014 to 2017 marked the peak of foreign loan mobilization in the power sector. Numerous ODA, concessional, and commercial loan agreements were signed, with disbursements reaching exceptional levels. These loans mainly came from institutions such as the ADB, World Bank, AFD, JICA, and KfW. Since 2017, concessional and ODA loans have gradually declined, and since 2019, Vietnam has primarily shifted toward foreign commercial borrowing.

EVN's ability to raise capital independently is limited, as a state-owned enterprise tasked with contributing to macroeconomic stability and not permitted to set electricity retail prices. Delays in adjusting retail tariffs amid volatile global energy markets have resulted in losses of approximately VND 47.5 trillion (about USD 2 billion) for EVN during 2022–2023. This situation implies that large-scale investment loans for EVN may require government guarantees, potentially increasing public debt.

2.3. National competitiveness in attracting FDI in the clean energy sector

Vietnam is widely regarded as a success story in attracting FDI, thanks to its favorable investment environment. However, the country is also facing growing competition from other nations in the region in the field of renewable energy, especially amid a global resurgence of traditional energy approaches—most notably in the United States, where fossil fuel-based economic growth strategies are gaining momentum. This presents a significant challenge for Vietnam in mobilizing sufficient

[4] Electricity and Renewable Energy Authority & Danish Energy Agency, "Vietnam Energy Outlook Report 2019" (Ministry of Industry and Trade 2019) <https://www.ea-energianalyse.dk/wp-content/uploads/2020/02/1931_Vietnam-EOR_2019_vietnamese.pdf>

[5] OECD, "Clean Energy Finance and Investment Policy Review of Vietnam" (OECD Publishing, Paris 2021) <https://www.oecd.org/content/dam/oecd/vi/publications/reports/2021/11/clean-energy-finance-and-investment-policy-review-of-viet-nam_39a01b35/8c36dc34-vi.pdf>

[6] ibid.

FDI to achieve its dual ambitions: becoming a high-income country by 2045 and fulfilling its net-zero emissions commitment by 2050.

As a country that has signed 17 free trade agreements (both multilateral and bilateral) with major global partners—including the EU, UK, U.S., China, South Korea, and Japan—Vietnam has continuously benefited from geopolitical competition between the U.S. and China, leading to a steady inflow of FDI. According to the Foreign Investment Agency, disbursed FDI in Vietnam reached $20 billion in 2019[7] and $25.35 billion in 2024.[8] However, FDI flows are also shifting toward other regional economies with increasingly attractive investment environments, such as India, Indonesia, and the Philippines. Southeast Asia has been a major recipient of international investment, with 12 out of the 20 largest global projects between 2020 and 2023 related to renewable energy supply chains, mainly in power generation (solar and wind energy) and EV-related industries (battery manufacturing). These 12 projects accounted for over 75% of the total value of the top 20 projects, highlighting the capital-intensive nature of renewable energy investments. The five largest projects during this period were all in solar and wind power generation, located in Vietnam, Indonesia, and the Philippines.

Amid declining global FDI, countries in the region are striving to enhance their investment environments to attract high-quality foreign capital. With its ambition to become a high-income country by 2045, Vietnam will need approximately $605 billion to develop infrastructure, a key factor in improving competitiveness and driving sustainable economic growth.[9] Priority sectors include transportation, energy, information technology, and telecommunications. To achieve this goal, Vietnam must mobilize resources from multiple channels, including state budgets, international loans, and, most importantly, FDI. Given the government's plan to prioritize public funding for highways, high-speed rail, and urban rail projects, investment in Vietnam's renewable energy sector will heavily depend on foreign capital.

Moreover, foreign investment in Vietnam's renewable energy sector has slowed since 2022, whereas Taiwan (China) has maintained stable investment inflows. According to data from the Global Energy Monitor, by the end of 2024, Vietnam had approximately 45 foreign-invested solar power projects, 13 onshore wind projects, and 12 offshore wind projects. The total capacity of foreign-invested renewable energy projects already in operation reached around 5,200 MW. Meanwhile, Taiwan (China) has attracted 32 operational projects, with offshore wind power contributing the most capacity. Looking at the broader trend, Taiwan (China) has emerged as the most attractive market for renewable energy investment, while the Philippines and

[7] "TTWTO VCCI - FDI Attraction and Disbursement Sets a New 'Peak'" <https://trungtamwto.vn/hiep-dinh-khac/14634-thu-hut-va-giai-ngan-von-fdi-lap-dinh-moi>.
[8] VOV, FDI 2024 and Prospects 2025: Attracting "eagles" to Vietnam https://vov.vn/kinh-te/fdi-2024-va-trien-vong-2025-thu-hut-dai-bang-ve-viet-nam-post1148566.vov
[9] Baodautu.Vn, "Việt Nam cần đầu tư 605 tỷ USD vào cơ sở hạ tầng từ nay đến năm 2040, đứng đầu Đông Nam Á" (*Baodautu*) <https://baodautu.vn/viet-nam-can-dau-tu-605-ty-usd-vao-co-so-ha-tang-tu-nay-den-nam-2040-dung-dau-dong-nam-a-d67731.html>.

Indonesia are also making significant strides in attracting foreign capital. In reality, Vietnam's renewable energy market is witnessing major global energy corporations such as Ørsted[10] (which accounts for 25% of global offshore wind power production), Equinor[11], and Enel announcing suspensions or cancellations of their project development activities in the country. In addition to reasons such as complex administrative procedures and the lack of a clear legal framework for electricity pricing and investment mechanisms, the competitive pressure on FDI flows within the region is also a significant factor that cannot be overlooked.

Table 2.1. Summary of the scale of foreign-invested projects in operation (by 2024) and expected to operate (by 2030) in the renewable energy sector in the compared countries

Unit: MW

Year	Vietnam				Philippines				Indonesia				Taiwan (China)			
	Off-shore wind	On-shore wind	Solar	Total	Off-shore wind	On-shore wind	Solar	Total	Off-shore wind	On-shore wind	Solar	Total	Off-shore wind	On-shore wind	Solar	Total
2019 and before	48	78	1310	**1436**	0	0	293	**293**	0	72	0	**72**	128	334	70	**532**
2020	0	21	1634	**1655**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**
2021	175	560	860	**1595**	0	0	63	**63**	0	0	0	**0**	109	54	181	**344**
2022	298	0	0	**298**	0	0	0	**0**	0	0	0	**0**	0	0	662	**662**
2023	80	123	0	**203**	0	0	0	**0**	0	0	145	**145**	1276	16	531	**1823**
2024	0	0	0	**0**	0	0	74	**74**	0	0	0	**0**	1189	25	0	**1214**
Total operated	**601**	**782**	**3804**	**5187**	**0**	**0**	**430**	**430**	**0**	**72**	**145**	**217**	**2702**	**429**	**1444**	**4575**
2025 (forecast)	1800	0	200	**2000**	0	256	679	**935**	0	285	393	**678**	1964	0	0	**1964**
2026-30 (forecast)	3800	0	0	**3800**	0	90	151	**241**	0	0	5362	**5362**	4300	0	0	**4300**
Total (forecast)	**5600**	**0**	**200**	**5800**	**0**	**346**	**830**	**1176**	**0**	**285**	**5755**	**6040**	**6264**	**0**	**0**	**6264**

Source: Compiled from https://www.gem.wiki/

In Southeast Asia, the Cost of Capital Observatory indicates that the return on equity ranges from 11.5% to 14.7% for onshore wind and 10.4% to 12.8% for utility-scale solar PV, while loan interest rates range from 8% to 11% for onshore wind and 7.3% to 9.4% for utility-scale solar, based on local currency financing. These figures are lower when using foreign currency. For onshore wind, the cost of capital in Vietnam and Indonesia is roughly equivalent but higher than in the Philippines. For utility-scale solar and commercial & industrial ***(C&I)*** solar, Vietnam's capital cost is higher than both Indonesia and the Philippines.

[10] Duc T, "Danish Energy Giant Orsted 'pauses Market Development Activities' in Vietnam" *theinvestor.vn* (June 10, 2023) <https://theinvestor.vn/danish-energy-giant-orsted-pauses-market-development-activities-in-vietnam-d5334.html>
[11] Reuters and VnExpress, "Norway's Equinor Halts Vietnam Offshore Wind Plans" *VnExpress International – Latest News, Business, Travel and Analysis From Vietnam* (August 31, 2024) <https://e.vnexpress.net/news/business/companies/norway-s-equinor-halts-vietnam-offshore-wind-plans-4785611.html>.

Table 2.2. Cost of capital indicators for onshore wind power in compared countries

	Vietnam		Indonesia		Philippines		Average (unweighted)		Medium (weighted)	
Currency	VND	VND	IDR	IDR	PHP	PHP	N/A	N/A	N/A	N/A
Technology	Wind	Wind	Wind	Wind	Wind	Wind	Wind	Wind	Wind	Wind
WACC (Weighted average cost of capital)(LCY)	9.6% - 13.1%		10.6% - 13.1%		7.0% - 9.8%		8.7% - 11.4%		9.0% - 12.3%	
Profit Expectations (LCY)	12.0% - 15.0%		12.0% - 15.0%		10.0% - 14.0%		11.1% - 14.4%		11.5% - 14.7%	
Debt Expenses (LCY)	8.5% - 12.0%		10.0% - 12.0%		6.0% - 8.0%		7.8% - 10.0%		8.0% - 11.0%	
WACC (Weighted average cost of capital)(USD)	7.0% - 10.0%		6.8% - 9.6%		6.0% - 8.5%		6.4% - 9.1%		6.7% - 9.6%	
Profit Expectations (LCY)	11.5% - 14.5%		11.0% - 14.5%		9.0% - 12.0%		10.1% - 13.3%		10.9% - 13.9%	
Debt Expenses (LCY)	5.0% - 7.5%		5.0% - 7.0%		5.0% - 7.0%		5.0% - 7.1%		5.0% - 7.3%	
Currency Index in Quotes	USD	USD	USD	USD	PHP	PHP	N/A	N/A	N/A	N/A
Leverage Ratio	65.0% - 70.0%		65.0% - 70.0%		70.0% - 75.0%		68.0% - 73.0%		66.2% - 71.2%	

Note: WACC is expressed in nominal value. LCY = local currency. weighted averages calculated based on the national share in the 5-year additional capacity forecast according to the IEA report (2022). Renewables 2022. The range of debt and equity of each country reflects the inflationary environment. interest rate regime. and fluctuations of the local currency against the USD in recent years. along with differences in investor valuations and market assumptions as follows:

- Vietnam - including projects under the fixed price mechanism (FIT) before and in the post-FIT period.
- Indonesia - includes projects under the new pricing mechanism announced in September 2022.
- Philippines - including projects under the renewable energy category (RPS. 2020) and the Green Auction Program (2022).

Source: IEA and Imperial College London (2023)

Assessment of the macroeconomic investment environment

Regarding macroeconomic policy stability, Vietnam is assessed as having a moderate risk level on changes in economic policy. In reality, when looking at the broader picture of Vietnam's strategic economic development priorities, it is evident that long-term economic benefits are not sacrificed for short-term political gains. This characteristic is also observed in Indonesia at a similar level, while Taiwan (China) demonstrates an even higher level of stability.

Vietnam is highly regarded for its commitment to international integration and has gained high credibility in the global community. This provides a competitive advantage over other countries in the region in attracting FDI. The Vietnamese government has demonstrated serious adherence to its commitments as a member of numerous bilateral and multilateral agreements, as well as international treaties in various fields like climate change, nuclear non-proliferation, arms control, trade, and human rights.

Over the past decade, Vietnam has maintained one of the highest economic growth rates, averaging 6-6.5%, while keeping inflation low and stable. This has created potential investment opportunities for foreign investors. Vietnam has also

effectively controlled its public debt-to-GDP ratio, keeping it at a level comparable to Indonesia. This has allowed Vietnam to maintain relatively low government bond yields. Between 2014 and 2023, while the public debt-to-GDP ratio in the Philippines and Indonesia trended upward, the ratio in Taiwan (China) and Vietnam showed a declining trend.

Based on macroeconomic analyses of Vietnam, Indonesia, the Philippines, and Taiwan (China), Taiwan (China) ranks first in terms of economic stability, followed by Vietnam, Indonesia, and then the Philippines. Vietnam's government has cautiously managed fiscal and monetary policies, gradually promoting sustainable economic growth. This is a key factor that helps create a favorable business environment for both domestic and foreign investors.[12]

In Vietnam, foreign investors, including those with more than 50% foreign ownership, enjoy near-equal treatment to domestic investors, except in specific restricted or regulated sectors. Investment activities are governed by the Law on Investment and the Law on Enterprises, with one of the key requirements being the Investment Registration Certificate ***(IRC)***. The issuance of this certificate is overseen by either the Ministry of Planning and Investment or the provincial People's Committee, depending on the project's scale. Although local procurement is not mandatory, foreign investors are required to contract Vietnamese subcontractors for construction-related projects. Additionally, Vietnamese laborers are prioritized for certain positions, as regulated by the Labor Code. Under the Public-Private Partnership ***(PPP)*** legal framework, investors who commit to using local materials and goods are given preferential treatment during the bidding process.

Administrative procedures

To start a business, enterprises must first go through the business registration licensing process. The registration procedures for domestic and foreign investors vary from country to country. According to the Fraser Institute's World Economic Freedom Index, Vietnam has the lowest ranking, compared to Indonesia, Taiwan (China), Indonesia, the Philippines. Vietnam's licensing regulations remain relatively complex and are dispersed across multiple legal documents. Specifically, the licensing requirements for electricity production and business in Vietnam are governed by a wide range of legal instruments. Similarly, with the "Regulatory Burden" index, both the Philippines and Vietnam have legal regulations that impose significant administrative burdens on businesses, with companies in the Philippines facing even more burdens than those in Vietnam.

One of the most notable weaknesses in Vietnam's macro investment environment for clean energy lies in the lack of clarity and consistency in the policy framework. Among the four comparator countries, Vietnam ranks the lowest in both the Regulatory Quality ***(RQ)*** and Government Effectiveness ***(GE)*** indicators in the

[12] Quỹ Châu Á và Nhóm Công tác Điện và Năng lượng - Diễn Đàn Doanh nghiệp Việt Nam, "Năng lực Cạnh tranh Quốc gia trong thu hút FDI vào lĩnh vực Năng lượng Tái tạo" (2025).

Worldwide Governance Indicators by the World Bank. However, Vietnam's GE index has shown a steadily upward trend from 2014 to 2023.

In contrast to the lack of policy clarity, property rights in Vietnam have emerged as a strong competitive advantage that should be maintained. From 2014 to 2016, Vietnam recorded the lowest property rights score, consistently below 20 points, but this score improved between 2016 and 2020. Since 2020, Vietnam's property rights index has increased significantly, making it one of the leading countries in property rights protection.

Vietnam's commitment to the environment and energy transition is another bright spot, especially with its Net Zero target by 2050 and proactive efforts to promote energy transition. The country is highly regarded for its strong international integration in this field.

Lastly, Vietnam's demographics and labor structure also contribute to its competitive advantage, with a balanced population structure that supports both labor-intensive sectors and technology industries.

Overall, Vietnam presents an attractive legal and investment environment for FDI, including in the clean energy sector. Compared to other Southeast Asian countries, Vietnam's market is generally more favorable for investors—especially when contrasted with the Philippines, which the OECD ranks as the third most restrictive country for FDI among 84 countries assessed. In Vietnam, renewable energy production, particularly in solar and offshore wind power, is expected to deliver solid returns for investors due to the expanding market size and manageable risk levels. Notably, the Vietnamese government is investing in power transmission infrastructure, which will help mitigate risks for foreign investors in this sector. Additionally, foreign investors may also explore opportunities to import electricity into Vietnam from neighboring countries like Laos and Cambodia.

2.4. Domestic supply chain and technological capacity

Vietnam has limited involvement in the development of solar power technologies, including solar panel manufacturing, inverters, combining boxes, and various accessories. In the wind power sector, Vietnam also lacks capabilities in turbine technology, including blades, gearboxes, generators, converters, and transmission systems within wind towers. For solar power, key technology providers are mainly from China, along with some suppliers from Germany, the U.S., and Japan. In wind power, most technology is imported from Europe and the U.S., with a small portion coming from China. The localization rate in these two sectors remains low, mainly due to limitations in Vietnam's industrial design and manufacturing capabilities. However, Vietnam's lack of expertise in designing and manufacturing solar and wind power technologies does not significantly affect its ability to construct and operate these projects. The learning process is facilitated through training programs by foreign technology providers for core personnel, who then transfer their knowledge to local enterprise employees. Additionally, collaborative project execution and operation with foreign partners further enhance Vietnam's expertise.

Source: Tran Ngoc Ca et al (2021)

In Vietnam's renewable energy sector, local companies involved in project execution maintain strong partnerships with foreign technology suppliers, investors, and consulting firms, which serve as primary sources of industry knowledge. However, collaboration between businesses and research institutions or universities remains minimal. Vietnamese research institutes and universities have not played a significant role in R&D efforts to develop technologies and techniques that meet market demands, particularly in wind and solar energy. Additionally, domestic intermediaries and brokerage firms have yet to establish a significant presence in this sector. The links between government institutions, businesses, and research institutions remain limited, mainly occurring through a few specific support programs, such as research funding initiatives. While Vietnam has established some foundations in workforce training and R&D in the renewable energy sector, its efforts are fragmented and lack fundamental research.

Taiwan (China) has successfully attracted major equipment manufacturers, such as Siemens Gamesa and Vestas, to establish production facilities and develop domestic manufacturing capabilities for various wind power components, including turbine blades, wind towers, and auxiliary equipment. For instance, Vestas' Tien-Li factory is the company's only offshore wind turbine blade manufacturing facility in the Asia-Pacific region. It can currently produce 85-meter-long blades, with plans to manufacture blades over 100 meters long in the future, targeting an annual production capacity of approximately 180 blades. Siemens Gamesa has also established its first non-European gearbox assembly plant in Taiwan (China). Moreover, Taiwan (China)'s local suppliers have expanded to manufacture key wind turbine components, including transformers (Shihlin Electric), switchgear (Shihlin Electric), power converters (KK Wind), nacelle housings (Fassmer Atech JV), cables (Walsin Lihwa), castings (Yeong Guan), and bolts (Boltun). To strengthen its position in the market, turbine component suppliers, balance-of-plant (BOP) system providers, and offshore engineering specialists of Taiwan (China) have invested in new factories, opened branch offices, and enhanced local partnerships. However, despite these advancements, Taiwan (China)'s supply chain still lacks certain critical components, such as turbine gearboxes, generators, subsea cables, and offshore substation electrical systems.

Looking back, Vietnam's supporting industries have significant potential to develop a domestic renewable energy supply chain, leveraging strengths from related industries, such as oil & gas, shipbuilding, and construction. According to a World Bank assessment, based on criteria such as capacity, supply chain readiness, and investment risks, Vietnam's greatest opportunities lie in manufacturing wind turbine towers, foundations, and substations. Several Vietnamese companies, including Alpha ECC, PetroVietnam, PV Shipyard, PTSC, and Vietsovpetro, already supply key components such as pile foundations, steel structures, and other hardware. However, even existing manufacturing facilities require further investment to efficiently mass-produce the necessary volume for offshore wind projects. For example, CS Wind

currently operates a wind tower manufacturing plant in southern Vietnam, which, with proper investment, could be adapted to support offshore wind production. Despite its potential, Vietnam still faces major challenges due to a lack of specialized manufacturing facilities for key components, such as nacelles, turbine shafts, blades, and high-voltage subsea cables. This reliance on imports increases costs and project risks. Developing these capabilities would require significant capital investment and a stable market environment. International investors remain cautious, citing technical barriers and Vietnam's limited domestic expertise. As a result, leading wind turbine manufacturers such as MHI Vestas and Siemens Gamesa are likely to establish only one manufacturing base in East and Southeast Asia—most likely in China, or Japan. However, Vietnam's best opportunities in the supply chain may come from producing low-voltage cables used in all wind turbine units or supplying composite materials. To capitalize on these opportunities, Vietnam needs to attract investment from international suppliers, promote technology transfer, and develop specialized industrial clusters.

Taiwan (China) is the only market in the region with a strategic offshore wind port system. While Vietnam has numerous ports, none are yet capable of supporting large-scale offshore wind construction. Vietnam's port infrastructure is ranked lower than China, Thailand, and India, while the Philippines and Indonesia face similar challenges. Taiwan (China)'s three main ports—Taipei, Taichung, and Kaohsiung Xingda—are well-equipped for different offshore wind industry functions, including manufacturing, assembly, storage, transportation, and maintenance.

Investment in the renewable energy sector is drawing increasing attention from a wide range of international investors, including technology companies and firms not traditionally involved in the energy industry. Besides global players, ASEAN-based investors are also expanding their investments in renewable energy development. In addition to traditional energy firms, major ASEAN corporations have entered the renewable energy market, including AC Energy (Ayala Group, Philippines), Blue Circle, InfraCo Asia, Sembcorp, Sunseap, Levanta Renewables, Quantum Power Asia (Singapore), B. Grimm, and Super Energy (Thailand). Approximately 90% of onshore wind farms developed in Vietnam are owned by ASEAN or other Asian companies.

Vietnam's renewable energy development is primarily driven by private companies, both domestic and foreign. Vietnamese companies have demonstrated strong competitiveness in solar and onshore wind energy but remain weak in offshore wind. Despite the presence of large state-owned enterprises ***(SOE)*** such as Vietnam Electricity ***(EVN)***, PetroVietnam Power Corporation ***(POW)***, and Vinacomin Power Holding Corporation ***(TKV Power)***, renewable energy investment is predominantly led by private companies. Over half of planned offshore wind farms in Vietnam, as well as one-third of selected wind projects in the Philippines, are owned by joint ventures between local and foreign firms.

Several leading private Vietnamese corporations, such as BIM Group, Trung Nam Group, and Xuân Cầu Group, along with major ASEAN investors like AC

Energy (Philippines), Super Energy, and B Grimm (Thailand), are among the top developers in Vietnam's solar energy market. In the onshore wind sector, key investors currently include Trung Nam Group, BIM Group, Gia Lai Electricity Joint Stock Company, Vingroup as well as foreign investors such as The Blue Circle (Singapore) (in partnership with TSV Joint Stock Company), EAB (Germany), and CIP Group (Denmark).

In the offshore wind sector, Vietnamese enterprises have limited capabilities and few opportunities to participate in large-scale projects. Their involvement, if any, is mostly restricted to manufacturing wind towers, foundations, and substations. A similar situation exists in the Philippines. In contrast, companies in Taiwan (China) have stronger capabilities and greater opportunities to participate in the offshore wind supply chain. Leading turbine manufacturers, Vestas and Siemens Gamesa Renewable Energy ***(SGRE)***, have partnered with local firms and established nacelle assembly facilities in Taiwan (China). Additionally, turbine component suppliers, system providers, infrastructure, auxiliary equipment and offshore engineering specialists have invested in new factories, opened branch offices, and strengthened local partnerships to capture market share. However, Taiwan (China)'s offshore wind supply chain still has gaps, particularly in offshore engineering, floating platform technology, and operations and maintenance ***(O&M)***.

Table 2.3. Summary of Vietnam's capabilities in the offshore wind power supply chain

Component	Major companies involved in Vietnam	Vietnam's track record and capacity in the offshore wind power industry	Vietnam's capacity in similar industries	Benefits of sourcing from Vietnam	Invest-ment risks in Vietnam	Opportunity scale
Project development & licensing	Many domestic developers and consultants plus PTSC. Technip VietNam and Vietsovpetro	4	4	4	4	2
Nacelle housing, main shaft, and assembly	GE (transmitter and control system) Helukabel (cabling)	1	2	2	1	4
Blades	Materials only: An Viet Long. Triac Composites and other units	1	2	3	1	4
Towers	CS Wind	1	3	3	2	3
Foundations	Alpha ECC. PetroVietnam Petroleum Construction Company. PetroVietnam Rig Manufacturing Company. PTSC. Vietsovpetro	2	2	3	2	4
Inter-array & export cable systems	Without	1	2	1	1	3

Component	Major companies involved in Vietnam	Vietnam's track record and capacity in the offshore wind power industry	Vietnam's capacity in similar industries	Benefits of sourcing from Vietnam	Invest-ment risks in Vietnam	Opportunity scale
Offshore substations	Structural frame: Alpha ECC. PetroVietnam PetroVietnam Construction Company. PetroVietnam Drilling Rig Manufacturing Company. PTSC. VietsovpetroElectrical part: ABB. Hyosung	1	4	2	3	2
Onshore infrastructure	Multiple companies	2	4	4	4	2
Turbine & foundation installation	Huy Hoang United Transport Company. PTSC and Vietsovpetro - must definitely link up with foreign contractors	2	2	1	1	3
Cable installation (offshore transmission)	Thien Nam Marine Service Company. PTSC. Tan Cang Marine Service Company and Vietsovpetro can enter the market	2	3	1	2	4
Wind farm operations (O&M)	Multiple development units	2	4	4	3	3
Turbine maintenance & servicing	Turbine Supply Unit	2	4	4	4	4
Balance of plant (BoP) maintenance	Multiple companies	2	4	3	3	3
Decommissioning	Huy Hoang Union Transport Company. PTSC and Vietsovpetro	1	3	1	2	4

Source: BVG Associates

2.5. Policy considerations for long-term development of renewable energy in Vietnam

The importance of private investment and FDI in clean energy

Vietnam possesses significant renewable energy potential, while the competitiveness of other energy sources has reached its limits or is in decline. The country's onshore wind and solar power potential surpasses that of many regional nations, thanks to unique geographical and climatic advantages. Vietnam possesses 380 GW of solar power potential and more than 217 GW of onshore wind power potential, surpassing many countries in the region. The country's offshore wind power potential, estimated to range from 160 to 309 GW and primarily concentrated along the south-central and southwestern coastal areas, is also considered one of the leading resources in the region. Additionally, the cost of installing renewable energy projects in Vietnam is becoming increasingly competitive due to technological advancements

and a large market scale, offering a notable advantage over traditional energy sources.

As conventional energy sources dwindle and global emission reduction pressures grow, renewable energy is no longer just an alternative but a decisive factor in Vietnam's sustainable development. Transitioning to renewable energy will help ensure energy security, minimize environmental impacts, and capitalize on the country's vast potential. At the same time, this shift presents an opportunity for Vietnam to strengthen its position in Southeast Asia, attract foreign investment, and promote a more sustainable economic trajectory.

Foreign investment plays a crucial role in Vietnam's renewable energy development, given the country's challenges in mobilizing domestic capital while needing to prioritize public investment for infrastructure development. According to the recently issued revised Power Development Plan VIII, it is estimated that the annual investment demand for the power sector infrastructure in Vietnam over the next decade will average $26.5 billion, increasing significantly to approximately $40 billion annually after 2035. Meanwhile, a World Bank study estimates that the Vietnamese government can only provide around $15 - 18 billion per year for infrastructure development, compared to the total annual investment demand of $25 - 30 billion. This highlights the necessity for Vietnam to attract additional private sector financing to meet its growing infrastructure needs, particularly in the power sector, which is expected to account for nearly half of total infrastructure spending.

However, mobilizing domestic private capital faces several challenges. Large-scale renewable energy projects, especially offshore wind and utility-scale solar, require significant investment and long payback periods. Vietnamese enterprises often struggle to secure large-scale, long-term financing, primarily due to the country's underdeveloped capital market. In this context, FDI is a vital resource that helps bridge the financing gap and alleviates pressure on the national budget. Large projects such as offshore wind and utility-scale solar require international investors to bring in both technology and expertise, which domestic firms may lack. FDI enterprises not only contribute to expanding renewable energy capacity but also help improve the investment environment, establish local supply chains, and enhance Vietnam's competitiveness in the global market. Thus, FDI is not merely a financial resource but a strategic enabler for Vietnam to achieve its sustainability ambitions, overcome structural and technological barriers, and fulfill its international commitments to the green energy transition.

Vietnam has successfully attracted numerous FDI projects in renewable energy, leveraging its vast potential and commitment to emissions reduction. Before 2021, Vietnam was the leading recipient of foreign renewable energy investment among its regional peers. However, Taiwan (China) has since emerged as the most attractive destination for offshore wind investment, while Indonesia and the Philippines have introduced policy adjustments that have drawn significant foreign investment in solar and onshore wind. To remain competitive in attracting FDI, Vietnam must address structural bottlenecks, such as regulatory frameworks, administrative inefficiencies,

and grid infrastructure limitations—particularly the transmission system.

The weak technological capacity and competitiveness of domestic enterprises in the renewable energy sector further emphasize the need for high-quality foreign investment. Vietnamese firms face significant challenges in meeting advanced technology requirements and managing large-scale projects. Renewable energy technologies—especially in offshore wind and large-scale solar—demand sophisticated engineering solutions, substantial R&D investments, and highly specialized personnel. However, domestic companies often lack capital, experience, and independent research capabilities. This reliance on imported technology results in high investment costs and operational inefficiencies.

Additionally, the international competitiveness of Vietnamese firms remains low. Despite abundant wind and solar resources, project execution has not kept pace with global standards. Many local enterprises participate only in secondary roles, lacking the capacity to take on primary positions in the renewable energy value chain. The intensifying regional and global competition, particularly from established markets such as China and South Korea, underscores the urgency for Vietnam to enhance its capabilities to avoid being left behind.

In this context, attracting high-quality FDI is an essential strategy. Foreign investors bring capital, modern technology, and advanced management models that facilitate effective technology transfer. Their participation not only improves domestic technological capabilities but also supports workforce development, strengthens local supply chains, and raises national production standards. Furthermore, FDI projects create opportunities for collaboration between local and international firms, fostering innovation and enhancing global competitiveness. Thus, the current technological and competitive weaknesses of Vietnamese enterprises in renewable energy should be seen not just as challenges but also as opportunities for deeper integration and sustainable development. Securing high-quality FDI is a strategic approach to overcoming internal deficiencies, fostering industry growth, and contributing to Vietnam's net-zero emissions target by 2050.

Renewable energy investments typically require substantial capital and extended payback periods, particularly for large-scale projects such as offshore wind. Investment costs extend beyond infrastructure installation to feasibility studies, project development, and transmission system expansion. Foreign investors often have the financial capacity, low capital cost, technological expertise, and management experience to support such long-term projects. However, these projects may take years to become profitable, making long-term commitment a key requirement for investors. The current instability in Vietnam's regulatory environment and legal risks has reduced its attractiveness for FDI. The absence of power purchase agreement ***(PPA)*** guarantees or investment protection mechanisms has left investors to bear the full financial risk, increasing costs and reducing investment returns.

Complex administrative procedures and policy inconsistencies remain major

barriers in Vietnam. Lengthy, opaque licensing processes discourage foreign investors, while inconsistent policies—such as fluctuating feed-in tariffs ***(FIT)*** - create uncertainty, making long-term project planning difficult. While Vietnam has ended FIT incentives, it has yet to establish a clear auction mechanism, creating uncertainty for new renewable energy projects.

Moreover, Vietnam's renewable energy projects face technical risks and a lack of coordination in transmission infrastructure. To address this, the government must invest significantly in grid infrastructure to ensure integration and efficiency as more renewable energy projects come online. Taiwan (China)'s experience demonstrates that building a robust transmission network has been instrumental in effectively harnessing offshore wind energy and instilling confidence in foreign investors.

Financial risk-sharing mechanisms and stable policies are essential to attracting long-term investment. Vietnam must enhance its investment climate by offering long-term contractual guarantees and establishing risk insurance funds for investors. These measures will not only mitigate financial risks but also strengthen investor confidence in the Vietnamese market.

Another challenge in Vietnam is the lack of coordination among regulatory agencies. Investors often face jurisdictional conflicts between ministries, causing delays in project approvals and execution. In contrast, Taiwan (China) and Indonesia have streamlined their investment environments by centralizing permitting processes and minimizing administrative inconsistencies.

Risk-sharing policies remain a significant issue. In Vietnam, the absence of investment guarantees—such as government-backed—places foreign investors at higher financial risk compared to other markets. Meanwhile, Indonesia and the Philippines have introduced government or central bank-backed guarantees to reduce investor uncertainty.

These shortcomings not only hinder Vietnam's ability to attract FDI but also weaken its competitiveness in the renewable energy sector. Amid intense regional competition, Vietnam must urgently improve its legal and policy frameworks by simplifying administrative processes, ensuring transparency and stability, and implementing effective risk-sharing mechanisms.

3. ENHANCING INVESTMENT EFFICIENCY IN THE MEDIUM TERM

3.1. Risk-Sharing Mechanisms in Investment

Vietnam's power purchase agreements ***(PPA)*** are less bankable than those in comparable countries due to several constraints. These include the risk of power curtailment, administrative hurdles in project approvals and permitting, and potential liabilities in the event of early contract termination. The PPA is the cornerstone of project financing in the power sector. In a typical power project, revenue comes solely from electricity payments made by the buyer under the contract. If the buyer fails to make these payments, the project may struggle to meet its debt obligations on time.

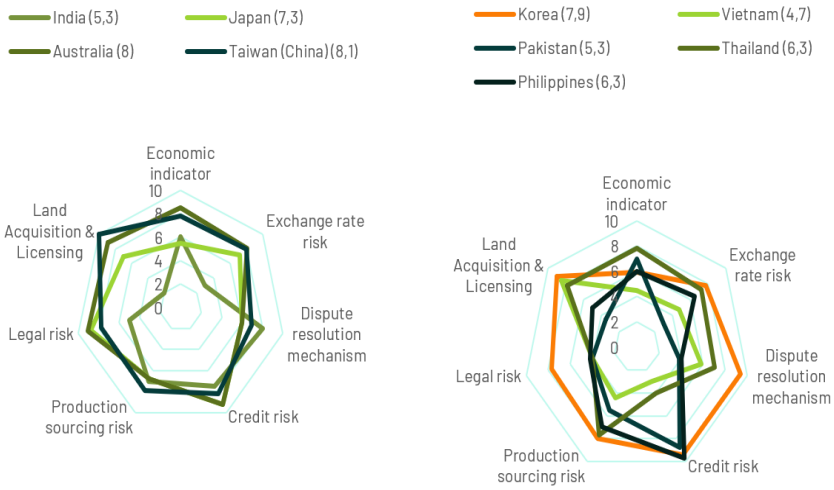

Figure 3.1. Bankability scores of Power Purchase Agreements (PPAs) in selected APAC markets

Source: IEA và Imperial College London (2023)

One of the fundamental factors in securing financing is the PPAs. The PPA must balance the interests of both parties: the electricity off-taker (EVN, representing the state's interests and, ultimately, consumers who bear the final cost of renewable energy development) and the electricity seller (whose primary objective is to generate profit from their investment).

3.1.1. Power Purchase Agreements and their Bankability

The 2024 Electricity Law defines the key components of power purchase agreements (PPAs), including: (i) Details of the contracting parties, such as name, address, phone number, and other contact information (if applicable); (ii) Contracted electricity price; (iii) Contracted electricity output (if applicable); (iv) Invoicing, payment terms, and deadlines; (v) Rights and obligations of both parties; (vi) Contract language; and (vii) Other terms agreed upon by both parties.[13]

For project-based financing, which is typically used for large-scale investments requiring regulatory compliance and financial viability, the PPA between the electricity seller (the project company) and the buyer (EVN) plays a crucial role for lenders. The PPA serves as the primary revenue guarantee for the project, directly impacting cash flow and the project's ability to meet debt obligations. To attract financing, it is essential to ensure contract clarity, revenue stability, and a well-balanced risk allocation, as these factors influence both domestic and international lenders' financing decisions.

In recent years, Vietnamese authorities have made notable efforts to improve the standardized PPAs. However, the current templates for renewable energy projects still

[13] Article 44.2 of the 2024 Electricity Law

fail to meet key lender requirements regarding revenue predictability and payment security. As a result, access to international financing for Vietnam's renewable energy sector remains constrained.

Unpredictable revenue streams for renewable energy projects

For renewable energy projects to develop accurate financial models, project developers need clear expectations regarding the volume of electricity EVN will purchase or commit to buying. In Vietnam, guarantees for the offtake of 100% of electricity output were previously included in the model PPAs for solar and wind projects during 2012 and 2020. However, current regulations only require EVN to purchase a fixed volume of electricity from certain types of special power sources, such as new energy or offshore wind power. This exposes renewable projects to dispatch risks, where the amount of electricity purchased depends on market operations and regulatory decisions. In practice, lower-cost power plants—such as coal-fired plants—may be prioritized, leaving renewable energy developers uncertain about their revenue streams. This unpredictability raises concerns about whether projects will generate enough income to cover fixed costs, including debt repayment (both principal and interest) and operation and maintenance expenses.

To enhance project bankability, Government authorities could consider introducing minimum long-term contracted quantities (Qc) for a fixed period—at least equal to the loan term (typically 12 years for foreign loans), plus an additional 3 - 5 years—rather than renegotiating these commitments annually. If a blanket Qc guarantee is not feasible, a selective approach could be adopted, ensuring long-term Qc commitments for projects above a certain capacity threshold (e.g. 50 MW), similar to the conditions for offshore wind power stipulated in Decree No. 58/2025. Smaller projects would need to explore alternative financing options, such as corporate-backed financing, and rely more on domestic lenders, who typically have a higher risk tolerance than international financiers.

Curtailment risks plus dispatch and transmission challenges

For renewable energy projects selling electricity directly to EVN or wholesale power purchasers (specifically, EVN's Power Corporations), both relevant regulations and model PPAs stipulate that electricity payments are based on the actual amount of electricity delivered to the grid at the designated metering point.[14] This means that power producers may face situations where they are unable to sell electricity to the grid and, consequently, receive no payment for excess capacity—even if the electricity was generated but not dispatched by EVN.

It should be noted that provisions regarding plant shutdowns or curtailment in the PPAs are often assessed by lenders as a potentially serious factor affecting the financial viability of the project. Therefore, allowing the parties the freedom to negotiate specific cases of shutdowns or curtailment, as well as remedies and

[14] Article 5.1, Annex 2 (Model PPA for wind power projects) of Circular 02/2019/TT-BCT; Article 4.1, Annex 1 (Model PPA for solar power projects) of Circular 18/2020/TT-BCT.

compensation for the seller (if any), represents an innovation in the model PPAs. However, this provision needs to be tested through actual PPA negotiations between the parties.

Contract transfer and Lender step-in rights

Current regulations and the model PPAs do not allow Vietnamese counterparties, such as EVN, to enter into direct agreements with lenders or grant lender step-in rights in the event of a loan default—a practice that is common internationally.

The model PPAs also do not specify the rights of lenders to intervene in or participate in a renewable energy project if the project company defaults on its loan. As a result, handling the secured assets of a renewable energy project presents significant legal challenges. Lenders may either directly assume ownership of these assets or transfer them to a third-party buyer. In both cases, the transferee—whether a lender or a third party—becomes the new project owner, taking over all related assets. However, the transfer process in Vietnam involves complex legal procedures, including obtaining approvals from relevant stakeholders under existing project agreements, such as securing EVN's written consent for the transfer of rights and benefits under the PPA (except for projects participating in the competitive wholesale electricity market under Circular No. 12/2025), amending project contracts to reflect the new owner as the official contracting party under the PPA, and re-registering project permits and approvals, including the land use certificate and electricity operation license, to update the new owner's information.

Additionally, to continue project operations, the new owner must comply with Vietnam's legal requirements for operating wind or solar power plants, including regulations on foreign ownership limits.

For project financing, lenders often require security interests over project assets, with PPA-derived revenue streams being one of the most critical forms of collateral. However, the model PPAs for wind and solar projects that do not participate in the competitive wholesale market stipulate that the seller may only transfer its rights and obligations under the PPA with the prior written consent of the buyer. Without such consent, enforcing security interests over PPA-related rights and benefits becomes impractical. It is worth noting that earlier versions of the model wind power PPAs did permit power sellers to assign part or all of their rights to lenders, effectively granting lender step-in rights for financing, equipment procurement, or construction purposes without requiring EVN's approval—only a notification to EVN was necessary. Moreover, the model PPAs for projects participating in the competitive wholesale electricity market allow power sellers to assign or transfer some or all of their contractual rights and obligations related to financing arrangements without requiring the buyer's consent. This is a progressive development that significantly facilitates project financing.

Force majeure

The model PPA issued under Circular 12/2025 allows the parties to negotiate and

agree on amendments and additions to the force majeure provisions in accordance with Vietnamese law. Accordingly, the power seller should seek to include provisions in the model PPA that distinguish between politically related force majeure events (i.e., Government-related force majeure) and natural force majeure events, leading to different approaches in handling each type of force majeure event. However, in practice, except for BOT power projects, EVN typically only accepts provisions for natural force majeure events and does not include provisions for addressing the consequences of political force majeure or prolonged political force majeure events. Additionally, the current force majeure clauses are overly general and basic, making them difficult to apply in practice. EVN's obligations are also clearly exempted in cases of unexpected decisions made by the Government, rather than treating such cases as political force majeure and allocating the corresponding risks. In reality, it should be noted that during the financing process, investors and lenders expect Government agencies or state-owned enterprises such as EVN to bear responsibility for Government-related force majeure events.

Governing law and dispute settlement

The model PPAs stipulates that the interpretation and execution of the agreements must comply with Vietnamese law. The application of Vietnamese law as the governing law creates challenges in enforcing predetermined liquidated damages.

Additionally, the model PPA issued under Circular No. 12/2025 states that the parties must agree on a designated dispute resolution body or pursue litigation in accordance with relevant laws. However, this provision lacks clarity regarding which authority has jurisdiction over dispute resolution and whether domestic or international commercial arbitration is permitted for PPA-related disputes.

The model PPAs do not include a specific mechanism for calculating compensation in the event of contract termination, apart from a general provision stating that the breaching party must compensate the non-breaching party for damages, determined according to the general principles of Vietnamese contract law. Under Vietnamese law, compensation for damages includes (i) actual, direct losses suffered by the non-breaching party due to the breaching party's actions and (ii) direct benefits that the non-breaching party would have received if no breach had occurred. Additionally, the non-breaching party bears the burden of proving both the losses incurred and the benefits they would have otherwise obtained. Consequently, calculating compensation is complex and may lead to prolonged disputes. There is also no guarantee that the compensation awarded upon PPA termination would be sufficient to cover outstanding senior debt. The determination of a compensation amount without considering these two factors may be declared null and void by the court.

The circular does not specify a fixed term for PPAs but instead allows the parties to negotiate. However, for small renewable energy projects applying the avoided cost tariff mechanism, Circular No. 10/2025 stipulates that the PPA shall terminate 20

years from the commercial operation date of the power plant, or from the commercial operation date of each generating unit in the case of a power plant with multiple units. As a result, the PPA term under Circular No. 12/2025 for solar projects (both before and after entering the competitive electricity market), as well as for wind and solar projects (after entering the competitive market), depends on negotiations with EVN or a power company. This creates uncertainty for lenders and project sponsors. Lenders typically require certainty, at least for the duration of all project loans. This issue could be addressed by reintroducing a minimum contract term in the model PPAs.

3.1.2. Other challenges in project financing

Financing small-scale renewable energy projects

Renewable energy companies often face difficulties in negotiating with the electricity off-taker—EVN in this case—to amend unreasonable contract terms. Since this is a common market issue, some domestic and international banks (including those from the Philippines and Thailand) have had to accept terms that may impact the bankability of projects. However, to mitigate risks and ensure loan stability, foreign banks typically require project investors (both domestic and foreign shareholders) to provide support or guarantees, particularly in cases where the revenue from electricity sale is insufficient to meet debt obligations.

In practice, during the 2021–2022 period, grid congestion in certain areas led to curtailment of power generation from some solar power projects in the affected provinces. As a result, these projects were unable to generate sufficient revenue to service their foreign loans. Although the PPA included a commitment from EVN to purchase the project's entire electricity output, grid failures prevented the project from being dispatched at its designed capacity. Consequently, project revenues declined significantly, severely impacting the financial model and the ability to repay foreign debt. In this situation, the electricity seller had to negotiate with foreign lenders to secure alternative funding sources to meet debt obligations. These funds were either drawn from the seller's other projects or provided through shareholder support. Additionally, debt repayment schedules were adjusted to align with the project's actual financial conditions. Overcoming this challenging period was largely facilitated by the cooperative approach of foreign lenders, who recognized the grid issue as a force majeure event for the project company. However, without lender support and alternative financing sources, collateral enforcement could have been triggered, severely damaging the project company's reputation and negatively impacting Vietnam's renewable energy sector as a whole.[15]

Financing large-scale renewable energy projects

For offshore wind power projects that require substantial capital, issues within the PPA can pose significant obstacles to securing financing. An important

[15] Decree No. 58/2025, Article 32.3

consideration when pledging shares in renewable energy project companies is that offshore wind power investment is classified as a foreign investment sector with restrictions. Specifically, Decree No. 58/2025 stipulates that the total charter capital ownership ratio of foreign investors in offshore wind power projects must be below 95%, and below 50% for projects that generate electricity for export without going through the national power grid. Furthermore, the transfer of projects, shares, or capital contributions in offshore wind power projects involving foreign investors must receive unanimous approval from the Ministry of National Defense, Ministry of Public Security, Ministry of Industry and Trade, Ministry of Foreign Affairs, and other relevant authorities and organizations. The transferee investor must also meet, among other conditions, a minimum equity-to-contributed capital ratio of 20% in the project.

Practical challenges in enforcing collateral security in Vietnam

The enforcement of collateral security by foreign lenders in Vietnam presents significant challenges and is rarely a straightforward process. Secured creditors often require some degree of cooperation from the security provider to facilitate an efficient enforcement process. If the security provider refuses to cooperate and foreclosure becomes necessary, lenders will, in most cases, need to initiate dispute resolution proceedings as stipulated in the financing agreements. This process can be both time-consuming and costly.

Notably, there is currently no clear precedent for the enforcement of pledged assets in dispute situations, such as through court proceedings or arbitration. This stems from several factors, including the lack of clarity in legal regulations, the ongoing development of Vietnam's legal system, and practical challenges in handling secured assets. In practice, in such cases, it is more common for the borrower to become insolvent and for the parties to enter into negotiations to restructure the overdue debt, rather than proceed with asset enforcement through litigation.

3.2. Green Finance and Public-Private Partnerships

Several public policy instruments, such as multilateral lending, credit enhancement mechanisms, green debt instruments, and green equity instruments, should be explored to attract international finance for renewable energy development. The ability of private developers to secure financing from multilateral lending agencies ***(MLA)*** such as the International Finance Corporation ***(IFC)***, the Asian Development Bank ***(ADB)***, and the European Investment Bank ***(EIB)*** can provide financial advantages, including lower overall financing costs. Multilateral lenders can offer concessional loans—loans with more favorable terms than market-based financing, such as lower interest rates, extended tenors, or a combination of both. In Vietnam, a notable example is HD Bank's $299 million solar energy program, which was established to finance solar projects. The program provides loans covering up to 70% of total project investment with a maximum loan tenure of 12 years. Or for example, the over VND 1,700 billion green bond issuance by EVNFinance, which was partially credit-enhanced with a long-term payment guarantee from GuarantCo.

In the Philippines, the Government in collaboration with ADB and the World Bank Group ***(WBG)***, provided a $250 million (PHP 12.6 billion) grant to implement climate-related projects, on the basis of a risk-sharing facility and credit lines—to four private local banks. As a result, partner banks provided a total of $439 million (PHP 22.2 billion) in direct lending to finance 118 renewable energy and energy efficiency projects.

Credit enhancement mechanisms are financial tools designed to improve a company's credit risk profile (thereby increasing its credit rating), which in turn reduces financing costs. To date, Vietnam has made little use of these mechanisms for renewable energy projects. In contrast, Indonesia has applied such mechanisms to small-scale renewable energy projects. For example, the Ministry of Energy and Mineral Resources and the Jambi provincial government co-financed a UNDP and BAZNAS initiative with a contribution equivalent to $350,000, along with Jambi Bank's CSR fund of $281,357, to develop a 180 kW small hydropower project. Additionally, in 2022, the Indonesian Government secured external financing through the state-owned power company to develop pumped-storage hydropower plants under the Java-Bali grid system, amounting to $610 million with a total capacity of 1,040 MW. The Government has also encouraged the Indonesia Investment Authority ***(INA)*** to facilitate blended financing for new and renewable energy investments (Supriyanto, 2023).

In the green bond market, Vietnam issued approximately $1.16 billion in green bonds between 2019 and 2023, with issuance expected to increase further in 2024-2025. While green lending has been expanding in Vietnam, green bonds have yet to be utilized to support renewable energy projects. The primary challenge facing financial institutions in this regard is the perception of high risk associated with green project financing compared to conventional lending. This stems from long-term investment recovery uncertainties and complexities in assessing environmental impact. To better support the renewable energy sector, Vietnam could consider adopting internationally recognized definitions of 'green' projects, allowing eligible infrastructure developments—such as wind and solar power projects—to be certified as 'green.' This classification would enhance private developers' access to international capital markets, reducing financing costs and fostering the growth of offshore wind power.

In the Philippines, the green bond market has been gaining traction. As of August 2020, the total estimated value of green bonds issued by Philippine entities reached $2.6 billion (PHP 131.5 billion), with the majority of proceeds allocated to financing renewable energy projects. IFC and ADB have played key roles as anchor investors in several green bond issuances, aiming to attract other institutional investors. The largest green bond issuer in the Philippines is AC Energy Corporation. To date, five local banks, including one state-owned bank, have issued green bonds denominated in both local and foreign currencies. In Taiwan (China), as of the end of August 2022, a total of 94 green bonds had been issued, amounting to approximately TWD 258.6 billion ($8.62 billion).

Indonesia has taken a proactive approach to green financing by introducing regulations on green bonds and green sukuk in 2017. In 2018, the government issued its first green sukuk,[16] raising $3 billion. Beyond sovereign issuances, three financial institutions have also issued corporate green bonds. In November 2019, Indonesia made history by launching the world's first retail green sukuk, raising IDR 1.46 trillion ($150 million) from domestic retail investors. Building on this success, in December 2020, the government issued a second retail green sukuk, raising IDR 5.4 trillion ($557 million)—the largest issuance volume and investor participation in the history of Savings Sukuk bonds. Notably, Millennials (those born between 1981 and 1996) comprised 56.7% of new investors in this issuance.

Green equity instruments involve the issuance of a company's equity, where the raised capital is specifically used for projects with a positive environmental impact. Common instruments include Public-Private Partnerships ***(PPP)***; Joint Ventures, which involve agreements between two or more businesses to pool capital, skills, and resources for a specific project; and Private Equity, where equity is issued by developers or companies to finance specific projects. In Vietnam, PPPs are expected to be a promising financing tool following the enactment of the PPP Law in 2021. As of the end of 2023, nine coal-fired power plants had been developed under the Build-Operate-Transfer ***(BOT)*** model with a total investment of over $16 billion, but no PPP projects in the renewable energy sector have been implemented yet.

In the Philippines, the latter two financing instruments are more prevalent. For instance, the Renewable Energy Asia Fund, a private equity fund managed by Berkeley Energy, has invested in small hydropower, wind, geothermal, solar, and biomass projects. Global investors are also entering the Philippine renewable energy market. In 2019, Wenergy Global from Singapore and its joint venture partners invested $20 million (PHP 1 billion) in equity for four renewable energy projects. Additionally, Siemens Gamesa partnered with UPC Renewables and AC Energy Corporation to develop the Balaoi and Caunayan onshore wind farm.

3.3. Global Minimum Tax

The global minimum corporate income tax was initiated by the Organisation for Economic Co-operation and Development ***(OECD)*** in June 2013 as one of the two pillars of the Base Erosion and Profit Shifting ***(BEPS)*** Action Plan. The global minimum tax rate is set at 15% and applies to multinational enterprises ***(MNE)*** with a consolidated global revenue of at least EUR 750 million (approximately USD 800 million) in at least two of the four most recent consecutive years.[17] Vietnam officially implemented the Global Minimum Tax on January 1, 2024, through Resolution 107/2023/QH15 of the National Assembly, issued on November 29, 2023, regarding the application of a supplementary corporate income tax under the global anti-base

[16] A type of green bond that complies with Islamic law principles, widely developed in Malaysia, Indonesia, and Gulf countries.
[17] WTO Center, Global Minimum Tax and its impact on Vietnam, accessed at 3.-thue-toi-thieu-toan-cau-va-tac-dong-voi-vn.pdf on 08 January 2025.

erosion rules ***(Resolution 107/2023)***. As a country that has attracted foreign investors through tax incentives, the adoption of the Global Minimum Tax will alter the competitive landscape for attracting foreign direct investment ***(FDI)*** into Vietnam, as other countries also adjust their tax policies to retain or attract investors.

The implementation of Resolution 107/2023 has a significant impact on Corporate Income Tax ***(CIT)*** incentives for large multinational corporations investing in Vietnam. According to expert forecasts, this tax impact may lead many FDI enterprises to seek other markets instead of investing in Vietnam due to higher CIT costs, or consider reducing investment or exiting the market. Vietnam needs to implement policy adjustments to compensate for this and attract FDI in the new context to minimize a potential decline in FDI inflows in the near future.[18]

Vietnam has an opportunity to increase state budget revenue through the additional CIT collected under the Global Minimum Tax rate of 15%, applied to enterprises subject to this tax while still benefiting from CIT exemptions or reductions. Moreover, the challenge of declining FDI requires Vietnam to consider additional attractive investment and tax incentive policies that align with the new investment landscape, helping enhance Vietnam's position on the global FDI map.

4. SHORT-TERM REGULATORY APPROACHES

4.1. Tendering Mechanism

The new 2024 Electricity Law introduces a tendering mechanism for selecting investors in power projects, a provision that was not included in the 2004 Electricity Law. To implement this mechanism, on September 16, 2024, the Government issued Decree 115/2024/ND-CP, providing detailed guidance on certain provisions and measures for implementing the Tender Law regarding the selection of investors for land-use investment projects. Specifically, the decree includes regulations ensuring competition in investor selection, incentives for investors, costs related to investor selection, methods for selecting investors, as well as procedures and processes for investor selection. On November 21, 2024, the Ministry of Industry and Trade issued Circular 27/2024/TT-BCT, setting forth evaluation criteria for tender dossiers and standardized tender documents for selecting investors in energy projects. Wind and solar power plant projects fall within the scope and coverage of this Circular.

Currently, the selection of investors through land-use rights auctions, tendering for investor selection, and investor approval is governed by the 2024 Electricity Law, the 2024 Land Law, the 2023 Tender Law, and Decree 137/2013/ND-CP (issued by the Government on October 21, 2013), which provides detailed guidance on implementing certain provisions of the Electricity Law and amendments to it, along with related legal documents.

[18] Nguyễn Thị Như Ái, Nguyễn Thị Vũ Hà, Impact of the global minimum tax on FDI inflows into Vietnam and key policy recommendations, accessed at https://tapchinganhang.gov.vn/anh-huong-cua-thue-toi-thieu-toan-cau-den-dong-von-fdi-vao-viet-nam-va-mot-so-khuyen-nghi-chinh-sach.htm, on 08 January 2025.

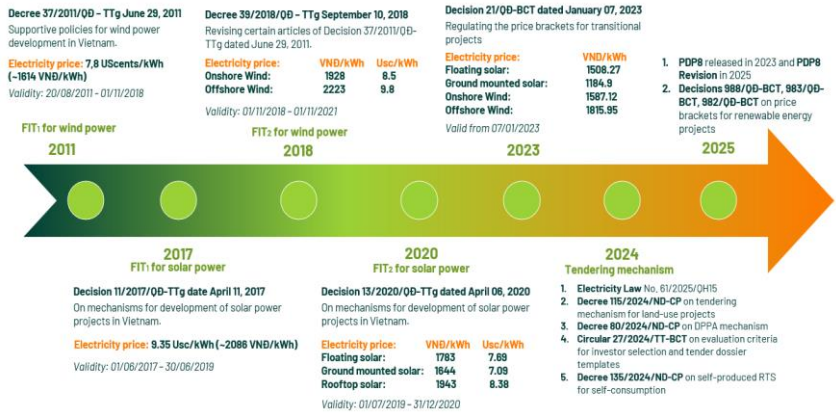

Figure 4.1. The transition from the Feed-in-Tariff mechanism to the Tendering mechanism

Wind and solar power projects undergo investor selection tenders based on the principle that the electricity price ceiling must fall within the price brackets issued by the Ministry of Industry and Trade in the tendering year, with the electricity price determination principle holding significant weighting in the evaluation criteria. This serves as a prerequisite for conducting investor selection tenders for solar and wind power projects.

Impact of electricity prices on investor selection

First, incorporating electricity prices as a decisive factor in Decree 115/2024/ND-CP and the 2024 Electricity Law—where electricity prices account for 80-90% of the total tender evaluation score for investor selection19—marks an innovative and rational policy shift. However, electricity prices are influenced by numerous factors, such as loan interest rates. Regarding payment currency, currently, the regulations on the electricity price framework are based on the local currency, VND, instead of being pegged to USD as under the FIT mechanism. Using the local currency for calculations has certain advantages but also some limitations. When prices are calculated in VND, there is an exchange rate risk due to the uncertainty of future exchange rate trends, which makes negotiations with lenders more difficult. Additionally, as for the financial internal rate of return ***(IRR)*** not exceeding 12%, at present, it is unclear whether the IRR refers to the project IRR or the equity IRR. If the equity IRR is capped at 12%, as some previous USD-based calculations suggested, the investment would be completely unattractive compared to bank interest rates and the depreciation of the local currency.[20] Additionally, requiring the investor to demonstrate that the IRR does not exceed 12% during or after the bidding process poses a challenge and risk for the investor. On EVN's side, it would have to work on reviewing and accepting explanations from all interested project investors, which would require substantial resources from EVN to manage this task.

Second, another issue arises when two investors are interested in developing a renewable energy project at the same location but have different objectives. One follows

[19] Article 45.4(c) of Decree 115/2024/ND-CP
[20] Comments from financial institutions (anonymous)

the traditional model of building a power plant to sell electricity to EVN or its wholesale units, while the other aims to sell electricity directly to large consumers under the Direct Power Purchase Agreement ***(DPPA)*** mechanism. In this case, determining the electricity off-taker for coordination with Government agencies in organizing the investor selection tender presents a significant challenge. This is because the 2024 Electricity Law does not require electricity price criteria for projects operating under the DPPA model, whereas price carries significant weight in tender evaluation for projects selling to EVN. Government authorities must consider how to address this situation.

Third, when conducting tenders where electricity prices are a key factor, it is essential to clarify the coordination mechanism between electricity off-takers and the competent authority overseeing the tender process. In this regard, the electricity off-taker may submit a draft PPA for stakeholder review, while contract negotiations can take place after the winning investor is selected. However, it is crucial to define which PPA terms can be negotiated and which cannot, as this will directly impact the tendering process and electricity price determination. Additionally, the role and level of involvement of electricity off-takers throughout the tendering process must be explicitly outlined to ensure transparency and the feasibility of the tendering mechanism in selecting investors for renewable energy projects.

Inconsistent investor selection mechanisms

For offshore wind power projects, which typically include both onshore infrastructure (such as substations and transmission lines located within industrial parks or high-tech zones) and offshore-installed turbines, the application of investor selection regulations remains inconsistent. According to Article 29.4(c) of the 2020 Investment Law, projects within industrial parks or high-tech zones are subject to investment policy approval simultaneously with investor approval, without requiring a land use rights auction or investor selection tender. Meanwhile, the 2024 Electricity Law stipulates that offshore wind power projects may be subject to either a tender process or investor selection, depending on the specific nature of each project.

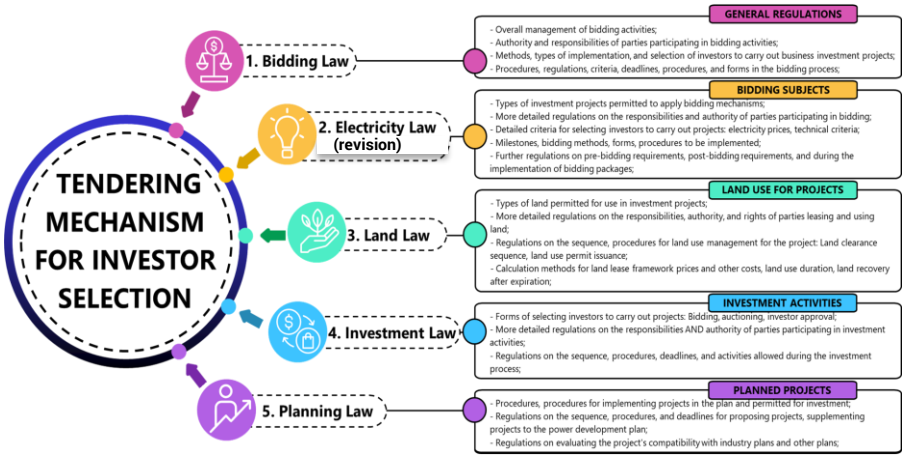

Figure 4.2. Legislative documents related to the Tendering mechanism for investor selection

At present, Vietnam has only fully met the necessary conditions for renewable energy tendering. As a result, the renewable energy market is not yet entirely ready to transition to the new mechanism. Currently, only Trà Vinh province has issued decisions approving the investment policy and is preparing the necessary steps to conduct investor selection through a tendering process.

To ensure the successful implementation of the new mechanism, close coordination between government agencies, businesses, and investors is essential. Additionally, it is necessary to continue improving the legal framework, enhancing the capacity of stakeholders, and developing a competitive, efficient, and sustainable renewable energy market. The period from 2024 to 2025 can be considered a transitional phase and a crucial preparation period for shifting to a tender-based mechanism for onshore wind and ground-mounted solar power projects.

Investor selection criteria

The investor selection criteria in this section are presented to analyze existing limitations and propose solutions based on the strengths of countries that have successfully implemented tendering laws.

To evaluate potential investors for projects, Decree 115 outlines four key investor selection criteria, each assigned a weighted score to reflect its importance:

1. Competence and experience
2. Investment and business plan
3. Investment efficiency in sector, field, and local development
4. Land use efficiency

On November 21, 2024, the Ministry of Industry and Trade issued Circular 27/2024/TT-BCT, which sets out the evaluation criteria for tender dossiers and the tender document templates for selecting investors in energy projects. This Circular particularly clarifies the criteria related to investment and business plans and introduces additional technical requirements. Furthermore, the investment efficiency criterion for power sector development is elaborated, including principles for setting an electricity price ceiling in coordination with the electricity off-taker within the tender documents.

Table 4.1. Analysis of the Limitations of the Competence and Experience Criteria

Limitations of the criteria	**Challenges in Raising Capital at the Bidding Phase** The Ministry of Industry and Trade has issued electricity price brackets for renewable energy sources such as wind and solar power, which serve as a reference for investors in developing cash flow projections and engaging in financing negotiations. However, the one-year duration of these frameworks is insufficient for investors to formulate comprehensive business plans. The limited timeframe creates uncertainty regarding project profitability, which in turn discourages financial institutions from committing capital during the initial stages of project development, particularly in the absence of

	clarity on pricing mechanisms beyond the first year. • **Limitations for Wind Power:** If actual measured wind data is not provided during the bidding stage, investors will face significant challenges in securing loans, as inaccurate electricity output estimates increase project risks. Lenders typically require wind data to be collected for at least one year to meet IEC standards. • **Limitations for Solar Power:** Unlike wind power, solar radiation data can be obtained from online sources. Solar power output is calculated using data sources such as Solargis, which are generally accepted by lenders.
Proposal	It is necessary to issue electricity price brackets for onshore wind, nearshore wind, and solar power, with longer validity periods and in conjunction with other related regulatory considerations. It is recommended that region-specific price brackets be adopted—particularly for grid-connected solar power and also including onshore wind power—to better reflect local resource conditions and investment requirements.[21] For wind power projects planned for bidding, wind measurements should be conducted for at least one year. Additionally, specific wind measurement standards should be established to align with lender requirements.

Table 4.2. Analysis of the Limitations of the Investment and Business Plan Criteria

Limitations of the criteria	**Technical Requirements** Requirements for the Suitability of the Investment Plan: Currently, there are no specific regulations regarding the actual installed capacity compared to the approved capacity. This lack of clarity limits investors' flexibility in selecting equipment to optimize project economics. The inconsistency between legal regulations and actual implementation can create legal barriers, making it difficult for investors to obtain approvals or adjust projects to reflect real-world conditions. **Social Requirements** Challenges in Compensation and Resettlement Support: Although power projects are listed as projects for which the state can recover land for socio-economic development in the national and public interest and allocate it to investors after site clearance (Land Law, Clause 5, Article 79), site clearance without public consent remains highly challenging and sensitive. Previous project experiences indicate that local authorities prioritize reaching agreements to secure community consensus. However, in many cases, this process leads to delays and difficulties in project development, affecting

[21] The Asia Foundation and the Power & Energy Working Group under Vietnam Business Forum, "Policy Survey Report" (2024)

	overall project timelines.
Proposal	**Technical Requirements:** Allow investors and local authorities to adjust the project scale during implementation within ±10% of the approved capacity without requiring re-approval.[22] **Social Requirements:** The bidding dossier should clearly specify costs related to compensation and resettlement support. Compensation costs for resettlement support should be pre-agreed upon by landowners.

Table 4.3. Analysis of the Limitations of the Criteria on Investment Efficiency in Sector, Field, and Local Development

Limitations of the criteria	**Bidding electricity prices** Payment currency: Currently, regulations on the electricity price bracket are based on the local currency (VND) rather than pegging the price to USD, as was done under the FIT mechanism. While using the local currency has certain advantages, it also presents limitations. When prices are calculated in VND, exchange rate risks arise due to the uncertainty of future exchange rate trends, making it difficult for investors to negotiate with lenders. Financial IRR not exceeding 12%: As regulated in Circular 12/2025/TT-BCT, if the owner's IRR is set at 12%, as seen in some past USD-based calculations, it becomes unattractive for investment when compared to bank interest rates and the depreciation of the local currency.[23] Additionally, during or after the bidding process, investors face challenges in proving that their IRR does not exceed 12%, posing a risk for them. EVN must review and verify explanations from all interested investors, requiring significant resources for this process. Insufficient data from the pre-feasibility study report: The middle-of-the-road data provided in the pre-feasibility study report is not solid enough for investors to determine an optimal electricity price. **Electricity off-taker:** Currently, EVN is the sole electricity buyer in the tendering process.
Proposal	**Bidding electricity prices** Payment currency: It is necessary to apply electricity prices either in USD, or in VND with adjustment mechanisms in place to account for significant fluctuations, such as high inflation rates or major exchange rate volatility. Financial IRR: The concept of IRR should be clearly defined, and the 12% threshold should be explicitly specified. To attract investment, the IRR should refer to the project IRR to ensure the appeal of

[22] The Asia Foundation and the Power & Energy Working Group under Vietnam Business Forum, "Policy Survey Report" (2024)
[23] Comments from financial institutions (anonymous)

renewable energy investments.

To optimize the bidding electricity price, the bid dossier should clarify the relevant costs:

1. Wind speed/solar radiation data
2. Wind/solar radiation measurement costs
3. Clear and transparent grid infrastructure and connection costs, including preliminary information on grid status, existing connection points, and grid capacity
4. Expenses related to administrative procedures

Electricity off-taker: Expand the pool of power buyers under the DPPA mechanism.

Allow winning investors the right to negotiate with large manufacturing customers to participate in the DPPA mechanism. For nearshore and offshore wind power projects, direct negotiations with large manufacturing plants can accelerate project implementation, supporting the goal of executing projects within the bidding round.

Taiwan (China) serves as a strong example of flexibility and diversity in power buyers:

Case 1: Investors who win the bid receive a contract at a fixed price per kWh based on their offered price.

Case 2: The winning investor can sign a CPPA contract (equivalent to DPPA in Vietnam) with a large manufacturing customer. In this case, the price agreed upon between the investor and the manufacturing customer may be higher than the investor's offered bid price. This demonstrates that the bid price serves as a baseline for investors to negotiate with industrial customers while fostering competition among power buyers.

By allowing flexibility in contracting with power buyers, project implementation can be expedited, ultimately contributing to the success of the bidding round.

Introduction to Local Content Requirements in Tendering for Projects in Indonesia

Indonesia has specific local content requirements for renewable energy projects to promote domestic industrial development and reduce dependence on imported materials and services. These requirements are set by the Ministry of Energy and Mineral Resources ***(MEMR)***, particularly through the recent MEMR Regulation 11 of 2024 and Decree 191.K / EK.01 / MEM.E/2024. These regulations mandate that renewable energy projects, including infrastructure development for power generation, must meet minimum local content thresholds for both goods and services. The required local content (Tingkat Komponen Dalam Negeri - ***TKDN***) typically ranges from 40% to 60%, depending on the type of project and its components.[24]

[24] Renewable Energy Laws and Regulations Report 2025 Indonesia

The calculation of local content in Indonesia is based on the costs of domestic materials, labor, and services incorporated into the project. A local content certification must be issued by the relevant authorities to verify compliance. These requirements apply to various phases of a renewable energy project, including the construction and operation of power plants, and are designed to foster local supply chains, create jobs, and facilitate technology transfer within the country.[25]

Vietnam can learn from Indonesia's approach to improve its tendering mechanism, reduce renewable energy costs, and enhance the sector's development efficiency. This would not only support national renewable energy goals but also attract more reputable investors.

4.2. Regulations on Obligations of Investors in Post-Bidding Project Implementation in Vietnam

Decree 115 outlines nine provisions that bind investors to their obligations during contract execution.[26] Specifically, under Point (d), Clause 26, Article 66 of Decree 115, the contract performance guarantee is set at 3% of the total project investment.

With such a low guarantee requirement—only 3% of the total project investment—large-scale investors may be willing to forfeit this amount to avoid greater losses in case of market fluctuations during project implementation. In contrast, the Philippines requires a contract performance guarantee of up to 20% of the total project investment, which must be secured through a bank guarantee. This high penalty acts as a strong deterrent, compelling investors to carefully consider their commitment before withdrawing from a project. Only when the contract performance guarantee is sufficiently high can the government use it as an effective tool to balance risks between both parties and ensure that national energy security remains intact.

According to Clause 8, Article 126 of the Land Law, after being awarded the tender, investors who receive land allocation or land lease must advance funds for compensation, support, and resettlement as required by the competent state authority. If the required funds are not fully advanced within six months, the state authority has the right to cancel the tender results. However, the competent provincial People's Committee has up to 36 months to complete the compensation and site clearance process. The following is an analysis of the risks, challenges, and benefits for the involved parties:

- *Risks for investors regarding the timeline for receiving cleared land*: For renewable energy projects in Vietnam, the three-year timeline to receive cleared land imposes financial burdens on investors due to loan interest costs or the risk of project disqualification for missing operational deadlines. The competent provincial People's Committee has up to three years to arrange resettlement for affected landowners, while investors have only six months to mobilize and advance the required funds to the state authority. This discrepancy creates an imbalance in the tendering process, lacking fairness

[25] Indonesia Renewable Energy Laws and Regulations 2022
[26] Clause 9, Section II, Annex III of Decree 115/2024/ND-CP

for investors.

- *Challenges in project implementation:* Uncertainty in the compensation, support, and resettlement process can create difficulties in project implementation, leading to delays or instability in project development.

- *Risks for electricity off-takers and the economy:* Excessive risks in the market may deter investors, potentially impacting macroeconomic stability and national energy security. Alternatively, these risks may be passed on to electricity off-takers through higher prices, ultimately becoming a burden on the national economy.

- *Protecting the rights of affected communities:* This regulation ensures that individuals affected by land-use investment projects receive full compensation, support, and resettlement assistance as mandated by state authorities, thereby safeguarding the rights and interests of local communities.

- *Investment capital control:* Requiring investors to advance funds for compensation, support, and resettlement allows the government to oversee expenditures and ensure that resources allocated for community support are used effectively.

- *Enhancing fairness between businesses and displaced landowners:* If properly implemented, this regulation can play a crucial role in increasing transparency and fairness in land investment processes.

Failure of winning investors to fulfill commitments and requirements

The key milestones in the implementation timeline of power generation projects[27] are as follows:

- Investment Decision
- Commencement of Main Construction
- Project Commissioning: Bringing the project into operation in accordance with construction laws and other agreed-upon milestones specified in the investment and business agreement.

The implementation timeline for renewable energy projects is outlined in the investment approval document, the investment registration certificate, and the investment and business project contract.

If an investor fails to meet project milestones for more than six months without approval for an extension, they will be subject to administrative penalties under the Investment Law. If the delay exceeds 12 months, the investment registration authority will issue a decision to terminate the project, and the investor's performance guarantee will be reclaimed by the state budget. Additionally, the delayed investor must return the Investment Registration Certificate and self-liquidate the project in accordance with the procedures outlined in Decree 31/2021/ND-CP, which guides the implementation of the Investment Law. Following this, the competent state authority

[27] Article 12 of the Electricity Law No. 61/2024/QH15

will select a replacement investor.[28] If no suitable replacement is found, the Ministry of Industry and Trade or the provincial People's Committee will report to the Prime Minister to replace the project with an alternative one.

If an investor fails to utilize the leased or allocated land for investment purposes for 12 consecutive months from the date of handover or delays land use by 24 months beyond the schedule stated in the investment project, they must apply for an extension. The extension period cannot exceed 24 months, and the investor must pay an additional land lease extension fee, as specified in Article 15 of Decree 103/2024/ND-CP. If, by the end of the extension period, the land remains unused, the state will reclaim the land without compensation for the land, attached assets, or any remaining investment costs.[29]

If an investor fails to provide the required funds within six months from the date of receiving the request from the competent state authority, they will forfeit their performance guarantee. In this case, the reimbursement of compensation, support, and resettlement costs that the winning investor has advanced will be carried out in accordance with the Land Law.[30]

The deadline for paying land and water surface rental fees is specified in Article 18 of Decree No. 126/2020/ND-CP. If the investor delays payment, they will be classified as failing to fulfill their financial obligations to the state. Consequently, land users who do not fulfill or only partially fulfill their land lease payment obligations may be subject to enforcement measures by the competent authority.

Countries worldwide establish mechanisms to ensure transparency, economic efficiency, and contributions to renewable energy development. The UAE prioritizes transparency, rigorous approvals, and a high localization rate. The Philippines emphasizes competition through low bid prices and community engagement. Indonesia enforces financial commitments and localization mechanisms to safeguard national interests. Taiwan (China) imposes strict environmental, localization, and community support requirements. Vietnam should learn from these approaches to develop regulations that optimize investment and protect long-term interests.

Table 4.4. Summary of Regulations on Obligations of Investors in Post-Bidding Project Implementation in the UAE, the Philippines, Indonesia and Taiwan (China)

ID	Regulations	Practices from the UAE, the Philippines, Indonesia, Taiwan (China)	Considerations for Vietnam
1	Timeline and Procedures for Project	The UAE requires a high level of transparency, while Taiwan (China) requires coordination with specialized agencies	It is necessary to establish a "one-stop" process among relevant agencies to minimize

[28] Articles 18 and 19 of the Electricity Law No. 61/2024/QH15
[29] Article 81 of the Land Law
[30] Article 94 of the Land Law

ID	Regulations	Practices from the UAE, the Philippines, Indonesia, Taiwan (China)	Considerations for Vietnam
	Approval	such as the Ministry of Economic Affairs of Taiwan (China) and Taipower.	time and procedures.
2	Financial Guarantee	Indonesia requires a deposit to guarantee financing, while the UAE requires proof of investor capacity. In the UAE, if energy production targets are not met, fines can be as high as 10-15% of the total contract value. In the Philippines, fines can be up to 10% of the total contract value, with specific penalties depending on the severity of the violation. In Indonesia, fines can range from 5% to 15% of the total contract value. In Taiwan (China), fines can be 5-10% of the total contract value if the agreed goals are not achieved.	Apply financial escrows and strict penalty mechanisms if the project fails to meet its commitments, in order to protect the interests of the project and relevant stakeholders. Penalties should be imposed if commitments regarding schedule and performance are not fulfilled. The penalty level should range from 5% to 15% of the total contract value, depending on the severity of the violation, and may be increased further if the required capacity or progress is not achieved.
3	Localization Requirements	The UAE, Indonesia, and Taiwan (China) prioritize high localization for the development of supporting industries.	Regulations should be developed on specific localization rates, as well as tax or financial incentives for domestically produced equipment.
4	Community Support	The Philippines and Taiwan (China) require community development and job creation programs.	Regulations should require investors to implement community development programs in localities, especially in disadvantaged areas.
5	Environmental Assessment	The project must be approved by the Environmental Protection Agency and comply with national environmental standards.	Investors are required to implement and strictly adhere to the environmental impact assessment approved by the Ministry of Natural Resources and Environment.

ID	Regulations	Practices from the UAE, the Philippines, Indonesia, Taiwan (China)	Considerations for Vietnam
6	Grid Connection	Taiwan (China) requires cooperation with Taipower, while Indonesia requires close coordination with PLN.	Investors are required to coordinate with EVN to ensure grid connection and the optimization of power grid operations, especially for large projects.
7	Post-Bidding Obligations of Investors	The Philippines imposes severe sanctions for delays, while the UAE requires strict inspections before licensing for electricity operations.	Specific schedules should be stipulated, and sanctions should be applied if investors fail to meet the committed timelines.
8	Periodic Reports	Taiwan (China) requires periodic production reporting and compliance.	Periodic reporting should be required, incorporating an online monitoring system to enhance transparency and reduce governance risks.
9	Supportive Policies	Taiwan (China) and the UAE offer tax incentives, credits, and competitive electricity purchase prices.	Financial support mechanisms, tax exemptions and reductions, and preferential electricity purchase prices could be developed to attract foreign investment.

4.3. Project Permits and Approvals

Entities Required to Obtain an Investment Registration Certificate

According to Article 37.1 of the 2020 Investment Law, projects by foreign investors and economic organizations with foreign-invested capital, as specified in Article 23.1 of the 2020 Investment Law, must obtain an Investment Registration Certificate ***(IRC)*** before implementation. Economic organizations with foreign-invested capital under Article 23.1 include: (i) Economic organizations in which foreign investors hold more than 50% of charter capital ***(FIE F1)***; (ii) Economic organizations in which FIE F1 holds more than 50% of charter capital ***(FIE F2)***; and (iii) Economic organizations in which foreign investors and FIE F1 together hold more than 50% of charter capital ***(FIE F2.1)***. Based on these regulations and market practices, enterprises owned directly or indirectly by foreign investors at the second or third level must obtain an IRC before implementing a project. However, in practice, some investment registration authorities take a stricter approach, requiring economic organizations with foreign investment that are indirectly 99% owned by foreign investors through a group of intermediary companies (including three or four levels of direct and indirect ownership—meaning the economic organization is at the fourth

or fifth level of indirect ownership) to obtain an IRC before proceeding with a project.

Additionally, concerning rooftop solar power systems, investment registration authorities across provinces have yet to reach a consensus on whether these systems are required to complete procedures for obtaining an IRC.

Lack of legal regulations on the allocation of sea areas

Offshore wind power and LNG thermal power projects require sea and coastal areas for construction and operation, including facilities such as floating storage and regasification units ***(FSRU)***, floating storage units ***(FSU)***, receiving terminals, turbines, power transmission lines, and pipelines.

However, the legal framework governing the allocation of sea areas is primarily stipulated in Decree 11/2021/ND-CP (issued by the Government on February 10, 2021), which regulates the allocation of specific sea areas to organizations and individuals for the exploitation and use of marine resources. This Decree lacks clear provisions on the procedures, required documentation, and process for applying for the allocation of sea areas. As a result, both investors and relevant Government authorities face difficulties in implementation.

Inconsistencies in the application of performance security deposit regulations for renewable energy projects sub-leasing land from industrial and economic zone developers

A key issue in practice is whether investors implementing projects within industrial zones or economic zones are subject to escrow obligations. In Inspection Conclusion 3166, the Government Inspectorate noted that the investor of a power project had not provided an escrow account or a bank guarantee for the performance security deposit obligation, which was deemed a violation of investment laws.

According to existing legal regulations, the escrow requirement stipulated in Article 43 of the 2020 Investment Law and Article 26 of Decree 31/2021/ND-CP does not apply to investors sub-leasing land within industrial zones. However, the interpretation of the Government Inspectorate, as reflected in Inspection Conclusion 3166, appears to take a different stance. The Inspectorate's view seems to be based on the principle that the performance security deposit obligation serves as a mechanism to ensure investor commitment and accountability in project implementation.

This situation highlights the potential for varying interpretations of what seems to be a straightforward regulation in Article 43 of the 2020 Investment Law and Articles 25 and 26 of Decree 31/2021/ND-CP.

Performance security deposit for offshore wind power projects

According to Article 43.1 of the 2020 Investment Law, the essence of an escrow account or bank guarantee related to performance security deposit obligations is "to ensure the implementation of investment projects that request land allocation or land lease from the State." This indicates that the security deposit requirement is generally tied to the allocation or leasing of land by the State. Under current regulations, the

deposit amount is calculated as a percentage of the total investment capital of the project, ranging from 1% to 3%. The refund process follows the project's land lease timeline for renewable energy projects, specifically:

- 50% refund or 50% reduction in the bank guarantee at the time the investor is granted a land lease decision by the competent authority and receives the necessary construction permits or approvals (if applicable).
- Full refund of the remaining deposit, including accrued interest (if any), or termination of the deposit guarantee upon completion of construction acceptance.

Thus, the security deposit requirement is closely linked to land leasing for renewable energy projects. However, in the case of offshore wind power projects, the land area allocated or leased onshore is typically minimal, mainly limited to components such as substations or grid connection infrastructure. The majority of these projects occupy offshore areas, which pertain to sea use rights rather than land use rights. Therefore, tying the security deposit requirement solely to land allocation appears to be misaligned with the nature of offshore wind projects. Notably, the 2024 Electricity Law has introduced an exemption mechanism, waiving the security deposit requirement under the 2020 Investment Law for offshore wind projects developed by enterprises that are 100% state-owned.[31]

Compensation for land clearance

According to Article 126.8 of the 2024 Land Law, within 36 months from the date of issuance of the decision recognizing the successful tender results—or within another period specified in the contract with the competent state authority—the competent People's Committee must complete the processes of compensation, support, and resettlement to allocate or lease the land. From a practical perspective, the three-year timeline for land clearance under the 2024 Land Law is quite long and could significantly impact the implementation schedule of renewable energy projects.

Meanwhile, Section II.9, Appendix III of Decree 115/2024/ND-CP stipulates that the successful investor is obligated to advance funds for compensation, support, and resettlement as required by the competent government authority, based on the approved compensation and resettlement plan. If the investor fails to provide the required funds within six months from the date of receiving the government authority's request, the competent authority may decide to annul the tender results. However, under Decree 115/2024/ND-CP, it remains unclear when the investor will receive the request from the government authority to advance funds for land clearance—whether it will be immediately after the completion of the tendering process or if a specific timeframe will be agreed upon in the contract for the investor to advance the funds voluntarily, with state intervention only if the investor fails to do so.

[31] Article 26.4 of the Electricity Law No. 61/2024/QH15

5. KEY POLICY IMPLICATIONS

5.1. Long-term Policy Implications

From a long-term perspective, despite Vietnam's competitive advantages and significant potential, its competitiveness in the renewable energy sector remains weaker than regional counterparts. Key challenges include:

- **Limitations in the legal and policy framework:** Vietnam lacks stability and consistency in renewable energy policies. For instance, the discontinuation of the FiT for solar power, coupled with delays in implementing a tender-based pricing mechanism, has created uncertainty for investors. In contrast, Taiwan (China) has a clear regulatory framework and transparent auction mechanisms, while Indonesia provides long-term power price guarantees, instilling greater confidence among foreign investors.

- **Administrative barriers:** Vietnam's administrative procedures remain complex, posing challenges for foreign investors. Meanwhile, the Philippines and Indonesia have significantly streamlined their permitting processes and introduced clear tax incentives, improving their ability to attract foreign direct investment.

- **Inadequate infrastructure:** Vietnam's power transmission system has struggled to keep pace with the rapid development of renewable energy projects, resulting in grid congestion in several areas. Additionally, port infrastructure requires upgrades to support offshore wind development. Taiwan (China) has effectively addressed these challenges by heavily investing in transmission infrastructure and port facilities to ensure alignment with renewable energy projects.

Vietnam has attracted significant foreign direct investment in the renewable energy sector, driven by its vast potential and commitment to emissions reduction. Before 2021, Vietnam was the most attractive destination for foreign investors among regional peers. However, Taiwan (China) has since emerged as the leading market for offshore wind investment, while Indonesia and the Philippines have introduced policy adjustments that have begun to attract substantial foreign investment in solar and onshore wind projects. With the new U.S. administration under President Donald Trump adopting a more skeptical stance on climate change, competition among regional countries for foreign investment in renewable energy is expected to intensify in the coming years. To remain competitive, Vietnam must address key bottlenecks affecting its national competitiveness, including legal and policy frameworks, administrative barriers, and infrastructure—particularly the power transmission system.

To unlock its renewable energy potential and enhance national competitiveness amid increasing regional competition, Vietnam needs to adopt a comprehensive strategy. The following policy recommendations focus on regulatory reforms, infrastructure upgrades, attracting high-quality investment, and developing supporting industries, drawing lessons from Indonesia, the Philippines, and Taiwan (China).

Improving the legal and policy framework for investment

A clear, transparent, and stable legal framework is a key factor in attracting FDI into the renewable energy sector. Vietnam has ended the FiT mechanism and shifted to a tender-based pricing mechanism. However, up to now, for transitional projects that are no longer eligible for FiT incentives, very few have successfully completed power purchase agreement negotiations. Moreover, the tender-based pricing mechanism remains unclear. These unresolved issues have significantly undermined investor confidence. Specific solutions should include:

- **Transparent and clear long-term electricity pricing policies:** The new Electricity Law was passed in November 2024 along with several guiding Decrees. The current priority is to promptly issue detailed implementing regulations that provide clear and transparent provisions on: the synthetic DPPA model and private-wire DPPA model; the establishment of reasonable PPAs for transitional renewable energy projects; and the tender-based pricing mechanism for new renewable energy projects.

- **Legal framework for offshore wind power:** Decree 58/2025/ND-CP has introduced detailed provisions regarding incentives on land use fees, sea area use fees, and clauses related to minimum contracted output. However, a review should be conducted after a period of implementation to ensure an attractive rate of return for foreign investors and to minimize risks—particularly those related to minimum contracted electricity output, standard PPA templates, and the procedures for negotiating PPAs with EVN.

- **Simplification of administrative procedures:** Enhancing transparency and efficiency in investment licensing processes, such as establishing a "one-stop-shop" mechanism to reduce processing time and eliminate conflicts between regulatory agencies. Authorities should accelerate the simplification of procedures related to planning approvals, project appraisal, investor selection through tenders, land-use conversion, and land clearance compensation.

One of the biggest challenges for renewable energy development in Vietnam is the insufficient capacity of the power transmission system to accommodate the increasing generation from renewable energy projects. This imbalance leads to energy surplus at generation sites while shortages persist in consumption areas. Specific solutions should include:

- **Significant investment in transmission infrastructure:** The government should prioritize funding or collaborate with the private sector to build and upgrade transmission grids in high-potential renewable energy regions such as the South-Central and Southwest regions. Authorities must also swiftly clarify regulations allowing private sector participation in **investments for transmission lines of 220kV and below, as outlined in the new Electricity Law.**

- Planning for offshore wind transmission infrastructure: To support large-scale offshore wind projects, investment plans for transmission networks must ensure

seamless **integration of these projects into the national power grid once constructed.**

- **Integration of smart grid technology:** Implementing modern energy management systems, such as smart grids, to optimize electricity distribution and usage efficiency.
- **Regional power system cooperation and connectivity:** Establishing cross-border electricity trading mechanisms with neighboring countries to enhance power export and import capabilities, thereby reducing domestic grid pressure.

To attract high-quality foreign direct investment, Vietnam must improve both the investment environment and incentive mechanisms. This effort will not only help mobilize capital but also facilitate technology transfer and enhance domestic capabilities.

- **Prioritizing investors with strong technological and financial capacity:** Large-scale renewable energy projects, especially offshore wind, require both advanced technology and substantial financial resources. Only companies that can demonstrate both technological and financial capacity should be considered for bidding in price auctions.
- **Providing early-stage financial incentives for offshore wind projects:** The government should introduce targeted tax and fee incentives for initial offshore wind farms to help establish a robust supply chain. These incentives aim to reduce risks for pioneering investors.
- **Encouraging technology transfer:** Clear requirements should be set for technology transfer and workforce training to build local capabilities in the renewable energy sector.
- **Enhancing dialogue with investors:** Regular investment forums should be organized to facilitate discussions between the government and international businesses on investment needs and necessary policy reforms.

A key factor in enhancing national competitiveness is the development of a supporting industry, which helps establish a sustainable value chain and reduces dependence on imported technology. Specific solutions should include:

- **Promoting the renewable energy supporting industry:** Supporting domestic enterprises in manufacturing renewable energy equipment such as solar panels, wind turbines, and energy storage systems.
- **Enhancing innovation in the renewable energy sector:** Increasing government funding for fundamental research, applied research, and collaborative production efforts within public research institutions and domestic enterprises.
- **Developing a high-quality workforce:** Strengthening partnerships with foreign investors to train skilled professionals in technical fields and renewable energy project management.

• **Providing financial support for domestic businesses:** Offering preferential loan packages to local enterprises participating in the renewable energy supply chain.

5.2. Medium-term Policy Implications

To attract private investment, including foreign direct investment, several measures should be implemented in the medium term.

Power purchase agreements

- To facilitate project financing, Government authorities should consider setting a long-term minimum contracted capacity (Qc) for a period at least equal to the loan term (typically around 12 years for foreign loans) plus an additional 3–5 years, rather than negotiating it on an annual basis. If a long-term minimum Qc commitment must be limited, it could be applied only to projects above a certain capacity threshold, such as 50 MW. Smaller projects could explore alternative financing options, such as corporate financing or securing a larger portion of funding from domestic lenders, who typically have a higher risk appetite than foreign lenders.

- Allowing PPA signatories to negotiate compensation mechanisms for losses incurred by power producers due to curtailment or shutdowns, with predefined compensation rates specified in the agreement. It should be noted that for offshore wind power projects, investors require a 100% contracted quantity (Qc) due to the following reasons: (i) power generation depends on wind speed, making it difficult for the plant to proactively implement a bidding strategy in the electricity market; and (ii) the market price will always be lower than the cost of offshore wind power projects, as the capacity price component is calculated based on the cost of the most efficient new power plant.

Contract transfer and Lender step-in rights

- Introduce provisions allowing the re-registration or amendment of licenses and approvals related to the project to facilitate the exercise of the lender's step-in rights (the right to substitute the borrower in the PPA)

- EVN's assignment of the PPA to a successor entity should require approval from both the project company and the lenders. Such an assignment directly impacts the ability to fulfill payment obligations under the PPA. The requirement for EVN (as the transferer) to notify and obtain consent from the project company aligns with the principles set out in Article 370 of the Civil Code 91/2015/QH13 (National Assembly, November 24, 2015) ***(Civil Code 2015)***.

Policy and legal changes, and investor protection mechanisms

- The model PPAs should clearly outline the remedies available to the project company for any adverse impacts resulting from changes in policies or laws.

- From a risk allocation perspective, any costs or liabilities incurred by the project due to policy or legal changes should be considered EVN's risk. The project company should be entitled to compensation, whether through immediate payments, electricity price adjustments, PPA term extensions, or a combination of these

mechanisms.

- Establish a contingency plan for EVN's payment obligations arising from legal changes, backed by a Government Guarantee. The model PPAs could specify a minimum loss threshold to trigger the Government Guarantee. If the damages exceed the defined threshold and EVN is unable to make payments within a certain time frame after the seller submits a compensation claim, the Government Guarantee would be activated, ensuring full payment to investors. We acknowledge that the Government is currently reluctant to issue guarantees. However, given EVN's current credit rating, the absence of a Government Guarantee would be a major red flag for project bankability.

Force majeure

- Additional provisions should be included regarding fixed payments, ensuring that payments under the PPA are still made to the seller even if the power plant is not physically operational in the following cases:

- The Commercial Operation Date ***(COD)*** is delayed, or the project is unable to generate electricity due to issues caused by EVN or problems related to the national power system; or

- The COD is delayed, or the project is unable to generate electricity due to a force majeure event caused by the Government.

Governing law and dispute settlement

- In cases where at least one party is a foreign investor or a foreign-invested economic organization as defined in Article 23.1 of the 2020 Investment Law, the parties should be allowed to agree that the governing law of the PPA is foreign law. The PPA should also clearly stipulate that disputes arising under the agreement may be resolved through both domestic and international commercial arbitration. This proposal is well-founded based on the provisions of Articles 4.5 and 14.3 of the 2020 Investment Law, as well as Articles 663 and 683 of the Civil Code 2015. It also aligns with international best practices.

Provisions on payments and compensation upon PPA termination

- Compensation amounts should be calculated based on the ratios stipulated in the PPA. The agreement should clearly outline the termination payment structure and other related remedies to address PPA termination scenarios. In principle, termination payments should be at least sufficient to cover the contributed equity, outstanding principal debt, corresponding interest, hedging costs, and expenses related to the termination of the borrower's associated contracts in all cases of early termination. It should be explicitly stated that the project company is not required to prove that termination payments correspond to actual and direct losses incurred due to the termination event.

PPA term

- Reintroduce the provision on the minimum term of the model PPA, specifying

that the minimum term should align with the typical duration of commercial/export credit agency loans (e.g., 12 years) plus at least an additional 3-5 years. Additionally, parties should be free to negotiate a longer term with EVN. In addition, the term of the PPA should be automatically extended in cases of curtailment, in order to ensure the approved IRR is maintained.

5.3. Immediate Policy Implications

Some feasible recommendations for implementing a tendering mechanism to select investors for energy projects. These proposals focus on three main issues: (i) Tendering mechanism for investor selection, (ii) Investor selection criteria, and (iii) Tendering regulations for investor selection. The specific proposals will be presented below.

Recommendations on the tendering mechanism for investor selection

- Regarding joint ventures in tendering, investors and EPC contractors participate together in the investor selection process from the expression of interest stage or tender documents.

- Regarding planned and installed capacity, investors may propose a capacity higher than the planned capacity, but the committed operating capacity must not exceed the planned capacity.

- Regarding electricity price criterion: (i) The lowest electricity price is prioritized for selection, (ii) A minimum price floor should be set at a reasonable level to ensure project quality. It is essential to develop a reliable database on costs and input prices.

- Regarding the Investment efficiency criterion: (i) Upward revision of the regulatory limit on IRR, (ii) The scope of electricity buyers should be expanded under the DPPA mechanism, (iii) Electricity purchase prices should be in USD or adjusted VND based on actual inflation, (iv) The tendering authority should provide comprehensive input data (renewable energy resources, natural conditions, infrastructure conditions, etc.) to reduce investor risks and lower electricity prices for the Government.

- Regarding business and investment plan criterion: The tender documents should clarify costs related to compensation and resettlement support.

- Regarding international competitiveness: (i) The tendering process should be transparent and publicly accessible, (ii) Clear technical, financial, and implementation time criteria should be established, (iii) Clarification meetings and public information disclosures should be organized, (iv) Information technology should be applied in the bidding process to publicize project information, calls for interest, bid invitations, bid prices, results, and PPAs under government supervision.

- Regarding "green finance," financial support should be provided for wind and solar projects with low-interest rates and guarantees from financial institutions to reduce capital costs, enhance competitiveness, and share management experience.

- Regarding power infrastructure, investment and upgrades should be made to the grid, including integrating storage systems with wind and solar projects in high-potential areas.

- Regarding progress assurance, strict contractual terms should be applied to ensure that investors comply with committed schedules and operational timelines.

- Regarding PPAs, PPAs should ensure long-term stability and mobilization capacity, helping investors minimize risks and ensure the economic feasibility of projects. The duration could be up to 25 years, with the possibility of extending to 30 years.

- Regarding investor support and incentives, policies should include import tax exemptions, corporate income tax reductions, improved land access mechanisms, and streamlined legal procedures for investors.

- The success of the tendering mechanism depends on the Government's firm commitment to renewable energy development.

- Additional recommendations: (i) Extend the time for bid preparation, (ii) Provide guidance on cost reimbursement for investors who propose projects but do not win the bid.

Recommendations on investor selection criteria

- Regarding financial criteria, investors are required to demonstrate financial capability through independent financial statements and financial guarantees from reputable domestic and international credit institutions.

- Regarding project implementation experience, to ensure feasibility, investors must provide evidence of similar completed projects and demonstrate their ability to execute projects under similar conditions.

- Regarding environmental protection plans, investors must submit a detailed environmental protection plan to minimize negative impacts. The plan should clearly outline mitigation measures throughout the construction, operation, and maintenance phases of the project.

- Regarding procurement and sourcing, priority should be given to high-quality equipment that meets international standards. Local resources and suppliers should be prioritized to support project development and contribute to the local economy.

Recommendations on obligations of investors in post-bidding project implementation

- Regarding approval and permits, investors must submit detailed documentation and meet specific criteria to obtain transparent approval from regulatory authorities. This includes technical design, financial analysis, environmental impact assessment, and PPAs.

- Regarding financial assurance, investors must provide financial guarantees from banks or from organizations/individuals with sufficient collateral to ensure

project implementation according to schedule and quality. A mandatory security deposit mechanism or financial guarantee should be applied to enforce project implementation commitments.

- Regarding completion timeline commitments, projects must be completed within the committed timeframe and meet the required capacity. Failure to do so may result in penalties or revocation of development rights.

- Regarding grid connection, measures should be taken to avoid capacity surpluses or shortages, develop smart grid infrastructure, ensure seamless integration with renewable energy projects, and coordinate with power management entities to ensure grid connectivity.

- Regarding independent supervision and periodic reporting, investors must provide regular reports on project progress, implementation activities, and environmental impact to regulatory agencies. Periodic reporting (preferably online) should be mandated, and an online monitoring system should be established for wind and solar power projects.

- Regarding sustainable development commitments, investors should contribute to community development by implementing social programs in the project area.

- The time required for land clearance and compensation should be reduced to less than three years.

- To enhance investor accountability throughout project implementation, the following measures should be considered: (i) Increasing the performance guarantee requirements, while allowing guarantees via bank-issued letters of credit; (ii) Introducing additional penalty clauses; (iii) Evaluating investor credibility.

Summary of Policy Implications

In addition to enacting the revised Electricity Law and a series of related Decrees and Circulars in recent times, the Government of Vietnam continues to review and improve the institutional and policy framework to address key policy bottlenecks. This effort aims to facilitate a smoother and more efficient flow of investment capital in the market. In the medium term, several legal documents need to be included in the roadmap for dialogue and consultation with the business community, in order to ensure timely revisions and updates that will further enhance the investment environment in Vietnam's clean energy sector.

Topic	Specific policy implication
Issuance of the Renewable Energy Law during the 2031 – 2035 period	Focus incentive policies on specific types of new and clean energy technologies; simplify administrative procedures and consolidate currently dispersed provisions across the Investment Law, the Tender Law, Land Law, Electricity Law, and Maritime Law into a single Renewable Energy Law.
Revision of the Law on Science and	Prioritize businesses with proven

Topic	Specific policy implication
Technology 2013 and the Law on Technology Transfer 2017	technological and financial capabilities; encourage technology transfer from FDI enterprises; promote the development of supporting industries.
Legal documents to implement the Politburo's Resolution No. 68	
Revision of the Tender Law and the Investment Law	Introduce green criteria and incentives for investments in transmission lines, energy storage, new technologies, and local content; standardize and integrate procedures and information throughout the tendering and contract award stages; clearly define mechanisms for adjustment, dispute resolution, and investor protection; simplify administrative procedures, etc.
Decree 115/2024/NĐ-CP	Include provisions on the tendering mechanism for investor selection, criteria for evaluating bids, post-bidding obligations for investors, etc., along with scoring criteria and the establishment of a "single window" mechanism.
Decree 57/2025/NĐ-CP	Encourage freedom to negotiate electricity purchase prices and expand the scope of eligible participants.
Decree 58/2025/NĐ-CP	Provisions on payments and compensation terms in the event of termination of power purchase agreements.
Circular 08/2023/TT-NHNN	Conditions for access to foreign loans without Government's guarantees.
Circular 12/2025/TT-BTC	Revise key provisions in the model power purchase agreement, including contract duration, compensation for damages, contract transfer and lender's step-in rights, dispute resolution mechanisms, force majeure events, etc.
Circular 27/2024/TT-BCT	Regulations on the tendering mechanism for investor selection, bid evaluation criteria, post-bidding obligations for investors, etc.

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Improving Bankability of Vietnam's Clean Energy Sector

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