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Wind Power Investment Guidelines

Volume 2: Wind power financing in Vietnam

Technical Assistance to the General Directorate of Energy
Ministry of Industry and Trade

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MOIT/GIZ Support to the Up-Scaling of Wind Power in Vietnam

USAID Private Financing Advisory Network-Asia (PFAN-Asia)

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GDE foreword

Dear colleagues,

Dear friends of wind power in Vietnam,

The Government of Vietnam seeks to promote the power development in order to meet the requirements of socio-economic development, ensure the national energy security, and satisfy the daily power needs. The continuous effort of everyone in the electricity sector together with the support from the Government has made a significant improvement in the national power system of Vietnam. Electricity supply is guaranteed to be enough for socio-economic development demands. Its quality and reliability is also enhanced and improved.

To date the total installed capacity of the power supply in Vietnam has reached over 37,000 MW with the maximum power load has reached 25,800 MW. The national power system has had backup power sources, though not equally distributed for all regions. In the period from 1995 to 2014, the average growth rate of commercial electricity was always among the highest level regionally and internationally, which is 13.8%/year while the annual GDP increased by 6.7% on average.

In the future, Vietnam electricity sector still faces big challenges. One of them is the lack of primary energy sources for electricity generation leading to the needs for importing coal in the coming years. Another challenge is the requirement for ensuring national energy security to meet the socio-economic development strategy as well as national security and defense. Last but not least, Vietnam has to fulfill its commitment to reduce the greenhouse gas emission and protect the environment; most recently it set the target of greenhouse gas reduction of Vietnam in the COP21 Paris Climate Conference in December 2015.

The Prime Minister has issued a number of support mechanisms and policies that prioritize and encourage renewable energy development. The Renewable Energy Development Strategy until 2030, with the vision towards 2050 approved by the PM in Decision No.2068/ QĐ-TTg dated 25/11/2015 sets out the following objectives:

- Increase the electricity generation from renewable sources from 58 billion kWh in 2015 (which accounts for 35% of the total national electricity generation) to approximately 101 billion kWh in 2020 (38%), 186 billion kWh in 2030 (accounting for 32%) and 452 billion kWh in 2050 (43%).
- The detailed target for wind energy is as follow: Wind energy generation is expected to increase from 180 million kWh in 2015 to about 2.5 billion kWh in 2020 (accounting for 1% of total power generation), 16 billion kWh in 2030 (2.7%) and 53 billion kWh in 2050 (5.0%).

MOIT, under the supervision and recommendation of the PM, is going to review and adjust the incentives for renewable energy as well as complete the support mechanisms for developing other renewable energy sources in Vietnam.

GDE, together with the support from the *German international cooperation agency GIZ GmbH* in close cooperation with the *USAID Private Financing Advisory Network-Asia (PFAN-Asia)*, is happy to present to you the **“Wind Power Investment Guidelines in Vietnam”** as a useful reference for all interested stakeholders who take part in the investment and development of wind energy in Vietnam.

Yours sincerely,

A handwritten signature in blue ink, appearing to read 'Dang Huy Cuong', with a long horizontal stroke extending to the right.

Dang Huy Cuong,
Director of General Directorate for Energy
Ministry of Trade and Industry



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The German Federal Ministry for Economic Cooperation and Development (BMZ) supported the development of these guidelines within the German Climate Technology Initiative (Deutsche Klimatechnologie-Initiative- DKTI) and USAID Private Financing Advisory Network-Asia (PFAN-Asia) in collaboration with the Ministry of Industry and Trade (MOIT).

We would like to thank MOIT, GDE and GIZ who provided insights, resources and expertise that greatly assisted the development of these guidelines.

We would like to express our deep gratitude for the governmental agencies' supports and cooperation in sharing information, experiences and visions in relation to wind power in Vietnam. Special thanks go to our friends and partners at Modern Energy Management, Deloitte Vietnam - Tax Services, Deloitte U.S., Asian Development Bank (ADB), Vietnam Development Bank (VDB), Vietnam Commercial Bank (Vietcombank), Bank for Investment and Development of Vietnam (BIDV) and Ho Chi Minh Securities Corporation (HSC) for their expertise and contribution. Last but not least, the authors are deeply grateful for the dedication and continual assistance of all members of the USAID Private Financing Advisory Network-Asia (PFAN-Asia) - Bangkok Office and the USAID Regional Development Mission-Asia (RDMA). This publication would not have been possible without their support.

We would like to express a special thanks to the wind power developers and investors in Vietnam who openly shared precious insights and practical experience on their projects and activities. Our gratitude goes as well to the all the participants in the guidelines validation workshop. With their valuable comments and great interest in the wind power market, they have greatly supported the finalization of these guidelines.

Finally, we would like to express a special thanks to the New and Renewable Energy Department, General Directorate of Energy (Ministry of Industry and Trade), who directly contributed to the development and finalization of these guidelines with their valuable engagement, support and time.

We hope these guidelines will support all stakeholders involved, ultimately supporting Vietnam in reaching their promising goal in the wind power sector.



Disclaimer

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Anybody using these Wind Power Investment Guidelines is highly encouraged to provide feedback to GIZ on any legal or regulatory changes they may be aware of, as well as the application and interpretation of them. Feedback on the general usefulness of this document would be much appreciated as well, in order to further improve future versions.

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Abbreviations

BIDV	Bank for Investment and Development of Vietnam
BT	Build- transfer lease
CIT	Corporate Income Tax
CO₂	Carbon Dioxide
COD	Commercial Operation Date
DNO	Distribution Network Operator
DoIT	Department of Industry and Trade
DoNRE	Department of New and Renewable Energy
DPC	District People's Committee
DSCR	Debt Service Coverage Ratio
EPC	Engineering, Procurement and Construction
EPTC	Electricity Power Trading Company
ERAV	Electricity Regulatory Authority of Vietnam
EUR	Euro
EVN	Vietnam Electricity
FiT	Feed-In-Tariff
FS	Feasibility Study
GDE	General Directorate of Energy
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH
IPO	Initial Public Offering
IPP	Independent power project
IRR	Internal Rate of Return
KfW	Kreditanstalt für Wiederaufbau
MOF	Ministry of Finance
MoIT	Ministry of Industry and Trade
MoNRE	Ministry of Natural Resources and Environment



MPI	Ministry of Planning and Investment
NLDC	National Load Dispatch Centre
NPTC	National Power Transmission Corporation
O&M	Operations & Maintenance
ODA	Official Development Assistance
PPA	Power Purchase Agreement
PPC	Provincial People's Committee
Pre FS	Pre-Feasibility Study
PIT	Personal Income Tax
RLDC	Regional Load Dispatch Centre
RPoC	Regional Power Corporation
SCADA	Supervisory Control And Data Acquisition
SPV	Special Purpose Vehicle
USD	US Dollar
VAT	Value Added Tax
VDB	Vietnam Development Bank
VND	Vietnamese Dong
WPDP	Wind Power Development Plan

Units:

GW	Giga Watt	m	Meter
GWh	Giga Watt hour	MVA	Mega Volt Ampere
km	Kilometre	MW	Mega Watt
kV	Kilo Volt	MWh	Mega Watt hour
kW	Kilo Watt	s	Second
kWh	Kilo Watt hour		

1. Understanding the terminology of financing

The purpose of this section is to introduce the commonly used terminology in financing, which is used in the subsequent sections of these Guidelines.

1.1. Types of financing

There are six primary types of financing for wind power projects:

1. Grant
2. Equity
3. Senior Debt
4. Mezzanine
5. Lease
6. Vendor Financing

1.1.1. Grant

Grants are non-repayable funds typically disbursed by a government agency, overseas development agency (ODA) and such others.

1.1.2. Equity Financing

Equity financing aims at a stock or any other security representing an ownership interest in the project. Developers may explore Common Shares, Preferred Shares (that bear a fixed annual return to the investor), Convertible Preferred Shares (Preferred Shares that convert to Common Shares) or Convertible Debentures (Loans that get converted to Common Shares) and the like.

- Common Shares is a security that represents ownership in a corporation. Holders of common stock exercise control by electing a board of directors and voting on corporate policy. Common stockholders are on the bottom of the priority ladder for ownership structure. In the event of liquidation, common shareholders have rights to a company's assets only after bond-holders, preferred share-holders and other debt-holders have been paid in full.

- Preferred Shares is a class of ownership in a corporation that has a higher claim on its assets and earnings than common stock. Preferred Shares generally have a dividend that must be paid out before dividends to common shareholders, and the shares usually do not carry voting rights.
- Convertible Preferred Shares is preferred stock that includes an option for the holder to convert the preferred shares into a fixed number of common shares, usually any time after a predetermined date.
- Convertible Debentures is a type of loan issued by a company that can be converted into stock by the holder and, under certain circumstances, the issuer of the bond. By adding the convertibility option the issuer pays a lower interest rate on the loan compared to if there was no option to convert. These instruments are used by companies to obtain the capital they need to grow or maintain the business.

1.1.3. Senior debt financing

Senior debt represents the debt that takes priority over other unsecured debt. The debt service coverage ratio (cash flows available for debt service divided by debt service payments) is an important metric in assessing default risk. Lenders to wind projects look at the debt service coverage ratio under a variety of wind resource scenarios. For example, they might require that low wind conditions with a 10 percent chance of occurring allow a project to generate sufficient cash flows to cover 1.2-1.4 times the amount of debt payments. Certain contractual conditions may be used to maintain adequate debt service coverage, like cash sweeps or sculpted amortization schedules. In addition, lenders often require a cash reserve account of 6-12 months of debt service (interest and instalments), and a maintenance reserve account equal to 6 or 12 months of O&M costs. The typical tenure for such loans is 12 to 18 years and interest rates are from 5.4% to 10% in Vietnam, based on previous projects.

In case of Debt financing, there are two possible options: **1)** Project finance and **2)** Corporate finance.

Project Finance or Non-Recourse/ Limited Recourse Financing

Project financing is the most common approach to long term financing of utility-scale solar projects, e.g. wind power project. The main distinguishing feature of project financing is that loans are made based on the strength of ring-fenced project revenue, with no or limited recourse to the project sponsor. This approach separates an individual project from other activities of the sponsor. Project financing is attractive for developers as it can allow for higher rates of leverage (thereby maximising return on equity) and move liabilities to a project company rather than keeping them with the developer. It also allows developers to free up equity in order to develop more projects. With a project financing structure, projects are normally held in a project company or a special purpose vehicle (SPV) that holds all project assets and liabilities.

Conceptually, debt is borrowed for a specific project, and the amount of debt made available will be linked to the revenue the project will generate over a period of time - as the means to pay back the debt. This amount is then adjusted to reflect inherent risks, e.g. the production and sale of power. In the case of a problem with

loan repayment, rather like a typical mortgage, lenders will establish first charge or claim over the assets of a business, as described above. The first tranche of debt to get repaid from the project is usually called 'senior debt'.

Given the limited recourse to the parent company, lenders require that there is a secure revenue stream from the project, and will undertake in-depth due diligence of the project to gain confidence on the project's ability to service debt repayments. This will include a thorough technical and legal review of the project and all associated contracts, especially the PPA, so that confidence can be placed in project revenues.

Corporate finance or Balance sheet financing

Large companies e.g. utilities may fund wind power projects "on balance sheet," providing equity themselves and obtaining debt as part of their broader operations and corporate financing. These companies draw on monies raised by their internal Treasury departments from the financial markets through bond issuance or general corporate bank facilities, which are available to the business as a whole, or following the sale of other parts of the business.

This type of financing can also be an appropriate model when the project developer is a large entity that has access to very low-cost financing, which might be the case for a highly rated utility or conglomerate. It is also utilized, even for large projects, in economies that do not have a strong tradition of off-balance-sheet financing.

Banks provide finance to companies to support everyday operations. Therefore, for this type of financing, an assessment is mainly made of the company's financial strength and stability, and debt is priced accordingly. These bank facilities place few restrictions on how the company can use the funds, provided certain general conditions are met.

1.1.4. Mezzanine financing

This type of lending sits between the top level of senior bank debt and the equity ownership of a project or company. Mezzanine loans take more risk than senior debt because regular repayments of the mezzanine loan are made after those for senior debt. However, the risk is less than equity ownership in the company. Mezzanine loans are usually of shorter duration and more expensive for borrowers, but pay a greater return to the lender (mezzanine, or junior, debt may be provided by a bank or other financial institution). A wind power project may seek mezzanine finance if the amount of bank debt it can access is insufficient; the mezzanine loan may be a cheaper way of replacing some of the additional equity needed and therefore could improve the cost of overall finance (and thus the rate of return for owners).

1.1.5. Vendor financing

Vendors could also provide for funding by way of either lease or supplier credit guarantee schemes of their respective countries. Usually this mode of financing is offered by vendors for only their scope of work and will exclude components not provided by them. In case of wind power projects, only the wind turbine could be secured under such a mode of financing and all other civil costs, substation costs etc. may have to still be funded from other sources.

In some cases, vendors have been known to finance certain stages of the Development financing (refer **section 4.2**) such as wind resource studies or others.

1.1.6. Lease

This works similar to vendor finance, but could be offered by Leasing companies. The terms and conditions work similar to Senior debt financing, but may sometimes be at rates lower than normal debt. There are options available for leasing depending upon whether the ownership of the leased asset is retained by the developer or not. This kind of financing may not be available in Vietnam for wind power projects currently.

1.1.7. Self-funding

This type of funding is typically needed for starting up before the developers are able to build a business case to obtain buy-in from external funding sources. This capital is needed to fund the preliminary study of the project to evaluate the technical and economic potential of the project before moving forward to next development stages.

1.1.8. Corporate investors/ Strategic investors

Depending on their risk appetite and mandate, Corporate investors and Strategic investors may want to participate in project development from early stage by forming a SPV with a local developer. In general, the strategic investors want to be one of the majority shareholders and have control in the SPV in order to ensure that their capital is well-spent in line with their strategy and to mitigate risk. This type of investors bring on capital and may also bring technology, operating and maintenance experience or financial strength for the project. Examples of strategic investors could be large power generation companies that want to develop a portfolio of renewable energy, large corporations who could be probably be high on their CO₂ emissions (metallurgical industry, cement industry and the like), multinationals and others having a strong Corporate Social Responsibility (CSR) program and sustainability orientation.

1.1.9. Equity/ Debt funds

There are several types of funds available for financing wind power projects from a range of investors including private equity funds, infrastructure Funds and pension funds. Funds may invest in companies or directly into projects or portfolios of assets. Typically, funds use Internal rate of return (IRR, or ‘rate of return’) of each potential project as a key tool in deciding whether to invest. IRR is used to measure and compare the profitability of investments. Funds generally have an expectation of what IRR they need to achieve, known as a hurdle rate.

Venture capital funds

Venture Capital (VC) funds typically focus on either ‘early stage’ or ‘growth stage’ technology companies, targeting new technology and new markets. Companies are classified by these stages based on where they are in progressing from the laboratory to commercial roll out. Venture capital funds raise money from a wide range of sources with high risk appetite such as insurance companies, pension funds, mutual funds, or high net worth individuals. Typical venture capital investment horizons are around four to seven years with very high anticipated returns—50-500% IRR. Wind power projects are not usually of interest venture capital funds to invest due to the nature of the project to the nature of the project, which is not scalable.

Private equity funds

Private equity funds generally focus on later stage and more mature projects and expect to ‘exit’ their investment and make their returns in a 3 to 5 year time frame. Key features of private equity funds are as follows:

- Money raised from a wide range of sources with medium risk appetite;
- Institutional investors and high net worth individuals;
- Target opportunities with possibility for enhanced returns (or ‘upside’);
- Interested in companies and projects with more mature technology, including those preparing to raise capital on public stock exchanges (‘pre-IPO’), demonstrator companies, or under-performing public companies;
- Shorter investment horizon, 3-5 years;
- Higher hurdle rate, 25% IRR.

Infrastructure funds

Infrastructure funds traditionally are interested in lower risk infrastructure such as roads, rail, grid, and waste facilities etc., which have a long-term investment horizon and so expect lower returns over this period. Key features of infrastructure funds are as follows:

- Funds drawn from a range of institutional investors and pension funds;
- Target ‘infrastructure’ i.e. an essential asset, long duration, steady low risk cash flow and thus may need

- a bankable PPA and other such securities and guarantees;
- Interested in roads, railways, power generating facilities;
- Medium term investment 7-10 years;
- Low risk and return, 15% IRR.

Pension funds

Pension funds have an even longer time horizon and larger amounts of money to invest, with lower risk appetite. Key features of pension funds are as follows:

- The investments display a low risk appetite, reflected in expectations of stable returns at around the 15% level.
- Since pension funds are generally very large, they do not commonly get involved in individual projects. They may allocate monies to specialised private equity or venture capital funds (including infrastructure or renewable energy funds) that manage the investments and provide the pension funds with a return.

1.1.10. Stock market or initial public offering

This source of funding is generally applicable for raising funds for expansion of existing companies e.g. if an existing company is expanding to develop and operate wind power projects, then they could raise funds from the stock market based on the past performance of the parent company's business.

As a wind power project with a performance record could be a good asset to attract investment from the public, an Initial Public Offering (IPO) is a commonly sought after exit option for many investors, such as private equity funds.

1.1.11. Development banks

Development banks, such as Vietnam Development Bank (VDB) and Asian Development Bank (ADB), usually provide funding for development of projects in sunrise industry segments; Wind energy could be considered a sunrise industry in Vietnam. Usually the source of funds for development banks belong to Governments backed by a definite policy for developing particular industries.

The Government of Vietnam, through its Ministry of Finance, could offer financing (at subsidized rates of interest, approximately 50% of prevailing commercial rate) and grants. The Government, from time to time, allocates the fund from the national budget to renewable energy projects with an amount of USD 30-50 million but only disburse this fund through VDB.

VDB, directly supervised by the Vietnamese Ministry of Finance, has various options for renewable energy

projects including medium and long-term loans, and on-lending Japanese and U.S. ODA funds. Wind power projects may seek for debt up to 85% of the project cost with a tenure up to 18 years and grace period up to 5 years. VDB has recently collaborated with US EXIMBANK in funding up to USD 1 billion for wind power project development programs in Mekong River Delta from 2011 to 2015. Under this scheme, wind power projects may borrow at interest rate of 5.4% given the condition that only U.S equipment and machinery used for the project.

In comparison with other banks, project evaluation procedures in VDB are more flexible but disbursement schedule must follow the Vietnamese regulations. Subject to the project owner's credibility, the Bank may offer up to 85% of the project cost secured by the project itself at interest rate of 8.55% per annum.

Asian Development Bank (ADB) may have various financial instruments available, but the Bank has not offered debt to any wind power project in Vietnam. ADB has financed for two renewable energy projects, which are Development of renewable energy and extension of power grid in poor and remote areas 2009-2015, and Sponsorship for renewable energy project in Lower Mekong Countries. In the coming years, ADB plans to offer USD 2 million for technical assistant for wind power projects in Vietnam, Mongolia, Philippines and Sri Lanka.

German Development Bank – KfW, through the Climate and environment protection program (IKLU), offers up to USD 50 million to fund small hydropower plants with capacity below 20 MW and energy efficiency projects at subsidised interest rate.

1.1.12. Commercial banks

Commercial banks are main sources of debt funding for wind projects. Commercial banks can also play the role of fund arrangers and thus channelize equity, usually in the form of a direct investment by high net worth customers known to the bank for interest in such investment.

Nevertheless, most of commercial banks in Vietnam are small sized and unable to fund the whole wind power project. It is common in Vietnam that commercial banks offer debt for a part of wind power projects or co-funding with other international organization like World Bank. Commercial banks may offer debt up to 70% of the project at interest rate of 8% - 10%, which is high for wind power project due to lack of evaluation procedures applied to wind power projects.

In Renewable Energy Development Project 2009 – 2014, World Bank offered debts to renewable energy projects with capacity below 30 MW via commercial banks such as Bank for Investment and Development of Vietnam JSC (BIDV), Joint Stock Commercial Bank for Foreign Trade of Vietnam (Vietcombank), Saigon Thuong Tin Commercial Joint Stock Bank (Sacombank), Asia Commercial Bank (ACB), and Vietnam Tech-

nological and Commercial Joint Stock Bank (Techcombank). World Bank offered up to 80% of commercial bank's debt with a tenure of at least 12 years and grace period up to 3 years.

1.1.13. Overseas development agency

ODA funding is offered through the development bank of other countries e.g. DEG of Germany, Proparco of France, Finnvest of Finland and the like.

For Vietnam Wind Energy, ODA funding may be approached through any of them. A potential drawback of such ODA funding is the timeline to comply with the procedures and the minimum size of investment that such institutions are required to make.

For direct ODA funding, the Ministry of Finance acts as guarantor for renewable energy projects and charges a fee of approximately 0.5%. In application for the Ministry of Finance's guarantee, project developer shall initially seek review and evaluation by the Ministry of Industry and Trade (MoIT) in order to obtain a recommendation as potential project for the Government's guarantee. In practice, state owned enterprises are more likely to get approval for the Government's guarantee.

1.1.14. Equipment suppliers

Some equipment suppliers such as GE Energy can provide financing to projects in the form of vendor financing through their wind turbine equipment. The financing could be in the form of an equipment lease or supplier's credit through commercial banks or supplier country export-import banks.

Types and sources of financing are summarized in the table below.

Types of financing Sources of financing	Grant	Equity	Senior debt	Mezzanine finance	Vendor financing	Lease
Self-funding		X				
Corporate/ strategic investors		X				
Funds - Venture capital funds - Private equity funds - Infrastructure funds - Pension funds		X				
Public equity (Stock market or IPO)		X				
Development banks			X			
Commercial banks			X	X		X
Overseas development agency	X					
Government	X					
Equipment suppliers					X	



1.2. Specific potential investors and lenders

Based on our survey, a list of potential investors and lenders who are interested in wind power projects in Vietnam are as follows:

Name of organization	Type of financing	Website
ACP Asia Climate Partners; Orix, ADB	Equity	http://www.asiaclimatepartners.com.hk
ADB	Debt	www.adb.org
Armstrong Asset Management	Equity	www.armstrongam.com
Asia Green Capital Partners	Equity	http://www.agcp.com.sg
Berkeley Energy	Equity	www.berkeley-energy.com
CapAsia (Capital Advisors Partners Asia)	Equity	https://www.capasia.com
CCC Equity (CPE)	Equity	www.climatechange-capital.com
Danida	Grant	um.dk/en/danida-en
DEG German Investment and Development Company	Equity, Debt	https://www.deginvest.de
EdF	Equity	www.edfenergy.com
ENGIE	Equity	www.engie.com/en
Equis Funds Group	Equity	equisfg.com
Ferrostaal Industrial Projects GmbH	Equity	www.ferrostaal.com
FMO	Grant, Equity, Debt	https://www.fmo.nl

GE Energy Financial Services	Equity, Debt	geenergyfinancialservices.com
Global Environment Fund	Equity	www.globalenvironmentfund.com
Gunkul Engineering PCL	Equity	www.gunkul.com
IDI Infrastructure	Equity	www.idi-infra.com
IFC	Equity, Debt	www.ifc.org
Indochina Capital	Equity	indochinacapital.com
Infraco Asia Development	Equity	www.infracoasia.com
NorFund	Equity	www.norfund.no
Olympus Capital Asia	Equity	www.olympuscap.com
PROPARCO	Equity, Debt	www.proparco.fr
Vietnam Development Bank (VDB)	Debt	vdb.gov.vn
Waha Capital	Debt	www.wahacapital.ae
Wind Force (Pvt) Ltd	Equity	www.windforce.lk
USTDA	Grant	www.ustda.gov

1.3. Financing structure

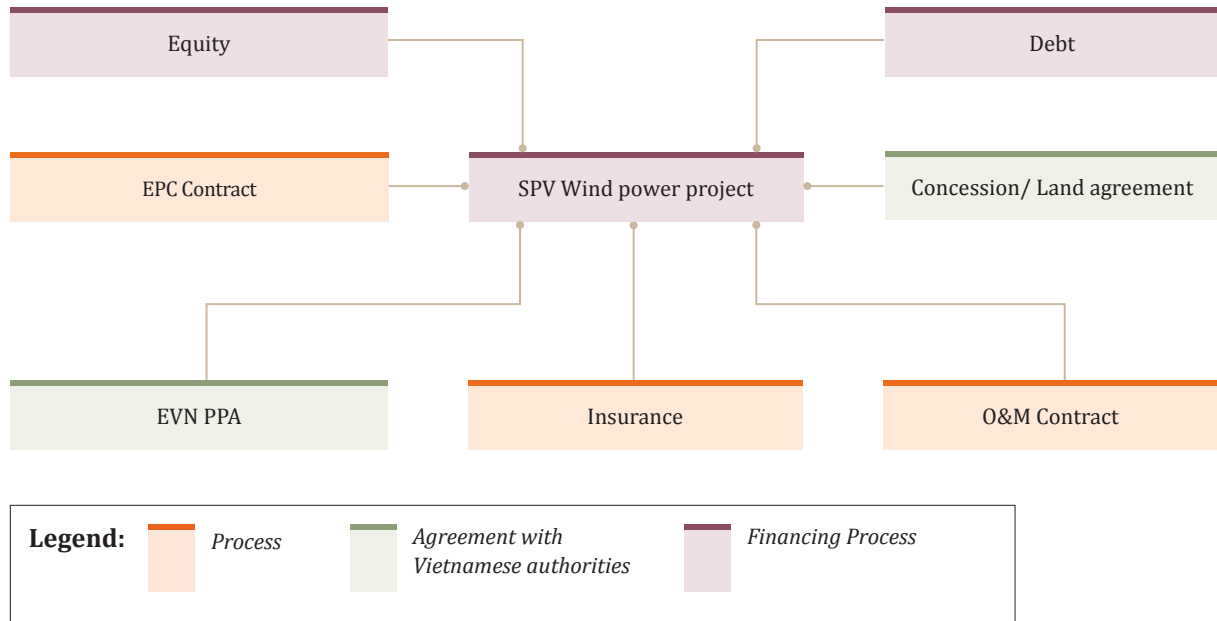
A range of financing structures can be used for wind power projects; the developer must evaluate and determine the appropriate structure for the equity and debt funding.

Most financing structures for wind power projects will involve: 1) the establishment of the SPV; 2) equity from one or more investors, injected directly or via the project developer into a special purpose vehicle (SPV or “project company”); and 3) non-recourse (project finance) or limited-recourse debt from one or more lenders, secured against the assets owned by the SPV.

In case of equity finance, several classes of equity or convertible instruments (preferred shares/ debentures) can be explored. The selection of these would depend upon several factors governed by both the project needs, taxation, and the investor’s limitations/investment philosophy. Sometimes the senior lender of the project may define certain characteristics of the corporate financial structure, and this may also influence the equity structure.

In case of debt finance, for Vietnam, the environment for developing wind power project is yet to mature, and it is challenging to expect a fully non-limited recourse debt for lenders. The appropriate financing structure is influenced by the commercial and financial needs of developers/ investors, as well as the market and incentives available for wind power projects in Vietnam.

1.4. Form of SPV for wind power projects

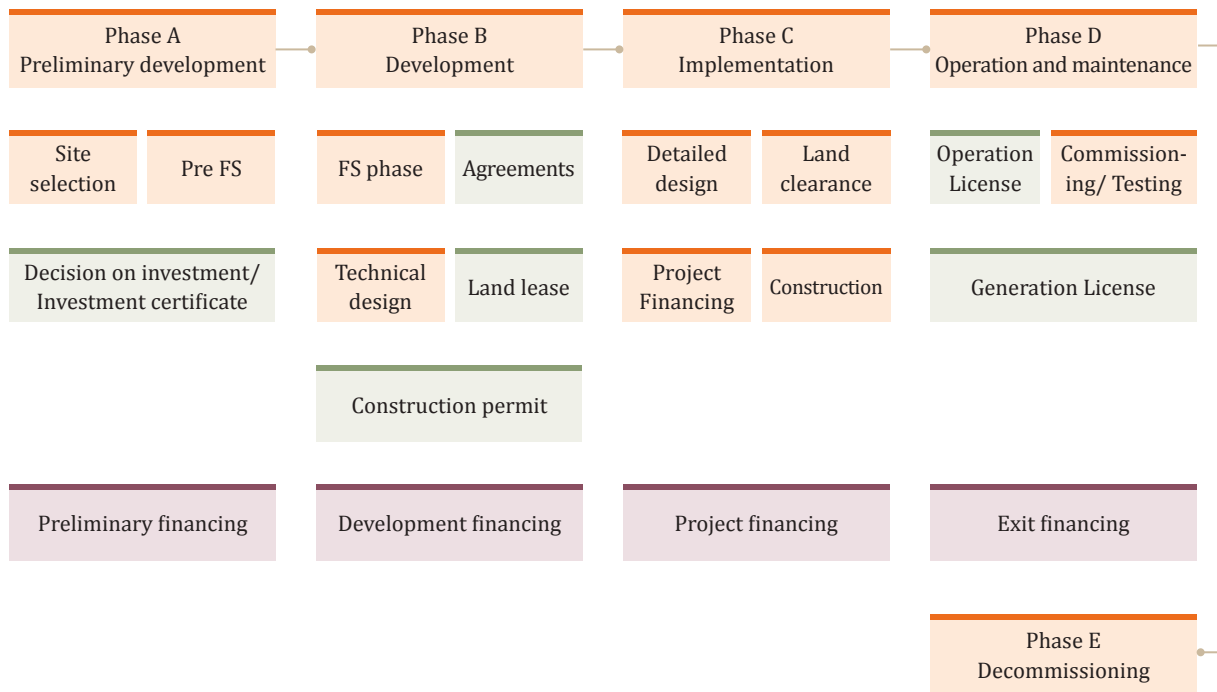


Developers and equity partners typically begin the development process by forming a project company or SPV, which is assigned all the rights and obligations of the project. The SPV owns the project and plant when constructed; signs the EPC contract, O&M contract, and PPA; and is paid project revenues.

Such project structures offer businesses the opportunity to isolate the wind energy projects from the rest of the developer's business activities. The working capital requirements and debt servicing are taken from project cash flows as well (although the sponsor may be required to inject capital in the event that required debt coverage ratios are in danger of being breached). A debt service reserve account is typically required (usually six months of debt service), which functions as the support mechanism on the debt coverage. Covenants are also typically required by the lenders to prevent equity holders from receiving dividends when debt service ratios fall below a specified point. Only when other financial obligations have been met (typically laid out in a highly-specified cash "waterfall") will the equity partners realize their return, often in the form of dividends. SPVs can be governed by local law or may refer to appropriate international law, depending on the requirements of Vietnam in which the project is being developed and the preferences of the shareholders.

2. Overview of financing

Different types of financing are likely to be required at different stages of project development i.e. from Phase A (Preliminary development) to Phase E (Decommission). It is important to note that in order to fund the next stage of the project, the financing arrangements must be made well in advance, prior to the commencement of each stage. It may be the case that an investor may be willing to fund across more than one stage of the project. At early stages (i.e. Phase A - Preliminary development & Phase B - Development), development equity is used to explore and develop a project opportunity. Later at Phase C viz. Implementation, further equity and debt are raised to fund the construction of the project



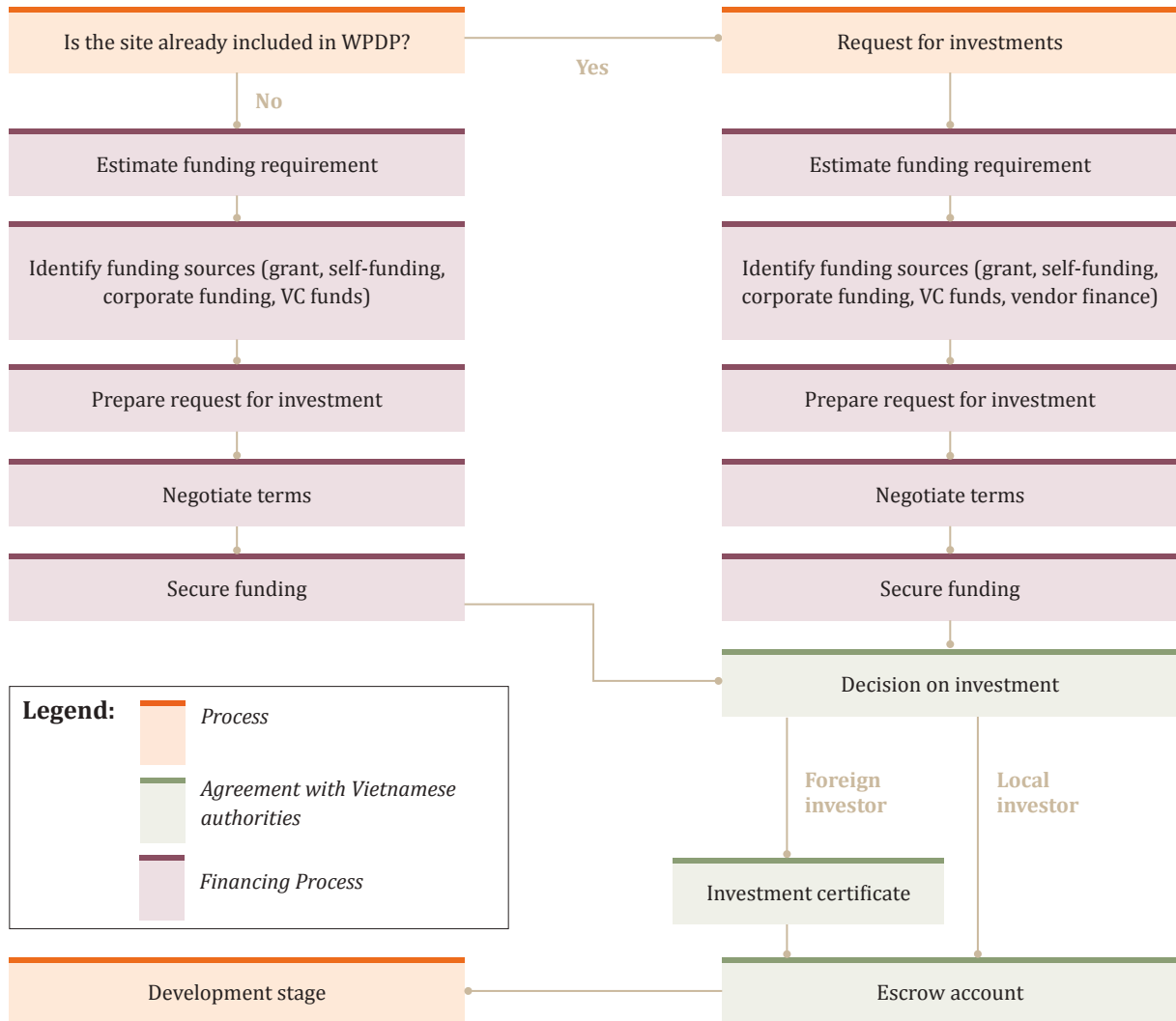
Legend:

- Process
- Agreement with Vietnamese authorities
- Financing Process

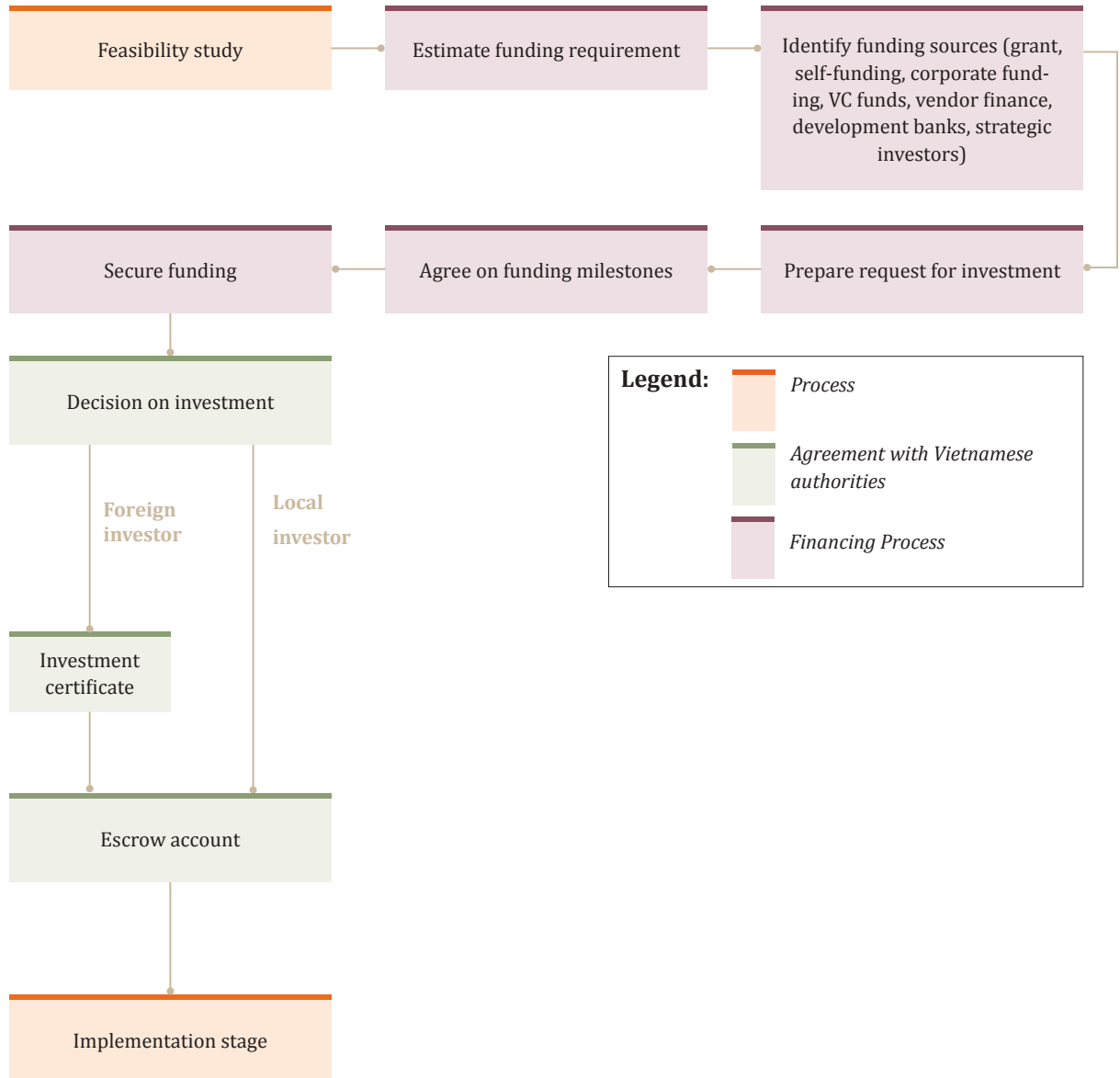


3. Detailed financing charts

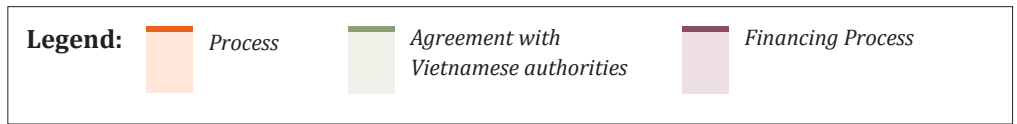
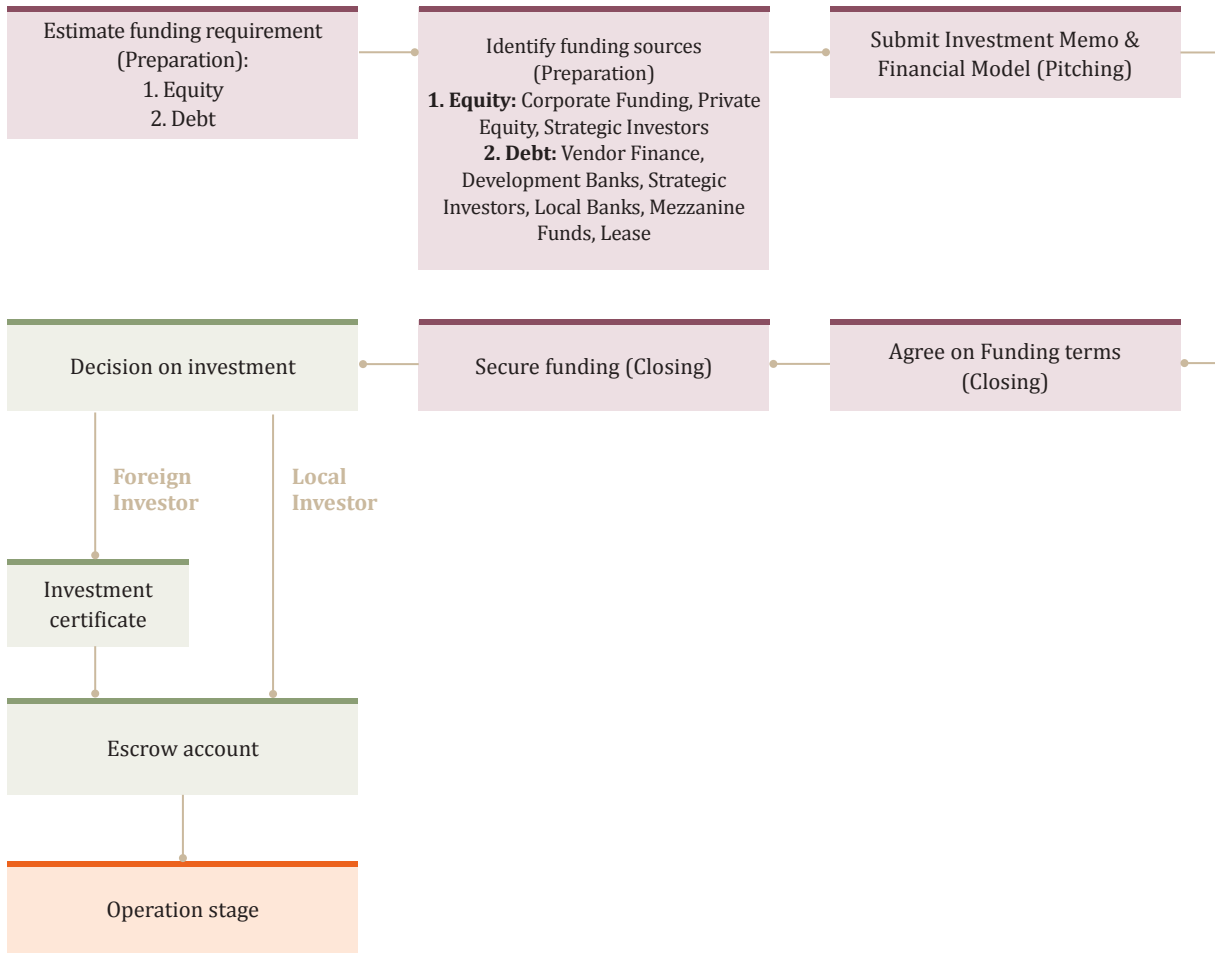
3.1. Phase A: Preliminary financing



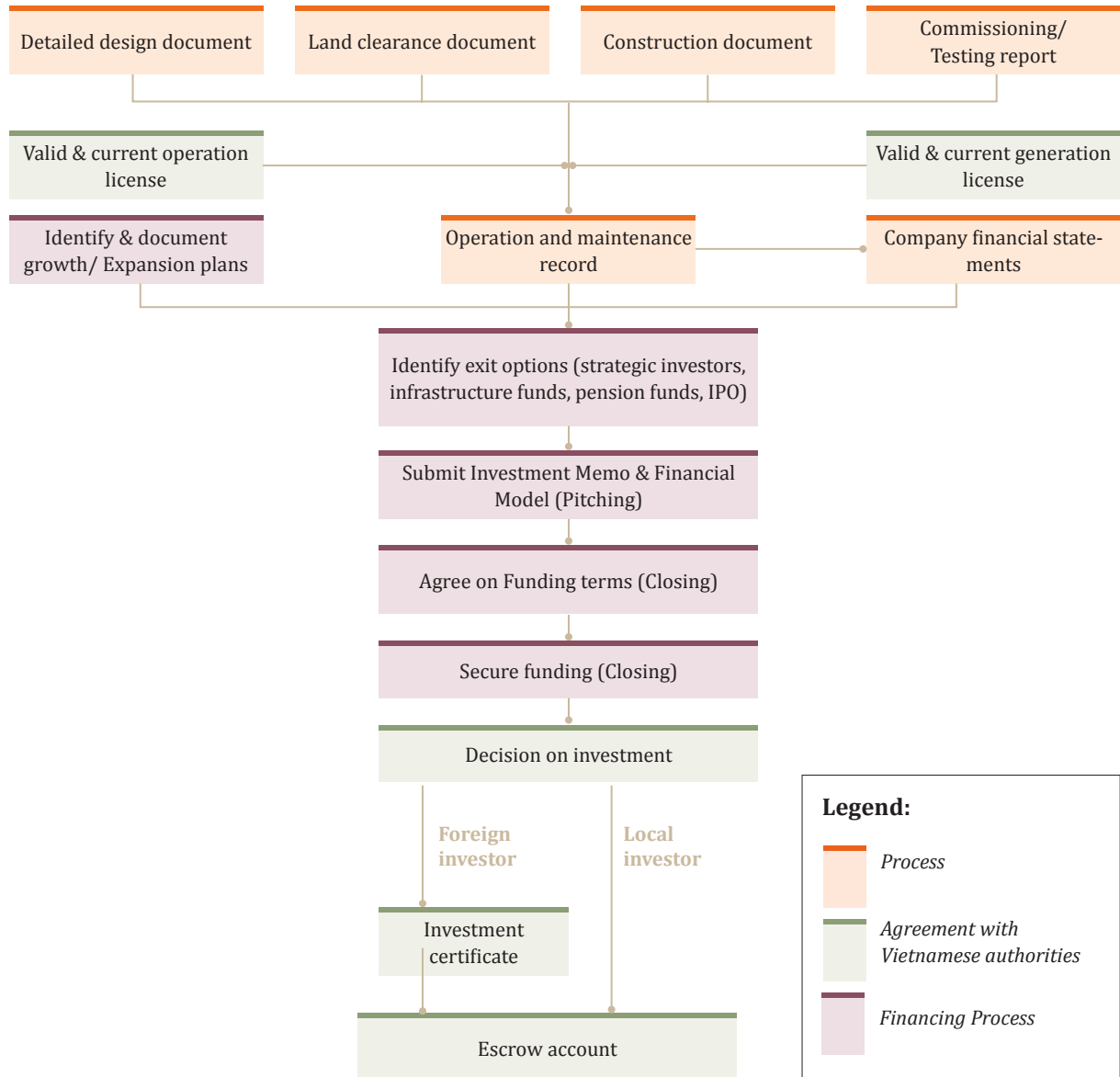
3.2. Phase B: Development financing



3.3. Phase C: Project finance



3.4. Phase D: Exit finance







4. Detailed phase of financing

4.1. Phase A: Preliminary financing

4.1.1. Estimate funding requirement

Description	<p>The developer shall estimate the funding requirement for this stage.</p> <p>The developer must recognize that the funding sources and the funding requirements shall be significantly different depending upon whether the project site(s) is/ are listed in the WPDP or not. In the case that it is not, the fund requirements for this stage of the project may be significantly higher than if it is, which may lead to a longer financing timeline.</p> <p>As a guideline</p> <ul style="list-style-type: none"> - for sites located onshore it is approximately 40,000 – 70,000 US \$/ MW - for sites located offshore it is approximately 50,000 – 85,000 US \$/ MW
Responsible	Developer
Requirements	<ul style="list-style-type: none"> - For projects listed under WPDP, the site must be identified; - For projects not listed under WPDP, the site must be identified and an application to MoIT/ Prime Minister’s office must be submitted.
Regulations	<ul style="list-style-type: none"> - Decision No 37/2011/QĐ-TTg on the mechanism supporting the development of wind power project in Vietnam on Wind Power; Article 6; - Circular No. 32/2012/TT-BCT on Regulations on implementation of wind power projects development and Standardized Power Purchase Agreement for wind power projects, Article 3 & 4.
Validity	n.a.
Fee	By negotiation
Timeline	<ul style="list-style-type: none"> - For projects listed under WPDP: 3-4 months; - For project not listed under WPDP: 6-12 months.
Stage	Beginning of phase A: Same time as the commencement of identification of sites.

4.1.2. Identify funding source

Description	<p>The developer shall identify the appropriate source for funding this stage.</p> <p>The developer must recognize that the funding sources and the funding requirements shall be significantly different depending upon whether the project site(s) is/ are listed in the WPDP or not. The funding sources are the same, except that Vendor financing may not be an option for sites that are not listed under WPDP.</p> <p>Sources may include self-funding, grants (national, international agencies such as DEG/USAID etc.), or corporate funding.</p>
Responsible	Developer
Requirements	<ul style="list-style-type: none"> - List of sites identified; - For sites not listed under WPDP, the description of the complete process with the timelines. - Estimates for funding requirements, backed by proper quotations etc.
Regulations	Bilateral/ Multilateral treaties for Development funding/ grants
Validity	n.a.
Fee	By negotiation
Timeline	<ul style="list-style-type: none"> - For projects listed under WPDP: 3-4 months; - For project not listed under WPDP: 6-12 months.
Stage	Beginning of phase A: Immediately after identification of sites.

4.1.3. Prepare request for investment

Description	The developer shall prepare a detailed request to the fund provider.
Responsible	Developer
Requirements	<ul style="list-style-type: none"> - List of sites identified; - For sites not listed under WPDP, the description of the complete process with the timelines; - Estimates for funding requirements, backed by proper quotations, etc.; - The benefits to the investor such as equity at a discount etc.
Regulations	Bilateral/ Multilateral treaties for Development funding/ grants
Validity	n.a.
Fee	By negotiation
Timeline	2-3 weeks for preparing such a request for investment
Stage	Beginning of phase A: Immediately after identification of the funding sources.

4.1.4. Negotiate terms & secure funding

Description	The developer and the fund provider shall engage discussions to arrive at mutually agreeable terms for the funding.
Responsible	Developer and investor
Requirements	Key terms of funding in terms of: <ul style="list-style-type: none"> a. amount of funding; b. term; c. repayment mode – cash/ shares etc.; d. concessions in the project such as equity at a discount.
Regulations	Government of Vietnam’s Foreign investment guidelines ^{1,2}
Validity	n.a.
Fee	By negotiation
Timeline	4-6 months from submission of request for investment
Stage	Middle of phase A: Immediately after submission of Request for funding.

¹ Frasers Law Company. 2015. New Law on Investment and New Law on Enterprises. Website URL: [http://www.icham.org/sites/default/files/Legal%20Update%20-%20New%20LOI%20and%20LOE%20\(EN\)%20-%202015.pdf](http://www.icham.org/sites/default/files/Legal%20Update%20-%20New%20LOI%20and%20LOE%20(EN)%20-%202015.pdf).

² Vietnam Trade Promotion Agency. 2015. Major Rules and Regulations on Investment. Website URL: http://www.vietrade.gov.vn/en/index.php?option=com_content&view=article&id=800&Itemid=207.

▲ 4.1.5. Practical tips for project risk management ³

Focus Activities	<ul style="list-style-type: none"> - Early project viability assessment (evaluate key constraints such as regulatory requirements, preliminary wind resource assessment, grid interconnect, transport survey, preliminary constructability assessment, etc.); - Creation of project development scope of work, schedule and budget.
Goal	<ul style="list-style-type: none"> - Establish whether the project merits development expenses for the next phase of the project (which will entail significant cost); - Identify project development cash flow requirements.
Note	<p>Development costs for wind projects are high. And given that wind data must be collected for a minimum of 01 year in order to meet IEC standards for bankability, the timeline for project development is long. Add to this the seasonal nature of wind in Vietnam and the unique country risks related to project finance there, and project developers may require early entry of investors to cash flow project development costs.</p> <p>Due to competition between investors who are seeking wind investment opportunities in emerging markets, the market is seeing a trend of investors offering to fulfil this need by investing early stage development capital. However, given that investors are by definition seeking to invest in performing assets (opportunities that generate returns on investment), their cost of capital for development funding is high. As an example, for every USD 1 invested in wind projects, the investor may expect a minimum (levered) 16% return on investment or more. So, for every USD1 spent on early stage project development which is speculative and has risk of not achieving project finance in a given time and which does not yield a return on investment, the investor will see the actual cost of capital as the opportunity cost far in excess of the 16%. In short, investment capital spent prior to project finance is much more expensive than that spent later in the project lifecycle.</p>
Examples	<p>A major, very well funded European investor gave financial support to the development of a wind project in SE Asia. The project developer fully completed development of the project to the point of being “construction ready”, and began discussions with an international IPP (Independent Power Producer) to sell the development project to them. The IPP engaged local, 3rd party legal council to perform due diligence on the purchase of the development project as a first step toward obtaining project finance to begin construction of the wind farm.</p> <p>During legal council’s due diligence process, their overall assessment was that the project was developed extremely well. The wind data was professionally collected in accordance with IEC standards and of good quality, permits were comprehensive, land agreements were all properly recorded. The buyer’s legal council reported it was by far the most professional documentation they had yet reviewed for a wind project in the region. However, on the 2nd day of due diligence they identified a “fatal flaw” in the project – the project was located in a watershed area. Due to land zoning restrictions, construction of a wind farm in this location was firmly prohibited.</p>

Upon learning that the local zoning prohibited construction of a wind farm, the buyer withdrew from the deal. Ultimately the developer and its European investor also abandoned the development, losing millions of euros in project costs in the process.

Lesson learned

Regardless of the source of funding, pre-financing cost of capital for development of wind projects is expensive. It is critical to evaluate the project for “fatal flaws” during the earliest stages of the project, and continuously thereafter in order to minimize risk of wasted capital or wasted time. A developer that has a track record of efficiently using development capital to achieve project finance will be more attractive to investors and more credible to lenders. In a market with as much attention as Vietnam, where project capital is more expensive than in other markets, a single mistake like the example above could make investors wary of future business with such a developer.

³ The information in the Practical Tips for Project Risk Management Table provided courtesy of Aaron Daniels, Email: aaron@modernenergy.co.th, Modern Energy Management Co., Ltd, Unit 1204, 12/F GPF Witthayu Tower B, 93/1 Wireless Road, Lumpini Bangkok, Thailand 10330.

4.2. Phase B: Development financing

4.2.1. Estimate funding requirement

Description	<p>The developer shall estimate the funding requirement for this stage.</p> <p>The developer must recognize that the funding sources and the funding requirements shall be significantly different depending upon site conditions and location.</p> <p>As a guideline</p> <ul style="list-style-type: none"> - for sites located onshore it is approximately 75,000 - 110,000 US \$/ MW; - for sites located offshore it is approximately 90,000 - 145,000 US \$/ MW.
Responsible	Developer
Requirements	<ul style="list-style-type: none"> - Historical information on projects already developed in terms of timelines and budgets; - Identification of typical bottlenecks.
Regulations	All applicable regulations mentioned under Volume I, Section 3.2
Validity	n.a.
Fee	By negotiation
Timeline	4-6 months
Stage	Middle of phase A: Same time as the identification of investors.

4.2.2. Identify funding source

Description	<p>The developer shall identify the appropriate source for funding this stage.</p> <p>The developer must recognize that the funding sources and the funding requirements shall be significantly different depending upon risk profile of the project at this stage.</p>
Responsible	Developer
Requirements	<ul style="list-style-type: none"> - Estimates for funding requirements, backed by proper quotations etc.; - Historical information on projects already developed in terms of timelines and budgets; - Identification of typical bottlenecks.
Regulations	<ul style="list-style-type: none"> - Bilateral/ Multilateral treaties for Development funding/ grants; - All applicable regulations mentioned under Volume I, Section 3.2.
Validity	n.a.
Fee	By negotiation
Timeline	n.a.
Stage	At the middle of Phase A: 4-6 months

4.2.3. Prepare request for investment

Description	The developer shall prepare a detailed request to the fund provider.
Responsible	Developer
Requirements	<ul style="list-style-type: none"> - List of sites identified; - Estimates for funding requirements, backed by proper quotations etc.; - The benefits to the investor such as equity at a discount etc.
Regulations	<ul style="list-style-type: none"> - Bilateral/ Multilateral treaties for Development funding/ grants; - All applicable regulations mentioned under Volume I, Section 3.2.
Validity	n.a.
Fee	By negotiation
Timeline	n.a.
Stage	At the middle of Phase A: 4-6 months.

4.2.4. Agree on funding milestones & secure funding

Description	The developer and the fund provider shall engage in discussions to arrive at mutually agreeable terms for the funding.
Responsible	Developer and investor
Requirements	Key terms of funding in terms of: <ul style="list-style-type: none"> a. amount of funding; b. milestones for disbursement of funds (usually linked to key Agreements with Vietnamese Authorities as shown in Volume I, Section 2.2); c. term; d. repayment mode – cash/shares etc.; e. concessions in the project such as equity at a discount.
Regulations	Government of Vietnam’s Foreign investment guidelines ^{4,5}
Validity	n.a.
Fee	By negotiation
Timeline	4-6 months from submission of request for investment
Stage	Middle of phase A: Immediately after submission of Request for funding.

⁴ Frasers Law Company. 2015. New Law on Investment and New Law on Enterprises. Website URL: [http://www.icham.org/sites/default/files/Legal%20Update%20-%20New%20LOI%20and%20LOE%20\(EN\)%20-%202015.pdf](http://www.icham.org/sites/default/files/Legal%20Update%20-%20New%20LOI%20and%20LOE%20(EN)%20-%202015.pdf).

⁵ Vietnam Trade Promotion Agency. 2015. Major Rules and Regulations on Investment. Website URL: http://www.vietrade.gov.vn/en/index.php?option=com_content&view=article&id=800&Itemid=207.

▲ 4.2.5. Practical tips for project risk management ⁶

Focus Activities	<ul style="list-style-type: none"> - Reduction of CAPEX (Capital Expense) and OPEX (Operations Expense); - Financial model optimization – consider NPV (Net Present Value), IRR (Internal Rate of Return) and DSCR (Debt Service Coverage Ratio); - Competitive construction contract terms and conditions (including warranties, securities and liability caps); - Reasonable project risk profile (from the perspective of the Lender).
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Goal	Establish the bankability of the project
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Note	<p>Wind farms typically utilize “non-recourse project finance”. This means that the lender is entitled to repayment of the loan from the profits of the project alone, not from any assets from the project sponsor. As such, banks base their decision to lend on a project almost exclusively on their assessment of project risk. During the lenders due diligence process leading up to funding of the construction of the project, lenders will investigate whether all project risks have been identified and properly mitigated. (Note: lenders prefer to see project risks transferred to another party such as the EPC contractor). Any risk that is not properly mitigated must have an allocation in project contingency to cover the possibility of that risk happening (which increases the project CAPEX (Capital Expense). Additionally, lenders will typically assess a risk premium on the cost of debt as a function of the interest rate on the loan (better projects may have a lower interest rate than others).</p>
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A constraint every wind farm developer in Vietnam must deal with is the relatively conservative Feed in Tariff (FiT) combined with higher cost of capital. A developer with thorough attention to mitigating project risks will make its project more attractive for project finance and may even be able to reduce the risk premium attached to debt capital.

Examples	<p>During the negotiations between a developer (before project finance) of a 60 MW wind farm and the EPC Contractor; for project in SE Asia, while the EPC contractor (the EPC construction company itself) had wind construction experience, the management team for this particular project did not have any wind farm experience at all. As a result, two key issues surfaced:</p> <ol style="list-style-type: none"> 1. The EPC contractor’s project execution plan was inefficient, of poor quality and failed to address construction risks. 2. The wind turbine supplier (who was a subcontractor to the EPC contractor) required 100% payment of the wind turbines at ExWorks (wind turbine supply is typically equivalent to approximately 60% of the total EPC project value).
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The developer hired a competent third party owners engineer, whose team worked with the EPC contractor to help them optimize the EPC construction project from their point of view. Helping them to be more efficient and reduce project cost was in fact beneficial to both the EPC contractor and the developer we represented. Our two focus areas were:

-
1. Optimize the construction execution plan by introducing crane sequencing that increased wind turbine installation rates from 1 turbine/ week to 2 turbines/ week. This resulted in reducing the cost of the crane (the main crane representing approximately 1 million USD/ 3 months) and reducing the developer's exposure to risk of cost overruns due to wind delays during installation.
 2. Change the originally proposed front-loading of payment cash flows (100% payment of wind turbines at ExWorks) to more reasonable and market standard back loading. This resulted in a more equitable risk balance between EPC contractor and developer as well as reduced IDC (Interest During Construction).

Two key financial results the third party owner's engineer team achieved on this project were:

- An increase in project levered IRR of 1.39% due to back-loading of payment cash flows, reduction of crane costs and the resulting reduction of IDC (Interest During Construction);
- A reduction of DSCR of 0.1% due to the Lender's increased confidence in project risk management strategy.

Lesson learned

Project developers typically focus on risks related to technical and permit requirements of the project. However, where the most value can be created (and money saved) is in how technical requirements "mesh" or fit with commercial and financial provisions for the project. Developers that can effectively bridge technical with commercial and finance can achieve greater financial returns as well as enjoy the benefits of demonstrating superior risk management to project lenders (such benefits being a faster, more efficient financial close process, lower cost of capital and lower DSCR).

⁶ The information in the Practical Tips for Project Risk Management Table provided courtesy of Aaron Daniels, Email: aaron@modernenergy.co.th, Modern Energy Management Co., Ltd, Unit 1204, 12/F GPF Witthayu Tower B, 93/1 Wireless Road, Lumpini Bangkok, Thailand 10330.

4.3. Phase C: Project finance

4.3.1. Estimate funding requirement

Description

The developer shall estimate the funding requirement for entire construction, commissioning, testing, certification and other requirements of the project until it starts to generate revenues.

The developer must recognize that the funding sources and the funding requirements shall be significantly different depending upon project and thus also the split between the equity and debt.

As a guideline please make sure that all of the following costs are included as reference:

- EPC costs (international equipment): for sites located onshore it is approximately 1,700,000 – 2,000,000 US \$/ MW; for sites located offshore it is approximately 2,000,000 – 2,600,000 US \$/ MW;
- Due diligence costs for equity funding (legal, technical, others);
- Due diligence costs for debt funding (legal, technical, others)
- Land purchase/ lease costs;
- Owner's engineers/ project management team costs (include costs for site security etc.);
- Interest during construction (typical interest rates by Vietnam banks is 8% - 10%);
- Construction all risk covered insurance costs (4,300 – 5,800 \$/ MW);
- Bank charges for debt (0.5% – 1% of the debt);
- Lender's engineers costs;
- Costs for permits and licences (e.g. large masts/ blades may need special permits for transportation);
- Hardware/ software costs for operations (including HR/ accounting etc.);
- Miscellaneous costs (owner's management fees, travel for inspection/ meetings, third party fees for reporting/ inspection etc.).

Responsible

Developer

Requirements

- A complete investment memo;
- A complete financial model;
- Negotiated EPC contract with complete commercial terms, guarantees, warranties etc.;
- Complete estimates owner's engineers/ project management teams costs;
- Quotation from third party service providers for due diligence like Engineering consultants, Legal firms etc.

	<ul style="list-style-type: none"> - Quotation from Insurance brokers; - Quotations for all miscellaneous costs/ other costs that are used in the financial model; - Identify various financing options for the project (i.e. grant, equity ,debt, vendor financing, financial lease, mezzanine, ODA financing); - Host all documentations in the data room and establish data room management system.
Regulations	All applicable Financial, Investment Banking, Foreign investment regulations applicable in Vietnam
Validity	n.a.
Fee	By negotiation
Timeline	3-4 months
Stage	Middle of phase A: Same time as the identification of investors.

4.3.2. Identify funding source

Description	<p>The developer shall identify the appropriate source for funding this stage.</p> <p>The developer must recognize that the funding sources and the funding requirements shall be significantly different depending upon the project and hence it is important to shortlist the investors that would best match the needs of the project.</p> <p>Guidelines:</p> <p>Each investor may have different philosophy for investment and hence it is important to research the following from their past investments made/ discussions with them</p> <ul style="list-style-type: none"> - Range of amount invested; - Range of expected/ actual returns; - Exits made and types of exits; - Shareholding preference (majority control, limitations on shareholding percentage, etc.); - Whether invested all by themselves or prefer to invest alongside others. In case of the latter, who have they typically worked with in the past; - Guarantees/ collaterals expected from the project; - Management control requirements; - Sector/ geographical preferences.
Responsible	Developer
Requirements	<ul style="list-style-type: none"> - Background research on each of the investors; - Teasers must be ready and sent out to seek their interest; - Preliminary discussions with investors to assess interest.
Regulations	All applicable Financial, Investment Banking, Foreign investment regulations applicable in Vietnam
Validity	n.a.
Fee	By negotiation
Timeline	n.a.
Stage	At the end of Phase A: 3-4 months.

4.3.3. Submit Investment Memorandum and Financial Model

Description	<p>The developer shall prepare a detailed Investment Memorandum and Financial Model as a reference document to all interested investors.</p> <p>Guidelines:</p> <ul style="list-style-type: none"> - Refer to Section 6.2 for Investment Memorandum; - All assumptions in the Financial Model must be fully backed up with supporting evidence.
Responsible	Developer
Requirements	<ul style="list-style-type: none"> - Signed NDA with the investor (Refer Section 6.4); - Detailed Investment Memorandum; - Detailed Financial Model; - All supporting back up documents to the extent possible (Refer Section 6.7).
Regulations	All applicable Financial, Investment Banking, Foreign investment regulations applicable in Vietnam
Validity	n.a.
Fee	By negotiation
Timeline	n.a.
Stage	At the end of Phase A: 3-4 months

4.3.4. Agree on Funding terms

Description	<p>The developer and the fund provider shall engage in discussions to arrive at mutually agreeable terms for the funding.</p> <p>Guidelines:</p> <ul style="list-style-type: none"> - Please refer to guidelines on Understanding the key components of term sheet in Section 6.5; - Vendor financing may be considered similar to debt financing and may come with requirements for providing collateral/guarantees by the project company. The developer needs to consider the possibility of complying with such request carefully.
Responsible	Developer and investor
Requirements	<ul style="list-style-type: none"> - A term sheet from the preferred investor; - Terms sheets from other investors for comparison; - Negotiation of terms and coming to mutually agreed terms; - Preparation for due diligence – shortlisting of independent engineer/ lender technical advisor, legal advisors, other third parties; - A complete list of conditions precedent/ subsequent for disbursement of funds to take effect.
Regulations	All applicable Financial, Investment Banking, Foreign investment regulations applicable in Vietnam
Validity	n.a.
Fee	By negotiation
Timeline	n.a.
Stage	Could be at the end of Phase A or latest middle of Phase B: 6-8 months.

4.3.5. Secure funding

Description	<p>The developer and the fund provider shall engage in activities to complete all the requirements for the disbursement of the funds.</p> <p>Guidelines:</p> <ul style="list-style-type: none"> - Usually debt is not disbursed until all equity has been disbursed/ paid into an escrow account; - The complete list of mutually agreed conditions precedent/ subsequent, to be completed for the disbursement of the funds.
Responsible	Developer and investor
Requirements	<ul style="list-style-type: none"> - Completion of legal/ technical due diligence; - Completion of financial audit of past years operations; - Completion of all regulatory filings; - Valid licences and permits as required at this stage of the project; - Furnishing all collaterals as required.
Regulations	All applicable Financial, Investment Banking, Foreign investment regulations applicable in Vietnam
Validity	n.a.
Fee	By negotiation
Timeline	n.a.
Stage	Could be at the middle of Phase B or latest end of Phase B: 3-4 months.

▲ 4.3.6. Practical Tips for Project Risk Management ⁷

Focus Activities	<ul style="list-style-type: none"> - Timely start of revenue (at Commercial Operations); - Quality and warranty management to ensure predictable cash flows for the 20-25 year lifespan of the project.
Goal	<ul style="list-style-type: none"> - Reliable cash flows for the 20-25 year lifespan of the project; - CAPEX and OPEX stability.
Note	<p>Project IRR is extremely sensitive to cash flows at the start of the project operational lifespan. From the equity investor's point of view, a delay in COD (Commercial Operations Date) of just 3 months can have a significant impact to project levered IRR. From the lender's perspective, combined the variability of wind (P50 vs. P90), a delay in operations cash flows could jeopardize the project's ability to begin payments on the loan during the first year of operations.</p> <p>Ensuring that project cash flows start on time and as predicted is critical to all project finance stakeholders. From the developer's perspective, establishing project cash flows is critical to demonstrating a track record of trust and dependability in the market, which will make attracting development capital and project finance for future projects relatively easier.</p>
Examples	<p>An independent team of engineering experts was engaged by a project investor to evaluate a catastrophic failure of a wind turbine on a 50 MW wind project in SE Asia. The wind farm was in its first year of operations when this single wind turbine fell over in the farmer's field below. Project insurers requested an RCA (Root Cause Analysis), which revealed two key quality defects:</p> <ol style="list-style-type: none"> 1. Design defect: the foundation designer used ACI (American Concrete Institute) design standards (which are appropriate for static load foundations such as buildings or bridges) rather than IEC (International Electrotechnical Commission) design standards, which are appropriate for dynamic load foundations (foundations that accommodate a moving load) which are required for wind turbines. With dynamic loads not taken into consideration, a "stress point" between the foundation pedestal and base section was created. 2. Construction defect: a "cold-joint" was created between the foundation pedestal and base sections due to improper treatment of the concrete in joint between the two sections, presenting a structural weakness in this area. <p>The combination of these two defects resulted in the foundation pedestal breaking off of the base section and the wind turbine fell over.</p> <p>Project insurance compensated the owners for the replacement of the single, affected wind turbine. However, insurers were quick to point out that they insure against unknown risks. The quality issues discovered from this incident were now a known risk and therefore cover of future, related loss on other wind turbines was excluded from project owner's insurance cover. In short, the project owners must proactively repair all the other foundations on the project at their own risk and expense, and any subsequent wind turbines that may fall over due to this issue were excluded from insurance cover.</p>

Loss of revenue during repairs resulted in a 4.9 mUSD cost to the project company (this does not include the cost of repairs themselves, which were estimated to be another additional 4 mUSD). This loss of revenue resulted in reduction of project levered IRR of -1.61%.

Lesson learned

Project investors should contemplate the value of a potential 4.9 mUSD loss in revenue, resulting in 1.61% reduction in project IRR. Wind projects are notorious for cost overruns due to delays and quality issues, and project investors are quite knowledgeable about risks such as this. A project developer in an emerging market like Vietnam can set their project apart from competitors – and increase the value of the project in the process - by engaging an experienced project team to identify and manage project risk.

An experienced Owner’s engineer with expertise in wind farm construction in emerging markets (preferably with experience in engineering and construction methodology as well as business practices in SE Asia) would have detected both the design defect as well as the construction defect. Remedying defects before they cost project investors is key to reducing project risk and cost. In this case, the developer’s choice not to hire an experienced Owner’s engineer cost investors nearly 10 mUSD in losses.

As a “back-stop” to this and to ensure business case certainty to project finance stakeholders, further risk management, considerations should have included:

- EPC Contract provisions:
 - Latent and serial defects warranty provisions – would have allowed warranty claims for the foundations affected by the defects but not yet damaged;
 - Callable securities during the warranty period – in emerging markets, warranties can sometimes be only as strong as the leverage the owner has to enforce them;
 - Owner’s engineer review of design documentation – an experienced Owner’s engineer may have more wind experience than the EPC contractor. This experience should be utilized to try to avoid quality defects;
 - Owner’s engineer access and acceptance of construction activities – tying owner access and approval to payment milestones establishes control over the EPC contractor in managing quality.
 - Project insurance provisions:
 - LEG3 cover (London Engineer Group) - insures against physical loss or damage related to defects in design, material and workmanship;
 - Professional indemnity cover - insures against purely financial losses such as required, proactive repairs of foundations that have not yet failed in the example above;
 - Latent and serial defect insurance cover – provided that latent and serial defects warranties are included from the EPC contractor, insurance provisions can be purchased to cover losses that exceed the contract liability cap;
 - Business interruption cover - insures carrying costs while the plant is not operational due to an insured event.
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⁷ The information in the Practical Tips for Project Risk Management Table provided courtesy of Aaron Daniels, email: aaron@modernenergy.co.th, Modern Energy Management Co., Ltd, Unit 1204, 12/F GPF Witthayu Tower B, 93/1 Wireless Road, Lumpini Bangkok, Thailand 10330.

4.4. Phase D: Exit finance

4.4.1. Documentation

Description

The developer shall estimate make all arrangements to document all activities/Licences and Permits/ Legal matters, throughout the project right from the Preliminary stage to the Commissioning of the project and then beyond that in the Operation and Maintenance stage in terms of the Generation/ Maintenance records and complete financial statements.

The developer must recognize that maintaining a complete log of all activities throughout the life of the project is a very necessary preparation for the exit financing.

Guideline:

It is recommended to store all this information on a server for easy uploading and access.

Responsible

Developer/ Operator

Requirements

- All detailed design documents;
- All land clearance related documents;
- Signed EPC contract with complete commercial terms, guarantees, warranties etc.;
- Complete records expenses for owner's engineers/ project management teams spent during construction;
- Complete records of all third party service providers expenses for due diligence like Engineering consultants, Legal firms etc.;
- Complete records of Insurances (during construction and operation), together with all claims made/ refunds etc.;
- Complete records of commissioning and testing reports;
- Records of licences and permits together with renewals and history;
- Complete log of daily/ monthly/ annual generation, targeted versus actuals;
- List of contracts of all service providers (O&M and others);
- HR records;
- Maintenance records;
- Company financial records using a reliable software system;
- All company secretarial records of shareholder's meetings, Board of Director's meetings etc.

Regulations	All applicable Financial, Accounting, Legal and regulatory requirements of Vietnam
Validity	n.a.
Fee	By negotiation
Timeline	Ongoing
Stage	Starting from Phase A, ongoing. Documentation is a continuous process and must be continued throughout the project.

4.4.2. Identify & document growth/ expansion plans

Description	<p>The developer must identify opportunities for growth or expansion of the company. This could be either by enhancing the current capacity of wind projects or expand by mergers and acquisitions.</p> <p>Guidelines:</p> <ul style="list-style-type: none"> - Expansion can be at current location or at other locations in Vietnam in the Wind Energy Sector; - Expansion can be by acquiring operating wind assets in Vietnam and other countries; - Growth can be achieved by developing/ acquiring other projects in the renewable energy sector; - The developer can leverage on their key skills to identify such opportunities for growth/ expansion.
Responsible	Developer
Requirements	<ul style="list-style-type: none"> - Identification of opportunities in Vietnam and other countries; - Identification of key skills of the developer that have led to their success.
Regulations	All applicable Financial, Investment Banking, Foreign investment, Business related regulations applicable in Vietnam
Validity	n.a.
Fee	By negotiation
Timeline	n.a.
Stage	During end of Phase C or Phase D: 3-4 months

4.4.3. Submit Investment memorandum and financial model

Description	<p>The developer shall prepare a detailed Investment memorandum and financial model as a reference document to all interested investors.</p> <p>Guidelines:</p> <ul style="list-style-type: none"> - Refer to Section 6.2 for Investment memorandum; - All assumptions in the Financial model must be fully backed up with supporting evidence.
Responsible	Developer
Requirements	<ul style="list-style-type: none"> - Signed NDA with the investor (Refer Section 6.4); - Detailed Investment Memorandum; - Detailed Financial Model; - All supporting back up documents to the extent possible (Refer Section 6.7 and additionally as mentioned above in Volume I, Section 3.4.1).
Regulations	All applicable Financial, Investment Banking, Foreign investment, Business regulations applicable in Vietnam
Validity	n.a.
Fee	By negotiation
Timeline	n.a.
Stage	During end of Phase C or Phase D: 3-4 months.

4.4.4. Agree on funding terms

Description	The developer and the fund provider shall engage in discussions to arrive at mutually agreeable terms for the funding. Guideline: <ul style="list-style-type: none"> - Please refer to guidelines on Understanding the key components of term sheet in Section 6.5; - A large part of the discussions shall revolve around the valuation of the business.
Responsible	Developer and investor
Requirements	<ul style="list-style-type: none"> - A term sheet from the preferred investor; - Terms sheets from other investors for comparison; - Negotiation of terms and coming to mutually agreed terms; - Preparation for due diligence – shortlisting of independent engineer/ lender technical advisor, legal advisors, other third parties; - A complete list of conditions precedent/ subsequent for disbursement of funds to take effect.
Regulations	All applicable Financial, Investment Banking, Foreign investment. Stock Exchange regulations as applicable in Vietnam
Validity	n.a.
Fee	By negotiation
Timeline	n.a.
Stage	After a minimum period of one year of operation: 6-8 months.

4.4.5. Secure funding

Description	<p>The developer and the fund provider shall engage in activities to complete all the requirements for the disbursement of the funds.</p> <p>Guideline:</p> <ul style="list-style-type: none"> - Usually debt is not disbursed until all equity has been disbursed/ paid into an escrow account; - The complete list of mutually agreed conditions precedent/ subsequent, to be completed for the disbursement of the funds.
Responsible	Developer and investor
Requirements	<ul style="list-style-type: none"> - Completion of legal/ technical due diligence; - Completion of financial audit of past years operations; - Completion of all regulatory filings; - Valid licences and permits as required at this stage of the project; - Furnishing all collaterals as required.
Regulations	All applicable Financial, Investment Banking, Foreign investment, Business, Stock Exchange regulations as applicable in Vietnam
Validity	n.a.
Fee	By negotiation
Timeline	n.a.
Stage	At least after one year of operations and/ or depending upon Stock Exchange of Vietnam regulations if applicable: 3-4 months.

▲ 4.4.6. Practical tips for project risk management ⁸

Focus Activities	<ul style="list-style-type: none"> - Increase project cash flows; - Warranty management to ensure guaranteed availability and 20-25 year project lifespan.
Goal	Predictable cash flows for the lifespan of the project
Note	Asset management of a wind farm can be complicated. Subtle differences in O&M contractual terms such as “wind farm availability”, “wind turbine availability” and “commercial availability” can conceal from the owner loss of revenue. Add to this the limitations of SCADA (Supervisory Control and Data Acquisition) functionality, loss of revenue is very often overlooked by project owners.
Examples	<p>An expert third party engineers team was engaged by a project owner to perform an analysis of repeated substation faults of a wind farm during monsoon season. As loss of grid was an Owner risk (as is common on wind projects), the aggregate, annual loss of availability cost the owner approximately 1mUSD in loss of revenue during the first year of operations.</p> <p>During the course of the expert’s investigation, they determined that the repeated substation trips were caused by lightning strikes to the wind farm’s transmission lines during the monsoon season. These lightning strikes typically happened in the early evening (around 6 pm) every day. The OEM (Original Equipment Manufacturer’s) Operations team contractual working hours were from 9 am – 5 pm weekdays, meaning nightly loss of availability could be as much as 15 hours after each grid outage (longer on weekends).</p> <p>The investigation also revealed that the lightning strikes resulted in only a momentary trip (milliseconds) before the off taker’s substation automatically reset. MEM also determined the duration of the substation trip was well within the wind turbine’s low voltage ride through (LVRT) threshold – meaning the wind turbines should not trip when the substation tripped for this short amount of time, but rather should have “ridden through” the grid event seamlessly. This indicated a quality defect in the LVRT of the wind turbines.</p> <p>However, as the last event recorded by the wind farm SCADA server was a grid event prior to losing power, while technically true, it did not detect the quality defect in the wind turbine LVRT feature. Therefore, the loss of availability was allocated to the Owner 100%. This resulted in loss of revenue in excess of 1 mUSD the first year operations. In fact, this loss of revenue should have fallen entirely under the OEM’s availability warranty. And if it had, the OEM would have been motivated to remedy this quality defect.</p>
Lesson learned	Typically, wind farm O&M teams in emerging markets are staffed with local employees. These local O&M team members may not have the experience to detect complicated operations management issues such as the example above. Additionally, the OEM will likely not bring to the attention of the owner defects in their services that could lead to costly warranty claims. Now consider that Vietnam has very pronounced seasonal winds with strong North- East wind from November to March. Loss of availability between November and March may impact annual energy yield more than loss of availability during other times of the year.

An experienced wind farm asset manager (preferably with experience in SE Asia) should be engaged during the first 02 years of wind farm operations to transfer wind farm management know-how to the owner's asset management team, and to manage the O&M warranty. Additionally, industry best practices include daily review and (potentially) re-allocation of wind farm down time be agreed between the owner and O&M contractor to ensure availability warranty claims are captured and recorded while the event is fresh and before weekly and monthly operations reporting takes place. This will ensure that warranty claims are small and manageable rather than waiting until a year (or more) of losses related to availability warranty claims must be filed. In the case above, daily claims in the range of 1,000's of USD would be far easier to successfully recover than a single, annual claim of over 1 mUSD.

⁸ The information in the Practical Tips for Project Risk Management Table provided courtesy of Aaron Daniels, Email: aaron@modernenergy.co.th, Modern Energy Management Co., Ltd, Unit 1204, 12/F GPF Witthayu Tower B, 93/1 Wireless Road, Lumpini Bangkok, Thailand 10330.





5. Tax exemption/ reduction and duties

A wind power project could be subjected to several types of taxes in Vietnam, and a clear evaluation of this is essential in structuring and operating a project.⁹ These may include the following types of taxes with potential exemptions outlined in this section.

1. **License Tax:** a tax imposed on entities that conduct business activities in Vietnam and are paid by the business entities on an annual basis.
2. **Value Added Tax (VAT):** an indirect tax (normally at 10%) imposed on goods, services that are traded, produced and consumed in Vietnam. VAT shall be applicable to both input and output of this project. Company will pay the difference between output VAT and input VAT.
3. **Corporate Income Tax (CIT):** a tax imposed on income of business entities. Currently the standard tax rate from 2016 is 20%.
4. **Personal Income Tax (PIT):** a tax imposed on income of individuals working for and receive employment income from project company. Maximum progressive rate is 35%.
5. **Foreign Contractor Withholding Tax (FCWT):** a tax collection mechanism which is applicable to foreign organizations and individuals producing or trading in Vietnam or having income arising in Vietnam on the basis of a contract or agreement with a Vietnamese. FCWT will likely apply to foreign entities which supply goods/ machinery and equipment (M&E), and services to the project company. FCWT rates range from 0.5% to 10% depending on type of incomes received by the foreign entities.
6. **Import duty:** duty imposed on value of imported goods for the operations of the project company. Import duties for certain goods shall be exempted if qualified for the conditions. Preferential duties rates shall be applied if the imported goods are originated (Certificate of Origin is required) from countries in the treaties that Vietnam participates. Standard duty rates shall follow the Vietnamese Customs Tariff issued by the Ministry of Finance.
7. **Natural Resource Tax:** a tax impose on the consumption of natural resource, including the consumption of water. In case the power project uses water to cool down their system, natural resource tax should be applied.

Based on current regulations, tax exemption/reduction that could be available for a wind power project may be summarized as follows:

5.1. License Tax

No special exemption.

5.2. Value Added Tax

No special exemption.

5.3. Corporate Income Tax

Wind power could be considered as **renewable energy**. A renewable energy project should be subjected to highest CIT incentives as follows:

4 years of CIT exemption, 5% CIT for the next 9 years, 10% CIT for the next 2 years and 20% CIT for rest of project life cycle.

5.4. Personal Income Tax

There is no special PIT incentives applicable to a wind power project. However, it should be noted that a wind power project may be funded by ODA or located in an Economic Zone, which may result in several PIT beneficial treatments as follows:

- If the project is funded by ODA, then expatriates come to Vietnam to perform the ODA project could be subject to PIT exemption;
- If the project is located at an Economic Zone, then individuals working at Economic Zone could be subject to 50% PIT reduction.

5.5. Foreign Contractor Withholding Tax

No special exemption.

5.6. Import Duty

Under regulations on customs and import/ export duty, wind power project is specially encouraged project, which could be subjected to the following exemption:

- Duty exemption on goods imported to form fix assets of the project (*goods imported at project construction and development stage*), including:
 - Machinery and equipment that suit the field, target, and scale of the project and comply with regulations on fixed assets;
 - Means of transport in a technological line that cannot be manufactured in Vietnam; worker shuttle vehicles including passenger vehicles with 24 seats or more and watercraft;
 - Components, parts, detachable parts, fittings, molds, accessories that are used for assembly of complete machinery, equipment, and means of transport eligible for duty exemption as mentioned above;
 - Materials/supplies that cannot be manufactured in Vietnam used for manufacturing of machinery and equipment as mentioned above;
 - Building materials that cannot be manufactured in Vietnam.
- Duty exemption on materials/supplies and components that cannot be manufactured in Vietnam imported during 05 years from project commencement date to serve the manufacturing purpose.

Besides, if the project is funded by ODA, the duty exemption should also be applied to M&E temporarily imported by contractor to perform the construction then re-exported to overseas.

However please note that in case the project imports materials and supplies to build the equipment, only materials and supplies that cannot be produced in Vietnam could be subject to duty exemption.

5.7. Natural Resource Tax

No special exemption.

Of note:

If the project is performed under a special agreement at Governmental level, then there could be special benefits approved by the Government, which could be much higher than the tax incentives stipulated under regulations.

However, please note that in case the project imports materials and supplies to build the equipment, only materials and supplies that cannot be produced in Vietnam could be subject to duty exemption.

To claim these exemptions, the following processes are suggested:

CIT exemption can be self-assessed and self-applied by the project without any registration. However, for other taxes, exemption must be subject to registration. To be more specific:

- **Personal Income Tax:** If the project is ODA-funded, then in order to enjoy PIT exemption, the expatriates must be certified by the government body that is in charge of managing the fund, and must register with provincial tax authority managing the project.
- **Import duty:** In order to enjoy duty exemption, enterprises must register a List of imported goods to enjoy duty exemption, and such list must be registered before importation.
- **Value Added Tax:** There is no special treatment for import VAT of wind power project. Input VAT paid on equipment could be recovered by offsetting with output VAT. Outstanding input VAT not yet fully offset with output could be carried forward to next period. In some cases, enterprises may apply for VAT refund, if certain conditions are satisfied.

Other key points on taxation are:

- There are difference in tax incentives between national and international developers;
- The regulation is the same in every province, yet there may be cases where the interpretation of provincial tax authority is not consistent. In this case, the project company may seek a ruling from General Department of Taxation/ Customs for a consensus interpretation and application.

⁹ This information provides courtesy of Bui Ngoc Tuan, Email: tbui@deloitte.com, Deloitte Vietnam Tax, 12A floor, Vinaconex Tower, 34 Lang Ha Str., Hanoi, Vietnam.



6. Guideline for key documentation for financing

As referred in the section above, the key documents such as teaser, investment memorandum, project presentation, term sheet, PPA, and other lists of key documents that are required and the guidelines for preparing and understanding each of them are as below.

6.1. Project Teaser

Purpose	The purpose of the project Teaser is to gain the attention of a potential investor with as much information that can be revealed prior to the signing of a non-disclosure agreement.
Responsible	Developer
Size	The typical size of the Teaser should not exceed two (2) pages
Key Information presented	The information presented in the Teaser should not be cluttered and should include as much graphical and pictorial information relevant to the project. Information available in the public domain may be generously used and the source must be cited, wherever this information is used.
Contents	<ol style="list-style-type: none"> 1. Name of the project (Code names may be used to protect the confidentiality of the project); 2. Location of the project with the nearest evacuation point (shown on the map would be helpful); 3. Capacity of the project (if the project is being developed in Phases, then each phase to be mentioned); 4. Brief status (insert the Overview Chart in Volume I); 5. Unique features of the project (such as developer's past experience, preferable tariffs, location benefits, policy support, positive social impact, expected financial returns, developers ability to invest in equity etc.); 6. Key financial information (project size, expected returns on equity/ project, equity required, debt required, and in case there is some kind of a letter of support from a lender, this may be mentioned subject to lender's approval); 7. Project schedule (Commencement of construction, COD, Phase 2 expansion etc.).



6.2. Investment Memorandum

Purpose	The purpose of the project Investment Memorandum (Also called Investment Memo or IM in short) is to provide detailed information to a potential investor after the signing of a non-disclosure agreement. The information provided in the Investment Memorandum should be comprehensive enough to reflect the thoroughness in preparation for the project and hence any and all information stated in here must be substantiated with proper references and support documents to the extent possible.
Responsible	Developer
Size	The typical size of the Investment Memorandum should not exceed 50-60 pages, excluding the Annexures and supporting documents.
Key Information presented	The information presented in the Investment Memorandum should not be cluttered and should include as much graphical and pictorial information relevant to the project. Information available in the public domain may be generously used and the source must be cited, wherever this information is used.
Contents	<ol style="list-style-type: none"> 1. Developer/ Sponsor/ Promoter profile 2. Project status 3. Economics 4. Power sales 5. Engineering/ Feasibility study including Wind resource study 6. Engineering, Procurement, and Construction (EPC) 7. Operation and Maintenance 8. Regulatory, Legal & Taxation considerations, specific to the project 9. Financing 10. Comprehensive risk analysis: technical or economic. <p>The information in each section that is sought by investors is as follows:</p> <ol style="list-style-type: none"> 1. Developer/ Sponsor/ Promoter profile <ol style="list-style-type: none"> a. Biographies of principals, experience in: <ul style="list-style-type: none"> • Private non-utility power plant development • Project finance, lending, equity investment • Legal: corporate, securities, regulatory • Engineering: power plant, permitting, design • Government relations, legislation, regulatory • Operations and maintenance of power plants • Managing projects of similar size and cost • Energy economics, tariffs • Insurance, taxes, business administration

b. Prior and current projects

- Background
- Role, nature of involvement
- Results

c. Experience in country**d. Corporate information**

- Annual report, ownership
 - Financial statements
 - Third party information: industry reports, press
 - Resumes of key personnel, highlighting experience relevant to this project
-

2. Project status**a. Status of key agreements**

- Permits
- Concession agreement
- Project award from competitive bid
- License from government
- Site control
- Status of most critical arrangements:
 - Power purchase
 - Land use rights
 - Wind Resource Study
 - Engineering, Procurement and Construction (EPC)

b. Schedule to complete development

- Tasks, timing, cost
- Responsible party
- Milestones, Deadlines

c. Support for project

- Local
 - Regional
 - National
 - Utility
-

3. Economics**a. Financial projections**

- Non-recurring costs:
 - Development cost
 - Financing-related costs
 - Construction costs
-

-
- Annual cash flows
 - Revenues
 - Electricity (tariffs, plant load factor etc.)
 - By-products (if any)
 - Operating expenses
 - Fuel
 - Labour
 - Administration
 - Insurance
 - Fees
 - Project Development Costs
 - Benchmarks used
 - Financing cash flows, assumptions
 - Equity
 - Comparable projects, investments
 - Upside, downside, tax-related
 - Debt
 - Comparable debt financing
 - Credit analysis
 - Lease financing
 - Reserves funding, build-up, draw-downs, financing overhauls
 - Taxation, foreign exchange effect

b. Supporting documentation for the capital investment:

- Contracts (PPA, EPC, Land rights and such) : signed, negotiated, or proposed
- Forecasts: internal or 3d party
- Regulated tariffs, policy documents

c. Supporting documentation of operating expenses:

- Contracts: signed, negotiated, or proposed
- Forecasts: internal or 3d party
- Prior projects, comparable projects
- Industry standards

d. Exit scenarios : Disposition/ refinancing/ transfer

4. Power sales

a. Sales to utility

- Minimum take, take-or-pay, merchant
 - Competitively awarded, negotiated
 - Creditworthiness of utility
 - Supply proposed relative to utility size
 - Track record honoring IPP contracts
 - Susceptibility to political influence
-

-
- Privatization, ownership structure
 - Economic growth in region
 - b. Sales to local industry**
 - Minimum take, take-or-pay, merchant
 - Competitively awarded, negotiated
 - Creditworthiness of industrial
 - Alternate power purchasers
 - c. Interconnection, transmission**
 - Penalties, timing, deliveries
 - Coordination with other contracts
 - EPC: plant completion versus obligation to deliver power
 - O&M and other expenses: pass-through in power price
 - d. Payment support**
 - Payment guarantees, letter of credit
 - Implementation agreement
 - Escrow, lock-box accounts
 - e. Power Market**
 - Demand/ supply – projections and forecast
 - Key players in the country
 - Policy support for renewable energy, specific to wind energy

5. Engineering/ Feasibility Study

- a. Site suitability**
 - Zoning
 - Local support
 - b. Wind Resource Study**
 - Source, number of years of history, Flow data
 - Interconnection, on-site handling, distance to nearest interconnection point
 - c. Proposed design, technology, cost**
 - Equipment efficacy, track record
 - Cost, financing implication
 - d. Electrical interconnection**
 - Existing or new interconnection
 - Ownership
 - Responsibility to build and maintain
 - Dedicated or shared
 - e. Environmental impact, need for study, exemption**
 - Requirements for legal compliance, financing
 - Local support impact
-

- f. Power purchaser load profile:**
 - Seasonal fluctuation
 - Daily fluctuation
 - Dispatching, curtailment, notice, interval
 - g. Water supply and discharge**
 - Source, specification
 - Discharge specification
 - Permitting process, control
 - h. Maintenance schedule, overhauls, spares**
 - Prevailing standards in country
 - i. Other mitigation site**
 - Building
 - Forestation
 - Noise abatement
-

6. Equipment

- a. Operational characteristics**
 - History in power application
 - Efficiency
 - Reliability
 - Availability
 - Environmental: emissions, water needs, water discharge, noise, visual
 - b. Cost, payment schedule, delivery deposits**
 - Negotiated or competitive bid
 - Import duties
 - Physical delivery considerations
 - c. Guarantees, creditworthiness for guarantees**
 - d. Financing considerations, export credit, vendor**
 - e. Technology, suitability for remote service**
 - Maintenance expertise required
 - Fuel sensitivity
 - Sensitivity to heat, moisture
-

7. Engineering, Procurement and Construction (EPC)

- a. EPC contractor**
 - Qualifications
 - Experience
 - Creditworthiness
-

-
- b. Contract terms**
 - Fixed price, turn-key
 - Wrap-around, subcontractor warranties
 - c. Guarantees, bonuses, penalties**
 - d. Insurance, retainage**
 - e. Construction schedule, penalties, damages**
 - f. Operational characteristics**
 - History in power application
 - Efficiency
 - Reliability
 - Availability
 - Environmental: emissions, water needs, water discharge, noise, visual
 - g. Cost, payment schedule, delivery deposits**
 - Negotiated or competitive bid
 - Import duties
 - Physical delivery considerations
 - h. Guarantees, creditworthiness for guarantees**
 - i. Financing considerations, export credit, vendor**
 - j. Technology, suitability for remote service**
 - Maintenance expertise required
 - Fuel sensitivity
 - Sensitivity to heat, moisture
 - k. Performance testing**
 - Output
 - Heat Rate
 - Availability
 - Duration of test, standards, derating
 - Warranty period
 - l. Start-up, training**
 - m. Insurance during construction**
 - Builder's all-risk policy
 - Property and casualty
 - Workers' compensation
 - Auto
 - Construction/performance bond
 - Cost overrun/delay of completion
 - Project errors and omissions
-

8. Operation and Maintenance

a. Operator qualifications

b. O&M Contract:

- Fixed Compensation
- Variable Compensation
- Pass-through
- Percent of revenues
- Incentive, penalties

c. Coordination with power purchaser

d. Guarantees, finance ability

e. Spares, parts delivery

f. Insurance During Operation

- Efficacy, business interruption
- Property and casualty
- Workers' compensation
- Auto
- Political risk, foreign exchange
- Cost overrun/delay of completion
- Project errors and Omissions

9. Regulatory, legal

a. Site control/ right to develop/ land use

- Property rights, Land law
- Collateral law, liens, security, foreclosure
- Title insurance
- Environmental liability
- Assignability

b. Permitting: national, local, city

c. Corporate compliance

- Government approval for local partner
- Foreign Corrupt Practices Act compliance

d. Environmental compliance & impact

e. Government agency involvement

- Environmental
 - Foreign Investment
 - Utility regulatory
-

f. Implementation agreement

- Full-blown IA
- Support letter

g. Taxation

- National: corporate, JV, or partnership
- Depreciation treatment,
- Tax holidays
- Local, regional
- Local, regional
- Value Added Tax
- Withholding taxes
- Tax treaties
- Other fees, levies, import duties, etc.

h. Foreign exchange

- Source of hard currency
- Country Creditworthiness, F/X reserves, balance of trade, PPP methodology
- Fluctuation of exchange rates, historical, projected
- Project reserves
- Repatriation
- Convertibility

i. Risk management strategy

- Hedging
- Insurance
- Hard currency payment

10. Financing**a. Development budget and source of funds**

- Tasks
- Timing
- Responsibility
- Cost
- Expectations of participants

b. Project description & documentation**c. Financial structure, equity contribution****d. Participants benefits, risks****e. Market research confirming financing strategy****f. Timetable****g. Exit scenarios with references of past projects of similar nature if any**

11. Comprehensive risk analysis: technical or economic

a. Credit risks

- Power Purchaser
- EPC Contractor
- Insurance company
- O&M contractor
- Guarantor

b. Construction risks

- Cost over-run or Delay
- Performance

c. Market and operating risks

- Revenue/ Expense divergence
- PPA Risks (especially for EVN and mitigation measures such as insurance etc.)
- Plant performance
- Excessive operating expense
- Off-taker performance
- Competition

d. Financial risks

- Interest rate risk
- Foreign exchange risk
- Inflation

e. Political risks

- Expropriation
- Change of law
 - National
 - State
 - Tax-related
 - Environmental

f. Legal risks

- Inadequate legal framework
 - Legislation
 - Case law
 - Administrative law
 - Regulation
- International, state, provincial jurisdiction

g. Environmental risks

- Biological Impacts (Birds, Bats, Other wildlife, Vegetation)
 - Water Resources (Surface water, wetlands, groundwater, soil erosion, water quality etc.)
 - Visual/Aesthetics
-

-
- Shadow Flicker
 - Noise
 - Cultural and Historical Resources
 - Socio-economic
 - Public Health & Safety (Ice Shedding, Blade drop/ throw, fire, electromagnetic fields, lightning strikes)
 - Communications
 - Ground Transportation and Traffic
 - Solid and Hazardous wastes
 - Air quality and Climate Impacts

h. Land risks

- Regulatory risks
 - Zoning constraints
 - Noise limits
 - Setback requirements
 - Floodplain issues
 - Height restrictions
-

6.3. Project presentation

Purpose	The purpose of the project presentation is to communicate effectively to a potential investor during a face-to-face meeting or via email, with all relevant and comprehensive information from the Investment Memorandum. Any and all information provided in the Project Presentation must tie into the relevant section of the Investment Memorandum.
Responsible	Developer
Size	The typical size of the project presentation should not exceed 20-30 slides, including all supporting information slides.
Key Information presented	The information presented in the project presentation should not be cluttered and should include as much graphical and pictorial information relevant to the project. Even if such graphs have not been included in the Investment Memorandum, an attempt should be made to present as much information as possible in a graphical manner.
Contents	<p>The main contents of the project presentation shall be as follows, with one or two slides per section.</p> <ol style="list-style-type: none"> 1. Introduction to the Developer and their existing business; 2. How does the existing business tie up with the wind power project (mapping competencies); 3. Macro market power scenario – policy and direction of policy; 4. Renewable energy projects – growth over the years; 5. Renewable energy projects – projections based on policy and other market drivers; 6. Introduction to the project – location/ capacity/ PLF and other salient features; 7. Wind resource study – source, data, no. of years of study etc.; 8. Status of the project – permitting, funding, wind resource study etc.; 9. Engineering & EPC information – technology, EPC contractors being considered etc.; 10. Funding requirements - project size, proposed finance structure etc.; 11. Financial projections – revenues, earnings before interest, taxes, depreciation and amortization (EBIDTA), price-earnings ratio (P/E), DSCR etc.; 12. Key project risks and mitigation measures implemented/ considered; 13. Bio data of key personnel; 14. Concessions, grants etc. already obtained; 15. Legal, regulatory, tax and other matters.

6.4. Non Disclosure Agreement

Purpose	The purpose of the Non Disclosure Agreement (NDA) is to have a binding contract between parties (both the one disclosing the information and the one receiving the information) to maintain confidentiality of the information provided for the purposes of raising funds for the project. The parties involved in signing of the NDA are often called the Signing Parties.
Responsible	Developer/ Potential investor
Size	The typical size of the NDA should not exceed two-three (2-3) pages.
Key Information presented	The information presented in the NDA should cover all legal aspects of sharing such critical data amongst the signing parties.
Contents	<ol style="list-style-type: none"> 1. Name of the project (code names may be used to protect the confidentiality of the project); 2. Purpose – such as for funding/ financial advisory etc.; 3. “Confidential Information” description of what information is confidential; 4. Non-use and non-disclosure generally covering that the information provided is not used for other projects and disclosed to other parties; 5. Maintenance of confidentiality; 6. Warranty; 7. Term. Usually covers a period beyond the period of evaluation; 8. Remedies – in case a breach is notified by either party; 9. Choice of Law; 10. Miscellaneous; 11. Severability; 12. No unfair practices; 13. Termination; 14. Commencement of legal proceeding; 15. Group entities. Usually NDA covers all subsidiaries/allied companies; 16. Liability; 17. Protection against Third Party claims; 18. Protection of data; 19. Force majeure.

6.5. Term Sheet

Purpose	The purpose of the Term Sheet is to provide an indicative set of terms of reference for financing by the investor/ lender. This is furnished by the investor/ lender.
Responsible	Potential investor
Size	The typical size of the Term Sheet should not exceed four (4) pages.
Key Information presented	The information presented in the Term Sheet should cover all broad criteria for discussions resulting in an investment at terms mutually agreeable to all parties concerned.
Contents	<p>The content presented in the Term Sheet is only the major points of discussions that the investor/ lender wants to conclude before proceeding to invest further time and resources to conduct a detailed due diligence exercise. The following are the typical information contents of a Term Sheet:</p> <ol style="list-style-type: none"> 1. Overview <ol style="list-style-type: none"> a. Defining the parties i.e. developer, project company, holding company, investor/ lender etc.; b. Nature of the Term Sheet – From the first term sheet which is usually only an “Indicative” and non-binding one, this transitions to a “Binding Term Sheet” through several rounds of discussions and negotiations; c. Purpose – Of the funding such as development, construction, mezzanine, debt/ equity etc.; d. Target entities, their clear definitions such as name, capacity, location etc. In a portfolio situation, it is necessary to list of individual holding companies and project companies to show relationships and identify the target entities into which the funds are being raised; e. Role and Responsibilities of the Developer, Investor/ Lender and Joint. 2. Investment and Structure <ol style="list-style-type: none"> a. Overview of: <ol style="list-style-type: none"> i. The percentage of ownership, the nature of shares, the split into each target entity, conditions of targeted IRR etc., in case of equity; ii. The amount of debt, tenure, interest rate and some key terms, in case of debt. b. Due Diligence Exercise – Plans, timelines, expectations from the developer in terms of access to documents/ facilities etc.; c. Use of funds – Usually enumerates the specific purpose for which the funds should be deployed such as purchase of land, EPC etc.; d. Conditions Precedent are a set of conditions that have to be fulfilled by the project/ developer before the funds are disbursed;

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- e. Conditions Subsequent are a set of conditions that have to be fulfilled by the project/ developer within a certain time after the funds are disbursed, failing which a legal default may arise;
 - f. Costs and Expenses enumerate the costs that shall be shared amongst the parties.
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6.6. Power Purchase Agreement

Purpose	<p>As described in Volume I, the Power Purchase Agreement (PPA) is a legally binding document between the Developer/ Investor (power seller) and the power purchaser. In Vietnam, the power purchaser is EVN, the state-owned utility.</p> <p>In most cases, projects must sign an internationally bankable PPA to obtain international project financing corresponding with Phase C. Thus, the PPA must be negotiated prior to obtaining construction permit(s) and the generation license.</p>
Responsible	Project Developer to sign with EVN, through Electricity Power Trading Company (EPTC)
Size	n.a.
Key Information presented	The information in the PPA should be in accordance with the standard PPA, if applicable to the market. In Vietnam, regulation stipulates that Developers use a non-negotiable standardised agreement regulated by Circulars issued by the MoIT.
Contents	<p>A power purchase agreement is a legal contract between an electricity generator (power provider) and a power purchaser (buyer, typically a utility or large/government power buyer/ trader). Typically, the contract term is between 5 and 20 years—the EVN contract is currently for 20 years, during which time the offtaker buys energy from the electricity generator.</p> <p>In the case of distributed generation, commercial PPAs have evolved as an alternative that enables energy utilities to purchase electricity directly from the generator; this approach facilitates the financing of distributed generation assets such as photovoltaic, small scale hydropower, wind-turbines, and other non-traditional power generation technologies.</p> <p>A bankable PPA is a long-term offtake agreement executed with a creditworthy offtaker with performance record and balance sheet to demonstrate ability to pay. International financing sources will require the developer to sign a PPA that meets international requirements. According to the discussion with legal counsels and international investors, the standard PPA with EVN does not meet the international requirements.¹⁰</p> <p>The EVN PPA does not sufficiently provide investor cover for the creditworthiness of EVN, the country risk in the Vietnam power sector, the interconnection and billing arrangements, force majeure, or dispute resolution. The Overseas Private Investment Corporation (OPIC) published an article including 10 important features¹¹ for bankability of a standard PPA.</p> <ol style="list-style-type: none"> 1. Dispatch Risk: Contract structures such as “Take or Pay” or “Take and Pay” mitigate risk for instances in which the offtaker cannot use the electricity generated from the facility. The EVN PPA template does not provide the developer with comfort that the offtaker will pay in circumstances of curtailment. 2. Fixed Tariff: A fixed tariff rate in the PPA enables the developer to show cost recovery for construction, ability to repay debt, and estimate return equity when seeking financing. The tariff, including subsidy for wind energy in Vietnam, is currently 1,614 dong/ kWh (excluding value added tax) equal to 7.8 US cents/ kWh.

The electric power purchase prices vary according to the fluctuations of exchange rate between VND and USD at the time of payment. The EVN PPA does provide a fixed tariff; however, because the tariff is in Dong, international investors incur currency risk and related price fluctuations.

3. Foreign Exchange: Investors expect the PPA price to be denominated in an international reserve currency or linked to the currency of the developer's debt. The EVN PPA requires the tariff to be denominated in Dong.

4. Change in Law or Change in Tax: The PPA should clearly define risk allocation for changes in laws or taxes that would affect the project cash flow. Reducing the developer's exposure to this risk is often seen as particularly important in circumstances with public sector oftakers like EVN.

5. Force Majeure: Events outside the control of either the power producer or the oftaker that prevent either party from performing their obligations under the PPA are considered force majeure. The bounds of force majeure events, procedure for risk-sharing, and potentially longstop dates for termination should all be specified in the agreement. International investors shared that EVN force majeure provisions are inadequate.¹²

6. Dispute Risk: Investors prefer to mitigate dispute risk by stipulating an offshore, neutral regulatory body for arbitration—particularly for PPAs with public sector oftakers like EVN. While it is acceptable for the public sector entity to require agreement remain subject to domestic law, arbitration offshore is standard. International investors share that the FM provisions in the EVN PPA are inadequate.¹³

7. Termination and Termination Payments: PPA should define the acceptable circumstances and process for termination. In cases of a single buyer market, like in Vietnam, the developer would be left without alternative oftakers in the event of termination, thus the EVN PPA should provide for restrictive termination rights.

8. Assignment: Lenders FS often require project facilities as collateral. PPAs should allow for assignment under the collateral agreements.

9. Oftaker Payment Support: PPAs obligate the oftaker to payment. Investors will require evidence of the creditworthiness of the oftaker, and in cases where the oftaker cannot demonstrate sufficient solvency, performance history, and short-term liquidity, a PPA may require additional payment support (Letter of Credit, guarantee, etc.) in order to be bankable.

10. Transmission or Interconnection Risk: A bankable PPA allocates risks related to connecting and evacuating power from the developer's facility to the nearest grid interconnection point. This risk allocation typically is based on the significance of the risks, the value of the project to each party, and the grid codes approved by the regulatory body—ERAV in Vietnam.



Please note:

- The above-mentioned risks are generally applicable to international investors. However, not all local investors share the same perspective with international counterpart on some risk items such as dispatch risk, foreign exchange risk, dispute risk, off-taker payment support, transmission or interconnection risk, because for local financiers, EVN and ERAV are representative of the Government, and therefore carry no risk.

6.7. Key supporting documents

The supporting documentations are need to be shared to investors/ lenders for performing due diligence.

Supporting Documents	Description
Site Availability Acceptance Letter	Site availability is confirmed by Provincial People's Committee (PPC) acceptance letter.
Wind Measurement Data Report	A wind measurement data collection and assessment performed by a third party engineering consultancy firm according to international wind measurement standard (i.e. IEA Recommendation 11 and MEASNET Guidelines) up to at least 12 months.
Investment Certificate	The investment certificate entitles foreign companies to develop wind projects in Vietnam issued by DPI.
Approved Feasibility Study and Acceptance letter for the FS document	The feasibility study which is approved by DoIT/MoIT and an acceptance letter from MoIT/DoIT.
Approved Technical Design Document and Acceptance letter for Technical design document	The Technical Design Document which is approved by DoIT/MoIT and an acceptance letter from MoIT/DoIT.
Grid Connection Agreement	Grid Connection Agreement issued by RPoC/NPTC.
Metering Agreement	A detailed metering report approved by EPTC.
SCADA Agreement	The specification and provisions for SCADA – telecommunication system between the wind farm and the load dispatch centres approved by National Load Dispatch Centre (A0).
Fire prevention and fighting	The document on fire prevention and fighting approved by Department of Fire Prevention & Fighting (belongs to Ministry of Public Security).
Environmental Impact Assessment	Environmental Impact Assessment (EIA) approved by Ministry of Natural Resource and Environment (MoNRE).
Executed Power Purchase Agreement (PPA)	PPA is a non-negotiable standardized agreement regulated by Circulars issued by the MoIT. The PPA shall be signed by EVN, through EPTC signs PPA with project Developer.
Land Lease Agreement	The plan of land recovery, investigation, survey, measurement and inventory approved by PPC.
Construction Permit	Construction permits granted by competent state agencies, such as the Department of Construction.
Land Clearance	The plans for compensation, support and resettlement approved by PPC.

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¹¹ OPIC-Overseas Private Investment Corporation. 2015. Important Features of Bankable Power Purchase Agreements For Renewable Energy Power Projects. Website URL: <https://www.opic.gov/sites/default/files/files/10%20Elements%20of%20a%20Bankable%20PPA.pdf>.

¹² PFAN-Asian Interview. Jan 8, 2016.

¹³ PFAN-Asian Interview. Jan 8, 2016.

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