



Investment Opportunities and Access-to-Finance Guide

2024 | for Indonesian Wind Energy Projects

This document is produced as part of the Southeast Asia Energy Transition Partnership's 'Wind Energy Development in Indonesia: Investment Plan' project



Foreword

Director General of New Renewable Energy and Energy Conservation

Indonesia is committed to achieving a renewable energy mix target of 23% by 2025 and 31% by 2050. To do this, collaboration and hard work from all stakeholders are needed. Achieving these targets is very important to support the achievement of Indonesia's Enhanced Nationally Determined Contribution target, namely reducing carbon gas emissions by 32% (own efforts) and 43% (with international assistance) by 2030. One effort to achieve this target is to develop Wind Power Plants (*Pembangkit Listrik Tenaga Bayu/PLTB*). PLTB not only significantly contributes to reducing carbon emissions but also strengthens national energy resilience, improves environmental quality, and promotes local economic development.

This *Investment Opportunities and Access-to-Finance Guide for Indonesian Wind Energy Projects* booklet is based on a study aimed at providing an overview of onshore wind financing options for relevant stakeholders, both domestic and international. The booklet explains the stages of onshore wind projects, financial products and their conditions that can be a source of wind project financing, a list of potential investors, tips for accessing wind project funding, and the regulatory challenges that accompany it.

We hope that this booklet can help developers gain access to funding for PLTB projects that are being developed. Let us continue to collaborate in order to create a better and more sustainable future for the next generations.

Director General of New Renewable Energy and Energy Conservation,

Prof. Dr. Eng. Eniya Listiani Dewi



"The *Investment Opportunities and Access-to-Finance Guide for Indonesian Wind Energy Projects* is expected to assist developers and other stakeholders in accessing financing for wind power projects in Indonesia. Let us together drive the national energy transformation towards a greener and cleaner future."



DESCRIPTION OF THE BOOKLET

This booklet aims to provide an overview of the options that are available in Indonesia to finance onshore wind farms. Following this summary page, the booklet contains the following elements:

- The second page describes the **project stages** in onshore wind development, in which the project cycle has been split in:
 - a. the Preparation & pre-Feasibility Study (pre-FS) stage,
 - b. the Feasibility Study (FS) stage,
 - c. the Engineering, Procurement and Construction (EPC) stage, and
 - d. the Operations & Maintenance (O&M) including decommissioning stage.
- The third page describes various **financial products** and applicable conditions, covering both commercial funding and grant / blended funding options.
- The fourth page lists a wide range of **investors**, clustered into International Financial Institutions (IFIs), Development Financial Institutions (DFIs), bilateral cooperation facilities, private investment funds, Indonesian banks and international banks. It provides an overview of the type of financing that is generally offered by each type of investor.
- The fifth and final page provides a stepwise approach that can be followed to **access financing** and provides **key findings and suggestions** for improving the regulatory framework, aiming to increase the amount of financing accessible to onshore wind developers in Indonesia.

The findings are based on desk research and on interviews with a wide range of private and public investors.

Investment Opportunities and Access-to-Finance Guide: for Indonesian Wind Energy Projects

“Wind Energy Development in Indonesia: Investment Plan” Project

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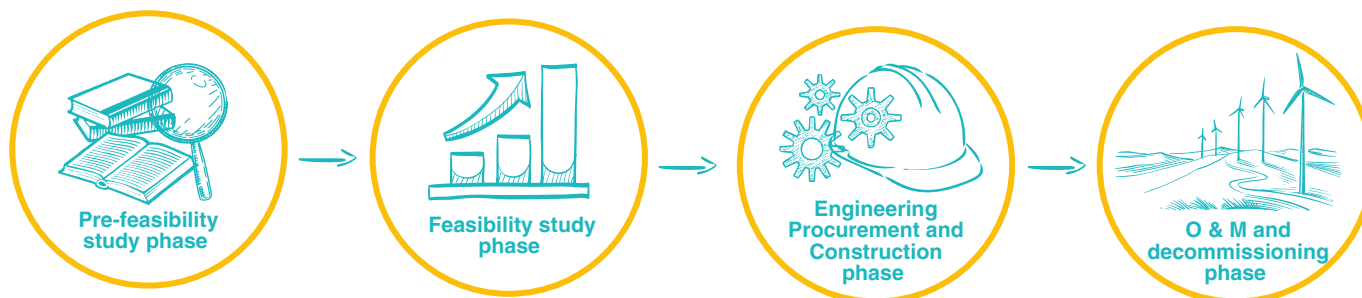
The project is initiated by the Ministry of Energy and Mineral Resources of the Republic of Indonesia (MEMR), managed by the Southeast Asia Energy Transition Partnership (ETP), and hosted by the United Nations Office for Project Services (UNOPS).

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Project stages in onshore wind development



Project Stages

Financing needed during this stage



Pre-Feasibility Study phase

The first stage of the onshore wind development consists of three parts. First, targets need to be set, and a roadmap to achieve those targets should be created. Second, pre-FS analyses of potential onshore wind locations need to be executed. Third, any upgrades to physical and digital infrastructure need to be assessed and developed. In contrast with other project stages, this stage is usually government led.

- Grant financing for target setting, roadmap development & regulatory support.
- Public loans (on attractive terms) for the government or SOEs to develop electrical infrastructure.
- Pre-FS studies for specific locations (publicly or privately - by a developer - solicited and funded).
- More information related to market dynamics in this phase can be found in the *Roadmap for Onshore Wind Energy Development in Indonesia* (Component 1 of this study). More information related to technical aspects and key risks applicable during this phase can be found in the *Wind Farm Prospectuses* (Component 3 of this study).



Feasibility Study phase

The Feasibility Study as defined in this report includes executing a wind measurement campaign, executing an infrastructure and geotechnical assessment, designing the wind farm, calculating the business case based on quoted prices for components / services, arranging (conditional) financing, acquiring land, and obtaining the required permits. The IFC performance standards define the minimum quality level that the FS should adhere to. Once the FS has been completed, the project should be 'ready to build'.

- Central procurement of (part of) the FS by the state. Such studies can be recouped from the winner of the tender (not yet possible in Indonesia).
- An FS funded from the balance sheet of a developer, co-financed by a loan or credit line to the developer.
- An FS initiated by a party that is not willing or able to be the lead developer can seek high risk / return capital (or concessional financing) to start the FS.
- Similar to the Pre-FS phase, more information related to market dynamics in this phase can be found in Component 1 of this study, and more information related to technical aspects and key risks applicable during this phase in Component 3 of this study.



Engineering Procurement and Construction phase

The Engineering, Procurement & Construction (EPC) stage includes the Financial Investment Decision (FID) as a milestone. This stage ends when the project has reached the operational stage. During this stage the majority of the Capital Expenditures (CAPEX) needs to be deployed.

- 20-30% of the project costs has to be funded from the balance sheet of a developer. A developer (consortium) can raise a (junior) loan or equity financing to fund their equity share.
- 70-80% of the project cost can be funded with external debt. This debt can usually be raised once the PPA has been signed.
- Similar to the Pre-FS and FS phase, more information related to market dynamics in this phase can be found in Component 1 of this study, and more information related to technical aspects and key risks applicable during this phase in Component 3 of this study.



Operations & Maintenance and Decommissioning phase

The Operations and Maintenance (O&M) phase starts when the project has become fully operational, and the power purchase has started. At the end of the O&M stage, the project will need to be decommissioned.

- Refinancing of a project can take place at any time during the project cycle. Once a project has become operational, this sale is used to free up capital for the seller (often to fund new projects), and as a financial investment for the buyer.
- Costs during the O&M stage for maintenance and decommissioning will need to be covered. These are usually financed from the cashflow of the project. The loan obtained to fund the CAPEX will need to be repaid during this stage.

Financial products and applicable conditions

This page provides an overview of the various types of financing that are available in the Indonesian onshore wind sector. This financing includes both commercial ‘investments’, non-commercial ‘grants and subsidies’, and blended financing that includes features of both types of financing. Non-commercial and blended financing often aims to de-risk onshore wind farm projects.

Commercial financing

Debt

A loan or credit line, with a fixed interest rate and a fixed payback schedule. A loan can often be provided to a wind project once a PPA contract has been signed

Typical features

- Ticket size range: >\$10m. Maximum for specific entities vary, often between \$50-100m per investor. If larger loans are needed, multiple financiers can fund a single project. A requirement might be that financiers fund only 50%, or for larger projects even smaller sizes of the total investment.
- Funding is often denominated in US\$. Interest rates are for example based on the Secured Overnight Financing Rate (SOFR), and a markup of premium ranges normally between 2 and 3%.
- Duration can be up to 20 years, and grace periods of up to 7 years exist. Commercial banks usually provide funding with a shorter duration.
- Minimum Debt Service Coverage Ratio: is usually required to be 1.25 on p90 (this can vary across financiers).

Mezzanine

Combine features of debt and equity. Examples include:

- A junior loan
- Convertible loan
- Preferred shares
- Redeemable equity

Typical features

- Junior loans are subordinate to (senior) loans, therefore higher interest rates generally apply.
- Convertible loans have a potential upside from the potential conversion to equity, and therefore usually feature a lower interest rate.
- Preferred shares have priority over ordinary shares when paying dividends, although these shares usually have no voting rights.
- Redeemable equity is an equity investment where the wind farm developer redeems (buys back) the shares over time through dividends tied to revenues or free cash flows.

Equity

Purchase ownership of a project. An equity stake does not have to be paid back following an agreed upon timeline, and the future return is not agreed upon. An owner of an equity stake is entitled to a proportional share of dividends (when paid), and the equity stake can be sold. An equity investor can enter a project / company at anytime during the project cycle. This will position the investor on equal terms next to the original developer, which also owns (part of) the equity share.

Typical features

- Return on Equity (ROE) expectations vary widely between investors, usually between 10-20%. Country, currency and project risks influence ROE expectations.
- Investors that step into a project at an earlier stage take more risks, and usually require a higher ROE.

Alternative financial products

Alternative financing products include (non-exhaustive): guarantees, currency hedging & floating to fixed rate hedging, and export credits.

Typical features

- Hedging costs vary through time.
- Currency hedging from IDR to USD usually costs around 2-5% of the hedged sum annually.
- Floating to fixed hedging costs are depending on the long term interest rates expectations plus a mark-up of around 1-2%.
- Export credit is a form of trade financing, and applicable interest rates can vary widely depending on the duration, the type of goods being exported, the creditworthiness of the buyer, and the prevailing market conditions.

Blended financing

Blended & sub-commercial financial products

Blended financing refers to a combination between commercial and non-commercial financing in a single project or even in a single financial product. Examples include (non-exhaustive):

- Lower interest rate financing
- Increased risk acceptance
- First loss facility (i.e. a junior loan that will (partially) cover losses, if any)
- Concessional loan (i.e. the loan will be remitted under agreed upon circumstances)
- Concessional guarantees
- Subsidized hedging products

Typical features

Blended financing products vary widely, and can yield significant benefits for developers.

- Interest rates can be lowered in some cases to 0-2%. A portion of a loan can be concessional as well.
- An example of this is a financing for a feasibility study, of which 50% will be remitted in case the project does not materialize.
- Sub-commercial guarantees are available to Indonesian onshore wind projects and offer a significant discount compared to commercial guarantees. Generally, blended financing is not offered to commercially viable projects.

Non-commercial financing

Grants (CAPEX/DEVEX)

Capital expenditure (CAPEX) or Development expenditure (DEVEX) grants are funds ‘given’ to an organization or project, which do not need to be repaid. The grant can usually only be used for specific purposes, and are often designed to overcome a specific hurdle, for example related to the development of a roadmap or to finance a pilot project for a new technology. Grants can also be used to support a project that is commercially unviable but socially or environmentally desired.

Typical features:

Grants can be key to create a viable business case. Characteristics and related conditions of grants vary widely.

- Common grants include ‘viability gap’ grants, or grants that can fund infrastructure development that is not part of a wind farm, but that is needed to construct or connect it (although this is more commonly financed with loans).
- A fixed maximum percentage of the total investment sum that can be funded by grants does not exist, but 50% is a common maximum.

Subsidies (OPEX / production subsidies)

Operational expenses or production subsidies can be provided to developers to create a guaranteed minimum income or increased revenue. These are usually provided by governments.

Subsidies for onshore wind farms do not yet exist in Indonesia. Indirect subsidies could be applicable when PLN accepts higher electricity prices compared to commercial market conditions.

Description of financiers

This page provides an overview of various financiers that are currently active in the Indonesian renewable energy sector, and that include the Indonesian onshore wind sector in their investment scope. The list is not exhaustive, but aims to provide a starting point for parties to obtain financing.

Category	Example financiers (non-exhaustive)	Financing public or private projects / organizations?	Common types of financing offered	Objectives and benefits of financing
International Financial Institutions (founded by multiple countries)	ADB, World Bank, IFC (part of World Bank Group), IsDB	Public and Private	Grants for: Roadmaps, pre-FS studies, preparatory project studies and supporting infrastructure (if not commercially feasible). Loans & Equity for: enabling infrastructure financing (for example transmission lines), any stage of wind farm development, other related private development projects (energy storage projects for example), etc.	Objectives of International Financial Institutions (IFIs) include providing investments to emerging and developing countries to meet social, climate and other sustainability challenges. Benefits of financing from IFIs: funding can be flexible in terms of duration, have an extended grace period, can have a higher risk tolerance, feature lower interest rates, and can have concessional features.
Development Financial Institutions (founded by a specific country)	PT SMI, DFC, EIB, KfW, Proparco, FMO, Temasek, KDB	Public and Private	Grants for: Roadmaps, pre-FS studies, preparatory project studies. Loans & Equity for: enabling infrastructure financing (for example transmission lines), EPC stage of wind farm development, other related private development projects (energy storage projects for example), etc.	Objectives of Development Financial Institutions (DFIs) include providing investments to emerging and developing countries to meet social, climate and other sustainability challenges (similar to IFIs). Benefits of financing from DFIs can include: flexibility in terms of duration, grace period, can feature lower interest rates, and can have concessional features.
Bilateral cooperation	EU, USAID, RVO, AFD, FCDO, GIZ, DFAT, CIDA, JICA	Public and Private	Grants for: Roadmaps, pre-FS studies, preparatory project studies. Loans for: enabling infrastructure financing (for example transmission lines), any stage of wind farm development, other related private development projects (energy storage projects for example), etc.	Objectives of bilateral cooperation usually include: supporting social and environmental goals and enhancing international relations. Benefits of financing from bilateral cooperation: Often flexible financing to achieve strategic objections, it can be grant based or loan based with concessional features.
Partnerships (Initiatives funded by multiple countries / organizations)	ETP UNOPS, JETP	Public and Private	Grants for: Roadmaps, pre-FS studies, preparatory project studies. Loans & equity for: enabling infrastructure financing (for example transmission lines), any stage of wind farm development, other related private development projects (energy storage projects for example), etc.	Objectives of these partnerships include enhancing cooperation and efficiency by creating an organization that focuses on specific goals. Benefits of financing from partnerships: Often partnerships have a strong focus, expertise and a broad network within the sector. Thereby such partnerships can add significant support beyond only the financing.
Private investment funds	CFM, GCF, ACGF, AGCP, ACP, SUSI Partners, Equis Energy, FAST-P, SEASEF	Private	Loans & Equity for: EPC and O&M stage of wind farm development, other related private development projects (energy storage projects for example), etc.	Objectives of private investment funds usually include the generation of financial return for their shareholders, and increasingly, social or environmental objectives to be achieved alongside financial targets. Benefits of financing from private investment funds: Used to funding private sector projects, can sometimes have blended / concessional features.
Indonesian banks	PT BTPN, BNI	Private	Loans & Equity for: EPC and O&M stage of wind farm development, other related private development projects (energy storage projects for example), etc.	Objectives of Indonesian banks is usually to generate financial return for their public and private shareholders, and increasingly, social or environmental objectives to be achieved alongside financial targets. Benefits of financing from Indonesian: Used to funding private sector projects in Indonesia, can provide financing in IDR.
International banks	HSBC, DBS	Private	Loans & Equity for: EPC and O&M stage of wind farm development, other related private development projects (energy storage projects for example), etc.	Objectives of international banks is usually to generate financial return for their public and private shareholders. Increasingly, social or environmental objectives are set alongside financial targets. Benefits of financing from international banks: Their financing can often follow international developers, thereby leveraging connections from other countries.

Abbreviation from top to bottom:

ADB : Asian Development Bank
IFC : International Finance Corporation
IsDB : Islamic Development Bank
PT SMI : PT Sarana Multi Infrastruktur (Persero)
DFC : U.S. International Development Finance Corporation
EIB : European Investment Bank
KfW : Kreditanstalt für Wiederaufbau
FMO : Nederlandse Financierings-Maatschappij voor Ontwikkelingslanden N.V.
KDB : Korean Development Bank
EU : European Union
USAID : United States Agency for International Development

RVO : Netherlands Enterprise Agency
AFD : *Agence Française de Développement*
FCDO : Foreign, Commonwealth and Development Office (UK)
GIZ : Deutsche Gesellschaft für Internationale Zusammenarbeit
DFAT : Department of Foreign Affairs and Trade (AUS)
CIDA : Canadian International Development Agency
JICA : Japan International Cooperation Agency
ETP : Southeast Asia Energy Transition Partnership
JETP : Just Energy Transition Partnership
CFM : Capital Fund Management
GCF : Green Climate Fund

ACGF : ASEAN Catalytic Green Finance Facility
AGCP : Asia Green Capital Partners
ACP : African, Caribbean and Pacific Group of States
SEASEF : South East Asia Skills Enhancement Programme
BTPN : Bank Tabungan Pensiunan Nasional
BNI : Bank Nasional Indonesia
HSBC : Hong Kong and Shanghai Banking Corporation
DBS : Development Bank of Singapore Limited

How to access financing

Accessing available financing sources in an efficient manner is key to both developers and financiers. This section provides a guide on how to access the financing. Furthermore, key challenges related to the Indonesian regulatory framework have been described.



Estimate the type and size of the required financing. Steps to develop this estimation include:

- Create an (initial) design for the wind farm, assess the wind conditions.
- Develop the associated business plan & financial model.
- Understand the financing needs that arises from the financial model, and assess the type(s) of financing required.



Initiate talks with investors. These talks can start once the project is deemed financially feasible and the amount and type of funding has been estimated. It is advised to engage potential financiers well in advance of requiring financing. Ideally such meeting is arranged via an introduction via your existing network. An embassy or chamber of commerce may help to reach out to financiers. During the first meetings with investors, it can help to keep the following in mind:

- Understand the focus and scope of the investor. Often financiers have a website or strategic plan that outlines their investment approach, or it may be possible to talk to people that are familiar with the financier. It is advised to extensively discuss the match between the investment focus / scope of the financier and the specific wind project during the first meeting. The financing needs to match in terms of ticket size, sector, risk profile, project stage, duration, etc.
- Prepare a prospectus, containing/summarizing key information about the project. This prospectus should include at least a description of the wind farm, high-level business and financial details, the envisioned governance and ownership structure, and a timeline & action plan.
- The financier can explain what conditions apply. Examples of such conditions include biodiversity studies, wind measurement conditions, etc. It is key to assess whether these conditions can be met, before further steps are being taken.
- If it seems feasible that a match between the financier and the wind project exists, and that the conditions can be met, the next step requires the submission of documents. It is recommended to create a precise overview of the documents that need to be submitted to obtain financing.



Obtain the required documentation. The documents that are required to be submitted vary depending on the type of financier, the financial product, and the size of the financing. A mid-size onshore wind farm (50-100 MW) usually requires at least the following documents:

- A wind measurement analysis, a business plan including a detailed project design (including turbine manufacturer and EPC contractor), financial model, any required permits, environmental permits (such as AMDAL, UKL-UPL, etc.), collateral, guarantees / warranties from the selected wind farm manufacturer, track record & references.
- Depending on the project stage, a signed PPA with PLN or with a private offtaker may be required. Legal and regulatory considerations to keep in mind during the investment application process can be found in the *Roadmap for Onshore Wind Energy Development in Indonesia* (Component 1 of this study) and in the *Permitting & Regulation Assessment for Onshore Wind* (Component 2 of this study). These components also cover regulations specifically applicable to foreign investors.

It is often possible to **closely engage** with an investor during the initial stages of a project, to ensure a smooth funding process in the future.

Regulatory challenges

The main regulatory challenges hindering the financing of wind farms in Indonesia are:

- **Uncertainties and delays in the procurement process of PLN.** This causes increased financing costs and investors / developers to pull out, leaving a less competitive landscape for onshore wind development.
- **Negative impact on the business case due to the Annual Contracted Energy regulation.** This creates uncertainties in the business case, which in turn will raise financing costs.
- **Lack of power wheeling possibilities.** This hinders new project development and may cause additional transmission systems to be built unnecessarily.
- **A 51% project ownership by a subsidiary of PLN can create a conflict of interest.** This conflict of interest exists due to a role of PLN as both the offtaker and developer. This can lead to difficulties in the financing of the project.
- **Local content requirements for input materials that do not yet have a sufficient track record.** Financiers often have track record requirements. This may block investments if these locally produced inputs cannot meet these requirements.
- **Some PPAs issued by PLN assume that a loan will have been repaid after 10 years, and therefore the electricity tariff will be lowered after 10 years.** Some financiers have expressed that this is not realistic, given that some loans for onshore wind projects can only be fully repaid after 20 years.

Conclusion

A wide range of financing options are available for onshore wind projects in Indonesia. However, availability of suitable financing varies across project stages.

While generally sufficient funding is available for projects at the EPC and O&M stage, funding for projects at the Pre-FS and FS stage is more limited, mainly due to the high risks involved in financing projects at that stage. In addition, financing for supportive infrastructure (including transmission lines, upgrading road infrastructure, smart grid development, etc.) and energy storage solutions is limited, mainly due to the lack of a clear business case for such investments in the current Indonesian context.

While some risks cannot be avoided, risks can be lowered by improving the regulatory framework, or by improved consistency of processes and consistent implementation of regulations. Several key challenges associated with the regulatory framework have been listed in the section on the left. Blended financing can be deployed to finance the development of roadmaps, early-stage projects, supportive infrastructure development or financially unviable projects at the EPC stage.

