



# Product Analysis of Diverse de-Risking Financial Instruments Available in Indonesia's Market

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# Executive Summary

Financing of Renewable Energy projects in Indonesia is still perceived as being very risky and banks are reluctant to look into financing of new projects. This is specifically true for smaller scale projects as the due diligence and risk assessment work which has to go into smaller projects is similar extensive as for large projects – so same cost but significant less revenues and higher risk for a small project to be financed which means less profitable or even loss making for the lender considering all efforts which have to be taken.

This study will show available de-risking instruments which are available onshore in Indonesia or offshore. It also shows models and structures applied in other countries to de-risk the financing bank hence enable financing of perceived high risk Renewable Energy projects.

By showing and introducing various instruments and tools which are available and de-risk banks which finance Renewable Energy projects it can be assumed that local commercial banks are more open for financing when their risk is lowered and they can introduce and justify new exposure into this industry to their Senior Management and Risk Department.

Tools which de-risk financing are mainly in the following areas:

- Strengthening of the Equity portion so that the debt financed portion is smaller and the bank has less risk in a project
- Provision of quasi equity via Mezzanine Debt which rank for interest payments behind Senior Loans/Debt
- Risk sharing of the debt portion by syndication or bringing other lenders into the structure
- Provision of collateral by e.g. provision of Credit Guarantees or Insurances
- Provision of Foreign Currency Hedging facilities for foreign currency loans if funding is provided from offshore
- Provision of Technical Assistance and knowledge transfer from Multilaterals to Commercial onshore banks.

In order to implement and execute these de-risking tools a number of actions have to be taken. These actions range from simple knowledge transfer and spread of Renewable Energy financing amongst more institutions to the establishment of new institutions and facilities to provide the required and suggested tools.

Conclusions are drawn and next steps are suggested to bring the topic of Financing for Renewable Energy Projects in Indonesia forward and get commercial banks prepared and enabled to take the remaining risk into their books and start as soon as possible to build a portfolio in the Renewable Energy sector.

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# LIST OF ABBREVIATIONS

ACEF	Asia Clean Energy Forum
ADB	Asian Development Bank
ADM Capital	Asia Debt Management Capital
AFD	Agence Française de Développement (French Development Agency)
AIF	ASEAN Infrastructure Fund
AIIB	Asian Infrastructure Investment Bank
AOA	Articles of Agreement
AP	Availability Payment
APB	Advance Payment Bond
ASEAN	Association of Southeast Asia Nations
ASEI	Asuransi Ekspor Indonesia (Indonesian Export Insurance)
ATI	African Trade Insurance Agency
ATMR	Aktivita Tertimbang Menurut Risiko (Risk Weighted Assets)
BB	Bid Bond
BBB	Bond credit rating
BCA	Bank Central Asia
BEI	Bursa Efek Indonesia (Indonesia Stock Exchange)
BI Insurance	Business Interruption Insurance
BJB	Bank Jawa Barat
BKPM	Badan Koordinasi Penanaman Modal (Indonesian Investment Coordinating Board)
BLU	Badan Layanan Umum (Government Service Unit)
BNEF	Bloomberg New Energy Finance
BNI	Bank Negara Indonesia
BOO	Build, Own, Operate
BOOT	Build Operate Own Transfer
BPKH	Badan Pengelola Keuangan Haji (Hajj Fund Management)
BPP	Biaya Pokok Penyediaan
BRI	Bank Rakyat Indonesia
BTN	Bank Tabungan Negara
BVGL	Business Viability Guarantee Letter
CDG	Carbon Delivery Guarantee
CGIF	Credit Guarantee and Investment Facility
CGM	Credit Guarantee Mechanism
CLO	Collateralized Loan Obligations

COD	Commercial Operation Date
CPG	Construction Period Guarantee
CTF	Clean Technology Fund
DAP	PT Domas Agrounti Prima
DCA	Development Credit Authority
DCI	Domestic Credit Insurance
DCIF	Domestic Credit Insurance Financing
DEG	Deutsche Investitions und Entwicklungsgesellschaft (German Investment Cooperation)
DFI	Development Finance Institutions
DfID	British Department for International Development
DGWR	Directorate General of Water Resources, Ministry of Public Works
DRFI	Disaster Risk Finance and Insurance
DSU	Delay in Start-Up
EBA	Efek Beragun Aset (Asset-backed Security)
EBA-SP	Efek Beragun Aset-Surat Partisipasi (Asset-backed Security as Participation Letter)
ECA	Export Credit Agency
EIRR	Economic Internal Rate of Return
EMSD	Emerging Market Sustainability Dialogues
EPC	Engineering, Procurement, Construction
ESG	Environmental, Social and Governance
EU	European Union
EURIBOR	Euro Interbank Offered Rate
FI	Financial Institutions
FiT	Feed-in Tariffs
FLPP	Fasilitas Likuiditas Pembiayaan Perumahan / Housing Finance Liquidity Facility
FMO	Dutch Enterprenurial Development Bank
FX	Foreign Exchange
GCA	Government Contracting Agency
GEEREF	Global Energy Efficiency and Renewable Energy Fund
GGGI	Global Green Growth Institute
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH
HE Insurance	Heavy Equipment Insurance
IAR Insurance	Industrial All Risks Insurance
IBOR	Interbank Offered Rate
IBRD	International Bank for Reconstruction and Development
IDR	Indonesian Rupiah

IFC	International Finance Cooperation
IIF	Indonesia Infrastructure Finance
IIGF	Indonesia Infrastructure Guarantee Fund
IKBI	Inisiatif Keuangan Berkelanjutan Indonesia (Indonesia Sustainable Finance Initiative)
Indonesia	Indonesia Overnight Index Average
INR	International Normalized Ratio
IPP	Independent Power Producer
IRR	Internal Rate of Return
IRS	Interest Rate Swap
JBIC	Japan Bank for International Cooperation
JIBOR	Jakarta Interbank Offered Rate
JICA	Japan International Cooperation Agency
KIK-DINFRA	Kontrak Investasi Kolektif Dana Investasi Infrastruktur (Collective Investment Contract-Infrastructure Investment Fund)
KIK-EBA	Kontrak Investasi Kolektif - Efek Beragun Aset (Collective Investment Contract of Asset-based Security)
KMK	Asuransi Kredit Modal Kerja (Working Capital Credit Insurance)
LC/SBLC	Letter of Credit (Standby Letter of Credit)
LCOE	Levelised Cost of Energy
LEAP	Leading Asia's Private Infrastructure Fund
LIBOR	London Interbank Offered Rate
MB	Maintenance Bond
MDB	Multilateral Development Bank
MDG	Millenium Development Goals
MEMR	Ministry of Energy and Mineral Resources
MIGA	Multilateral Investment Guarantee Agency
MIVs	Microfinance Investment Vehicles
MMI	Mandiri Manajemen Investasi (Mandiri Investment Management)
MNRE	Ministry of New and Renewable Energy
MoF	Ministry of Finance
MPMF	PT Mitra Pinasthika Mustika Finance
MSME	Micro, Small, Medium Enterprise
MTN	Medium Term Notes
NDC	Nationally Determined Contributions
NEXI	Nippon Export and Investment Insurance
O&M Cost	Operation & Management Cost
ODA	Official Development Assistance

OECD	Organisation for Economic Co-operation and Development
OIS	Overnight Indexed Swap
OJK	Otoritas Jasa Keuangan (Financial Services Authority)
OPIC	Overseas Private Investment Corporation
PAR Insurance	Property All Risk Insurance
PB	Performance Bond
PBI	Peraturan Bank Indonesia (Bank Indonesia Regulation)
PCG	Partial Credit Guarantee
PDF	Project Development Facility
PEFINDO	Pemeringkat Efek Indonesia
PIDG	Private Infrastructure Development Group
PLN	Perusahaan Listrik Negara (State Electricity Company)
PPA	Power Purchase Agreement
PPP	Public-Private Partnership
PRC	People Republic of China
PRG	Partial Risk Guarantee
PRI	Political Risk Insurance
PSAGBI	Polis Standar Asuransi Gempa Bumi Indonesia (Indonesian Earthquake Insurance Standard Policy)
PSAKI	Polis Standar Asuransi Kebakaran Indonesia (Standard Policy of Indonesian Fire)
PSO	Public Service Obligation
RBL	Results Based Lending
RDPT	Reksa Dana Penyertaan Terbatas (Limited Participation Mutual Funds)
RE	Renewable Energy
REAF II	The Renewable Energy Asia Fund II
REIT	Real Estate Investment Trust
RESCO	Renewable Energy Service Companies
RLSF	Regional Liquidity Support Facility
RLU	PT Royal Lestari Utama
ROK	Republic of Korea
ROR	Rates of Return
RSF	Risk Sharing Facility
SCAF	Seed Capital Assistance Facility
SDG	Sustainable Development Goals
SERD	PT Supreme Energy Rantau Dedap
SJ	PT Surbana Jurong
SJNK	PT Sampo Japan Nipponkoa Insurance Inc

SKE	PT Selo Kencana Energi
SME	Social Medium Enterprise
SMI	PT Sarana Multi Infrastruktur
SOE	State-Owned Enterprise
SPC	Special Purpose Company
SPO	<i>Second Party Opinion</i>
SPV	Special Purpose Vehicle
STIBOR	Stockholm Interbank Offered Rate
S&P	Standard & Poor Index
TA	Technical Assistance
TAF	Technical Assistance Facility
TAS	Terrorism and Sabotage Insurance
TCX	The Currency Exchange Fund
TLFF	Tropical Landscape Finance Facility
UBP	Unit Bisnis Pembangkit (Power Plant Business Unit)
UNEP	United Nations Environmental Programme
USAID	United States Agency for International Development
USICSF	U.S.-India Catalytic Solar Finance Program
VGf	Viability Gap Funding
WBG	World Bank Group

# INTRODUCTION

Capital advanced towards green projects in Indonesia remains constrained. This is partly due to the lack of available financial vehicles and instruments that can meet risk-reward expectations of investors and unlock capital.

Despite the ongoing efforts by the Indonesian Government to create more conducive enabling policy in green sectors, funding into the green sector still remains the main issue as investors especially from the private sector still perceive green projects as high risk. As such, providing innovative financial mechanism to these green projects are imperative for attracting private capital and upscaling the impact. Therefore de-risking financial instruments are essential to stimulate investments in green projects, given the innovative and therefore uncertain nature of many of these projects. The use of financial instruments can help create an increased number of green project opportunities.

The key objectives of the study will be to:

- Support GGGI to research, identify, design/map out diverse implementable de-risking financial instruments available and applied in Indonesia across the full spectrum of the financial sector
- Advise GGGI on how these various financial instruments (products) can be assigned to certain investment targets/projects and for which cases they are suitable
- Advise on the advantages and disadvantages of these products, the underlying regulations governing the product, the available ecosystem structure or market enabling needs for the products and the party who frequently or occasionally utilizes the product
- Advise if certain instruments could be blended or modified to be applied in green Infrastructure or sustainable landscape projects for de-risking purposes

At the broadest macro-economic level, barriers associated with investment in RE projects were

categorized according to distinct but interrelated themes including:

- **Cognitive barriers**, which relate to the low level of awareness, understanding and attention afforded to RE financing and risk management instruments.
- **Political barriers**, associated with regulatory and policy issues and governmental leadership.
- **Analytical barriers**, relating to the quality and availability of information necessary for prudent underwriting, developing quantitative analytical methodologies for risk management instruments and creating useful pricing models for environmental markets such as carbon emissions permits.
- **Market barriers**, associated with lack of financial, legal and institutional frameworks to support the uptake of RE projects in different jurisdictions.

**At a macroeconomic level**, it is evident that stable policy support measures are needed to mitigate the real and perceived risks for investors in renewable energy projects and technologies. Only long-term policies can change the familiar pattern of commercial investment away from conventional energy sources in favor of large-scale investment in clean technologies. Respondents to questionnaires frequently cited lack of confidence in regulatory policies because of changing national and international prerogatives.

**At the project level** various risks and barriers were explored, many of which contribute towards the difficult commercial conditions for the sector. Some persistent challenges such as the often small scale of projects, technology risk, resource availability and supply risk, related particularly to the RE sector. Other barriers are generally applicable to utility projects (especially in developing countries) such as long lead times, high up-front costs, credit risk, construction delays, business interruption and physical damage issues.

## Project size matters

For larger projects (> US\$100mio) there is typically no lack of funders which are interested to lend to a project and many de-risking instruments are available for such projects locally and from international sources. But the smaller the project size gets the harder it is to find

lenders which are interested to look into these Renewable Energy projects as they require a similar due diligence to large scale projects and often carry a higher risk as not too much money is spent on qualified consultants, risk mitigation instruments and qualified contractors which come at a price.

Lenders also have minimum return requirements for each project to cover their costs which leads to a funding gap for small to mid-sized RE projects.

Project Finance is for such smaller projects also not an option due to the costs involved. Smaller investors/developers often lack the financial strength to support a project via a Corporate Lending structure by having a sponsor with a strong Balance Sheet and an existing track record in RE project development.

De-risking instruments described in this report are also not always applicable/available for all projects. Specifically instruments and financing tools from Multilaterals are hardly available for small scale private projects and are only channeled to lenders like PT SMI, IIF and others.

From an investment perspective various risks and barriers may have differing levels of financial significance depending on the management of the project, host country and the other investors in the deal. The presence in a deal of, say, an official bilateral insurer or the IFC can dramatically reduce the perceived credit risk to lenders. Credit enhancement tools have proven effective in attracting foreign capital to investment projects in many developing countries.

# 1. Risk Related to Financing of Renewable Projects

## 1.1. Risk Overview for Renewable Energy Projects

Generally, revenue exposure (as a result of project delays, damage/losses during fabrication, transport, installation, construction and operational stages) is of prime concern for financiers.

**Table 1: Risk Types for Renewable Energy Projects**

Risk Types for Renewable Energy Projects	
Fuel Supply Risk	The risk that the fuel supply will be unreliable, resulting in the inability to generate energy in the predictable and dependable manner.
Performance Risk	The risk that the plant will not operate according to the contractually prescribed requirements in terms of time and quality.
Demand Risk	The risk that the energy that has been contracted for will not be needed as anticipated.
Macroeconomic Risks	Local currency devaluation, inflation or interest rates increase.
Environmental Risk	The risk that future laws or regulations, or regulatory review or renegotiation of a contract, will alter the benefits or burdens to either party.
Political Risks	Political violence, expropriation or convertibility.
Nature	Force Majeure events
Other Risks	The parties to an energy contract face numerous other sources of uncertainty, including the risk that the transmission system will be unreliable, and the risk that a party to the contract will default on the contract, for example by entering into bankruptcy.

Table 2: Risk Overview for Renewable Energy Projects and where risks related to financing fits in

Area		#	Issue
1. Legal Framework Enabling	Business Environment Framework	1	Starting a business
		2	Property/concession rights
		3	Labor issues
		4	Dispute resolution issues
		5	Business travel rules
	RE Investment Framework	6	RE regulatory framework reliability
		7	Rules favoring market opening to IPP
		8	Grid capacity and reliability
		9	Grid access rules
		10	PPA/FiT schemes
		11	Competing policies
		12	Institutional actors' roles and responsibility
2. Risks affecting revenues		13	Revenue stability
		14	Availability studies covering resource assessment
		15	Risk of curtailment
		16	Ease of profits repatriation
3. Risks affecting costs	Construction	17	Permitting
		18	Availability of low skilled workforce (construction phase)
		19	Availability of experienced local manufacturers (operational phase)
		20	Logistics (construction phase)
		21	Security (construction phase)
	Operation	22	O&M weight due to local conditions
		23	Spare parts availability
		24	Availability of low skilled workforce (operational phase)
		25	Availability of experienced local manufacturers (operational phase)
		26	Logistics (operational phase)
		27	Security (operational phase)
4. Risks affecting financial structuring		28	Long term financing availability
		29	Short term credit availability
		30	Interest rate risks
		31	Exchange rate risks
		32	Currency convertibility
		33	Inflation risk
		34	Tax regime
5. Environmental and social issues		35	Environmental impact assessment procedures clarity
		36	Social acceptance

It is interesting to notice how the risk perception of a certain issue can influence the perception of risk on the other issues and overall of the country, either in a positive or negative way. Correlation among the risk perception is often strong when considering issues in the same area, however risk perception may also affect other areas. This is especially true when two issues have a common direct object.

## 1.2 Forms of Finance in Indonesia - General Overview

Investor confidence is critical to attracting financing. As a result, the type of financing available to renewable energy projects is largely dependent upon the risk management approaches adopted by the project's management and the instruments available to mitigate real and perceived risks.

The most significant risk allocation tools are the contracts governing each project participant's responsibilities.

Where risks are insurable, commercially available

insurance can play an essential part in ensuring that a successful financial structure is achieved by transferring risks.

**Table 3: Forms of Finance - General Overview**

Type of Finance	Advantages in RE context	Availability in Indonesia
<p><b>Private Finance</b></p> <p>from personal savings or bank loans secured by private assets.</p>	<p>Can often be the only available finance for small-scale projects.</p>	<p>Available but mainly used for small scale projects e.g. private house rooftop Solar PV or SME's where the owner guarantees the investment with his private assets.</p>
<p><b>Grant</b></p> <p>from the public sector are often designed to help a project developer share the costs of early stage development.</p>	<p>Key to moving certain projects and new technologies forward to commercialization.</p>	<p>Available and provided for many projects in the RE sector such as SolarPV, Biomass/Biogas or Mini/Micro Hydro projects. Sources are often CSR budgets or grants given by development agencies, governments or Multilaterals</p>
<p><b>Risk Capital</b></p> <p>is equity investment that comes from venture capitalists, private equity funds or strategic investors (e.g. equipment manufacturer).</p>	<p>Besides the developer's own equity and other private finance, risk capital is often the only financing option for RE projects.</p>	<p>Limited availability due to the lack of "feasible" projects in Indonesia, the regulatory framework, the reliability of contract partners and the complicated and lengthy licensing process. Restrictions on foreign ownership prevent also Risk Capital to flow into Indonesia as Risk Capital often demands majority in the project to ensure control over the project.</p>
<p><b>Mezzanine Finance</b></p> <p>groups together a variety of structures positioned in the financing package somewhere between the high risk/high upside equity position and the lower risk/fixed returns debt position.</p>	<p>Good scope for public/private funding. A number of RE mezzanine funds are active in developing countries.</p>	<p>Available in Indonesia by various institutions such as PT SMI, IIF, Multilaterals and Development Agencies/Banks.</p>
<p><b>Corporate Finance</b></p> <p>debt provided by banks to companies that have a proven track record, using "on-balance sheet" assets as collateral. Corporate sponsors required to accept risk and potential reward of a project in its entirety.</p>	<p>Mainly available to mature companies with strong asset base, debt capacity and internal cash flows. Structured finance in conjunction with the public sector offers scope for development. IFC deals offer some examples.</p>	<p>Available in Indonesia but mainly to well know existing customers of the banks which have shown their integrity and professionalism with other ventures the bank has already financed. A "newcomer" to the bank will face difficulties to obtain funding – exceptions are of course well know reputable and large customer groups which can borrow anywhere at attractive conditions as long as they guarantee the project.</p>
<p><b>Project Finance</b></p> <p>debt provided by banks to distinct, single-purpose companies, whose revenues are guaranteed by credit worthy off-take agreements. For renewable energy projects these are typically structured as Power</p>	<p>Long-term off-take agreements enable non-recourse finance for reasonable tenors. PPAs tend to be deeply discounted which reduces value to the developers. Sometimes regulatory risk is excluded which reduces lender appetite for such non-recourse debt.</p>	<p>In Indonesia only available from Offshore sources as there are no clear regulations on Project Finance in Indonesia. A kind of Project Finance locally can be found for very large scale Infrastructure Projects such as Toll Roads – but ultimately also here it comes down to the sponsors, their financial strength and their support for the project.</p>

Type of Finance	Advantages in RE context	Availability in Indonesia
Purchase Agreements (PPA's).	Limited scope for off-grid RE projects.	
<p><b>Participation Finance</b></p> <p>similar to Project Finance but the “lender” is a grouping of investors, for example a cooperative wind fund, that often benefit from tax and fiscal incentives.</p>	May be prepared to provide principal finance, which does not require long-term PPAs particularly when risks can be proactively managed and hedged.	Not known in Indonesia in general. There might be some isolated examples for off grid installations where private people develop something together.
<p><b>Risk Finance/Insurance Structures</b></p> <p>are used to transfer or manage specific risks through commercial insurers and other parties better able to underwrite the risk exposures and “smooth” revenue flows.</p>	Promising scope for developing new RE financing approaches in countries with functioning insurance markets.	Available in Indonesia for selected projects/clients via Credit Insurance. Onshore provided e.g. by ASEI but not very commonly used.
<p><b>Consumer Finance</b></p> <p>is often required for rural clients as a means of making modern energy services affordable. Once client creditworthiness is proven, the portfolio can be considered an asset and used as collateral for financing.</p>	Various types of micro-credit schemes are now being deployed in the solar home system market, for example, which often involve risk-sharing at the local and institutional levels.	Available in Indonesia in various forms. Asset securitization is also available but not very much developed.
<p><b>Third-party Finance</b></p> <p>where an independent party finances many individual energy systems. This can include hire-purchase, fee-for-service and leasing schemes, as well as various types of consumer finance.</p>	Asset backed finance offers some flexibility over traditional project finance structures and there may be some tax benefits.	Not developed in Indonesia due to a lack of a sufficient pool of projects.

### 1.3 Typical Financial Interventions Used to Address Lending Challenges

Typical financial interventions that have been used globally to address lending challenges have been the following:

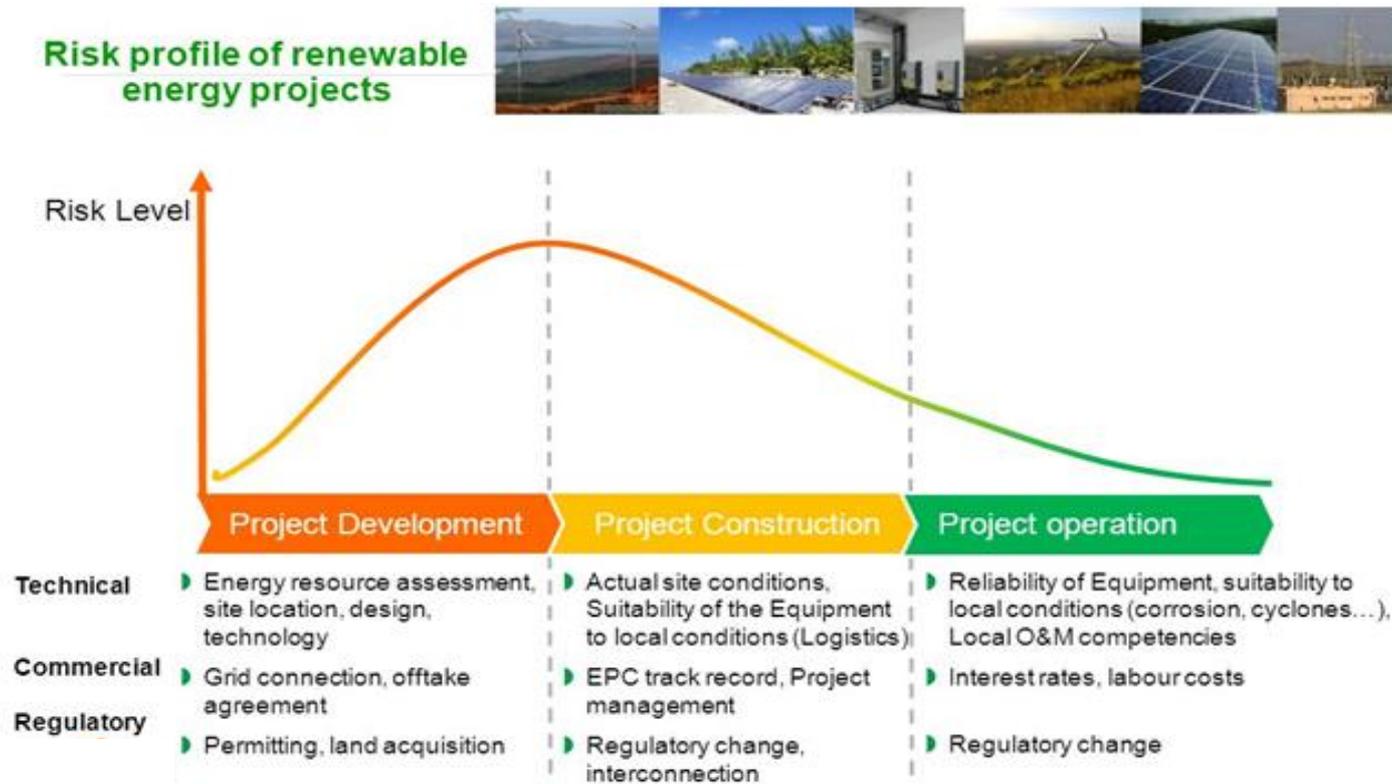
**Table 4: Typical Financial Interventions**

Instrument	Purpose	Usage in Indonesia
<b>Partial Guarantees</b>	Providing partial guarantees for lenders either covering part of all credit risks, or covering certain specific risks.	Available in various forms in Indonesia
<b>Co-lending</b>	Co-lending between development finance institutions (who may have more experience and/or higher risk tolerance) and commercial lenders	Available and allowed. Banks are happy to enter into such structures but due to limited project availability this instrument is not used as often as it should be (also because banks/lenders often don't want to "share" good assets in order to "fill and increase" their portfolio)
<b>On-lending</b>	On-lending whereby the development finance institutions provide credit lines for commercial lenders on softer / concessional terms, who then can blend this funding with their own commercial funding when extending debt for renewable energy investing.	Not commonly used in Indonesia as banks prefer to lend their own funds for cases where there are feasible projects. Most of the banks have ample own liquidity and look therefore not really for on-lending structures (as it will also decrease their margin on paper).
<b>Debt Fund operating as an independent lender</b>	A debt fund operating as an independent lender which may or may not invest together with commercial lenders	Not heard of in Indonesia.
<b>Interest rate subsidy</b>	Interest rate subsidy / interest rate buy-down as a direct subsidy for banks and project sponsors to pay part of the interest rate required by the banks that is seen excessive from projects' perspective, thereby lowering the cost of capital of renewable energy investments	Not yet available in Indonesia.

# 2. Major Concerns from Bank/Financial Institutions for RE Financing in Indonesia

The following risk profile reflects the concerns of the banks to finance RE projects. The closer it comes to COD the more likely is that banks get interested. After COD the willingness to finance is much larger than at the beginning of the project development.

Figure 1: Risk Profile of Renewable Energy Projects



Discussions with stakeholders and desk research has come to the following points which concern mainly onshore lenders most:

**Table 5 Concerns of onshore lenders to finance RE projects**

Topic/What's the issue?	Background	Institutions/Players
No or limited experience of the banks in the Renewable Energy Sector	<p>Due to a lack of experience neither the Credit Departments nor the Directors/Senior Management of many banks know the RE industry and the overall risks involved. They don't feel comfortable in the first place to approve something which they don't know and understand.</p> <p>Therefore the first hurdle is to convince the banks and their Senior Management to venture out into these new areas and identify them as potential business segment.</p>	Commercial Banks in Indonesia
Lending mainly to existing customers	<p>So far Renewable Energy projects are by most of the banks "only" accepted and financed when projects are introduced by existing customers which they know already from other sectors, are deemed reputable and reliable, and which are now investing in Renewable Energy. This existing customer relationship is very often the main and only reason why the bank also looks into specific RE projects.</p> <p>Reason behind that approach is that all investment loans have to be secured by collateral which the customer has to provide and very often this collateral comes in form of a (Corporate) Guarantee from the sponsor(s) combined with Fixed Assets of the project. If the bank does not know the sponsor which provides the collateral (hence guarantee) then it's very difficult and risky for them to evaluate the entire new customer group.</p>	Commercial Banks
Time and cost overruns during project implementation	<p>All banks which have financed RE projects so far, here specifically Mini Hydro projects, have experienced in the past significant cost and time overruns which have brought the repayment scheme and repayment ability in trouble and often in a quasi default situation. Banks then struggled to get the cost overrun funded by the owners/sponsors of the project.</p> <p>Main reasons mentioned have been faulty Feasibility Studies, inexperienced and incapable EPC contractors or contracting companies, faulty designs of the project, logistical and administrative problems and natural disasters like flooding, landslides and earthquakes.</p>	All lenders to RE in Indonesia
Lack on cash and equity buffer	Banks require in their lending agreements normally that owners are responsible to finance the cost overruns – but that's not always easy to impose and leads to problems between the bank and the project owners and results often in bad loan situations.	Commercial Banks

Lack of experience of developers in the RE sector	Equity participation of shareholders with experience in the Renewable Energy sector is recommended and often demanded by lenders as they know the risks and how to mitigate them. New players in the sector make and repeat mistakes which can be avoided. This equity participation in combination with technical know how and experience can come from EPC contractors, other contractors or the manufacturer of the main equipment used (e.g. Hydro Turbine manufacturer, Solar PV Panel Manufacturer, Biogas/Biomass manufacturer and so on). It can also come from Equity funds which specialize in such investments or Financial Institutions which are allowed and willing to co-invest in such projects.	Commercial Banks
Lack of collateral	Commercial Banks are very much focused on Fixed Assets, best is with a good market value which can be easily liquidated in case the loan goes into default. The main asset in RE projects is the PPA and its long term contract which does not fall under the category of Fixed Assets and therefore many projects fall short of acceptable collateral.	Commercial Banks
Off-taker payment risk	Banks are less with PLN's credit risk itself concerned as they perceive PLN as quasi Government risk, but by the risk that PLN does not offtake all power generated or delays payments which can cause defaults on installments.	Commercial Banks / PLN
IPP performance risk	Concerns that the IPP has performance issues and does not deliver the contracted and planned output of electricity to generate the revenues needed for the loan repayment. Doubts that the Feasibility Study predicted the output correctly and the assumed electricity is really generated. Banks lack experience with other projects and can't compare with similar projects.	IPP
FX risk	Equipment is sourced often offshore and has to be paid in foreign currency. The currency can move significantly between placing the order and payment to the supplier which can result in additional funding needs in IDR.	Commercial Banks

# 3. Financial De-Risking Instruments for Renewable Energy Projects

In general, the instruments can be categorized in 2 main sectors: **Capital/debt/equity facilitation** and **Risk Sharing**. In the following chapters the various instruments are described and provide an overall overview which tools and instruments are globally and locally available.

## 3.1 Rating as measurement tool for risk levels<sup>1</sup>

Rating of companies or projects which are engaged in Renewable Energy Projects can be a good tool to provide banks and investors an additional “independent” opinion on the credit risk of a potential borrower - acknowledging that all banks and investors have to do their own credit assessment in the first place as main credit risk management tool for their exposure/engagement.

### 3.1.1 Roles and benefits of Rating Agencies

Rating agencies assess the credit risk of specific debt securities and the borrowing entities. In the bond market, a rating agency provides an independent evaluation of the creditworthiness of debt securities issued by governments and corporations. Large bond issuers receive ratings from one or two of the big three

rating agencies. In the United States, the agencies are held responsible for losses resulting from inaccurate and false ratings.

The ratings are used in structured financial transactions such as asset-backed securities, mortgage-backed securities, and collateralized debt obligations. Rating agencies focus on the type of pool underlying the security and the proposed capital structure to rate structured financial products. The issuers of these products pay rating agencies to not only rate them, but also to advise them on how to structure the tranches.

Rating agencies also give ratings to sovereign borrowers, who are the largest borrowers in most financial markets. Sovereign borrowers may include national governments, state governments, municipalities, and other sovereign-supported institutions. The sovereign ratings given by a rating agency shows a sovereign’s ability to repay its debt. The ratings help governments from emerging and developing countries to issue bonds to domestic and international investors. Governments sell bonds to obtain financing from other governments and Bretton Woods institutions such as the World Bank and the International Monetary Fund.

#### Benefits of Rating Agencies

At the consumer level, the agency’s ratings are used by banks to determine the risk premium to be charged on loans and bonds. A poor credit rating shows that the loan has a higher risk premium, and this prompts an increase in the interest charged to individuals and entities with a low credit rating. A good credit rating allows borrowers to easily borrow money from the public debt market or financial institutions at a lower interest rate.

At the corporate level, companies planning to issue a security must find a rating agency to rate their debt. Rating agencies such as Moody’s, Standards and Poor’s, and Fitch perform the rating service for a fee. Investors rely on these ratings to decide on whether to buy or not to buy a company’s securities. Although investors can also rely on the ratings given by financial intermediaries and underwriters, ratings provided by international agencies are considered more reliable and accurate

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<https://corporatefinanceinstitute.com/resources/knowledge/finance/rating-agency/>

since they have access to a lot of information that is not publicly available.

At the country level, investors rely on the ratings given by the credit rating agencies to make investment decisions. Many countries sell their securities in the international market, and a good credit rating can help them access high-value investors. A favorable rating may also attract other forms of investments like foreign direct investments to a country. In addition, a low credit rating or relegation of a country from a high rating to a low rating can discourage investors from purchasing the bonds or making direct investments in the country. For example, the downgrading of Greece, Portugal, and Ireland by S&P in 2010 worsened the European sovereign debt crisis.

Credit ratings also help in the development of financial markets. Rating agencies provide risk measures for various entities, and this allows investors to understand the credit risk of various borrowers. Institutions and government entities can access credit facilities without having to go through lengthy evaluations by each lender. The ratings provided by rating agencies also serve as a benchmark for financial market regulations. Some laws now require certain public institutions to hold investment grade bonds, which have a rating of BBB or higher.

### 3.1.2 Rating of the Republic of Indonesia

Indonesia is rated as “Investment Grade” by all of the leading rating agencies:<sup>2</sup>

**Table 6: Indonesia’s Sovereign Credit Ratings**

Ratings agency	Ratings	Upgrade date
S&P	BBB	May 31, 2019
Moody’s	Baa2	April 13, 2018
Fitch	BBB	Dec. 21, 2017

The country rating determines internationally all other ratings in the country as the sovereign risk is typically one of the best risks available and all other private ratings are below.

With that credit rating the government is supporting through the following instruments investments in

<sup>2</sup> <https://www.bi.go.id/en/iru/presentation/red/Pages/Republic-of-Indonesia-Presentation-Book-December-2018.aspx>

infrastructure such as power generation:

**Table 7: Government Guarantee Program**

<b>Credit Guarantee</b>	<ul style="list-style-type: none"> <li>● <b>Power (Electricity)</b> - Full credit guarantee for PLN’s debt payment obligation under FTP 1 10,000 MW and 35GW</li> <li>● <b>Clean Water</b> - Guarantee for 70% of PDAM’s debt principal payment obligations</li> <li>● <b>Infrastructure</b> - Full credit guarantee on SOE’s borrowing from international financial institution &amp; guarantee for PT SMI’s local infrastructure financing</li> <li>● <b>Toll road</b> - Full credit guarantee for PT Hutama Karya’s debt payment obligation (Sumatra Toll Road Development)</li> <li>● <b>Public Transportation (Light Rail Transit)</b> - Full credit guarantee for PT Kereta Api Indonesia’s debt payment obligations for the development of LRT Jabodebek</li> </ul>
<b>Business Viability Guarantee (BVG)</b>	<ul style="list-style-type: none"> <li>● <b>Power (Electricity)</b> - Guarantee for PT PLN’s obligations under Power Purchase Agreements with IPP’s (off-take and political risk) under FTP-2 10,000MW and 35GW programs*</li> </ul>
<b>PPP Guarantee</b>	<ul style="list-style-type: none"> <li>● <b>Infrastructure</b> - Guarantee on the obligation of Government related entities in accordance to the Agreement</li> </ul>
*) MOF provides both credit guarantees and BVGs for 35GW program	

### 3.1.3 Local Rating Agency PEFINDO

As the oldest and the most trusted credit rating agency in Indonesia, PT Pemeringkat Efek Indonesia, mostly known as PEFINDO, was established on December 21, 1993 under the initiative of the Financial Services Authority of Indonesia (previously known as the Capital Market Supervisory Agency) and the Central Bank of Indonesia.

PEFINDO, which is the only locally-owned domestic credit rating agency, has been rating entities and their debt instruments listed in Indonesia Stock Exchange House. As of today, it has rated more than 700 companies and regional governments. Capital market instruments including the conventional senior- and subordinated bond, sukuk, medium-term notes (MTN), KIK-

EBA, and mutual fund have all been rated by PEFINDO. To develop the municipal bond market in Indonesia, PEFINDO, with strong support from the World Bank and Asian Development Bank, has started to rate regional governments since 2011. A strategic alliance with Standard & Poor's (S&P), the leading global credit rating agency, starting in 1996, has enabled PEFINDO to adopt a rating methodology of international standards.

PEFINDO has carefully diversified its operations. Services like PEFINDO25, a stock index comprising of selected small- and medium-size companies, and SME Rating are some of the initiatives that have already been launched.

To maintain its independency, PEFINDO is owned by a total of 86 entities (as of June 2018) representing key players in Indonesia capital markets in which no shareholder owns more than 50 percent.

A credit rating is PEFINDO's opinion on the general creditworthiness of an obligor, or the creditworthiness of an obligor with respect to a particular debt security or other financial obligation.<sup>3</sup>

Ratings can be provided for:

- Corporates
- Financial Institutions
- Municipality
- Mutual Fund Ratings
- Securitization Ratings
- Commercial Paper Ratings
- Subordinated Debt Ratings
- Real Estate Investment Trust (REIT) Ratings
- Perpetual Bond Ratings
- Others

Ratings are for many financial instruments mandatory to have.

## 3.2 Capital/debt/equity facilitation

<sup>3</sup> <http://www.pefindo.com/index.php/fileman/file?file=95>

Equity investment:

Equity financing refers to the sale of an ownership interest to raise funds for business purposes. To facilitate the project, public actors can also invest into it.

They include:

- Venture capital, by which capital investors provide early stage capital to entrepreneurs and start-up companies, or project developers. They take high risks and expect high returns.
- Stocks, which typically gives holders a share of the ownership of a corporation, as well as voting rights. Is a source of long term permanent capital for the corporation. In case of liquidation, the holders will get the remaining assets of the company only after the liabilities of the rest of creditors are satisfied.

Equity funds of pooled investment can be created to increase investment growth through capital dividends in several projects or companies.

### 3.2.1.1 Seed Capital

Governments or MDBs can provide a minimal initial investment in order to spur private investment and capital raising.

E.g.: UNEP's Seed Capital Assistance Facility addresses investment gaps in early stages, by providing financial support on a cost-sharing and co-financing basis to low-carbon and clean energy projects via private equity, venture capital, and project development companies.

Funded by public sector sources, UN Environment's Seed Capital Assistance Facility (SCAF) supports Private Equity Funds to develop pipelines of renewable energy and energy efficiency projects in frontier markets of Asia and Africa. It ended in 2018.

Example Indonesia:<sup>4</sup>

In order to secure a pipeline of bankable renewable energy projects, Armstrong is investing in a number of project development companies (DevCos) across South-East Asia. One such investment is in The Blue Circle, a vertically integrated DevCo of wind and solar projects in Indonesia, the Philippines and Thailand. The

<sup>4</sup> <https://www.scaf-energy.org/projects>

company brings international project development experience as well as financial expertise and capabilities together with local market understanding. In 2014, Armstrong entered into a partnership with The Blue Circle that included an investment of USD 1 million to seed-fund a number of project developments, as well as a framework for investing USD 40 million in projects that are fully permitted and have made it to full financial close. SCAF (SEED CAPITAL ASSISTANCE FACILITY) support of USD 200,000 has been provided for sourcing and coaching projects.

### 3.2.1.2 Grants

Grants can be provided in several sub-sectors. The grant component will ideally be capped at a certain percentage of the total capital investment or ongoing payment.

- **Technical Assistance:** Resource assessment and pre-feasibility studies; market development and capacity building; regulatory and legal reform or development; E&S studies,
- **Investment:** Upfront part financing of projects or as a subsidy element in the tariff component; pilot projects which will catalyse future investment in projects

Grants are typically provided for non-revenue generating activities such as knowledge management programs, capacity building programs, ongoing activities that do not generate financial return, and technical and costing plans. Generally, the main source of grants for climate change action has been international financial institutions, bilateral institutions, and international climate funds. Grants are often released in combination with debt capital.

Investment grants have been more popular in the early days of renewable energy technologies and are still used often in the context of newer and still unproven technologies. However, investment grants are less typical when promoting mature renewable energy technologies; the profitability is typically stimulated by enhancing the cash flows of the project rather than contributing to the initial investment cost directly. However, both systems exist, and in some cases are even used as a combination.

### 3.2.1.3 Convertible grants

Some governments and public finance institutions use convertible grants to mitigate geothermal resource risk during the exploration drilling process. For example, the EU, Germany, multilateral and regional development banks established the Geothermal Development Facility in Latin America. The facility has an initial resource of USD 75 million with commitments of an additional USD 1 billion (The Inter-American Dialogue, 2015).

The facility offers convertible grants for the entire value chain of exploratory drilling. If exploratory drilling turns out to be successful through the discovery of a resourceful and drillable well, the grant is converted to a loan. The project has to repay 80% of the funds received (KfW, 2015).

However, if it is unsuccessful, there is no financial commitment to repayment, and the grants are not converted to loans. This instrument specifically targets the high risk of exploration drilling, providing a safety cushion for projects to buffer against unsuccessful drills. At the same time it allows funding facilities to recover public funds with successful drilling outcomes.

### 3.2.1.4 Concessional and non-concessional debt

Lending or debt instruments provide borrowers with upfront funding in exchange for repayment of this funding (known as "principal") along with interest, based on pre-determined timeframes and interest rate terms.

Non-concessional loans are offered near or at market rates. Typically used for infrastructure or revenue generating projects

- **Concessional / Flexible Loans:** Concessional and flexible loans include special features like no or low interest rates, extended repayment schedules, and interest rate modifications during the life of the loan
- **Concessional / Flexible Loans through Financial Intermediaries:** Loans provided to projects through financial intermediaries, like commercial banks, under concessional / flexible terms. The public sector typically uses this financing approach to increase the comfort and awareness of financial intermediaries in lending to new or less established markets

Public loans can contribute to attract additional finance

from the private sector.

Concessional loans are offered on more generous terms than market rates, for example through features like zero or low interest rates, extended repayment schedule, and interest rate modifications during the life of the loan.

### 3.2.1.5 Example: JICA concessional loan to finance Patimban Port<sup>5</sup>

The Japanese and Indonesian Government had signed ¥118 billion (US\$1.09 billion) in a loan deal to help finance the construction of the Patimban port, funded mostly by the Japan International Cooperation Agency (JICA) under a 40 years tenor loan with interest rate of 0.1 per cent for the first phase.

### 3.2.1.6 Equity instruments

Equity investments provide a critical capital base for a company or project to grow its operations, access other sources of finance, and reduce investment risks faced by other project/company investors, especially debt investors who are repaid before equity investors.

#### ❖ **Direct Equity Investment**

Direct capital contribution to a project without the guarantee of repayment; the return on a direct equity investment will depend on the performance of a project/company over the investment period.

#### ❖ **Quasi-Equity**

Quasi Equity investments exhibit a mix of debt and equity characteristics in terms of ownership and claim to assets in the case of default. These investments' risk-return profile typically fall between debt and equity in a company's capital structure. Some types of quasi-equity may be converted from possessing debt to equity characteristics, and vice versa.

#### ❖ **Convertible Bonds**

A type of bond that can be converted into shares of common stock in the issuing company, or into cash of an equivalent value. A convertible bond is essentially a bond with a stock option; because interest is paid before any stock dividends, this is a safer instrument

for the lender relative to an equity investment.

#### ❖ **Subordinated Debt**

Riskier than traditional debt, subordinated debt has a lower claim on assets; that is, if a project/company falls into bankruptcy, subordinated debt will be repaid only after other, more "senior" debt is repaid. While subordinated debt is a riskier investment, investors can potentially achieve higher returns from subordinated debt investments relative to traditional debt.

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<sup>5</sup> <https://theinsiderstories.com/indonesias-picks-wika-ptpp-japans-penta-ocean-to-develop-patimban-port/>

### 3.2.1.6.1 Equity Liquidity Facilities - Example Sarulla Geothermal Project Indonesia

Available in Indonesia	Globally Available
Yes 	Partner in the project: Project owners

Contingent equity, which protects lenders in situations of unexpected cost overruns during project development. By putting equity aside, project owners provide a safety buffer for emergency funding for possible project cost overruns.

For example, this was used in a geothermal energy project to cover potential cost overruns related to unexpected drilling costs. Studies suggest that the cost of setting up a contingent capital facility may be more economical than the cost of a credit guarantee as long as the trigger events are well defined.

The consortium of owners set aside a tranche of contingent equity to mitigate completion risk during the exploratory drilling phase of the project (Project Finance International, 2014). The contingent equity is to be deployed if, for example, wells are drilled in the wrong place and more investment is required to cover the costs of the drilling program.

### 3.2.1.6.2 Mezzanine Financing

Available in Indonesia	Globally Available	
Yes 	Partner in the project:	Institutional Investors

Mezzanine financing is a hybrid of debt and equity financing that gives the lender the right to convert to an equity interest in the company in case of default, generally, after venture capital companies and other senior lenders are paid.

Mezzanine debt has embedded equity instruments attached, often known as warrants, which increase the value of the subordinated debt and allow greater flexibility when dealing with bondholders. Mezzanine financing is frequently associated with acquisitions and buyouts, for which it may be used to prioritize new owners ahead of existing owners in case of bankruptcy.

**How Mezzanine Financing Works:** Mezzanine financing bridges the gap between debt and equity financing and is one of the highest-risk forms of debt. It is subordinate to pure equity but senior to pure debt. However, this means that it also offers some of the highest returns when compared to other debt types, as it often receives rates between 12% and 20%+ per year.

Companies commonly seek mezzanine financing to support specific growth projects or acquisitions. The benefits for a company in obtaining mezzanine financing include the fact that the providers of mezzanine capital are often long-term investors in the company. This makes it easier to obtain other types of financing since traditional creditors generally view a company with long-term investors in a more favorable light and are therefore more likely to extend credit and favorable terms to that company.

**A number of characteristics are common in the structuring of mezzanine loans, such as:**

- In relation to the priority with which they are paid, these loans are subordinate to senior debt but senior to common equity.
- Differing from standard bank loans, mezzanine loans demand a higher yield than senior debt and are often unsecured.
- No principal amortization exists.
- Part of the return on a mezzanine loan is fixed, which makes this type of security less dilutive than common equity.
- Subordinated debt is made up of a current interest coupon, payment in kind and warrants.
- Preferred equity is junior to subordinated debt, causing it to be viewed as equity coming from more senior members in the structure of the capital financing.

**The Pros and Cons of Mezzanine Financing;**

Mezzanine financing may result in lenders gaining equity in a business or warrants for purchasing equity at a later date. This may significantly increase an investor's rate of return (ROR). In addition, mezzanine financing providers receive contractually obligated interest payments monthly, quarterly or annually.

Borrowers prefer mezzanine debt because the interest is tax-deductible. Also, mezzanine financing is more manageable than other debt structures because borrowers may figure their interest in the balance of the loan. If a borrower cannot make a scheduled interest payment, some or all of the interest may be deferred. This option is typically unavailable for other types of debt. In addition, quickly expanding companies grow in value and restructure mezzanine financing into one senior loan at a lower interest rate, saving on interest costs in the long term.

However, when securing mezzanine financing, owners sacrifice control and upside potential due to the loss of equity. Owners also pay more in interest the longer mezzanine financing is in place.

### 3.2.1.7 Funds and Structured Products

Funds and structured products allow investors to diversify their investments (thus improving their aggregate risk-reward profile) and reduce investment transaction costs, and improve borrower's access to finance especially for smaller projects.

- **Debt and Equity Funds**

Pooled investments in debt or equity of several projects and/or companies. The objective of debt funds is to preserve capital and generate income. The objective of equity funds is investment growth through capital gains or dividends. Both debt and equity funds may invest in sub-funds to further leverage their investment.

- **Structured/Securitized Products**

A broad class of highly customized investments where pools of assets, such as mortgages, are aggregated to create a new security, which is then divided up and sold to investors with different risk-return tolerances. These securities' repayment value depends on the performance of the underlying assets.

- **Pledge Funds**

A targeted private equity fund working towards a specific investment goal. Members make defined contributions to the investment pool over a period of time. Such an approach allows individual investors to consider

investment opportunities on a case-by-case basis and is often used as a format for venture capital investing.

### 3.2.1.8 Private Equity Fund – example Tanjung Priok Harbor<sup>6</sup>

Available in Indonesia	Globally Available	
Yes 	Partner in the project:	Institutional Investors

Bahana launched a private equity fund of \$35 million with Tanjung Priok Harbor as the underlying project. With 50 institutional investors committed to injecting capital, the fund will be used to acquire areas around the harbor.

### 3.2.1.9 Contingent Capital - Risk Finance (synthetic debt and equity)

**Basic Mechanism:** Insurance policy that can take the form of hybrid securities, debt or preference shares provided by (re) insurer to support and/or replace capital that the insured would otherwise be forced to obtain in the open market at punitive rates.

**Risks addressed:** Any contingent event that suddenly damages the capital structure of a project or enterprise.

### 3.2.1.10 Asset Aggregation – Example Jordan Solar PV Projects

Available in Indonesia	Globally Available	
No 	Partner in the project:	To be identified

Renewable energy projects tend to vary in terms of size. They range from very small, micro-scale (<100 kW) to large, utility-scale projects. Since transaction and due diligence costs tend to be similar for all project sizes, smaller-scale projects are at a relative disadvantage in attracting large-scale investors.

Banks are looking for larger deals partly to cover the due diligence and transaction costs involved and partly to have a meaningful impact on their portfolios. Institutional investors such as pension funds and

insurance companies require ‘benchmark-size’ deals greater than USD 300 million. This is because few institutional investors have the internal capacity or willingness to evaluate and underwrite individual renewable energy projects. Domestic institutional investors in developing countries may lack the capacity or mandate to form an in-house investment team to perform the due diligence, structuring and negotiations required for direct investment.

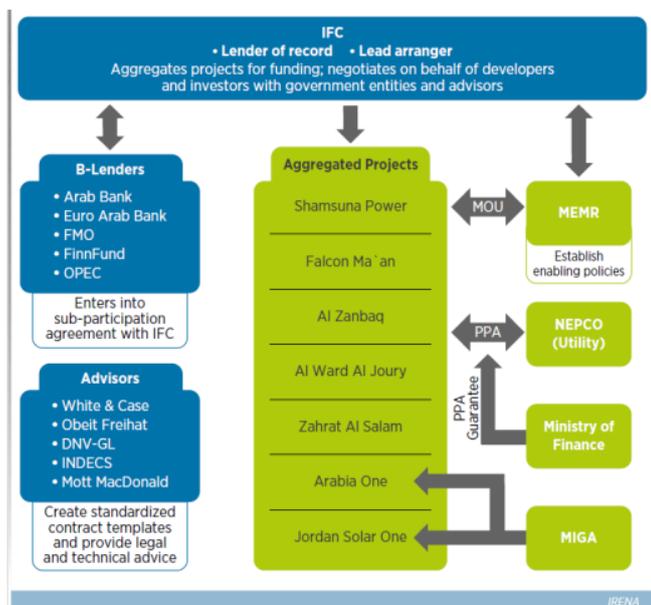
Aggregating smaller-scale renewable energy assets can help scale up the investment volume and reduce due diligence costs per project for institutional investors.

Asset aggregation in distinct structures permits the creation of various individual tranches to appeal to a variety of investor appetites, broadening the potential pool of capital providers. It can also increase the financing capability of DFIs. Assuming that the probability of default for any one project remains the same, the amount of reserves held by a DFI is much less when lending to an aggregated project than many individual projects.

The Jordan solar project case study (as per below) illustrates how multiple solar projects could be aggregated to improve the due diligence process and access larger pools of investments. Through aggregation, small or medium-scale renewable energy projects can improve their access to financing sources and investors. However, building a replicable aggregation model that can be scaled up requires strong support and commitment from governments as well as consensus on specific terms of standardization from industry stakeholders.

<sup>6</sup> <https://theinsiderstories.com/government-to-encourage-investors-accelerating-infrastructure/>

Figure 2 Structure of the Jordan Solar Deal



### 3.2.1.11 Example: Private Equity Renewable Energy Asia Fund II<sup>7</sup>

Available in Indonesia	Globally Available
Yes	Partner in the project: Renewable Energy Asia Fund II

fuels and thereby reducing their CO2 emissions.

### SKE - Hydro - Indonesia

Selo Kencana Energi (SKE) is a portfolio company of REAF II owning the 'Luduk Gadang' 8MW run-of-the-river hydro power project located in South Solok Regency, West Sumatra, about 170km southeast of the city of Padang, Indonesia. The project has been in operation since 2014.

The project was acquired in Q4 2016, and Berkeley Energy made several improvements, which includes optimization of the civil structure, health and safety measures and an upgrade of the electromechanical equipment. A fish passage is to be implemented to mitigate any impacts to migratory fish.

### 3.2.1.12 GEEREF - Equity investment fund - fund of funds<sup>8</sup>

Available in Indonesia		Globally Available	
Yes	No project in Indonesia so far	Partner in the project:	Various funds such as Armstrong

#### GEEREF IN A NUTSHELL

- GEEREF is a Fund-of-Funds advised by the European Investment Bank Group.
- GEEREF invests in private equity funds which focus on renewable energy and energy efficiency projects in emerging markets.
- GEEREF's funds concentrate on infrastructure projects that generate clean power through proven technologies with low risk.
- GEEREF's funds target attractive financial investments that also deliver a strong positive environmental and developmental impact.
- GEEREF had invested in 13 funds across Africa, Asia, Latin America and the Caribbean as of October 2018.

GEEREF invests in private equity funds which, in turn, invest in private sector projects. It is estimated that, with € 222 million of funds under management, over € 10 billion could be mobilized through the funds in which GEEREF participates and the final projects in which



### Renewable Energy Asia Fund II

The Renewable Energy Asia Fund II (REAF II) invests into small hydro, wind, geothermal, solar and biomass projects in Asian developing markets, with a primary focus in India, the Philippines and Indonesia. REAF II held its first close in March 2016 and final close in November 2017.

### Tasma - Biomass - Indonesia

Tasma is an early mover in the Indonesian market for sustainable energy supply for multinational corporations. Tasma has a portfolio of biomass-fired boiler projects under a Build-Own-Operate (BOO) model using agricultural and wood waste. Tasma has constructed and is operating a biomass boiler for Heineken, supporting them to reduce reliance on fossil

<sup>7</sup> <https://www.berkeley-energy.com/renewable-energy-asia-fund-ii/>

<sup>8</sup> <https://geeref.com/>

these funds invest.



## TECHNOLOGICAL SCOPE

GEEREF invests in specialist funds developing small to medium-sized projects in the following sectors:

- **Renewable Energy** – including small hydro, solar, wind, biomass and geothermal; and
- **Energy Efficiency** – including waste heat recovery, energy management in buildings, co-generation of heat and power, energy storage and smart grids.

GEEREF funds typically work with experienced local developers with a pipeline of projects seeking investment pre-construction.

**TARGET FUNDS' CHARACTERISTICS:** GEEREF engages with funds early in their development and seeks to enhance strategy, team capability and structure, being often the first cornerstone investor in a fund. Underpinning GEEREF's investment strategy is a fundamental commitment to financial, environmental and social sustainability, principles which are mutually reinforcing.

### Investment examples in Asia:

1. GEEREF has committed € 10.0 million to the Armstrong S.E. Asia Clean Energy Fund, managed by Armstrong Asset Management
2. GEEREF has committed € 12.5 million to The Renewable Energy Asia Fund, managed by Berkeley Energy
3. GEEREF has committed USD 15.9 million to the Renewable Energy Asia Fund II, managed by Berkeley Energy

### 3.2.1.13 Example: ARMSTRONG SOUTH EAST ASIA CLEAN ENERGY FUND<sup>9</sup>

Available in Indonesia		Globally Available	
Yes 	No project in Indonesia so far	Partner in the project:	Armstrong

<sup>9</sup> <https://geeref.com/portfolio.html>

<sup>10</sup> [www.armstrongam.com](http://www.armstrongam.com)

Armstrong is a private equity fund that invests in small-scale renewable energy and resource efficiency projects in Southeast Asia, focusing particularly on Thailand, Philippines, Indonesia and Vietnam. This strategy is driven by the high energy demand and strong market fundamentals in the region.

The investment strategy is based on a market demand supported by strong economic fundamentals; a commitment to positive social and environmental impact; risk minimizing through a portfolio of small-scale projects; no technology risk; the ability to generate early cash flows positive entry valuations due to lack of investor competition; competitive advantage as a result of the team's local operating experience; and a clear exit strategy.<sup>10</sup>

### 3.2.1.14 Subordinated Debt/Junior Debt<sup>11</sup>

Available in Indonesia	Globally Available	
Yes 	Partner in the project:	e.g. PT SMI

In finance, subordinated debt (also known as subordinated loan, subordinated bond, subordinated debenture or junior debt) is debt which ranks after other debts if a company falls into liquidation or bankruptcy.

Such debt is referred to as 'subordinate', because the debt providers (the lenders) have subordinate status in relationship to the normal debt. Subordinated debt has a lower priority than other bonds of the issuer in case of liquidation during bankruptcy, and ranks below: the liquidator, government tax authorities and senior debt holders in the hierarchy of creditors. Debt instruments with the lowest seniority are known as subordinated debt instruments.

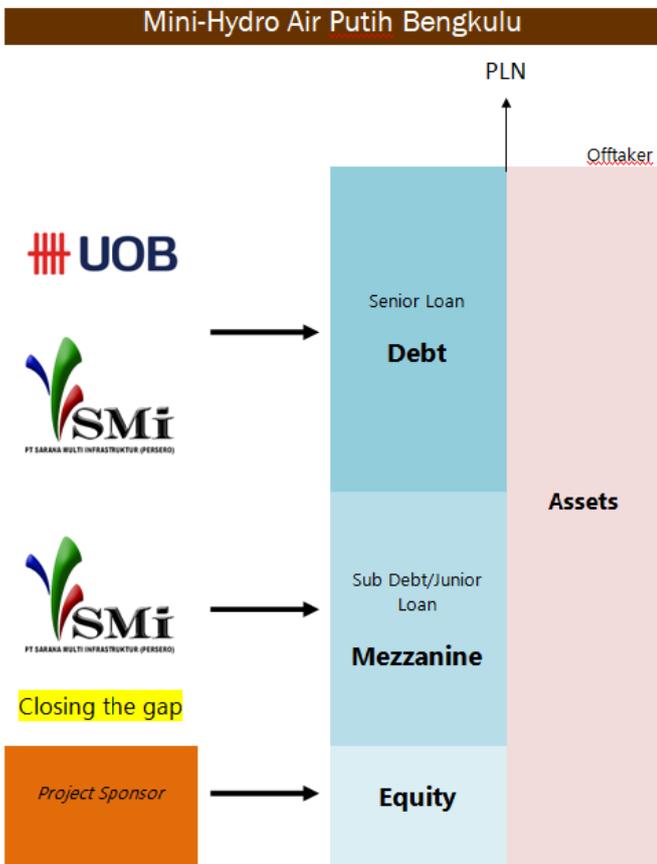
Because subordinated debts are only repayable after other debts have been paid, they are more risky for the lender of the money. The debts may be secured or

<sup>11</sup> [https://en.wikipedia.org/wiki/Subordinated\\_debt](https://en.wikipedia.org/wiki/Subordinated_debt)

unsecured. Subordinated loans typically have a lower credit rating, and, therefore, a higher yield than senior debt.

Example of Subordinated Debt/Junior Loan structure by PT SMI<sup>12</sup>

Figure 3: Mini Hydro Air Putih Bengkulu



- SMI and other Lender as senior creditor
- SMI as a creditor for subordinated loan
- Tenor: 9 years

### 3.2.1.15 Haji Fund Usage<sup>13</sup>

Haj Fund Management Agency (BPKH)

Available in Indonesia		Globally Available	
Yes	No project so far identified	Partner in the project:	Haj Fund Management Agency (BPKH)

Another alternative source of funding is the hajj saving account of prospective pilgrims, by the Ministry of Religious Affairs. This provides long-term income streams as returns from debts secured against real assets.

The hajj funds totals IDR95 trillion (USD7 billion) as of 2017. This can be used for financing infrastructure development in accordance to Sharia laws and can be secured for brown-field type infrastructures, such as toll roads and power plants that have already proven to produce stable cash flow with relatively low project risks.

The funds are typically invested only in bonds, sukuk and state securities.

### 3.2.1.16 Mutual Funds related to Infrastructure Projects

Available in Indonesia	Globally Available	
Yes	Partner in the project:	Institutional Investors

Mutual funds that can support infrastructure projects are limited participation mutual funds (RDPT) and collective investment contract-infrastructure investment funds (KIK-Dinfra).

The DINFRA infrastructure investment funds was created to support the 2015-2019 National Medium-Term Development Plan (RPJMN) to provide 'new, innovative investment products, which offer flexibility to investment managers when managing their

<sup>12</sup> [https://business.smu.edu.sg/sites/business.smu.edu.sg/files/AFLP/ModuleAgenda/ppt/Mod3A/6%20Slides\\_Day02\\_Session02\\_Edwin\\_Syahruzard.pdf](https://business.smu.edu.sg/sites/business.smu.edu.sg/files/AFLP/ModuleAgenda/ppt/Mod3A/6%20Slides_Day02_Session02_Edwin_Syahruzard.pdf)

<sup>13</sup> <https://www.thejakartapost.com/news/2017/08/07/indonesia-aims-to-have-world-largest-haj-fund-in-10-years.html>

investment portfolios’.

The initiation has started since 2017, when the company issued the first RDPT to support company expansion in the field of renewable energy.<sup>14</sup>

Bank Mandiri Group is active here with PT Mandiri Manajemen Investasi (MMI)

RDPT Mandiri Ekuitas Transjawa has underlying assets in the form of 20% shares in PT Jasamarga Semarang Batang, PT Jasamarga Solo Ngawi, and PT Jasamarga Ngawi Kertosono.

Another product, KIK-Dinfra is different than other investment products. The product offers flexibility in underlying assets, which can be in the form of debt securities and equity simultaneously.

### 3.2. 1.17 Equity Based Yieldco Structure<sup>15</sup>

Available in Indonesia	Globally Available	
No 	Partner in the project:	To be identified

Since 2014, the Yieldco structure has emerged as an option for energy utilities and other renewable energy asset owners to spin off operative assets from their balance sheets to develop, finance and implement new projects.

Equity based Yieldco structures can act as a potential channel to attract institutional investors into the renewable energy sector. In a typical Yieldco structure, an entity transfers its operative renewable energy assets into a new company it fully owns. This new entity is listed thereafter, and new equity is raised through a share issue, while the parent company typically remains as a significant minority owner in the Yieldco. Arrangements between the two entities may include sale and purchase of the operative assets offered by the parent to the Yieldco. The Yieldco then becomes a tax-efficient structure distributing its free cash flow entirely to its shareholders. This is achieved by offsetting taxable income with asset depreciation expenses.

Yieldcos can enable institutional investors to invest equity directly in corporations to own operational

<sup>14</sup> <https://www.pwc.com/id/en/media-centre/infrastructure-news/october-2018/mandiri-investment-management-prepare-kik.html>

renewable energy assets. Institutional investors can thus access a portfolio of renewable energy projects through Yieldcos as a new type of investment target with lower risks. This structure can allow risk diversification between individual projects in the large pool of renewable energy assets.

For example, pension funds such as Teacher Retirement System of Texas, the California State Teachers’ Retirement System and the California Public Employees’ Retirement System, have invested in shares of NRG Yield (OECD, 2015). The renewable energy assets in the Yieldcos typically have long term, fixed price and inflation-indexed revenue profiles. This means they are seen as entities that generate stable long-term cash flow to some extent similar to fixed income investments. The Yieldco structure is also considered a way to finance renewable energy projects at a lower cost of capital, typically aiming to provide 5%-7% equity return to their shareholders. Moreover, Yieldcos can enjoy tax benefits offered to renewable energy, minimising their taxation as long as they are able to grow the portfolio and use the depreciation and tax credits in the US as a tax shield.

In addition to addressing these barriers, Yieldcos can mitigate the following risks:

- As the assets will be purchased by the Yieldco only when they are operational, the investors in a Yieldco are not exposed to construction risk. This is carried by the parent company (project developer or utility), which tends to be more capable of assessing and managing the construction risk.
- The Yieldco is a publicly listed entity, and its shares can be traded on a stock exchange. This means the liquidity risk of a Yieldco to an investor is considerably lower than the liquidity risk related to ownership of an individual renewable energy asset.

The success of Yieldcos largely depends on growth and the ability to acquire new assets that can deliver steady cash flows. Yieldcos thus need to raise public offerings at high rates and maintain high share prices.

Investors have been increasingly concerned about the

<sup>15</sup> [https://www.irena.org/documentdownloads/publications/irena\\_risk\\_mitigation\\_and\\_structured\\_finance\\_2016.pdf](https://www.irena.org/documentdownloads/publications/irena_risk_mitigation_and_structured_finance_2016.pdf)

future of the Yieldco model after the share prices of most Yieldcos in the US fell sharply in 2015. Many analysts say this downturn occurred because demand for clean energy investments outpaced the actual performance and growth of the Yieldcos. The need of Yieldcos to keep originating and developing new, attractive projects may have diverted attention from actual project performance. Other challenges are evident. A financially distressed parent company can expose its Yieldco to liquidity risk. When the parent company is heavily leveraged and short of cash, it may use its Yieldco as a source of cash flow by selling off more of its assets to the Yieldco. Investors became uncomfortable when, for instance, Yieldco TerraForm Global made a series of acquisitions to purchase emerging market renewable generation assets developed by its parent company, SunEdison (Shen, 2016).

In addition, the rise of bond yields may increase the risk-adjusted returns expected from Yieldcos. This could undermine the low-cost financing benefit of such structures. Parent companies and their Yieldcos need to improve their performance and capacity in processing investment data on the project pipeline and in managing cash flows for profit distribution to shareholders. This will compensate for tightening market conditions.

Yieldcos may provide a promising option to scale up renewable energy finance. Challenges, however, need to be addressed by parent companies, especially when markets are tightening.

### 3.2.2 Asset Securitization<sup>16</sup>

Available in Indonesia	Globally Available	
Yes 	Partner in the project:	Local Banks

Aggregating individual projects and private company investments into liquid assets (e.g., through securitization), is critical to overcome investment hurdles, including liquidity risk, and to access larger pools of capital, but there is little experience to date in emerging markets.

However, some initiatives are raising financing successfully, including the Solar Energy Investment

Trusts, the IFC's Rooftop Solar Financing Facility in India, and the Green Receivables Fund in Brazil. For non-project-based financing, supporting energy generation companies, including distributed generation start-ups (via early stage blended risk finance) as well as established utilities (via risk mitigation instruments) to access capital markets financing will also help mainstream clean energy finance.

#### 3.2.2.1 Renewable energy asset securitization

Renewable energy asset securitization allows project sponsors to issue individual securities featuring a variety of ratings, risks and returns to correspond to different investor preferences. As securitization enables banks or other capital providers to access a secondary market, capital can be reinvested, replenishing the amount available for renewable energy projects. Creating a model for securitizing small-scale solar assets could thus significantly reduce the cost of financing and free up funding to accelerate this process.

The securitization process starts by grouping assets with similar characteristics and then selling them to a separate entity, usually an SPV, to protect the assets from any outside claims by creditors. The capital structure is then constructed to apply various claims on both the cash flows and market value of the project in the form of debt, equity and hybrid structures. Securitization takes this process a step further, issuing distinct and marketable securities (tranches) out of the trust, in order to create securities such as asset-backed securities. These can be sold in the financial markets. One way of creating highly rated securities is prioritizing the payback of certain tranches from low to high risk in a waterfall account. The cash flow waterfall represents the path of the energy payments from the individual assets within the SPV to the different tranches of the asset backed securities. Principal and interest payments first go to the highest rated security, usually called the senior tranche. The remaining funds are passed down to the next lower tranche. The junior tranche is last in line and thus has the first loss position.

Carving out different securities with unique risk and return features can result in a broader array of investments, which appeal to different segments of the investment community. Broadening the investor base

<sup>16</sup> <https://climatepolicyinitiative.org/2018/04/18/blending-finance-for-risk-mitigation/>

for these assets holds the promise of lowering the cost of capital by tapping in to new sources of investment.

A wide variety of financial instruments (guarantees, credit enhancements via liquidity facilities etc.) can be attached to the pool to reduce the risk of default. The credit quality of the securities issued can be raised in such a way that their credit rating is higher than the rating of the issuer.

### Example Solar PV asset securitization

However, solar photovoltaic (PV) technology has proven particularly amenable to securitization because it can be deployed in small units across a range of geographies to a range of offtakers. Aggregating these small units into larger portfolios allows for risk diversification that is more difficult to achieve with smaller portfolios of larger projects.

ABS securitization can help companies that own a large pool of assets refinance those assets in the capital markets at a lower cost than their existing financing. For example, consider a company that offers third-party finance options such as a power purchase agreement or lease to consumers to install solar systems on their rooftops. The company retains ownership of the solar assets and collects either lease payments or payments for energy from customers. Once the company amasses enough of these contracts, it can transfer them to a special purpose vehicle and issue securities against the expected value of the future cash flows. Investors purchase these asset-backed securities, essentially lending money to the company in the process; the company can use these funds for various purposes, including refinancing higher cost debt elsewhere in their capital structure or redeploying the capital to build new projects. The consumers who host the solar systems continue to pay their contracts monthly, and this cash is passed through the solar company (the securities “issuer”) to the special purpose vehicle and then ultimately distributed to investors in the form of principal and interest payments.<sup>17</sup>

### 3.2.2.2 Asset based securitization by State Owned Companies in Indonesia<sup>18</sup>

<sup>17</sup> <https://cleanenergysolutions.org/instruments/asset-backed-securities>

Available in Indonesia	Globally Available	
Yes 	Partner in the project:	Institutional Investors

Companies which issued asset back securities lately, partly to finance infrastructure projects:

- PT Jasa Marga Tbk. (IDX: JSMR) that offered Rp2 trillion (\$148 million) of asset-backed securitization product which toll-road revenue as the underlying asset with yield of 8-9 percent per annum.
- State power producer PT Perusahaan Listrik Negara (PLN) targeted to raise Rp10 trillion fund through assets securitization or asset-based security investment contract with underlying seven coal-fired power plants in Suralaya, owned by PT Indonesia Power.<sup>19</sup> The fund will be used to support the development of several new power plants, including Suralaya power plant units 9 and 10 in West Java, with a capacity of 2×1000 megawatts (MW). PLN needs to expand its sources of funding. One option is to securitize assets as the collective investment contract of asset-based security (KIK-EBA).
- National flag carrier Garuda Indonesia issued asset-backed securities under collective investment contracts (KIK-EBA) totaling Rp 2 trillion (US\$138.7 million) on the Indonesia Stock Exchange (BEI). The airline used the KIK-EBA as an instrument for asset securitization for its potential revenue from ticket sales for flights from Indonesia to Jeddah and Madinah.
- PT Bank Tabungan Negara (Persero) Tbk (Bank BTN) successfully listed IDR1 trillion asset-backed securities (Efek Beragun Aset) as a participation letter (EBA-SP). This was arranged, issued and credit enhanced by PT Sarana Multigriya Finansial (Persero). Backed with underlying mortgage credit.

There are five securities companies appointed

<sup>18</sup> <https://theinsiderstories.com/government-to-encourage-investors-accelerating-infrastructure/>

<sup>19</sup> <https://theinsiderstories.com/pln-to-raise-rp10-trillion-via-asset-securitization/>

as selling agents: PT CIMB Securities Indonesia, PT Mandiri Sekuritas, PT Danareksa Sekuritas, PT BNI Securities and PT Mirae Asset Sekuritas Indonesia.

EBA class A1 principal amount of Rp 200 billion with an interest rate of 8%. EBA A2 class of Rp 713 billion with type and interest rate of 8.40%. Each EBA is due on July 7, 2029. PT Bank Mandiri Tbk (IDX: BMRI) Rp 1 trillion backed with underlying mortgage credit.

### 3.2.3 Blended Concessional Finance

Available in Indonesia	Globally Available	
Yes 	Partner in the project:	DFI's

Blended concessional finance seeks to unlock untapped investment into sustainable development, especially from the private sector, in the spirit of the “Billions to Trillions” narrative. The increasing use of concessional funds blended with Development Finance Institutions’ (DFIs’) own financing and that of others on commercial terms has brought the DFIs together to help set common standards for implementation and to review the merits and adequacy of existing approaches.

The ultimate objective of this work, undertaken in phases, with a distinct focus on private sector operations, is to increase development impact, crowd-in private investments while ensuring minimum concessionality, and enhance trust and transparency for the use of blended concessional finance from DFIs. It also aims to share and promote the use of such best practices in blended concessional finance implementation by other market players.

#### 3.2.3.1 Example ASIAN DEVELOPMENT BANK (ADB) Geothermal Power Project<sup>20</sup>

##### Muara Laboh Geothermal Power Project Project Description.

The project involves the construction and operation of an 80 MW geothermal power project in Sumatra, Indonesia, which commenced development in 2010 and reached financial close in 2017. The project will make use of dual flash geothermal technology to increase the potential resource utilization; technology which has not

commonly been used in Indonesia. The project was financed through a limited-recourse, long-term project financing structure, and commercial operations are expected to commence in 2019.

**Use and Rationale for Blended Concessional Finance.** ADB provided long term concessional debt to the project from its CTF Private Sector Geothermal Energy Program alongside its own account financing. Following the financing of the Sarulla and Rantau Dedap geothermal projects in Indonesia, this is the third project supported by the program. Blended concessional finance was used to help de-risk these geothermal projects, to boost private sector participation and to provide lessons in structuring and risk sharing for utilization on future projects.

##### Expected Impact.

The project is expected to help demonstrate the viability of large-scale geothermal power projects being developed by independent power producers. By encouraging new geothermal baseload power generation, the project will help displace fossil-fuel-generated power and assist the government’s efforts to utilize private sector financing to achieve growth targets. The 80-MW plant is estimated to produce over 600 gigawatt hours of renewable energy per year, reducing Indonesia’s carbon emissions by 470,000 tCO<sub>2</sub>e per annum. The project will help demonstrate the bankability of a new power purchase agreement for geothermal projects upon which subsequent projects are likely to be financed.

#### 3.2.4 Leading Asia’s Private Sector Infrastructure Fund<sup>21</sup>

Available in Indonesia	Globally Available	
Yes 	Partner in the project:	ADB

An infrastructure co-financing fund, established by ADB, that supports PPPs, joint ventures, private finance initiative projects, and privatizations, as well as conventional project finance by providing financing to companies, projects, and financial intermediaries (e.g., holding companies and local currency vehicles) linked to

<sup>20</sup> <https://www.adb.org/sites/default/files/institutional-document/457741/dfi-blended-concessional-finance-report.pdf>

<sup>21</sup> <https://www.adb.org/site/funds/funds/leap>

## Infrastructure

The Leading Asia's Private Sector Infrastructure Fund (LEAP) was established in March 2016. The fund is an infrastructure co-financing fund, expected to leverage and complement ADB's existing non-sovereign platform to fill financing gaps and increase access to finance for infrastructure projects in the region. Japan International Cooperation Agency (JICA) has made a contribution to the fund.

The fund will provide co-financing to non-sovereign infrastructure projects at different stages of development, including early stage, growth stage, and greenfield and brownfield projects. It will support projects with strong anticipated development impacts and alignment with the strategies of ADB and JICA. The fund will undertake project finance (nonrecourse or limited recourse) and corporate finance transactions, and will seek to support a range of private sector participation modalities including public-private partnerships, joint ventures, private finance initiative projects, and privatizations, as well as conventional project finance.

Eligible project types will include the following infrastructure subsectors:

1. energy, including renewable energy generation, energy efficiency and conservation, and natural gas transmission and distribution;
2. water and other urban infrastructure and services, including water, wastewater, and solid waste management;
3. transport, including road transport, water transport, rail transport, air transport, multimodal logistics, urban roads and traffic management, and urban public transport;
4. information and communication technology; and
5. health.

The fund will extend ADB's operations by deploying both commercial and concessional capital from the same fund, and co-financing will be provided in the form of loans, equity investments, and mezzanine finance transactions.

The fund will provide financing to companies and

projects, as well as to financial intermediaries (e.g., holding companies and local currency vehicles) where there is a link to Infrastructure (with the exclusion of private equity funds).

Eligible countries include ADB developing member countries that are also eligible for official development assistance (ODA) from Japan. The Japan International Cooperation Agency (JICA) supports the fund.

### 3.2.4.1 Project Funded in Indonesia: Muara Laboh Geothermal Project

The Asian Development Bank is funding the Muara Laboh geothermal project with \$109 million through a new private Infrastructure fund, own capital and the Clean Technology Fund.

The Asian Development Bank (ADB) signed a \$109 million financing package for the Muara Laboh geothermal project in West Java. The financing is part of ADB's efforts to scale up private sector-led infrastructure development in Asia and the Pacific and boost support for clean energy.

The project will be one of the first transactions to receive funding from ADB's newly established Leading Asia's Private Infrastructure Fund (LEAP). The Fund is capitalized by \$1.5 billion in equity from Japan International Cooperation Agency (JICA), and is managed by ADB's Private Sector Operations Department. With the Muara Laboh approval and other recent LEAP financings, over \$200 million of LEAP funds have been allocated.

On completion, the Muara Laboh geothermal facilities, located in West Sumatra, will generate 80 MW of electricity. The assistance is funded by a \$70 million loan from ADB's own capital and a \$19 million participation from the Clean Technology Fund (CTF), which provides middle-income countries with concessional resources for the demonstration, deployment and transfer of low-carbon technologies. ADB administers over \$1.1 billion of CTF, one of the four programs comprising the Climate Investment Funds.

The project brings together an important set of geothermal project developers and financiers. The project company, PT Supreme Energy Muara Laboh, is a joint venture consisting of the Indonesian geothermal power developer, PT Supreme Energy; the Japanese trading and investment company, Sumitomo

Corporation; and global energy leader ENGIE. In addition to ADB, financing is being provided by the Japan Bank for International Cooperation and a set of commercial banks under a guarantee from Nippon Export and Investment Insurance.

### 3.2.4.2 Funds for Distributed Energy Generation<sup>22</sup>

Available in Indonesia	Globally Available	
No 	Partner in the project:	To be identified

*Distributed generation* also faces scarcity of investment at the earliest stages— including equity and debt— particularly in countries with under-developed financial sectors. ACEF sought to address this barrier as well through grants, while, in India, a group of philanthropies is working to build the India Catalytic Solar Finance Facility, which will use catalytic capital to help non-bank financial companies establish new business lines by co-investing in small and medium sized enterprises that are seeking to scale their clean energy businesses or deploy distributed solar generations.

#### Example India - Credit Support Pathways for Rooftop Solar Projects in India

Developers are hesitant to offer Power Purchase Agreement-based terms to a large section of prospective clients in the MSME segment. This is mainly due to the lack of historical financial performance record and uncertainty around the creditworthiness of off-takers. Further, lack of collateral makes banks reluctant to provide long-term financing to these projects. Thus, there exists a strong need for credit support mechanisms that can help address the key barriers to access to debt financing, i.e. payment delay and/or payment default, for expansion of rooftop solar to MSMEs.

This instrument design case study for the U.S.-India Catalytic Solar Finance Program (USICSF) proposes the use of a Credit Guarantee Mechanism to overcome these barriers to further scale-up rooftop solar for MSMEs.

The proposed Credit Guarantee Mechanism (CGM) works as a bilateral loss-sharing agreement between a CGM Trust Fund and Lending Institutions (Banks/ FIs) as illustrated in Figure 3.3 in this structure, a Facility Manager, under the guidance of the Trustees of the

<sup>22</sup> <https://climatepolicyinitiative.org/2018/04/18/blending-finance-for-risk-mitigation/>

CGM Trust Fund, extends credit guarantees to participating lending institutions. Based on these credit guarantees, lending institutions then extend debt financing to renewable energy service companies (RESCOs), who enter into off-take agreements with MSMEs to install rooftop solar.

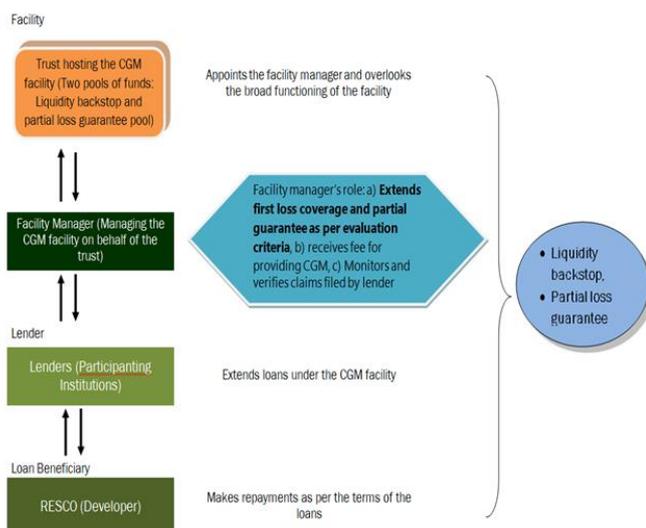
The Facility Manager, as per the agreement within the credit guarantee, commits to support lending institutions in case of delay in debt servicing and also reimburses the lending institutions for a portion of the losses incurred due to payment default by the RESCO.

Overall, a CGM is effective because it takes lenders' requirement for credit support in the event of payment delay or payment default into consideration. A CGM has an additional benefit of lowering the collateral required against the loan raised by the RESCO.

*We find that under Credit Guarantee Mechanism, one million dollars of donor grant capital invested in the facility enables US\$14 million of capital mobilization, and a capacity installation of 18 MW in the rooftop solar sector.*

The proposed Credit Guarantee Mechanism addresses the most important barriers to scaling rooftop solar in the MSME sector; and could be crucial if India wants to achieve its rooftop solar target by 2022. Thus the use of a Credit Guarantee Mechanism is beneficial to scale-up rooftop solar in the low rated/unrated MSME/ general enterprises segment.

**Figure 4: Structure of Credit Guarantee Mechanism**



### 3.2.5 ASEAN Infrastructure Fund<sup>23</sup>

Available in Indonesia	Globally Available	
Yes 	Partner in the project:	ADB and ASEAN Members

The ASEAN Infrastructure Fund (AIF) is a dedicated fund established by ADB and ASEAN member nations to address the ASEAN region's infrastructure development needs by mobilizing regional savings, including foreign exchange reserves. All AIF-financed infrastructure projects are also co-financed by ADB funds. The AIF is an integral part of ASEAN's efforts to strengthen regional connectivity.

ADB is the AIF's administrator, and ADB also provides technical support. ADB's Regional Cooperation and Operations Coordination Division, Southeast Asia Department, is the focal point for the administration of the AIF. ADB also acts as a co-financier and the lender of record for AIF loans.

The AIF aims to provide loans of around \$300 million a year to finance infrastructure investment projects in the transport, energy, water and sanitation, environment and rural development, and social infrastructure sectors. Examples include renewable energy plants, roads or highways, and transmission and power grid development.

Projects are selected based on sound economic and financial viability, positive impact on social development and poverty reduction, promotion of regional cooperation and integration, and enhancement of private sector participation and/or public-private partnerships (PPPs).

AIF's projects are part of ADB's project pipeline, based on ADB's Country Partnership and Strategy and Country Operations Business Plan with the member countries. The AIF project pipeline is confirmed by the respective ASEAN developing member countries through ADB's country programming missions, and must also be approved by the AIF's Board of Directors.

The AIF provides financing to **sovereign or sovereign-guaranteed projects in the ASEAN region**. It expects to allocate up to 10% of its annual financing to non-

<sup>23</sup> <https://www.adb.org/site/funds/funds/asean-infrastructure-fund>

sovereign projects in the region.

Project proponents for national and sub-regional infrastructure projects in ASEAN developing countries can apply for funding to be co-financed by ADB and AIF.

Shareholders include Brunei Darussalam, Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, the Philippines, Singapore, Thailand, Viet Nam, and ADB.

### 3.2.5.1 Results Based Lending (RBL) Proram for PLN<sup>24</sup>

The Asian Development Bank (ADB) has announced the first disbursement of \$120 million under a \$600 million results-based lending (RBL) program to strengthen the electricity grid in Sumatra, after the state-owned power company Perusahaan Listrik Negara (PLN) met the conditions for release of the funds.

ADB approved in December 2015 two loans—\$575 million from its ordinary capital resources and \$25 million from the ASEAN Infrastructure Fund—totaling \$600 million for a RBL program to strengthen the Sumatra electricity grid in Indonesia. This was the first ever RBL (Results Based Lending) program globally in the energy sector, as well as ADB's first loan to a State Owned Enterprise, PLN, with a Government of Indonesia guarantee.

This RBL loan will finance the upgrading of the power grid on the island of Sumatra to meet growing power demand efficiently and effectively. It will also connect at least 13 million new customers to an expanded and stronger power grid. The program utilizes the RBL financing instrument to support PLN's program for expanding and improving Sumatra's grid, and seeks to help improve the PLN's corporate systems for the design and delivery of the grid upgrading program.

<sup>24</sup> <https://www.adb.org/news/adb-releases-funds-results-based-loans-improve-sumatra-power-grid>

## 3.2.6 Green Bonds<sup>25</sup>

Available in Indonesia	Globally Available	
Yes 	Partner in the project:	Various issuer

The unique characteristic of Green Bonds is the requirement that the proceeds must be invested in projects that generate environmental benefits ("green projects"), otherwise, they are no different from conventional bonds. The first Green Bond was issued in 2007 by the European Investment Bank, as a structured bond with proceeds dedicated to renewable energy and energy efficiency projects. Since then, Green Bonds have gained tremendous momentum.

As any other type of bond in the Indonesian capital market, issuers of Green Bonds must adhere to the capital market regulation on debt securities, with additional characteristic of:

- **Eligible projects** - Green Bonds can only be issued to finance eligible green projects. The regulation specifies 11 types of eligible green projects, including renewable energy, energy efficiency, biodiversity conservation, clean transportation, climate change adaptation, and sustainable waste management.
- **Use of proceeds** - The regulation stipulates a minimum of 70 percent of proceeds from the Green Bond sale shall be used to finance the agreed green projects.
- **Management of proceeds** - Issuer has to manage the proceeds from green bond and report on the use of proceeds. As part of the management of proceeds, issuer should create a separate account or disclose in a specific note in the financial statement.
- **Reporting and verification** - The environmental benefit of the projects should be clearly defined and verified by an independent third party. The performance of the green bond and projects should be reviewed by an independent third party and the result shall be reported annually to the Financial Services Authority. In the case

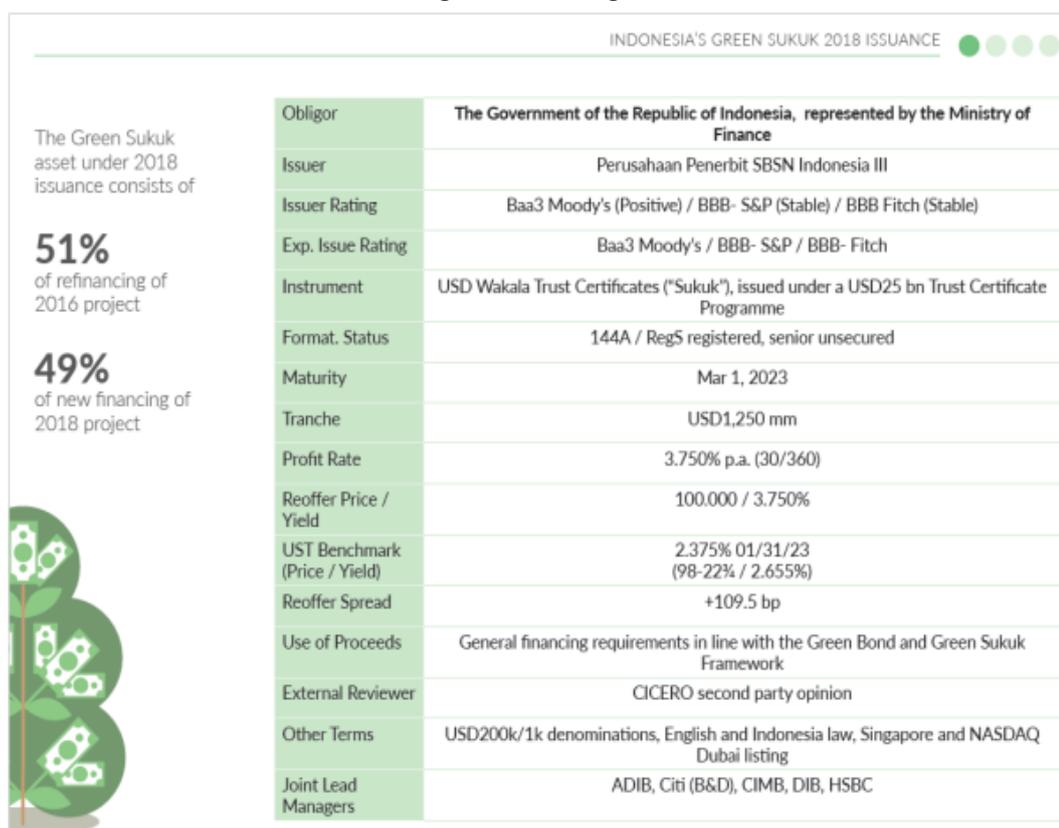
<sup>25</sup> <https://www.ey.com/id/en/services/assurance/climate-change-and-sustainability-services/ey-future-wave>

that the underlying projects no longer meet the green project criteria, the issuer shall define the action plan for remediation and will be given one year to execute the action plan. In the case that the action plan fails to restore the green eligibility criteria of the project, the bond holders may seek the issuer to buy back the green bond or to increase the coupon rate.

The success of Green Bonds relies on their ability to maintain the environmental benefit of the investment and build trust in the market of their “green” claims. Therefore, most Green Bond standards encourage or require the issuers to undertake an assessment or review by independent opinion providers to ascertain the greenness of the underlying projects/assets of the Green Bond. Second opinion providers and verifiers play a very critical role in the process; building trust, integrity and transparency needed to facilitate a credible Green Bond market.

Typical third parties oversight on Green Bond issuance are:

- Consultant review
- Verification
- Certification
- Rating



Green Sukuk. This initiative is aligned with Indonesia’s aim to achieve the SDGs goals.

Figure 5: Indonesia’s Green Sukuk 2018 Issuance

<sup>26</sup> <http://www.ndcs.undp.org/content/dam/LECB/docs/pubs-reports/undp-ndcsp-green-sukuk-share.pdf>

Figure 6: Demand & Allocation of the Issuance

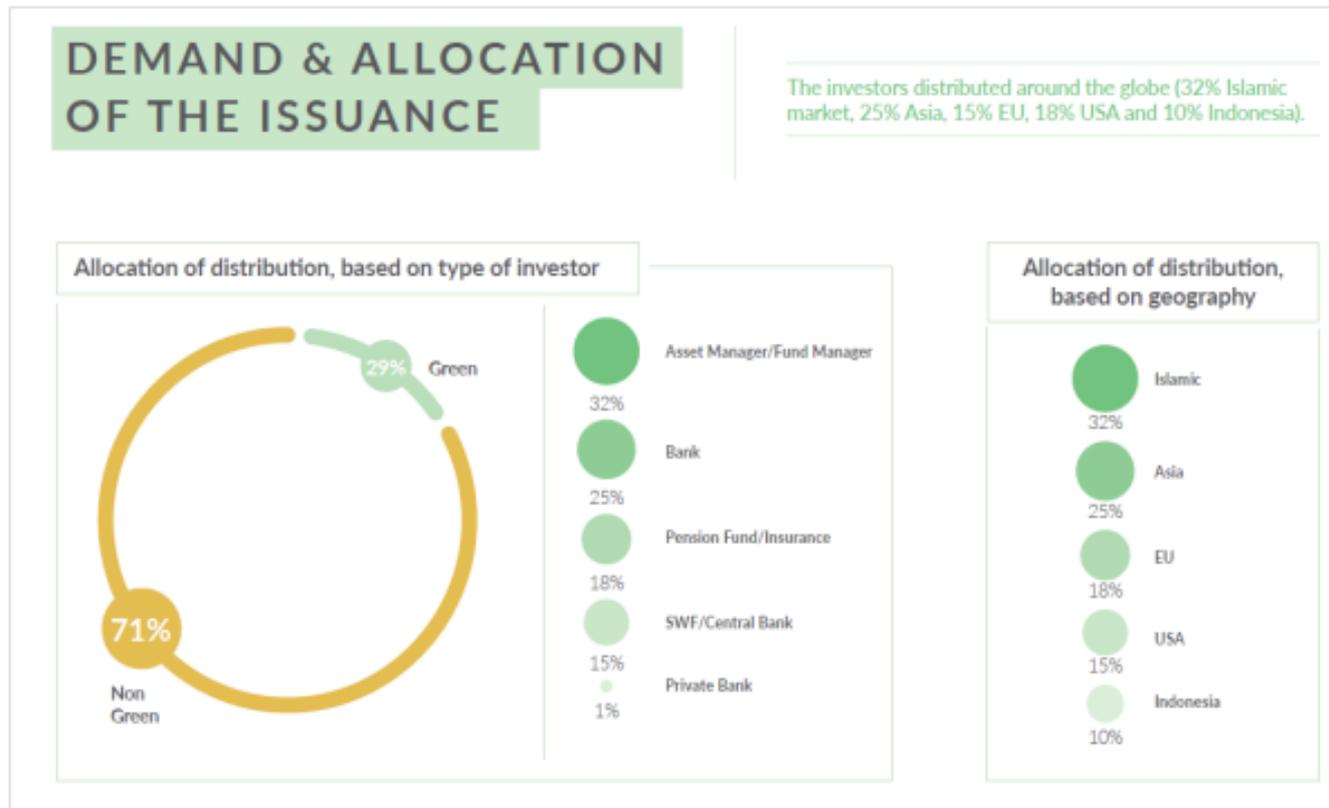
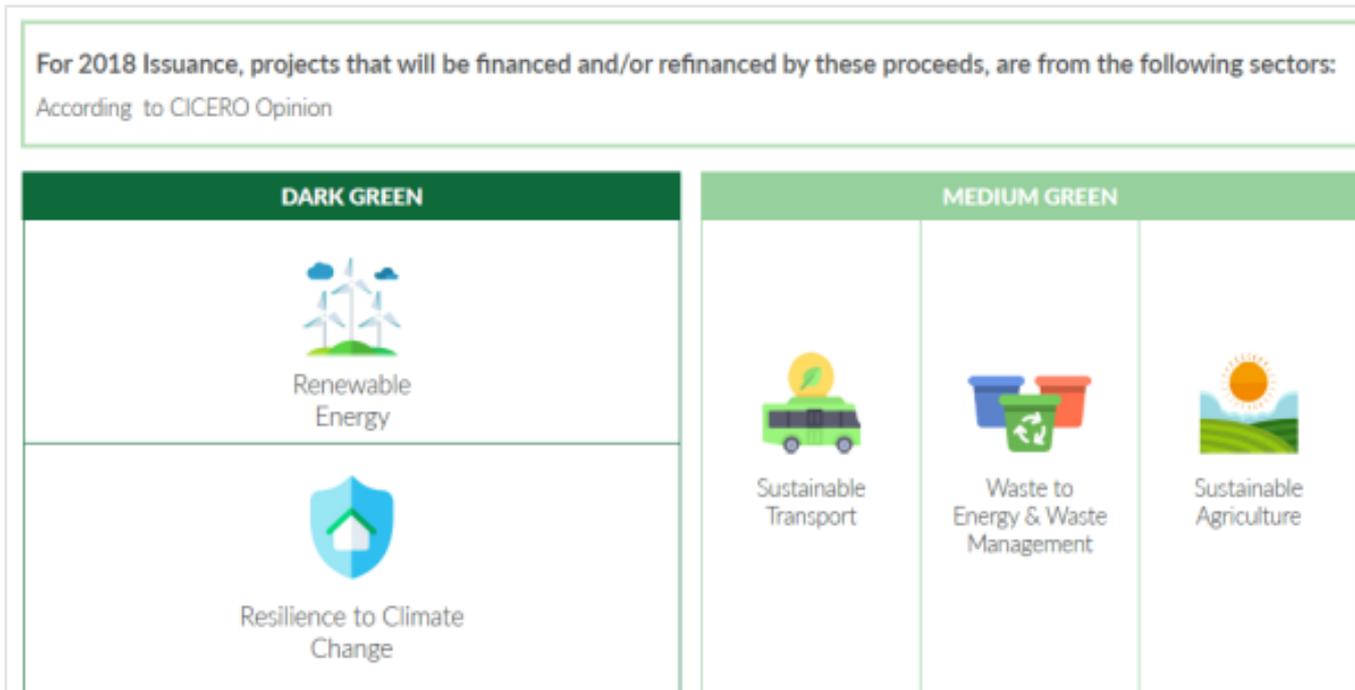


Figure 7: Dark & Medium Green



## GREEN PROJECT HIGHLIGHTS

Green Bond and Green Sukuk 2018 Issuance finances a number of projects dedicated to climate change mitigation and adaptation activities.



**Figure 8: Green Project Highlights:**

USD Date issued: 24 April 2018 Maturity: 24 April 2033 External review: SPO by Carbon Trust Use of proceeds: Geothermal power plant,

- Sector: Land use / agriculture Issuer: Tropical Landscapes Finance Facility Issuer type: Non-Financial Corporate Amount: 95m Currency: USD Date issued: 23 February 2018 Maturity: 23 April 2033 External review: SPO by Vigeo Eris Use of proceeds: Sustainable natural rubber plantation and small-scale farming on degraded land,
- Sector: Energy, Buildings, Transport, Water and Waste Management, Land Use, Adaptation Issuer: Republic of Indonesia Issuer type: Sovereign Amount: 1,250m Currency: USD Issue date: 1 March 2018 Maturity: 1 March 2023 External review: SPO by CICERO Use of proceeds: Specific projects to be determined from eligible categories,
- With a \$150 million investment from IFC, a

Indonesia issued US\$ 2b global green, regular sukuk in February 2019<sup>27</sup>

The government has tapped into the global sukuk (Islamic bonds) market, issuing green sukuk worth

- US\$ 750 million with a five-and-a-half-year maturity period and
- a 10-year tenor of \$1.25 billion regular sukuk
- The yield of the five-and-a-half-year sukuk was at 3.9 percent that of the
- 10-year sukuk was recorded at 4.45 percent.

### 3.2.6.2 Other Green Bonds issued by the Private Sector in Indonesia

The following green bonds have been issued by the private sector:

- Sector: Geothermal Energy Issuer: Star Energy Geothermal (Wayang Windu) Issuer type: Non Financial Corporate Amount: 580m Currency:

<sup>27</sup> <https://www.thejakartapost.com/news/2019/02/18/indonesia-issues-us-2-27b-global-green-sukuk.html>

member of the World Bank Group, OCBC NISP Bank, a subsidiary of OCBC Singapore, launched the country's first green bond issued by a financial institution in Indonesia. The bond has a five year tenor to help the bank fund longer term green projects.

### 3.2.7 Liquidity Risk Mitigation Instruments

Liquidity risk may be a key concern to renewable energy investors when, for instance, utilities are affected by liquidity constraints or when the timing of cash receipts and payments is mismatched. Liquidity risk mitigation instruments can involve various financial instruments to provide short term cash flow to a project or company or to extend time to improve a project's liquidity profile. Liquidity facilities are commonly used in project finance, either internally within a project structure or externally alongside the special purpose vehicle (SPV).

Put options, although less commonly used in renewable energy investments, can provide an opportunity to extend loan tenors at a cost of option premium. Such liquidity risk mitigation instruments are particularly useful to address the liquidity and credit risks of a renewable energy project developer or power off-taker.

- It can be a financial arrangement, such as a line of credit, used to provide critical short-term cash flow to a project or company or
- A foreign exchange liquidity facility, which is a type of liquidity facility that allows borrowers to draw upon the facility to help manage fluctuations in foreign exchange rates.

#### 3.2.7.1 Internal Liquidity Facilities

Internal liquidity facilities can be employed to advance or support payments to bridge short-term cash flow problems and help ensure timely payment to investors.

Examples of internal liquidity facilities include:

- Debt service reserve accounts, which provide a distinct source of funding for a limited period of time in the event of insufficient cash flow.
- Excess spread accounts, which accumulate cash flow above that required for debt service in a separate account supplying a source of funds if cash flow falls short of requirements

- Over-collateralization, which provides additional assets which the SPV can draw on to supplement the cash flow available for debt service. It occurs when more collateral than needed is posted to secure financing, which results in a bond issuance that is less than the total value of the underlying assets.

Example: when SolarCity issued its first asset backed securities in 2013, about 62% of the value of the underlying assets (solar PVs) was held as over-collateralization. This credit enhancement, combined with SolarCity's track record and the credit quality of the household borrowers, resulted in an investment grade credit rating, which helped secure a lower cost of capital.

- Contingent equity, which protects lenders in situations of unexpected cost overruns during project development. By putting equity aside, project owners provide a safety buffer for emergency funding for possible project cost overruns.

Example: this was used in a geothermal energy project to cover potential cost overruns related to unexpected drilling costs (see Sarulla geothermal project).

- Contingent equity tranches were also established to fund cost overruns in the construction phase in an off-shore wind farm project.

Studies suggest that the cost of setting up a contingent capital facility may be more economical than the cost of a credit guarantee as long as the trigger events are well defined

#### 3.2.7.2 Contingent credit lines

Surety instrument approved ex ante to backstop the main debt by providing cash resources for debtor in case of severe exogenous shocks (e.g. natural disasters, political or economic turmoil).

guarantees.

In some cases, such a guarantee could be a letter of credit issued or confirmed by highly rated international banks to provide liquidity and assurance that payments are not missed or delayed.

A bank letter of credit normally costs between 0.75% and 2.00% per annum depending upon the risk associated with the project and sponsors financial strength. Banks in all parts of the world commonly issue letters of credit.

### 3.2.7.3 First-loss provisions

Refer to any instrument designed to protect investors from the loss of capital that is exposed first in case of erratic cash flows. It shields investors from a pre-defined initial loss. Often structured as a Partial Guarantee. These could be debt, equity or derivatives instruments such as cash facilities or guarantees. Cash or equivalently liquid commercial papers collected and held in reserved account for the benefit of creditors.

### 3.2.7.4 Letter of Credit

A letter of credit is a useful tool in commercial transactions in which a bank guarantees that one of the parties will meet its obligations – either that a buyer's payment to a seller will be received on time and for the correct amount or that a seller will deliver the goods or services according to the agreed-upon terms. Essentially, it is a method of shifting the credit risk from the customer to the financial institution issuing the letter of credit.

Written commitment by a financial institution to guarantee recovery of a specified cash amount in the event of any cash shortfalls in the project.

#### **Example: Credit Enhancement for Accelerated Infrastructure Investment<sup>28</sup>**

Credit and Liquidity Support Investors, bond buyers and lenders typically look for highly rated investment grade (BBB-/Baa3) cash generating assets to reduce the chances of losing money. A common funding model uses credit enhancement products to reduce credit risk and subsequently obtain more attractive financing terms and interest rates.

#### **Example Nigeria:**

In Nigeria a properly structured transaction with a sound credit enhancement can reduce the loan interest rate by 50% or more.

In such a case, the typical form of security is a guarantee from an investment grade rated corporate or sovereign entity sponsoring the project or other third party

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<sup>28</sup> <https://www.nationalstandardfinance.com/news/credit-enhancement-for-accelerated-infrastructure-investment/>

### 3.2.7.5 Regional Liquidity Support Facility (RLSF) for Africa by KfW<sup>29</sup>

Malawi has joined a Regional Liquidity Support Facility (RLSF), an initiative that supports small- and mid-scale renewable energy IPPs (from 50 to 100MW) in sub-Saharan Africa by helping these projects reach financial close and to reduce the energy deficit.

The RLSF protects IPPs against the risk of delayed payments by public off-takers. This type of guarantee is a common requirement from lenders that fund projects, which have often failed to access funding and in turn reach financial close because this type of guarantee was not available.

Since launching the RLSF has signed agreements with five countries, namely; Benin, Burundi, Uganda, Zambia and Malawi.

The RLSF is a joint initiative of the African Trade Insurance Agency (ATI), and KfW with funding from the German Federal Ministry for Economic Cooperation and Development.

### 3.2.7.6 Bank Liquidity Guarantee for Refinancing Risk

The length of tenor can be a key limitation encountered by project developers seeking local financing. Inadequate loan terms expose projects to liquidity and refinancing risk. This occurs when the maturity of the loan is mismatched with the lifetime of the asset, and the borrower is unable to refinance the outstanding loan midway through the life of a project.

This is particularly acute in low-income developing countries, where debt of over five years' maturity is difficult to access. Some DFIs utilize liquidity guarantees to lengthen maturities of local currency finance.

An example is the West Nile Rural Electrification Project in Uganda, where regulations limit maximum loan tenor to eight years. To allow for a longer-term loan, the World Bank structured two separate senior loans for local banks to lend to the project.

The first loan expires after eight years when a bullet

repayment of the outstanding principal is to be made. This repayment was funded from a new seven-year loan, making the total period loan repayment period 15 years.

A liquidity facility guarantee was used to ensure that local banks would have sufficient funds to make the second loan after eight years, thereby removing repayment risk for the project developer. The fees and margin payable to each local bank were designed to incentivize it to continue financing for the full 15 years.

### 3.2.7.7 Put Options for Refinancing Risk

Like liquidity guarantees, put options can be used to mitigate renewable energy investment refinancing risk. DFIs provide a put option to local commercial bank lenders as a way to ensure long-term lending for borrowers. For example, in the Philippines Leyte geothermal project, bondholders contracted a put option to sell their bonds to the World Bank on maturity in return for repayment of the principal. This ensured investors that such long term bonds will be honored when they reach maturity.

This is considered a promising technique for extending the maturity of loans to match the requirements of renewable energy projects.

### 3.2.8 Liquidity and Guarantee Provision: Example Housing Finance Liquidity Facility Indonesia (FLPP)<sup>30</sup>

The Housing Subsidy Program (FLPP) seeks to increase the participation of National Banks and Regional Development Banks. Currently there are 6 National Banks and 15 Regional Development Banks participating in FLPP.

**Figure 9: Housing Subsidy Program (FLPP)**

<sup>29</sup> <https://www.esi-africa.com/industry-sectors/finance-and-policy/malawi-makes-moves-to-de-risking-renewable-energy-projects/>

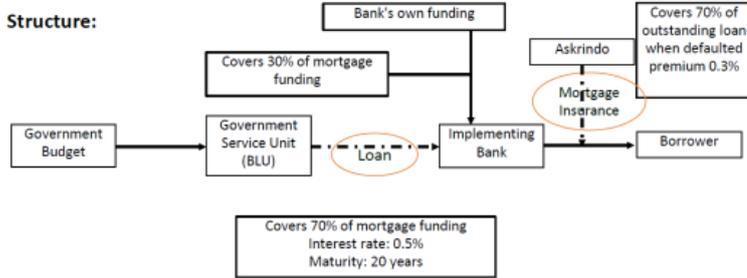
<sup>30</sup> [http://siteresources.worldbank.org/FINANCIALSECTOR/Resources/Session2\\_NugrohoTriUtomo.pdf](http://siteresources.worldbank.org/FINANCIALSECTOR/Resources/Session2_NugrohoTriUtomo.pdf)



# Housing Subsidy Program (FLPP)

**Housing Finance Liquidity Facility (FLPP, Fasilitas Likuiditas Pembiayaan Perumahan)** is a public institution used by GoI to channel the housing finance subsidy since 2010

FLPP is based on a highly subsidized structure that relies exclusively on government budget, funding 70% of the total mortgage amount the government also covers 70% of the credit risk by a mortgage insurance given by **Askrindo** (100% state-owned insurance company), at a 0,37% premium, which is included in the final 7,25% interest rate



Source: World Bank, based on Ministry of Housing, 2013

## 3.2.9 Viability gap funding (VGF)

Used specifically and heavily in infrastructure to cover for the heavy upfront funding that is required to kick start projects.

An analysis of the viability of a proposed project points out the weak areas that prevent large-scale funding from being obtained. VGF can be implemented through capital grants, subordinated loans or even interest subsidies to target specific issues affecting the project's viability.

### 3.2.9.1 Viability Gap Fund – Technical Assistance Facility by PIDG<sup>31</sup>

Available in Indonesia	Globally Available	
Yes	Partner in the project:	PIDG

#### INSTRUMENT DESCRIPTION

The Private Infrastructure Development Group (PIDG) is a multi-donor organization with members from seven countries (Australia, Germany, the Netherlands, Norway, Sweden, Switzerland, United Kingdom) and the International Finance Corporation of the World Bank

<sup>31</sup> <https://iisd.org/credit-enhancement-instruments/institution/private-infrastructure-development-group/>

Group.

The Technical Assistance Facility (TAF) of PIDG offers Viability Gap Funding (VGF). It targets pro-poor infrastructure projects that are economically viable in the long term but require initial funding for commercial viability and acquisition of private sector investments. VGF is provided to infrastructure public-private partnership projects at the time of financial close to fill funding gaps and reduce upfront capital costs. The VGF grant can be used during construction and/or to supplement the lack of sufficient revenues from user fees in low-income countries.

#### Eligible Projects and Transactions :

The following sectors are eligible: water, sanitation, solid waste, transportation, energy. Infrastructure projects must have strong, measurable, pro-poor impacts.

#### Prioritized projects :

- Strong positive impacts on females or female-headed households
- Strong climate change benefits
- Project location in a fragile or post-conflict state, as defined by any authoritative bilateral or multilateral development agency

### 3.2.10 Availability Payment (AP)<sup>32</sup>

Available in Indonesia		Globally Available	
Yes	Only PPP projects	Partner in the project:	Government

PPP in the Indonesian context, based on Perpes 38/2015:

- PPP is the cooperation between the Government and Business Entity in infrastructure provision for the public interest in accordance with the specification previously determined by the Minister/Head of Institution/Head of Region/State Owned Enterprise/Regional Owned Enterprise, which partially or fully uses Business Entity's

<sup>32</sup>

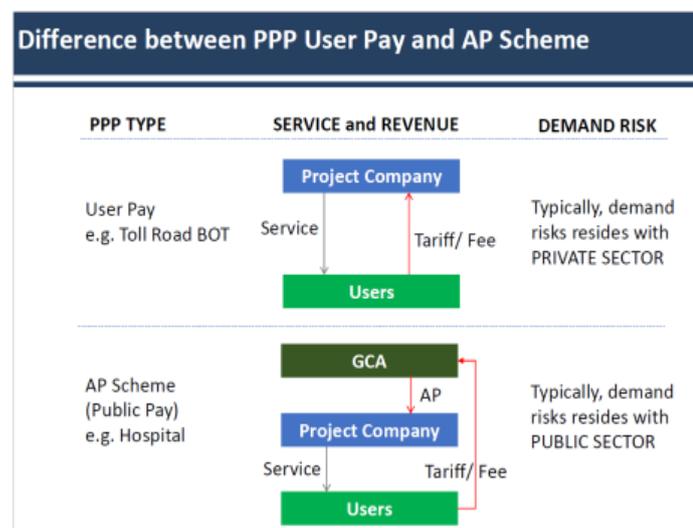
<http://www.anggaran.depkeu.go.id/content/170727%20Basic%20concept%20of%20AP%20and%20Budgeting%20Implication.pdf>

resources, with particular regard to the allocation of risk between the parties.

What is the purpose of applying AP Scheme?

AP Scheme is a method to deliver high quality of public services while minimizing the financial burden of the public sector.

**Figure 10: Difference between PPP User Pay and AP Scheme**



### How is the Indonesian context?

Based on PMK No. 260/2016 Availability Payment Scheme is defined as “periodical payment made by Minister/ Head of Agency/ Head of Local Area to the Implementing Enterprise for Infrastructure Services delivery based on the quality and/or criteria as decided in a PPP Agreement”.

In Indonesia, the AP Scheme is applied for projects which are not “financially self-sustainable”, thus the support from government/GCA is essential to increase the project attractiveness for the private sector.

- Availability payment (AP) is made from GCA to SPC as a reward of ensuring availability of the facility and providing specified services under a PPP (AP) contract.
- As AP, a fixed amount is paid throughout the operation period, with a possible deduction in case SPC fails to fulfil certain requirements.
- The AP amount essentially covers all the costs (construction cost, O&M cost, project financing cost etc.) and return for investors.

## 3.2.11 Various derivatives in the banking sector which help to manage risks

Swaps/Derivatives: Financial agreements that typically supplement other financing instruments to help manage different types of risks faced by an investor or borrower. These agreements are customized to protect against a specified set of risks in exchange for an upfront fee or ongoing premium. These agreements typically involve an exchange of cash flows with a third party entity or financing mechanism.

- **Interest Rate**  
These agreements protect the borrower against changes in interest rates; for example, an agreement may convert an adjustable interest rate that frequently resets or “floats,” to a fixed interest rate, or vice versa.
- **Currency**  
These agreements protect the borrower against changes in currency exchange rates; for example, an agreement may convert one type of currency to another at a pre-determined rate regardless of prevailing market exchange rates over the agreement period.
- **Commodity**  
These agreements protect the borrower against changes in commodity prices and are highly relevant to markets that depend on certain commodities (for example, agriculture-based or oil-dependent markets); for example, an agreement may fix the price of a commodity over the agreement period regardless of the underlying commodity's prevailing market price.
- **Weather-Indexed**  
These agreements reduce the borrower's risks associated with adverse weather conditions. For example, farmers can use weather-indexed swaps/derivatives to hedge against poor harvests due to low levels of rainfall.

## 3.3 Risk Sharing

### 3.3.1 Guarantees

Insurance and guarantee products protect investors

from a borrower's failure to repay as a result of pre-specified events. A guarantee can be a minimum guarantee that protects a portion of the investment through its lifetime, or a back-end guarantee that covers the entire investment after a pre-specified timeframe.

- **Political Risk Guarantees**

An insurance/guarantee that protects against borrower failure to repay as a result of political events such as governmental expropriation of assets, currency transfer restrictions or inconvertibility, breach of contract, war & other civil disturbances, etc. If such an event occurs and repayments are disrupted, political risk insurance/ guarantees pay out all or a portion of the losses that arise due to the event.

- **Partial Risk Guarantees**

Partial risk guarantees cover private sector lenders against the risks of a public entity failing to perform its contractual obligations to a private sector project. These obligations are usually non-commercial (political, regulatory, etc.) in nature.

- **Partial Credit Guarantees**

Partial credit guarantees—which are used primarily in poorer countries—support commercial borrowing for public investment projects by partially covering private sector lenders against the risk of debt service default by the public sector.

Guarantees allows borrowers to obtain cover for their obligations towards a lender in case of non performance or default in exchange of a fee. They can have a partial or entire coverage of the investment.

### 3.3.1.1 Partial Credit Guarantees<sup>33</sup>

Available in Indonesia		Globally Available	
Yes 	For Government or SOE projects	Partner in the project:	World Bank

<sup>33</sup> <https://iisd.org/credit-enhancement-instruments/institution/world-bank-international-bank-for-reconstruction-and-development/>

Description:

The International Bank for Reconstruction and Development (IBRD) offers Partial Risk Guarantees (PRGs) as a risk mitigation instrument. PRGs can cover risks that cause performance failures of a government or government-owned entity with respect to contractual obligations for a private project. A wide range of risks can be covered, including:

- Currency inconvertibility/non-transferability
- Political force majeure risks: expropriation, war and civil disturbance, material adverse government action
- Regulatory risks, change of law and regulations, negation/cancellation of license and approval
- Frustration of arbitration
- Payment defaults and performance failures of a government/ public counterparty

PRGs are available to private lenders or investors that use commercial debt instruments to provide funding for such projects.

### 3.3.1.2 Experience of MDG's with Guarantees<sup>34</sup>

Guarantees are often raised by the private sector and other stakeholders for their potential to catalyze more private investment. These instruments protect investors from a borrower's failure to repay and thereby improve a project's risk-return profile. Yet, the published 2016 report reveals that their use remains extremely limited, while other types of de-risking instruments are not addressed (see figures).

The reason for the limited use of guarantees in times of increased need for de-risking lies in a number of supply- and demand-side barriers, which were identified:

- Accounting rules that require the full loan amount guaranteed to be retained on the balance sheet, which locks in capital that could otherwise be given out in loans.
- Complexity of adding guarantees to the finance mix leads to longer processing times.
- Lack of in-house knowledge and human resources.

<sup>34</sup> <https://www.wri.org/blog/2017/12/insider-expanding-toolbox-glimpse-new-generation-mdb-de-risking-approaches>

Based on conversations with several MDBs—and just looking at the numbers—it's apparent that these challenges persist. Efforts to address these obstacles should continue. At the same time, the MDBs are also working to refashion de-risking approaches in ways that go well beyond guarantees.

### Example Guarantee to cover PPA's<sup>35</sup>

Available in Indonesia	Globally Available	
No 	Partner in the project:	To be identified

The credit-worthiness of a PPA may often be a concern to lenders. A development bank guarantee can provide banks with the security to lend to project developers.<sup>36</sup>

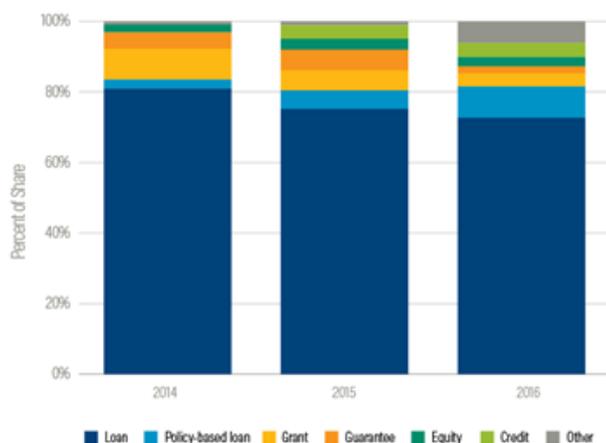
Private sector projects sometimes face difficulty in obtaining a government guarantee, and promising project proposals have fallen through the process as a result.

Lenders and development funds supporting renewable energy projects could consider the following possible alternatives to government guarantees:

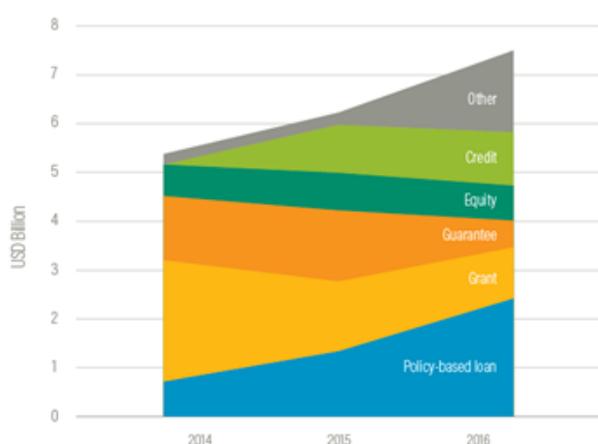
- A national bank guarantee, in which a central bank or a state-level bank (public finance institution) guarantees a project instead of the ministry of finance. Alternatively, a guarantee fund set up by reciprocal guarantee partnerships could play this role. These partnerships are usually set up by federal or provincial government banks and have a liquid fund used as collateral. Argentina, Spain and other countries have developed these types of funds.
- A corporate guarantee fund or trust with a credit-risk rating or other similar indicator, which ensures they comply with international solvency standards.

Figure 11: Role of MDB Finance

Share of Total MDB Climate Finance, by Instrument Type



Total Volume of MDB Non-loan Climate Finance, by Instrument Type



 WORLD RESOURCES INSTITUTE

<sup>35</sup> <https://www.stoel.com/legal-insights/special-reports/the-law-of-solar/power-purchase-agreements-utility-scale-projects>

<sup>36</sup>

<https://books.google.co.id/books?id=Jc5mlynOTxYC&pg=PA150&lpg=PA1>

50&dq=Guarantee+to+cover+PPA's+examples&source=bl&ots=roLybWJLLv&sig=ACfU3U2HeDNSVcuBPXWaOw8nhN57CtzD3Q&hl=en&sa=X&ved=2ahUKEwjcIt6oOKHhAhWMqI8KHbeICjkQ6AEwDXoECAoQAQ#v=onepage&q=Guarantee%20to%20cover%20PPA's%20examples&f=false

Table 8: Financial Risk Mitigation Tools to Address

	Political risk	Policy and regulatory risk	Counterparty risk (power-off taker risk)	Transmission line risk	Grid interconnection and transmission risk	Technology risk	Currency risk	Liquidity and refinancing risk	Resource risk
Government Guarantee	✓	✓	✓						
Political Risk Insurance	✓	✓	✓		✓		✓		
Partial risk/Credit Guarantee	✓	✓	✓		✓	✓			
Export credit guarantee	✓	✓	✓		✓	✓			
Currency risk hedging instrument							✓		
Currency risk guarantee fund							✓		
Local currency lending							✓		
Internal/external liquidity facility			✓					✓	
Liquidity guarantee								✓	
Put option								✓	
Grant and convertible grant									✓
Resource guarantee fund									✓
Geothermal exploration insurance									✓
Portfolio guarantee									✓

### 3.3.2 The role of Insurances as de-risking instrument

Insurances play an important role in supporting investment in RE projects by giving financial protection from delays or damage during the fabrication, transport, construction, and operational stages of a RE project – whether for technical reasons, human error or the forces of nature. Cover for loss of income can be a critical issue from a lender’s perspective, as it not only affects a project’s ability to pay its construction loan, but also affects the balance sheet of the entire project.

Insurances can lower a corporation’s cost of capital and increase liquidity by reducing the financial impact of risk events. Insurances are the best examples of private financing for adaptation, but governments can play a role as regulators, providers, or insurers of last resort. Innovative insurance services can provide protection against possible losses for investors and assets holders.

#### 3.3.2.1 Credit Insurance

A Credit insurance as a protection provided by an Insurance Company as the “INSURER” to a Bank/Non-Bank Financial Institution as the “INSURED” against

failure risk of a Debtor to pay a credit facility and cash loan disbursed by a Bank/Nonbank.

A Credit insurance has a nature of bi-party between Bank/Non-Bank and “INSURER”. In this case, the Debtor is not included as a party in the insurance agreement of the “INSURER” over the credit disbursed by a Bank/Non-Bank to a Debtor.

The indemnity of the “INSURER” is in the range from 70% to 80% of the loss suffered by Banks/Non Banks.

#### Types of Credit Insurance:

1. Working Capital Credit Insurance (KMK) for construction/non-construction projects, goods/services procurement, bill/receivable financing, stocks/goods financing and Pre-Export Financing,
2. Revolving General Working Capital Credit/Current Account Insurance,
3. General Working Capital Credit Insurance,
4. Investment Credit Insurance/Project Financing.

**Table 9: Insurance Types and Description**

Insurance Type	Description
<b>Financial Insurance</b>	
Domestic Credit Insurance (DCI)	An insurance which offers indemnity to the Insured (Seller) against any risk of losses as a result of nonreceipt of any or all parts of payment from a domestic Buyer, due to any commercial risks.
Domestic Credit Insurance Financing (DCIF)	An insurance which offers indemnity to a Bank against any commercial risks, specifically in a domestic bill takeover transaction for any Customer/Debtor/Seller to whom domestic transaction bill limit has been granted.
Credit Insurance	Credit Insurance is a type of insurance that provides protection to Banks/Non-Bank Financial Institutions on the risk of failure of the Debtor in paying-off the credit facility or cash loan provided by the Bank/Non- Bank Financial Institution
<b>Types of Credit Insurance Products:</b>	
<b>Productive Credit Insurance</b>	
Working Capital Credit Insurance:	A protection offered by Asuransi Asei during the insurance period against any risk of losses suffered by a Bank, caused by the failure of a Debtor to repay its credit withdrawal because the debtor is unable to repay the credit disbursement that's not revolving or can be disbursed entirely or gradually so that it decreases following the debit level and such Debtor has been declared to be under the category of collectability 5 (loss/uncollectible), in accordance with the regulation of Bank Indonesia as the loan collectability regulator.
Transactional Working Capital Credit Insurance	A protection provided by Asuransi Asei against any risk of losses suffered by a Bank, caused by the failure of a Debtor to repay any or all parts of its matured Transactional Working Capital within the period as specified in the credit acceptance letter. Such insolvency is due to the Debtor's failure in performing the contract or non-payment by the contract principal.
Project Financing	Protection afforded by medium/long term credit risk granted to (prospective) Debtors to finance capital goods and services required for rehabilitation, modernization, expansion, establishment of new projects, or existing project relocations which already have projected revenues Supporting the payment of instalment obligations over the credit term

### 3.3.2.2 Bank Guarantee

Bank Counter Guarantee and Standby L/C (SBLC) Guarantee is granted by the insurer to the Issuing Bank of Bank-Guarantee/SLBC on behalf of the customer (Debtor/Principal) in the event the Principal/Customer experiences default.

- Payment Bond both for construction and non-construction,
- Maintenance Bond,
- Bond for other purposes (except for bond to obtain financing facility from Financial Institution)

The objects of the Bank Guarantee among others are:

- Bid Bond,
- Performance Bond,
- Advance Payment Bond,

**Table 10: Types of Surety Bond**

<b>Bid Security (Bid Bond/BB)</b>	Is a guarantee that is used to participate in the tender as one of the requirements of the bidding document containing the surety guarantee to provide compensation if the principal resigns
<b>Performance Bond (PB)</b>	Is a guarantee of the Principal's ability to execute/ complete the work in accordance with the established employment contract
<b>Advance Payment Bond (APB)</b>	Is a guarantee used at the time the Principal takes the Advance provided by the Oblige to start its work. Includes Surety's guarantee to return the advance the Principal has received to perform the work if the Principal fails to perform the work and can not refund the deposit
<b>Maintenance Bond (MB)</b>	Is a guarantee from Surety on the maintenance of the work completed by the Principal until the deadline specified in the contract.
<b>Work Progress Guarantee</b>	It is a guarantee of Principal obligations for unfinished work/achievement but payment has been made by the Oblige/Beneficiary

### 3.3.2.2 Benefits of Credit Insurance & Credit Guarantee

#### For Banks :

1. Non-bankable transaction due to the lack of collateral requirements but feasible can be assisted by the "Insurers" Insurance and Credit Guarantee. The "Insurers" Insurance or credit guarantee can replace part of the collateral required by the Bank to support the grant of credit to the real sector.
2. Requirements for the customers:  
For non-cash transaction in particular on the basis of risk assessment conducted by the "Insurers" which also considers the risk analysis performed by the Bank, the "Insurers" may grant (100%) of the non-cash loan value granted by the Bank and more lenient

- collateral guarantee up to one hundred percent
3. Reduction in risk premium so that the lending rate is more competitive. Credit risk transferred to "Insurers" can be calculated as a decrease of risk element in pricing the interest (reduction in risks premium).
  4. Reduction of ATMR Weight over the credit insured or guaranteed by a SOE engaged in insurance and credit guarantee is calculated at 50% (fifty percent) in accordance with the Circular Letter of BI No. 11/1/DPNP dated 21 January 2009, so that the credit usage does not erode Bank's capital adequacy ratio.
  5. Free-based income and the placement of Debtor's cash collateral at the Bank so that the Bank may take advantage from the placement of funds.
  6. Bank's safety net may avoid 100% of own retention. By utilizing a Credit Insurance facility, Bank has developed strong strategic partnership with one of banking safety nets against risk of credit it distributed. It is not necessary for the Bank to bear alone all of the losses (100% own retention) that in the long-term may lead to catastrophically risks by transferring potential loss risk to the "Insurers".
  7. Second opinion in the analysis of credit granted. "Insurers" performs risks assessment of coverage/guarantee that Bank will provide to "Insurers". Hence, the Bank will obtain second opinion from "Insurers".
  8. Client referrals, "Insurers" may provide referrals to any customers that have good track record eligible for Bank facility.

The function of Bank intermediacy increases. The Bank becomes more competitive, bold and passionate in extending credit to the real sector with credit protection and non-subsidized incentives of the benefits mentioned above. Hence, Bank intermediacy will increase, particularly in real sector financing.

#### Benefit for Real Sector/Debtor

1. Real sector will be highly assisted by "Insurers" products that bridge between real sector and the Bank.
2. Competitiveness of real sector will be assisted through an adequate liquidity and better interest credit facility because of the Bank

financing supported by “Insurers”.

**Credit Insurance in Indonesia is offered by:**

- PT Reasuransi Nasional Indonesia (leader)
- PT Reasuransi International Indonesia
- PT Tugu Reasuransi Indonesia
- PT Asuransi Bumida 1967

### **3.3.3 Overview of Various Insurance and Guarantee Types in Indonesia**

When talking about insurance coverage then the general rule applies that only catastrophic, unforeseeable events are ensured by insurance companies and “never” commercial risk. It is therefore very important to look into the T&C what is covered by an insurance and what is not covered. Lenders require as standard procedure normally coverage of the project via insurance – but that does not cover bad or faulty execution of work by the e.g. EPC contractor or other commercial disputes.

Financial Insurance provides protection services for any financial losses risks, such as; Export Insurance, Credit Insurance and Suretyship.

Non-Financial Insurance (General Insurance) provides protection services for any risks of losses, loss of benefits and third party liability, such as; Property Insurance, Engineering Insurance, Marine Cargo Insurance, Marine Hull Insurance, Oil and Gas Insurance, Aviation Insurance, Public Liability Insurance, Miscellaneous Insurance and Personal Accident Insurance.

### 3.3.3.1 Insurance Types

Table 11: Insurance Types

No	Type	Definition	Available in Indonesia	Providers
1	<b>General/Third Party Liability Insurance</b>	Insurance that protects project parties with insurable interest against all costs for which they shall become legally liable in respect of accidental injury, accidental loss of or damage to property, interference with traffic, etc.	X	Various
2	<b>Construction/Operation "All Risk" Insurance</b>	An insurance to indemnify the project in respect of "all risk" of loss, destruction or damage to the permanent or temporary works, materials, goods, plant machinery and equipment used in connection with the design, procurement, manufacture, supply, setting to work, works, testing, commissioning, operation and all ancillary and associated activities in connection with the RE project.	X	Various
3	<b>Delay In Start-Up/Business Interruption Insurance (DSU/BI)</b>	Provides indemnity against financial losses suffered by the owner during a defined Indemnity period in consequence of delay in the commencement of, or interruption or interference with, the commercial operations of the RE project.	X	Various
4	<b>Cargo</b>	Indemnifies project parties with insurable interest against all risks of physical loss, destruction or damage to materials, goods, plant and equipment intended for use in connection with the project whilst in transit (including marine transit) within agreed territorial limits.	X	Various
5	<b>Terrorism &amp; Sabotage Cover</b>	Indemnifies project parties with insurable interest against all risks of physical loss, destruction or damage to materials, goods, plant and equipment intended for use in connection with the project whilst in transit (including marine transit)	X	Various
6	<b>Weather Insurance</b>	Insurance against a financial loss that may be incurred because of rain, drought, snow, storms or others measurable weather conditions.	X	Various
7	<b>Resource Insurance</b>	Provides coverage for RE technologies that are inherently dependant on uncertain resources, e.g. A solar project can be insured against unusually cloudy periods.	X	Munich RE, Swiss RE, Price and Forbes, Marsh & McLennan Cos. Inc.
8	<b>Policy Risk Insurance</b>	Insures the possibility that national governments acting in their sovereign capacity amend policy environments in ways that adversely impact the financial stability of RE projects.	X	International Bank for Reconstruction and Development - Disaster Risk Finance and Insurance - World Bank Group (IBRD - DRFI - WBG)
9	<b>Political Risk Insurance (PRI)</b>	Insurance against the risk that a project defaults due to the actions of government or public sector agencies such as governmental expropriation or confiscation of assets, revolution, civil unrest, terrorism, etc.	X	Various
10	<b>Trade Credit Insurance</b>	An insurance product that indemnifies a seller against losses from non-payment of a commercial trade debt arising from both insolvency and delayed default/slow payment by a buyer.	X	Various

**Table 12: Property Insurance Products**

<b>Standard Policy of Indonesian Fire (PSAKI)</b>	PSAKI is a standard policy to cover the liability for any damage or loss of the insured property, caused by fire or other reasons stated in the insurance contract.
<b>Property All Risk (PAR)/Industrial All Risks (IAR) Insurance</b>	An insurance to cover all risks of loss (exclude some risks stated as exceptions). PAR/IAR is the most popular type of Insurance, compared to other types of Insurance, as it cover all risks of loss except some risks stated as exception.
<b>Indonesian Earthquake Insurance Standard Policy (PSAGBI)</b>	An insurance to cover any damage of the objects (buildings, factories, houses, etc.), caused by earthquakes, volcanic eruptions, and tsunamis
<b>Terrorism and Sabotage Insurance (TAS)</b>	An insurance that give protection for any loss/ damage of the insured property, caused by actions categorized as terrorisme and sabotage. The Insured can be a company and individual, direct/ agency
<b>Business Interruption Insurance (BI)</b>	Insurance that guarantees for loss/loss of income of the Insured's business resulting from the occurrence of risks on the property insured or to replace the loss/lack of funds necessary to run the business caused by the occurrence of risk. Parties who are eligible as Insured are companies and individual, direct/agency.
<b>Liability Insurance</b>	An insurance to cover legal liability to third parties in the form of bodily injury and/or property damage in respect of any work or business activity carried out by the Insured
<b>Heavy Equipment (HE) Insurance</b>	Insurance that provides comprehensive protection against total loss of heavy equipments such as tractors, bulldozers, excavators, cranes and other heavy equipments that are damaged when operated/ used on site. Heavy Equipment Insurance consists of various versions of wordings, there are named perils and there are also unnamed perils because of its tailor-made nature, so it is highly dependent on the insurance company concerned. The Insured can be a company contractor, or individual, direct/ agency

### 3.3.3.2 Guarantee Types

The most common guarantee types are as follows:

**Table 13: Guarantee Types**

No	Type	Definition	Available in Indonesia	Providers
1	<b>Technology/Performance Guarantees</b>	A type of guarantee that a manufacturer or similar party makes regarding the condition of its product. A manufacturer typically guarantees the performance of the RE equipment, whereas a third-party insurer can guarantee the performance of that manufacturer and would step in if the manufacturer went bankrupt or was unable to fix a technological issue that led to a shortfall in performance.	X	Munich RE, Price and Forbes, Allianz
2	<b>Liquidity Guarantee</b>	Guarantees that the guaranteed entity has sufficient funds to meet its obligations (eg. Guarantees that a hydro project will be able to service its debts in dry years).		Not available
3	<b>Partial/Political Risk Guarantee (PRG)</b>	Very similar to political risk insurance; covers the risk that a project defaults due to the actions of the government or public-sector agencies such as expropriation or a breach of contract, which cannot be relieved by other means or regulatory actions and which have severe economic impacts on the project.	X	Various
4	<b>Partial Credit Guarantee (PCG)</b>	PCG covers commercial lenders against the risk of debt service default by government or typically public-sector borrowers, regardless of the cause of the default.	X	Various

No	Type	Definition	Available in Indonesia	Providers
5	<b>Portfolio/Loss Guarantee</b>	A portfolio guarantee covers a proportion of the losses on a package of loans (or projects) as a whole. A portfolio "first loss" guarantee would cover part of the first tranche of losses, eg. 80% of losses up to a value of 10% of the portfolio as a whole. This instrument is usually applied to cover several bundled RE projects of smaller size.	X	Agence Francaise de Developpement (French Development Agency), AXIS Insurance
6	<b>Payment Guarantee</b>	Provides risk mitigation with respect to payment default on non-loan related obligations. These may include payment obligations arising from contracts, law or regulation (eg. Payments under a government offtake agreement, or payment for exported RE equipment).	X	Various
7	<b>Carbon Delivery Guarantee (CDG)</b>	The objective of CDG is to back up a carbon reduction project's obligation to deliver an agreed amount of carbon credits, ie. CDG guarantees the delivery of carbon credit offsets to third-party buyers.	X	International Financial Corporation (IFC-WBG), AXIS Insurance
8	<b>Commercial Credit Guarantee</b>	Covers commercial lenders against the risk of debt service default by the RE project (Special Purpose Vehicle (SPV) or corporate).	X	Various
9	<b>Risk Participation Agreement</b>	A type of off-balance-sheet-transaction in which a bank sells its exposure to another financial institution. Risk participation allows banks to reduce their exposure to delinquencies, foreclosures, bankruptcies and company failures.	X	Agence Francaise de Developpement (French Development Agency), AXIS Insurance

### 3.3.3.3 Exploration Insurance – example Turkey Munich Re Geothermal

A good example to insure special risks while talking and discussing with Insurance companies to develop and provide innovative new insurance products is the Exploration Insurance.

Exploration insurance via a public-private partnership allows a private insurer and government to share the burden of potential failure in geothermal exploration drilling.

In partnership with the IFC, Munich Re has implemented an insurance product for exploration risk in Turkey. The insurance covers drilling costs for exploration wells and costs for simulation measures and well development (Munich Re, 2015).

However, the public-private partnership model can be complex to design, implement and monitor, and higher insurance premiums may increase overall upfront costs.

### 3.3.3.4 Portfolio insurance – example Kenya Munich Re Geothermal

Portfolio guarantees can cover a proportion of the losses on a group of projects in order to diversify exploration risks across different wells. A multi-well exploration risk cover is provided for the Kenyan Akiira project, developed by Akiira Geothermal. Munich Re is engaging in a series of up to eight drillings, making the project’s financing more dependable and easier to schedule. The premiums become due in instalments as the drillings progress (Munich Re, 2015b)

### 3.3.4 GuarantCo<sup>37</sup>

Available in Indonesia		Globally Available	
Yes 	No project so far identified	Partner in the project:	GuarantCo

GuarantCo encourages infrastructure development in low income countries through the provision of credit guarantees that enable infrastructure projects to raise debt finance. GuarantCo is part of the Private Infrastructure Development Group and sponsored by five G12 governments.

The governments of Australia, UK, Sweden, and Switzerland (through PIDG) and Netherlands (through FMO) provide the funding for GuarantCo. The sponsors set GuarantCo's mandate and appoint the Board.

Guarantee over Local Currency Loan:

Figure 12: Structure of Guarantee over Local Currency Loan



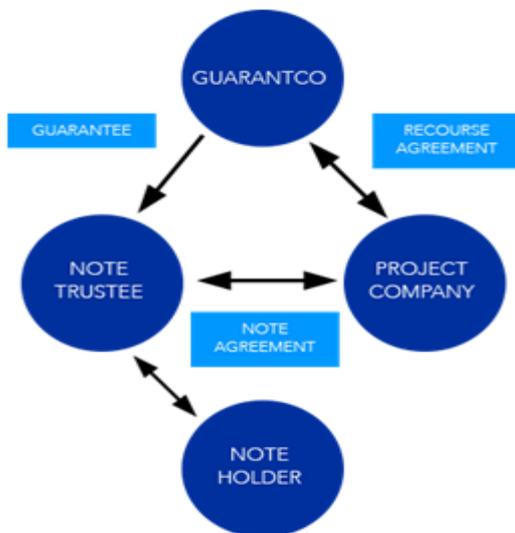
Typically, this structure will involve a partial credit guarantee provided by GuarantCo (in collaboration with other guarantors if required) to the beneficiary or the provider of the debt. This guarantee will cover the non payment of scheduled debt service of the underlying loan between the beneficiary and the borrower up to the limit of the guarantee.

A recourse agreement will be required between the borrower and GuarantCo to cover, amongst other provisions, the payment of fees to GuarantCo and the rights and obligations among the borrower, GuarantCo and the beneficiary following a call under the guarantee.

<sup>37</sup> <https://www.guarantco.com/about-us>

Guarantee over Local Currency Bond:

**Figure 13: Structure of Guarantee over Local Currency Loan**



This will involve a similar structure to a guarantee over a local currency loan except that the beneficiary will usually be the note trustee acting on behalf of all the noteholders.

### Benefits of Guarantees

For the sponsors and project developers:

- Enables the project to secure the finance required on suitable terms,
- Flexible pricing structures subject to minimum requirements,
- Ability to cancel guarantees without any penalty/ fees, providing borrowers flexibility in amending financial arrangements (e.g. after project construction),
- Reduces the number of Lenders as a smaller set of Lenders can provide more finance per institution,
- Technical Assistance grants for skills development programs, covering some transaction costs for market-making transactions, and high-development add-on projects.

For Lenders:

- Risk sharing with experienced guarantor,
- Ability to overcome single obligor constraints, lower risk weight,
- For lead banks/ arrangers, avoid sharing

borrower relationship with other lenders by increasing own exposure,

- Ability to cancel guarantees without any penalty/ fees, enabling lenders to improve risk-reward ratio by sharing the saved guarantee fee with the borrower (e.g. after project construction).

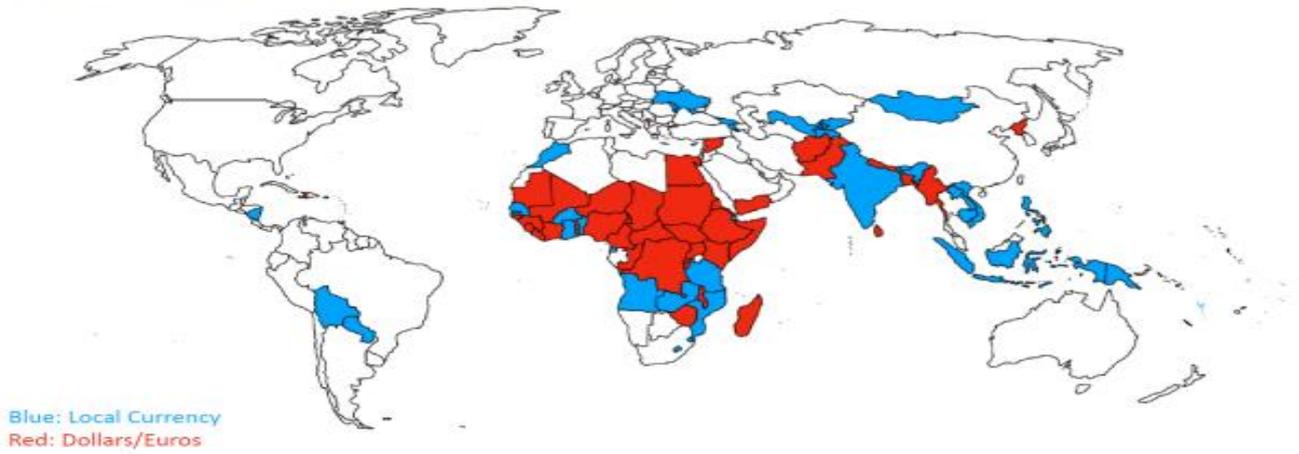
Figure 14: GuarantCo Investment Policy Overview

Criteria	Description
Guarantee Size	USD 10-50m in local currency equivalent
Currency	<ul style="list-style-type: none"> <li>Local currency focus,</li> <li>Hard currency guarantees possible in fragile and conflict affected states</li> </ul>
Tenor	Up to 15 years
Guarantee Type	<ul style="list-style-type: none"> <li>Non-payment guarantee covering all risks</li> <li>On-demand guarantee, not an insurance product</li> <li>Principal and interest coverage</li> <li>Innovative structures possible to solve liquidity constraints, tenor miss-match or funding timing constraints.</li> </ul>
Beneficiaries	Private sector infrastructure debt providers – project finance, corporate debt, mezz debt, bonds, etc
Clients	Borrowers must be private sector entities although in certain cases also municipalities / sub-nationals and parastatals can be supported
Security	Pari passu security required alongside all other senior debtors
Coverage Limits	Limit on guaranteeing up to 50% of the long-term debt position of a company's balance sheet
Environmental and Social Standards	IFC performance standard

Figure 15: GuarantCo Eligible Countries & Clients

Eligible Clients	Eligible Sectors	Focus Countries
<ul style="list-style-type: none"> <li>❖ Private sector companies,</li> <li>❖ Municipalities / sub-nationals – if funded largely through user fees (or ring-fenced structures providing satisfactory security)</li> <li>❖ Parastatals if privatization is planned (or case by case if operations are on a commercial basis)</li> <li>❖ GuarantCo can also support: <ul style="list-style-type: none"> <li>• Refinancing of existing projects if hard currency financing is substituted by local currency debt.</li> <li>• Specialist Financial Institutions focused on infrastructure.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>❖ Power generation, transmission and distribution (incl. renewable and non renewable)</li> <li>❖ Water/waste management services</li> <li>❖ Transportation (fixed installations)</li> <li>❖ Telecoms / IT backbones, etc</li> <li>❖ Urban/social infrastructure (incl. affordable housing/mortgages)</li> <li>❖ Basic industries involved in infrastructure development (e.g. steel cement, biofuels, etc) &amp; infrastructure component of agro-industry, mining and energy projects (incl. downstream oil &amp; gas)</li> </ul>	<p>GuarantCo's investment policy limits activity to the countries in the first three columns of the Development Assistance Committee (DAC).</p> <p>GuarantCo can however consider highly developmental projects in the fourth column on an exceptional basis.</p>

## GuarantCo eligible countries



### 3.3.5 ASEAN Credit Guarantee Investment Facility CGIF<sup>38</sup>

Available in Indonesia	Globally Available	
Yes 	Partner in the project:	CGIF

The CGIF was established in November 2010 to promote financial stability and boost long-term investment in the region. The CGIF provides guarantees on local currency denominated bonds issued by companies in the region. Such guarantees will make it easier for firms to issue local bonds with longer maturities. This will help reduce the currency and maturity mismatches which caused the 1997-1998 Asian financial crisis and make the regional financial system more resilient to volatile global capital flows and external shocks.

Its aim is to help companies, which would otherwise have difficulty tapping local bond markets to secure longer-term financing, reduce their dependency on short-term foreign currency borrowing, and address currency and maturity mismatch. Increased local currency bond issuance will also promote financial stability in the region and aid the development of ASEAN's bond markets.

CGIF will provide guarantees for local currency denominated bonds issued by investment grade companies in ASEAN+3 countries. ASEAN+3 consists of 10 members of the Association of Southeast Asian Nations with the People's Republic of China (PRC), Japan, and the Republic of Korea (ROK).

CGIF has received capital contributions of \$700 million from ADB, ASEAN, the PRC, Japan, and the ROK.

#### 3.3.5.1 Construction Period Guarantee Facility by CGIF for Project Bonds

The Credit Guarantee and Investment Facility (CGIF) was established in 2010 by 10 ASEAN countries, China, Japan, Republic of Korea, and the Asian Development Bank. The CGIF is part of the Asian Bond Markets Initiative and serves to provide credit guarantees for

local currency denominated bonds issued by investment grade companies in ASEAN+3 countries.

CGIF offers construction period guarantees to issuers of project bonds. The guarantees secure the completion of construction works and commencement of operations of greenfield infrastructure projects. If the construction phase is not successfully completed, CGIF will reimburse bondholders all amounts owned by project companies. Due to CGIF's due diligence process in the course of providing the guarantee, investors are assured that construction risks are well assessed and covered.

#### Eligible Projects and Transactions

The construction period guarantee is provided for local currency bonds or notes issued via public or private placement by an earmarked special purpose vehicle to finance an infrastructure project.

Projects need to prove robust construction programs executed by experienced contractors with low operational phase risks. Projects need to comply with CGIF's environmental and social safeguards and due diligence requirements, including third-party opinions on technical aspects of the construction works and contractual arrangements.

#### Examples Indonesia

CGIF guarantees PT Mitra Pinasthika Mustika Finance's debut Indonesian Rupiah bonds. PT Mitra Pinasthika Mustika Finance, a company co-owned by Indonesian and Japanese corporates placed the first tranche of IDR 140 billion out of total IDR 300 billion three-year MTNs with a Japanese investor as its first bond issuance with help of a CGIF guarantee.<sup>39</sup>

The Credit Guarantee and Investment Facility, a trust fund of the Asian Development Bank ("CGIF") announced the issuance of its guarantee to help PT Mitra Pinasthika Mustika Finance ("MPMF") tap bond financing for the first time. With CGIF's guarantee, MPMF issued 8.52% 140 billion Indonesia Rupiah, three-year Medium Term Notes ("MTNs") in the Indonesian local currency bond market with the participation of an established Japanese investor, The Sampo Japan Nipponkoa Insurance Inc ("SJNK"). This landmark transaction closed on 8 March 2016 and the

<sup>38</sup> <https://www.adb.org/site/funds/funds/credit-guarantee-and-investment-facility>

<sup>39</sup> [https://support.cgif-abmi.org/wp-content/uploads/2016/04/MPMF\\_TA\\_CGIF\\_Closing-Announcement\\_EN\\_20160311\\_F.pdf](https://support.cgif-abmi.org/wp-content/uploads/2016/04/MPMF_TA_CGIF_Closing-Announcement_EN_20160311_F.pdf)

MTNs were issued.

Not only helping MPMF to diversify its funding sources with more favorable terms for its growing business, this transaction also helped the company to access the Japanese institutional investor by leveraging on CGIF's financial strength and high international ratings, thus marking a significant milestone for financial integration in the ASEAN+3 region. Marking its second guaranteed bond investment of an auto-finance company, SJNK's continued confidence in the sector as well as CGIF's guarantee adds to the significance of this transaction.

MPMF is an Indonesian-Japanese joint venture company in the automobile consumer finance business.

CGIF's mission is to develop the ASEAN regional bond market by helping ASEAN+3 corporates improve their access to the local bond markets, thus enabling them to raise funds with favorable terms, while at the same time, contributing to the broadening of the investor base and the widening of available instruments in those markets.

PT BNI Securities, subsidiary of PT Bank Negara Indonesia as Mizuho's alliance partner, in cooperation with Mitsubishi UFJ Financial Group and Mizuho Financial Group, acted as the arranger for the transaction.

**Example:**<sup>40</sup>

### **CGIF and Surbana Jurong team up on greenfield project bonds Innovative partnership to boost infrastructure funding in Southeast Asia Singapore, in 2017 – Stimulating local currency bonds**

According to the Asian Development Bank's latest forecasts, Developing Asia will need to invest US\$26 trillion from 2016 to 2030, or US\$1.7 trillion per year, in order to maintain the region's growth momentum, eradicate poverty, and respond to climate change. New approaches will be required to stimulate private sector finance in infrastructure investments and to prevent the region from falling further behind.

One such approach is to facilitate the channeling of domestic long term savings to finance infrastructure directly via project bonds, particularly at the greenfield stage. Mobilizing long term savings to meet long term funding needs in matching currencies is the most

efficient model of financing infrastructure. However, only a few countries have successfully pursued this capability. A critical impediment towards mobilizing long term savings is the low risk appetite of pension and insurance fund managers and their aversion to construction risks. How the CGIF-SJ collaboration helps to boost funding.

Under this collaboration, SJ will provide technical assessments to validate the time, cost and quality aspects of identified greenfield infrastructure projects aiming to issue project bonds with the support of CGIF's Construction Period Guarantee (CPG). CGIF will offer irrevocable and unconditional guarantees to projects in ASEAN with robust construction programs, as screened by SJ. These guarantees can stretch up to US\$140 million equivalent per single greenfield infrastructure project to facilitate the issuance of long term local currency bonds.

The collaboration between CGIF and SJ aims to deliver the assurance needed by institutional investors to make investments in greenfield project bonds. It marries CGIF's financial strength as a guarantor, in particular via its new Construction Period Guarantee or CPG1, with the engineering and technical prowess of SJ to examine and validate construction related risks on projects.

When construction risks are expertly assessed, properly managed and mitigated, CGIF's irrevocable and unconditional guarantee for project completion can attract long term investors to invest in greenfield project bonds. Initially, long term investors will rely on expert assessments like those from SJ and CGIF's CPG risk assessment framework to frame construction risks to acceptable levels. However, over time, it is envisaged that this will ultimately aid infrastructure investors to gain the necessary experience to evaluate future greenfield project bonds, and to help narrow the region's substantial infrastructure gap.

### **3.3.6 USAID – Development Credit Authority (DCA)**

Since its inception in 1999, USAID's Development Credit Authority (DCA) has issued guarantees that have mobilized up to USD 5.4 billion in credit to entrepreneurs in 76 developing countries.

<sup>40</sup> [http://www.cgif-abmi.org/wp-content/uploads/2017/05/CGIF-and-SJ-team-up-on-greenfield-construction-project-bonds-Press-Release\\_20170524.pdf](http://www.cgif-abmi.org/wp-content/uploads/2017/05/CGIF-and-SJ-team-up-on-greenfield-construction-project-bonds-Press-Release_20170524.pdf)

- ❖ USAID runs the DCA as a partial credit guarantee program designed to help generate additional lending opportunities in underserved markets
- ❖ Core objective is to mobilize local private capital in infrastructure and economic development
- ❖ Standard DCA guarantee products include individual loan guarantees, portfolio loan guarantees and portable guarantees (where DCA provides commitment to ensure loan-servicing performance of an identified borrower while lenders are not yet identified)
- ❖ Main features of DCA guarantees: - Backed by the full faith and credit of the U.S. Treasury - Covers loan principal and does not cover fees or interest - Typically structured as a pari passu guarantee (i.e. guarantees predetermined – customarily 50% - share of losses and participates in recoveries of losses alongside with the lender, not waiting for the lender to recover debt first) - Guarantees non-sovereign debt capital (e.g., cities, SMEs, commercial banks) - Flexibility to guarantee local and/or foreign currency - Guarantees loan maturities of up to 20 years - Guarantees may be paired with USAID or other technical assistance projects.

### 3.3.6.1 Example in Indonesia: cooperation with TLFF

USAID partners with the Government of Indonesia and the Tropical Landscapes Finance Facility (TLFF) to conserve forests and protect biodiversity by promoting sustainable land-use management and practices in Indonesia’s rubber industry. TLFF has made a \$95 million loan managed by ADM Capital out of Hong Kong to Indonesian rubber company Royal Lestari Utama (RLU, a joint venture between Michelin and Barito Pacific) and USAID/Indonesia has provided a Development Credit Authority (DCA) partial-credit guarantee to reduce the risk of such a venture.<sup>41</sup>

### 3.3.7 IFC Risk Sharing Facility<sup>42</sup>

<sup>41</sup> <https://usaid-credit.exposure.co/promoting-sustainable-agriculture-in-indonesia>

<sup>42</sup> <https://www.ifc.org/wps/wcm/connect/1d022f00487c8d409ca4bd84d70e82a9/Risk+Sharing+Facilities.pdf?MOD=AJPERES>

A Risk Sharing Facility (RSF) is a bilateral loss-sharing agreement between the IFC and an originator of assets in which IFC reimburses the originator for a portion of the principal losses incurred on a portfolio of eligible assets. The originator may be a bank or a corporation.

The RSF product allows a client originator and IFC to form a partnership with the goal of introducing a new business or expanding on originator’s target market. In addition to sharing the risk of loss associated with the covered asset portfolio, IFC is often able to arrange for the provision of advisory services designed to expand a bank’s or corporation’s capacity to originate, monitor and service the assets. Risk sharing facilities are available to cover loans from a wide range of sectors, including but not limited e.g. to energy efficiency business.

### 3.3.8 Finland-IFC Blended Finance for Climate Program<sup>43</sup>

The Finland-IFC Blended Finance for Climate Program, launched October 2017, implements climate-mitigation investments in renewable energy, energy efficiency, green buildings, climate-smart agriculture, and forestry.

The new program will also seek investments that support developing countries in their efforts to adapt to the effects of climate change, such as creating risk-sharing facilities to provide financial protection following natural disasters from climate change-related events. The aim of the program is to help IFC move ahead with innovative and high- impact climate projects.

Over a five-year investment period, funds from the program will be used as co-investments in the form of concessional finance together with IFC’s commercial investments to support private sector projects with high development impact potential—when fully commercial solutions are not yet possible because the risks are considered too high, or the returns are either unproven or not commensurate with the level of risk.

#### Sectors of Focus

- Climate Change Mitigation:
  - Renewable energy; Energy efficiency in buildings; Agriculture; Forestry and land-use;

<sup>43</sup> [https://www.ifc.org/wps/wcm/connect/e84ceea1-c706-4225-b7ef-ee90b411b856/Finland-IFC-Climate-factsheet-112017\\_v1.pdf?MOD=AJPERES](https://www.ifc.org/wps/wcm/connect/e84ceea1-c706-4225-b7ef-ee90b411b856/Finland-IFC-Climate-factsheet-112017_v1.pdf?MOD=AJPERES)

Water and wastewater; Transportation,

- Climate Change Adaptation:

Meteorology; Water and sanitation; Food security; Sustainable forestry.

### 3.3.9 Multilateral Investment Guarantee Agency (MIGA) World Bank Group<sup>44</sup>

The Multilateral Investment Guarantee Agency (MIGA) is a member of the World Bank Group. The mandate is to promote cross-border investment in developing countries by providing guarantees (political risk insurance and credit enhancement) to investors and lenders.

The guarantees protect investments **against non-commercial risks** and can help investors obtain access to funding sources with improved financial terms and conditions. The agency derives its unique strength from the World Bank Group and from its structure as an international organization whose shareholders include most countries of the world. This enables MIGA to provide an umbrella of deterrence against government actions that could disrupt projects, and assist in the resolution of disputes between investors and governments. It also adds value through the ability to offer clients extensive knowledge of emerging markets and of international best practice in environmental and social management.

MIGA provides political risk insurance guarantees and credit enhancement to private sector investors and lenders. MIGA's guarantees protect investments **against non-commercial risks**, and can help investors obtain access financing on improved terms and conditions.

Political risk insurance coverage products may be purchased individually, or in combination. Selection of desired coverage must be made before MIGA issues a guarantee. To manage Sovereign Risk Angola used the MIGA political risk insurance for a hydro project as example.

### 3.3.10 First-Loss Protection Mechanisms<sup>45</sup>

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<sup>44</sup> <https://www.miga.org/products>

In order to unlock green finance, instruments are needed to:

1. render investments attractive to previously untapped sources of finance – such as institutional investors – and
2. free up resources for traditional sources of climate finance, particularly, those on banks' balance sheets.

First-loss protection instruments support both these goals by shielding investors from a pre-defined amount of financial losses, thus enhancing credit worthiness, and improving the financial profile of an investment. They directly mitigate a project's financing risks by transferring a portion of the potential loss to the sponsor offering the protection that can take the form of a funded contribution to the investment (such as a cash injection) or an unfunded guarantee or credit line to be drawn upon when needed. By making projects more appealing to mainstream investors (or by aggregating them under the same mechanism), they also mitigate the perception of liquidity risks. First-loss protection mechanisms may encourage capital release, in which capital previously committed for commercial or regulatory reasons becomes available for new uses.

Amongst others, they can be applied through two different mechanisms:

1. the first mechanism uses project finance solutions as an alternative to bank loans (i.e. project bonds),
2. while the second mechanism sets up dedicated investment vehicles such as collateralized loan obligations (CLOs).

Project bonds tap resources directly from investors in capital markets, either through private placements or through public offerings into wider markets. However, the market share of project bonds is still much smaller than the market share of loans. This is because infrastructure investors continue to favor bank financing given a loan's higher flexibility, in general, and banks' higher appetite for risk, which results in lower pricing of the borrowed capital and thus lower financing costs.

The idea behind CLOs is rather straightforward. Banks sell some of their outstanding loans to a dedicated entity that then issues bonds or notes to investors (pension

<sup>45</sup> <https://climatepolicyinitiative.org/wp-content/uploads/2013/01/Risk-Gaps-First-Loss-Protection-Mechanisms.pdf>

funds, insurance companies, hedge funds, etc.) sliced up in tranches of different risk and return profiles. These tranches are differentiated by their level of seniority. The banks' balance sheets are freed up of these loans, leaving them able to lend the proceeds to new projects. Used this way, CLOs could thus release capital, free up liquidity, transfer credit risk, and improve banks' and other lenders' control of their balance sheets. However, setting up a CLO alone is not usually enough to attract buyers, as the loans underlying them are often associated with too much perceived risk.

For green investments, before either of these investment instruments may appeal to institutional investors, banks and project sponsors need to improve the credit worthiness of underlying projects, as both project bonds and CLO securities would very likely be rated as below investment grade. First-loss protection mechanisms are a means to achieve this as they can deal with some of the main barriers hindering the engagement of institutional investors in large-scale, low-carbon investments. That is, they can overcome the absence of liquid, investment grade asset-backed securities and a small secondary market.

## 3.4 Other Instruments in the Indonesian Market

Many of the below described instruments are only available for PPP projects. Notwithstanding all the below measures available for the government to enhance a PPP project's bankability, PPPs generally have not progressed as fast as those financed purely through the government budget. Reasons for this include: there are additional feasibility studies that need to be concluded regarding the contracting model; the amount of guarantee and funding that the government will commit to; the financial and economic feasibilities of the project; and the risk allocations.

### 3.4.1 Indonesia Infrastructure Guarantee Fund (IIGF)<sup>46</sup>

The Government of Indonesia has established Indonesia Infrastructure Guarantee Fund or IIGF, as a State-Owned Enterprises (SOEs) under the Ministry of Finance which is responsible on providing government guarantees for infrastructure projects developed under the Public Private Partnership (PPP) scheme. The

Infrastructure project that can be guaranteed by IIGF must be a Public Private Partnership project which comply with Presidential Regulation No. 38 of 2015 concerning Cooperation Between Government And Business Entities In infrastructure provision.

### 3.4.2 Infrastructure Guarantee

Infrastructure guarantee is a guarantee given on GCA's financial obligation to pay compensation to the project company in the occurrence of infrastructure risks which has become GCA's responsibility based on risk allocations agreed in the PPP agreement. Infrastructure guarantee is implemented by IIGF as a single window policy. If the guarantee coverage exceeds the capacity of the IIGF, it will be carried out as co-guarantee by the Ministry of Finance and IIGF.

#### Legal Basis

The legal basis for infrastructure assurance facility in Indonesia is based on:

1. Presidential Regulation No. 78 of 2010 on Infrastructure Guarantee Facility of PPP Projects that's Conducted Through Infrastructure Guarantee Fund
2. Minister of Finance Regulation No.260/PMK.011/2010 on Implementation Guidelines of Infrastructure Guarantee in Public-Private Partnership
3. Minister of Finance Regulation No. 8/PMK.08/2016 on The Amendment of Regulation No. 260/PMK.011/2010.

### 3.4.3 Support for Indonesia's PPP Projects<sup>47</sup>

The following instruments are available:

- Viability Gap Fund (VGF)
- Project Development Facility (PDF)
- Government Guarantee (Directly by MoF or through IIGF)
- Availability Payment Scheme

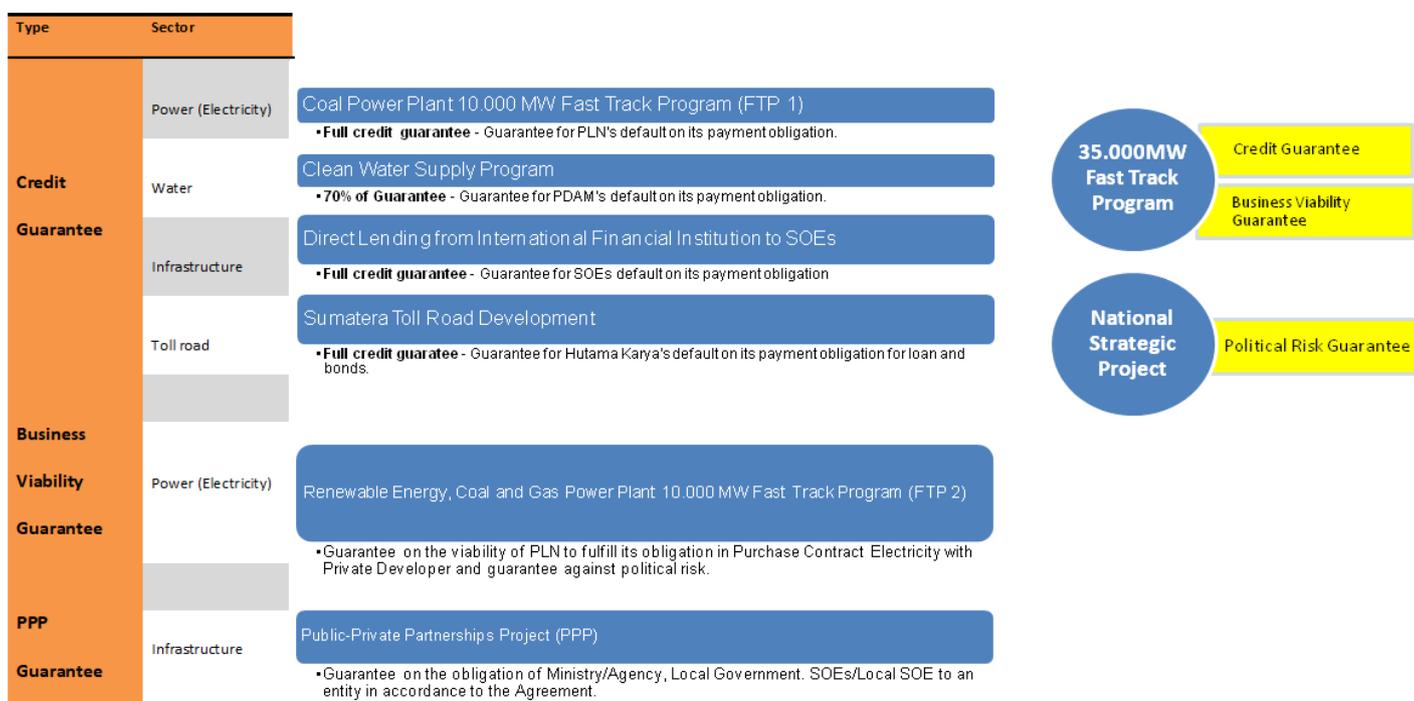
<sup>46</sup> <http://www.iigf.co.id/en/>

<sup>47</sup> <https://www.vantageasia.com/enhancing-projects-bankability-under-indonesias-ppp-regime/>

Figure 16: Financial Support Facilities for PPP Project



Figure 17: Government Guarantees Program for PPP and Non-PPP Project (2008 – present)



Presidential regulation No. 38 (2015) allows payment mechanisms for PPP projects in the form of:

- tariff payment;
- availability payment; and
- other legally compliant mechanisms to enable returns on investment.

The base tariff rate is set based on an investor being able to obtain return on investment, taking into account capital expenditure, operational expenditure and profit margin. Where such base tariff is deemed too high for end users, the government contracting agency may offer viability gap funding. However, viability gap funding is available only for infrastructure deemed socially important, covers only 50% of the infrastructure construction costs, and a project receiving viability gap funding will not be eligible for availability payment.

### 3.4.5 Guarantees by the Government for Power Projects

In Indonesia the retail price of electricity is below PLN's average cost of generation, leaving PLN with a deficit. The Ministry of Finance (MoF) provides funding to PLN to bridge the gap, which is referred to as the Public Service Obligation (PSO). Given that the PSO is critical to PLN's solvency, developers and lenders have in the past sought confirmation from the Government that the PSO will continue to be paid, so that PLN will be in a position to meet its commitments under the PPAs.

In addition to the PSO, there are two other types of Government guarantee applicable to power plant projects under PPP schemes, namely, a Business Viability Guarantee Letter (BVGL) issued by the MoF and a Guarantee Agreement issued by the Indonesian Infrastructure Guarantee Fund (IIGF). The IIGF was established by the Indonesian Government in 2009 to provide guarantees for Government contracting agencies' obligations under PPP infrastructure projects, some of which are power projects. The 2,000MW Central Java project is a notable exception, being issued with the first IIGF guarantee in 2011 (alongside a MoF guarantee).

The BVGL is issued by the MoF and addressed to the project companies in the PPP schemes under the framework of MoF Regulation No. 173/PMK.011/2014 (Regulation 173/2014) and covers the risk of non-payment and/or termination of the agreement. The BVGL may be granted for the period from pre-construction to construction and/or part or all of the

operation period.

## 3.5 Interest Rate Hedging via Interest Rate Swap<sup>48</sup>

As most of the banks offer floating rates in their credit agreements hedging of the interest rate risk during the normally long tenor of a Renewable Energy financing facility is highly recommended to eliminate the interest rate risk over time.

An interest rate swap's (IRS's) effective description is a derivative contract, agreed between two counterparties, which specifies the nature of an exchange of payments benchmarked against an interest rate index. The most common IRS is a fixed for floating swap, whereby one party will make payments to the other based on an initially agreed fixed rate of interest, to receive back payments based on a floating interest rate index. Each of these series of payments is termed a 'leg', so a typical IRS has both a fixed and a floating leg. The floating index is commonly an interbank offered rate (IBOR) of specific tenor in the appropriate currency of the IRS, for example LIBOR in USD, GBP, EURIBOR in EUR or STIBOR in SEK.

To completely determine any IRS a number of parameters must be specified for each leg; the notional principal amount (or varying notional schedule), the start



and end dates and date scheduling, the fixed rate, the chosen floating interest rate index tenor, and day count conventions for interest calculations.

**Figure 18: Interest Rate Swap**

<sup>48</sup> [https://en.wikipedia.org/wiki/Interest\\_rate\\_swap](https://en.wikipedia.org/wiki/Interest_rate_swap)

### 3.5.1 Bank Indonesia Regulation on Interest Rate Swap for IDR<sup>49</sup>

Bank Indonesia Regulation (PBI) No. 20/7/PBI/2018 regarding Indonesia Overnight Index Average and the Jakarta Interbank Offered Rate. Through promulgation of this regulation, two types of money market benchmark rates will be used as a reference for financial transactions, namely the Indonesia Overnight Index Average (Indonesia) and the Jakarta Interbank Offered Rate (JIBOR).

Indonesia is a benchmark rate set by Bank Indonesia based on overnight unsecured transactions in interbank money market. Indonesia can be used as reference for short-term interest rate derivative transactions namely Overnight Indexed Swap (OIS).

On the other hand, JIBOR is a benchmark rate set by Bank Indonesia based on indicative interest rate quotation submitted by contributor banks. The quotations submitted by contributor banks are indicative interest rate quotes reflecting prevailing money market rates for longer tenors (1 week, 1 month, 3 months, 6 months and 12 months), which is typically used as reference for long-term interest rate derivative transactions namely Interest Rate Swap (IRS) and other financial products with a floating interest rate.

As of 2nd January 2019, Bank Indonesia will no longer publish the overnight JIBOR, with JIBOR only applicable, therefore, to five tenors, namely 1 week, 1 month, 3 months, 6 months and 12 months.

### 3.6 Foreign Currency Hedging Facility to Mitigate Currency Risk

OJK is planning to develop the hedging market, as most infrastructure projects in Indonesia generate revenue in rupiah. Foreign investors demand payment in dollars but there are not many long-term hedging instruments currently available in the domestic market. Cross currency swap hedging is also possible. Now people are trading hedging instruments with over-the-counter mechanisms, not in the regulated market. There will be a specialized bourse to sell hedging instruments.<sup>50</sup>

<sup>49</sup> <https://www.bi.go.id/en/iru/government-press-release/Pages/Bank-Indonesia-Issues-Regulation-regarding-Money-Market-Benchmark-Rates-.aspx>

### What is a Cross-Currency Swap?

Cross-currency swaps are an over-the-counter (OTC) derivative in a form of an agreement between two parties to exchange interest payments and principal denominated in two different currencies. In a cross-currency swap, interest payments and principal in one currency are exchanged for principal and interest payments in a different currency. Interest payments are exchanged at fixed intervals during the life of the agreement. Cross-currency swaps are highly customizable and can include variable, fixed interest rates, or both.

#### Exchange of Principal

In cross-currency, the exchange used at the beginning of the agreement is also typically used to exchange the currencies back at the end of the agreement. For example, if a swap sees company A give company B £10 million in exchange for \$13.4 million, this implies a GBP/USD exchange rate of 1.34. If the agreement is for 10 years, at the end of the 10 years these companies will exchange the same amounts back to each other, usually at the same exchange rate. The exchange rate in the market could be drastically different in 10 years, which could result in opportunity costs or gains. That said, companies typically use these products to hedge or lock in rates or amounts of money, not speculate.

The companies may also agree to mark-to-market the notional amounts of the loan. This means that as the exchange rate fluctuates small amounts of money are transferred between the parties to compensate. This keeps the loan values the same on a marked-to-market basis.

#### Exchange of Interest

A cross-currency swap can involve both parties paying a fixed rate, both parties paying a floating rate, one party paying a floating rate while the other pays a fixed rate. Since these products are over-the-counter, they can be structured in any way the two parties want. Interest payments are typically calculated quarterly.

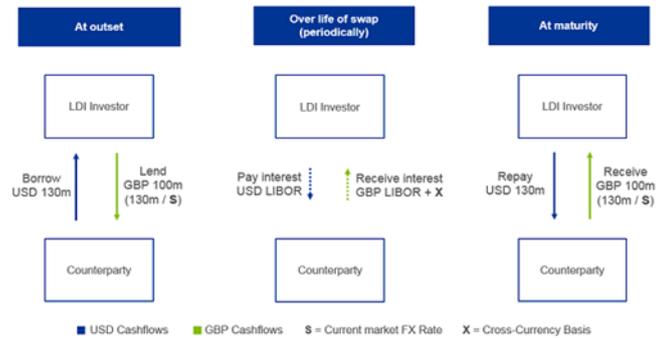
The interest payments are usually settled in cash, and not netted out, since each payment will be in a different currency. Therefore, on payment dates, each company pays the amount it owes in the currency they owe it in.

<sup>50</sup> <https://theinsiderstories.com/government-to-encourage-investors-accelerating-infrastructure/>

interest rate.

Since the two parties are swapping amounts of money, the cross-currency swap is not required to be shown on a company's balance sheet.

Figure 19: Cash flows on a cross-currency swap



### The Uses of Currency Swap

Currency swaps are mainly used in three ways.

**First, currency swaps can be used to purchase less expensive debt.** This is done by getting the best rate available of any currency and then exchanging it back to the desired currency with back-to-back loans.

**Second, currency swaps can be used to hedge against foreign exchange rate fluctuations.** Doing so helps institutions reduce the risk of being exposed to large moves in currency prices which could dramatically affect profits/costs on the parts of their business exposed to foreign markets.

**Last, currency swaps can be used by countries as a defense against a financial crisis.** Currency swaps allow countries to have access to income by allowing other countries to borrow their own currency.

Cross-currency swaps are used to lock in exchange rates for set periods of time.

Interest rates can be fixed, variable, or a mix of both. These instruments trade OTC, and can thus be customized by the parties involved.

While the exchange rate is locked in, there is still opportunity costs/gains as the exchange rate will likely change. This could result in the locked-in rate looking quite poor (or fantastic) after the transaction occurs.

Cross-currency swaps are not typically used to speculate, but rather to lock in an exchange rate on a set amount of currency with a benchmarked (or fixed)

### 3.6.1 PT Maybank Indonesia Tbk - Sharia Hedging Partnership with PT SMI

Available in Indonesia	Globally Available	
Yes	Partner in the project:	PT Maybank Indonesia Tbk – PT SMI

PT Maybank Indonesia Tbk established a Sharia Hedging Partnership with PT Sarana Multi Infrastruktur (SMI), through the provision of iB Foreign Currency Hedging (Foreign Currency Hedging iB (Islamic Facility)), a hedging based product sharia. This hedging partnership is valued at US\$128 million, making it the first largest sharia hedging strategic partnership in Indonesia.<sup>51</sup>

The Foreign Currency Hedging iB will be implemented for PT SMI through a Cross Currency Hedging iB transaction mechanism. It is a contract between two parties to execute two different foreign exchange transactions within a certain period of time, based on the Sharia al-Wahawwuth al-Murakkab (Complex Hedging Transaction) or al-Tahawwud al-Basith (Simple Hedging Transaction) principles.

The benefits of hedging products for customers are to mitigate the risk of exchange rate movements for a certain period of time in connection with the customer's need to pay their obligations in the form of profit sharing, margin, rent and financing principal in a particular currency, while the source of funds or income to pay the obligation obtained from different currencies.

#### Islamic Cross Currency Swap (ICCS)

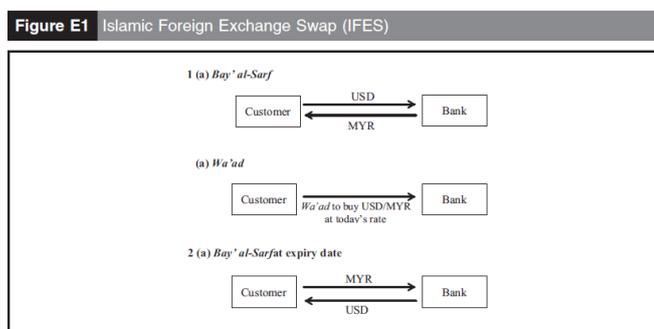
There are three stages involved in ICCS. First, there will be a spot exchange of principal, which is usually in a different currency from the delivery currency. An accounting exchange of profit payments will happen during the swap's life and finally upon maturity, and the parties will exchange a principal amount, which would be in a different currency from the spot principal.

<sup>51</sup> <https://theinsiderstories.com/19-indonesias-soes-infrastructure-projects-get-financing/>

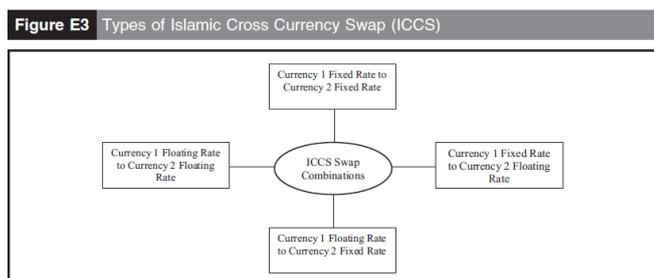
For ICCS, there will be two *murabaha* transactions, namely, term *murabaha* and reverse *murabaha*. In term *murabaha*, a financier will buy goods from the supplier and later sells the goods to another party at a deferred price, which is marked-up to add in the seller's profit rate.

On another hand, for reverse *murabaha*, the bank will buy goods and sell it to customer on the spot on an agreed deferred payment basis. The customer will sell the goods to another party for immediate payment and delivery in which the customer will get cash amount plus duty to pay the deferred payment to the bank on the marked up price.

Figure E1 shows the combination of ICCS in ARBB. Basically, ICCS consists of two financial transactions: foreign exchange of profit rates and foreign exchange of principal amount.



ICCS allows banks, financial institutions and corporations to exchange a liability or asset in one currency into another currency. ICCS can include (or exclude) an exchange of the principal amount (on start date and/or maturity date) (Figure E3).



ICCS payment of profit amount (via Commodity *Murabaha*) is during each settlement period as shown in Figure E4.

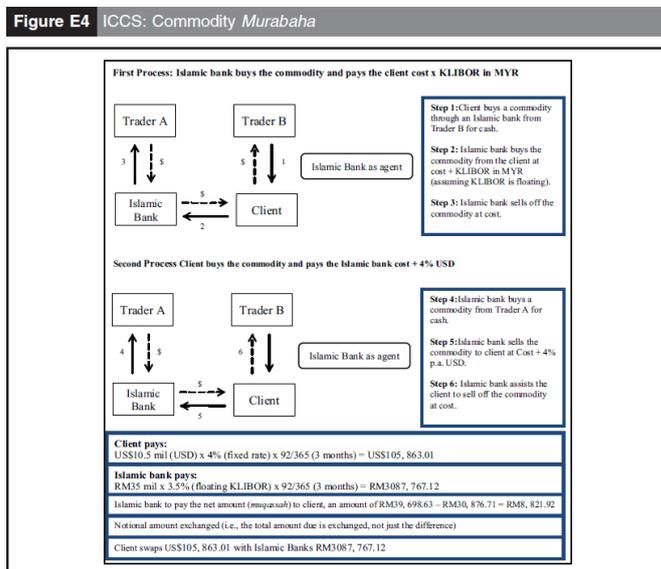


Figure 20: Islamic Cross Currency Swap

### 3.6.2 The Currency Exchange Fund (TCX)<sup>52</sup>

Available in Indonesia	Globally Available	
Yes	Partner in the Project:	Not disclosed

#### Long-Term Foreign Exchange Risk Facility - INSTRUMENT DESCRIPTION:

The Currency Exchange Fund (TCX) is designed to mitigate currency and interest rate risks in order to attract and lock in long-term private equity and private debt in local currency. Through these risk mitigation instruments, the TCX intends to enable and scale climate change mitigation investments.

For selected regions, the TCX investment management company offers the following instruments to beneficiaries that are investing in climate change mitigation and adaptation projects:

- Interest rate swaps
- Long-term fixed cross-currency swaps
- Inflation-linked cross-currency swaps

Usually, TCX collaborates with the International Finance Corporation (IFC) to enter into joint transactions for a pipeline of projects.

<sup>52</sup> <https://www.tcxfund.com/about-the-fund/>

The IFC complements the risk mitigation instruments of TCX by taking over credit risks. TCX is one of the initiatives incubated and launched by the Climate Finance Lab and is funded by the Dutch and German Governments as well as several development finance institutions.

TCX was founded in 2007 by a group of development finance institutions (DFIs), specialized Microfinance Investment Vehicles (MIVs) and donors to offer a solution to currency risk, a solution which – until then – did not exist. The current investors in TCX are 22 multilateral and bilateral development finance institutions (DFIs) and microfinance investment vehicles (MIVs), and the Dutch and German governments.

TCX focuses on providing currency solutions for its investors. These have accounted for over 90% of the volumes transacted by TCX to date. The remainder is primarily provided through commercial banks to make local currency finance available to their borrowing clients in developing countries.

**TCX operates on the basis of the following principles:**

- **additionality:** provide solutions where markets are thin or inexistent;
- **risk-reflective pricing:** price in accordance with prevailing market rates and methodologies;
- **non-speculation:** only hedge actual underlying exposure to the real economy.

TCX acts as a market-maker in currencies and maturities not covered by commercial banks or other providers, notably where there are no offshore hedge markets, no long-term hedging products, or, in extreme cases, no hedge markets at all. In general, this implies that TCX itself cannot hedge the currency risk that it assumes and must bear and manage the open positions that it takes.

Therefore, the fundamental risk management tool that TCX deploys is diversification of its portfolio over a large number of currencies worldwide. Because TCX pools the currency risk related to the lending activities of multiple institutions that are active globally, it can achieve diversification levels that no institution can achieve on its own. This diversification model is backed up by a strong capital base, provided by the investors.

TCX’s activity has gradually increased over the first 10 years of operations and currently spans over 70 currencies in Sub-Saharan Africa, Eastern Europe and Central Asia, the Middle East & North Africa, Asia, and Latin America.

Indonesia Rupiah is included in the 70 currencies.

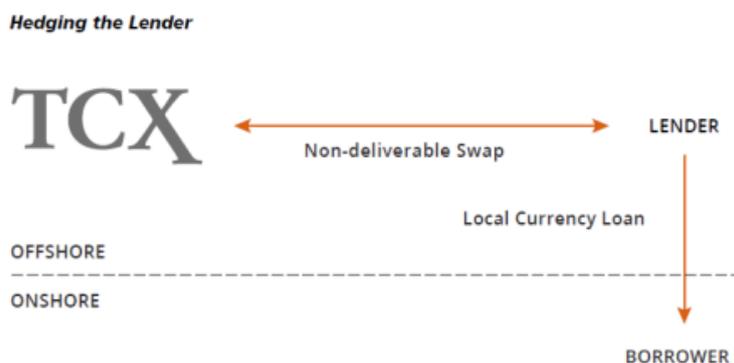
**PRODUCTS<sup>53</sup>**

TCX uses a limited set of derivative products and delivery channels to achieve its mission. This allows it to remain focused on its primary objective, which is the facilitation of long-term local currency finance in frontier markets in close alignment with its shareholders.

TCX’s main investment product is a non-deliverable cross-currency swap, usually matched to the cash-flow of a local currency loan provided by one of its shareholders. The swap ensures that the lender’s income is guaranteed in USD or EUR whilst the borrower’s obligations are in local currency. A simpler investment product that can achieve similar results is the FX forward, also one of TCX’s products.

The cross-currency swap may be provided either to the lender or to the borrower. Hedging the lender results in the investment structure presented in the figure below. The lender provides a local currency loan to the domestic borrower and hedges the associated currency exposure with TCX, so that the combined deal is an asset in the lender’s functional currency e.g. the USD.

**Figure 3.21 Hedging the Lender**



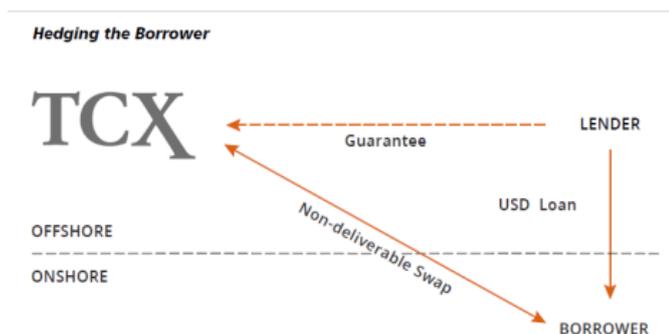
This structure is relatively straightforward from several perspectives. The client interface (and counterparty credit risk management) remains concentrated with the lender and the hedge is not exposed to domestic legal,

<sup>53</sup> <https://www.tcxfund.com/wp-content/uploads/2017/11/final-2016.pdf>

regulatory or tax constraints. The hedge may also be provided to the borrower, resulting in the structure presented below. The lender provides a USD loan to the local borrower, who hedges the resulting obligation with TCX. The hedge transforms its hard currency obligation into a local currency liability.

**Figure 22: Hedging the Borrower**

The direct swap to the local entity allows a greater flexibility in the application of the hedge, since it is



decoupled from the loan. The timing, size and tenor of the transaction may be specified to suit the client's needs, as may the details of the hedge terms (the client could decide, for instance, not to include the loan margin in the hedge).

The direct swap structure does however require TCX to onboard the local client, address the resulting counterparty risks (via guarantees or other means), and satisfy itself that the local legal, regulatory and tax environment support the required transaction terms. For these reasons, TCX generally prefers dealing directly with lenders.

In the TCX monthly report April 2017 the position in IDR Indonesian rupiah is mentioned US\$ 48,669,960.<sup>54</sup>

<sup>54</sup> [http://mfxsolutions.com/wp-content/uploads/2017/06/170430\\_TCX\\_Monthly\\_Report-4.pdf](http://mfxsolutions.com/wp-content/uploads/2017/06/170430_TCX_Monthly_Report-4.pdf)

### 3.6.3 OPIC<sup>55</sup>

Available in Indonesia		Globally Available	
Yes	2 project so far identified – advocacy and loan	Partner in the project:	OPIC

**The Overseas Private Investment Corporation (OPIC)** is a self-sustaining U.S. Government agency that helps American businesses invest in emerging markets. Established in 1971, OPIC provides businesses with the tools to manage the risks associated with foreign direct investment, fosters economic development in emerging market countries, and advances U.S. foreign policy and national security priorities.

**OPIC helps American businesses gain footholds in new markets, catalyzes new revenues and contributes to jobs and growth opportunities both at home and abroad. OPIC fulfills its mission by providing businesses with financing, political risk insurance, advocacy and by partnering with private equity investment fund managers.**

OPIC services are available to new and expanding businesses planning to invest in more than 160 countries worldwide. Because OPIC charges market-based fees for its products, it operates on a self-sustaining basis at no net cost to taxpayers. All OPIC projects must adhere to best international practices and cannot cause job loss in the United States. OPIC is active in Indonesia.

#### Examples for projects supported:

- Environmental and Social Impact Assessment for the PT. Domas Agrointi Prima (DAP) Oleochemical Project – Medan, Indonesia Project
- Name of Borrower: PT Energi Bayu Jeneponto  
Project Description: The development, construction, commissioning and operation of a 72 MW wind farm in Indonesia. The Project will benefit from a 30-year power purchase agreement with PT Perusahaan Listrik Negara (Persero), the Government of Indonesia

<sup>55</sup> <https://www.opic.gov/doing-business-us/OPIC-policies/environment/documents>

offtaker. Proposed OPIC Loan: A 20 year investment guarantee not to exceed \$120 million

### 3.6.3.1 Hedging facility concept with OPIC for small scale SolarPV rooftop – example India<sup>56</sup>

#### Transitional Foreign Exchange Debt Platform: Paths to Enable Foreign Currency Debt to the Rooftop Solar Sector in India

Low access to debt capital remains one of the key barriers to achieving the Indian government's target of 40GW of rooftop solar installations by 2022. Foreign capital can help bridge the gap in debt availability for rooftop solar, however, foreign currency debt exposes rooftop solar project sponsors to the risk of foreign exchange rate fluctuation.

Specifically, rooftop solar sponsors are reluctant to use foreign currency debt due to a variety of factors:

- International investors are unable to hedge the risk that arises due to currency mismatches when debt is in USD while cashflows are in INR
- There are issues related to poor credit quality and credit history of small-scale project developers that preclude these developers from accessing hedging instruments from commercial hedge providers that would otherwise allow them to access foreign debt
- India's managed foreign exchange policy makes currency risk hedging instruments expensive

Taken together, there are market gaps for small-scale rooftop solar project sponsors accessing the most commonly used hedging instruments i.e. cross-currency swaps, options and call-spread strategies. These barriers may be circumvented by either reducing the credit risk exposure to the borrowers by the hedge providers in the form of guarantees, or by transferring the foreign currency from the borrowers to another stakeholder by routing the loan through an intermediary.

**This instrument design case study for the US-India Catalytic Finance Solar Program (USICSF) explores**

**solutions to enable foreign currency debt to the Indian solar rooftop sector** through the lens of a case study of debt investment by the Overseas Private Investment Corporation under the US-India Clean Energy Finance Facility program.

Analyzing all the pertinent constraints to the stakeholders in this case study (including borrowers, hedge providers, donor entities, guarantors and the lender) it was proposed a solution that appears most feasible: A Transitional Foreign Exchange (FX) Debt Platform. Alternatives were also identified and assessed, but noteworthy solutions, which may be successfully implemented under different contexts and preconditions.

Proposed Solution: Transitional Foreign Exchange Debt Platform

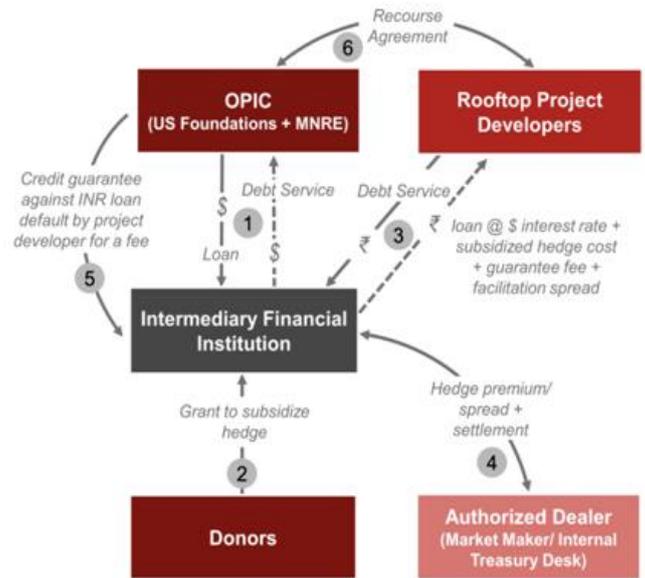
**The Transitional FX Debt Platform entails routing foreign currency debt from OPIC through a local Indian private sector financial institution as the intermediary, on to the borrowers in INR.** Figure 3.23 illustrates the structure of this solution. The following elements will be critical to the success of such a platform:

- **Local intermediary:** The local Indian private financial institution that acts as an intermediary would manage the foreign currency risk arising from the mismatch in currencies of its assets and liabilities through the financial markets or through its internal treasury desk. The cost of raising the credit profile of small-scale rooftop sponsors through guarantees to the foreign currency hedge providers – either funded or unfunded – is too high, and the structure unprecedented for donor stakeholders to act as guarantors. Hence, this approach of routing loans through an intermediary local financial institution is suggested.
- **Credit guarantee:** The credit risk exposure of the intermediary to the end borrower would be partially or completely mitigated by means of a credit guarantee offered by OPIC against the payment of a guarantee fee. This ensures that the credit risk exposure to the borrower would ultimately sit with OPIC, while the partial risk-sharing between OPIC and the intermediary also helps develop the local debt markets in

<sup>56</sup> <https://climatepolicyinitiative.org/publication/transitional-foreign-exchange-debt-platform-paths-to-enable-foreign-currency-debt-to-the-rooftop-solar-sector-in-india/>

lending to the rooftop solar sector.

- **Donor grants:** Donor grants from philanthropic sources under USICSF should be provided to the intermediary financial organization. This is due to the inefficient market pricing of USD-INR swaps, which makes it likely that the landed cost of INR debt to the intermediary (including cost of hedging, guarantee fee, cost of USD debt, overheads and profit margins) exceeds domestic benchmark rates. To minimize the risk of moral hazard, stipulations should be made that INR loans to borrowers are made at a predetermined range of rates linked to a domestic benchmark rate. Further, owing to the Government of India’s mandate of not passing donor grants to private sector institutions, the donor grants should be sourced from philanthropic foundations or development finance institutions.



Under the Transitional FX Debt Platform, each dollar of donor grant capital invested in the Platform enables \$17 to \$34 of additional foreign debt into the solar rooftop sector.

**Debt Platform**

Future work towards implementation includes further multi-stakeholder negotiations, identification of the intermediary institution, market research to scope financial metrics and costs of implementation, and development of actual term-sheets and contracts.

**Figure 23: Structure of the Transitional Foreign Exchange**

Yes	Partner in the project:	CGIF
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**General Bond Guarantee - INSTRUMENT DESCRIPTION**

The Credit Guarantee and Investment Facility (CGIF) was established in 2010 by 10 countries of the Association of Southeast Asian Nations (ASEAN), China, Japan, Republic of Korea and the Asian Development Bank. The CGIF is part of the Asian Bond Markets Initiative and serves to provide credit guarantees for local currency denominated bonds issued by investment-grade companies in ASEAN+3 countries.

CGIF’s general bond guarantees aim to enable companies to successfully issue local currency bonds with longer maturities and reduce their dependency on short-term foreign currency borrowing. The guarantees are irrevocable and unconditional commitments by CGIF to cover 100 per cent of principal and interest payments. In case of any payment defaults throughout the tenor of the bonds, CGIF will pay the bondholders.

Eligible companies/projects have to:

- Successfully pass a credit risk assessment.
- Comply with the Environmental and Social

**3.6.4 General Bond Guarantee for Local Currencies by CGIF<sup>57</sup>**

Available in Indonesia	Globally Available
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<sup>57</sup> <https://iisd.org/credit-enhancement-instruments/institution/credit-guarantee-investment-facility-general-bond-guarantee/>

Safeguards of CGIF.

- Prove that proceeds are not used for any prohibited activities as defined by CGIF, such as weapons production, alcoholic beverages, tobacco, gambling etc.

## 3.7 Main Risks and Mitigation Insurance Instruments for Specific RE Technologies

### 3.7.1 Geothermal

Geothermal projects face significant upfront capital investment for exploration, drilling wells and the installation of plant and equipment, and often employ some degree of public assistance. Due to the fact that the geothermal environment is quite different from the petroleum environment, especially in terms of higher temperature, more corrosive fluids, and generally harder rocks, drilling can be inherently expensive and risky, and the costs can vary between EUR 1 and 5 million depending on the geological nature of the reservoirs, the depth of the wells to be drilled, the local authorities and available service industries involved.

Generally speaking, the risks associated with drilling wells are well understood and financiers and insurers are more concerned with the application of petroleum industry expertise in a very different geothermal environment, unproven stimulation technology and the technical elements for integration of geothermal electricity.

Due to the significant upfront capital outlay for geothermal projects and the potentially lengthy period before revenue generation, financiers are particularly concerned with any risks and/or expenses that may delay or prevent the project from meeting its debt obligations.

**Operators Extra Expense Insurance** is adapted from the oil industry and is often required by lenders for geothermal projects as it is designed to protect the policy holder from any extraordinary expenses or risks associated with drilling exploration wells and operating production platforms. The main expenses that trigger the policy include costs associated with controlling a well or blow-out, the costs of re-drilling or restoring a well, and the costs of remedial measures associated with seepage and pollution. Although seepage and pollution pose less of a risk to geothermal projects compared to

oil and gas projects, the expenses associated with hiring specialist personnel to control blow outs, and the potential for casualties is still of major concern to financiers. Insurance cover for standard physical damage and operators' extra expense is becoming more widely available and cost-effective.

**Exploration risk**—the risk of not successfully achieving (economically acceptable) minimum levels of thermal water production (minimum flow rates) and reservoir temperatures—represents one of the key barriers to investment in geothermal projects. Traditionally, the public sector has had to cover this risk but recently a public/private initiative has been developed by Rödl & Partner with a private sector insurer. The insurance cover provides protection against the flow rate not achieving an economically acceptable level and has significant scope for large-scale applications.

**Protection against breakdown in key components** such as water pumps is also of concern to lenders as this can delay or interrupt the successful functioning and revenue generation of the project. Typically the lack of operating experience for such projects (operators and components) can restrict the cover available.

### 3.7.2 Biomass/Biogas

Biomass/biogas projects suffer significantly from resource supply risk and small scale. One issue that comes up repeatedly when seeking finance for biomass/biogas and cogeneration projects is security of fuel supply and fuel price volatility.

**Crop yield insurance** may be a solution where energy crops are involved but traditionally this cover been difficult to come by for reasons of scale and nonstandard crops. A form of business interruption cover is required as well as instruments to secure long-term fuel supply contracts. However, no such products are available yet. Even standard business interruption cover can be difficult to purchase because of the length of the reinstatement period for biomass plants which are dependent upon continuity of fuel supply.

**Machinery Breakdown and Business Interruption insurance** is widely available for biogas plants that use tried and tested machinery. For waste to energy plants the technology risk is not considered an issue by many insurers as most of the technology involved is now mature, although manufacturing warranties are still a prerequisite. For biogas plants involving fermentation processes, technology and operational risks are a

concern for underwriters as are health risks associated with noxious gases. Without strict safety procedures and operational experience for the technology and operators involved in controlling the fermentation process there are difficulties in obtaining wide coverage.

### 3.8 Export Credit Finance – here Buyer’s Credit

Available in Indonesia		Globally Available	
Yes 	Projects in all segments	Partner in the project:	Various Export Credit Agencies

Buyer's credit is a loan facility extended to an importer by a bank or financial institution to finance the purchase of capital goods or services and other big-ticket items. Buyer's credit is a very useful mode of financing in international trade, since foreign buyers seldom pay cash for large purchases, while few exporters have the capacity to extend substantial amounts of long-term credit to their buyers. A buyer's credit facility involves a bank that can extend credit to the importer, as well as an export finance agency based in the exporter's country that guarantees the loan. Since buyer's credit involves multiple parties and cross-border legalities, it is generally only available for large export orders, with a minimum threshold of a few million dollars.

#### Advantages of including an Export Credit Finance (ECA) structure in the financing of Renewable Energy Projects:

With ECA the equipment can be financed which is sourced from a foreign country which has an Export Credit Agency – e.g. wind turbines, turbines for Hydro Power projects, transformers and so on. ECA facilities come typically “on top” of other credit facilities and use as collateral normally only the equipment which is financed. The fixed assets of a project company such as land and building are so available as collateral for local banks which typically look for fixed assets as collateral and don't want to share them with other lenders. With ECA being in the structure the risk is therefore reduced for local lenders when the equipment is financed from offshore. ECA provides also very long tenors for repayment – for RE projects up to 15 years. Disadvantage could be that ECA is only available in foreign currency and has to be hedged in case there is

only local currency as source of revenues.

Buyer's credit benefits both the seller (exporter) and buyer (importer) in a trade transaction. The exporter is paid in accordance with the terms of the sale contract with the importer, without undue delays. The availability of buyer's credit also makes it feasible for the exporter to pursue large export orders. The importer obtains the flexibility to pay for the purchases over a period of time, as stipulated in the terms of the buyer's credit facility, rather than up front at the time of purchase.

The export finance agency's involvement is critical to the success of the buyer's credit mechanism, since its guarantee protects the bank or financial institution that makes the loan to the foreign buyer from the risk of non-payment by the buyer. The export finance agency also provides coverage to the lending bank from other political, economic and commercial risks. In return for this guarantee and risk coverage, the export agency charges a fee or premium that is borne by the importer.

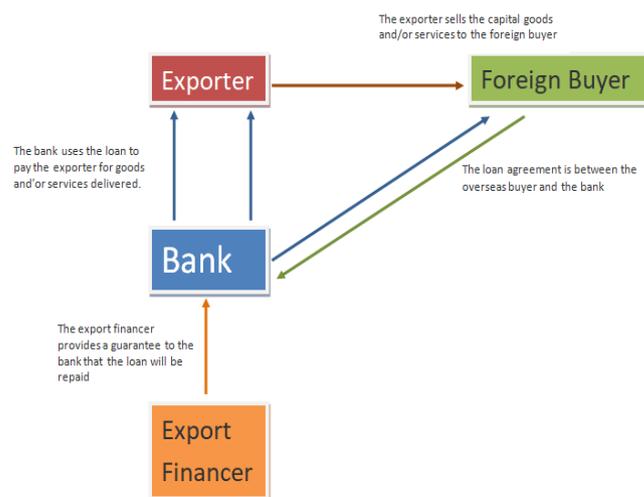


Figure 24: Export Finance

Export credit agencies, or ECAs, have also become vital elements in financing packages, particularly for large-ticket projects. Their presence has the effect of covering at least in part the exposure of bank lenders to the project, protecting them from problems such as equipment failure or breach of contract by the electricity off-taker. Because it takes away some of the risk from lenders, it has the effect of reducing the interest rate payable on debt. In some cases, this may be the difference between a project being economically viable,

and it not being so.<sup>58</sup>

### 3.9 Project Finance

Available in Indonesia		Globally Available	
From Offshore Yes 	Onshore locally No 	Partner in the project:	Various Lenders

Project Finance can de-risk lending to projects as the lending to the project is de-coupled from the economic success of a sponsor with his other business ventures and its Balance Sheet which guarantees a project. It shields the bank from other influences e.g. the bankruptcy of the holding company or guarantor.

#### 3.9.1 Project Finance in Indonesia

Project finance lenders in Indonesia are mainly international commercial banks, multilateral development agencies such as the Asian Development Bank (ADB), and export credit agencies (ECAs) such as Korean Exim Bank, China Exim Bank and JBIC.

In the past 10 years, PT Sarana Multi Infrastruktur (Persero) (SMI), a state-owned infrastructure financing company, and PT Indonesia Infrastructure Finance (IIF), a joint venture between the government (through SMI), ADB, International Finance Corporation, Deutsche Investitions-und-Entwicklungsgesellschaft and Sumitomo-Mitsubishi Banking Corporation, have also been actively providing project financing for infrastructure projects in Indonesia, including renewable energy projects. Both SMI and IIF were established by the government as part of its efforts to accelerate infrastructure developments by providing domestic finance in the form of debt and equity.

In 2015, SMI was mandated by the government to manage the state budget allocated specifically to fund geothermal projects. Typically, ECAs from the international sponsor's jurisdiction will be involved in providing financing, particularly if the international sponsor is also the project's contractor. It is difficult for local banks to provide project financing because of their limited liquidity for long-term debt and the lack of a derivatives market.

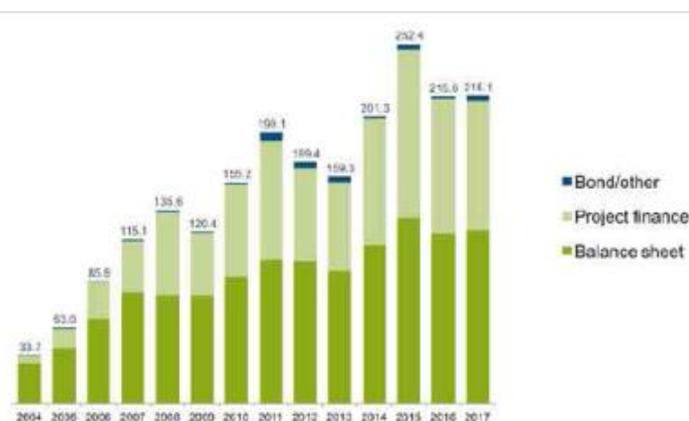
<sup>58</sup> [http://www.iberglobal.com/files/2018/renewable\\_trends.pdf](http://www.iberglobal.com/files/2018/renewable_trends.pdf)

### 3.9.2 The Role of Project Finance Globally

Globally the balance between on-balance-sheet and non-recourse project finance shifted further in 2017, with project finance accounting for 42% of the total, compared with 44% in 2016 and 47% the previous year. This shows the big role Project Finance plays in Renewable Energy development and financing.

One reason for the recent decline in this percentage could be more energy companies opting to finance initially on balance sheet, with a view to bringing in institutional investors to share the cost at a slightly later stage. Also, the trend towards corporate power purchase agreements may have contributed, since banks may offer less debt to a project if the time period of contracted cash flows under the PPA is shorter than under a government-backed feed-in tariff scheme.

**Figure 25: Total Values Estimates for Project Finance Deals**



Total values include estimates for undisclosed deals  
Source: UN Environment, Bloomberg New Energy Finance

#### ASSET FINANCE OF RENEWABLE ENERGY BY TYPE, 2004-2017, \$BN

### 3.9.3 Example Project Finance by JBIC for Geothermal Projects in Indonesia<sup>59</sup>

**Project Financing for Rantau Dedap Geothermal Power Project in Indonesia - Supporting Japanese Companies in Expanding Renewable Power Generation Business in Collaboration with ADB and Other Financial**

Institutions, March 28, 2018

1. The Japan Bank for International Cooperation (JBIC; Governor: Akira Kondoh) signed on March 23 a loan agreement for project finance<sup>59</sup> amounting up to approximately USD188 million (JBIC portion) with PT Supreme Energy Rantau Dedap (SERD), an Indonesian company invested in by Marubeni Corporation, Tohoku Electric Power Co., Ltd., and other sponsors for the Rantau Dedap Geothermal Power Project in Indonesia. The loan is co-financed by private-sector banks including Mizuho Bank, Ltd., Sumitomo Mitsui Banking Corporation, the Bank of Tokyo-Mitsubishi UFJ, Ltd., as well as by the Asian Development Bank (ADB). Nippon Export and Investment Insurance (NEXI) provides insurance for the portion co-financed by the private-sector banks. The total co-financing amount is approximately USD539 million.
2. In this project, SERD will construct, own and operate a geothermal power plant with a gross capacity of 98.4MW in South Sumatra, Indonesia. The electricity generated from this plant will be sold to PT PLN (Persero), for a period of 30 years.
3. This loan supports an overseas infrastructure project in which Japanese companies not only participate as investors, but also operate and maintain a power plant over a long period of time, using advanced Japanese technologies. This loan thereby contributes to maintaining and strengthening the international competitiveness of Japanese industries.
4. In its "Export Strategy for Infrastructure System" revised in May 2017, the Japanese government expressed its intention to promote expanding orders for infrastructure systems, including the design, construction, operation and management of infrastructure, as well as increasing investments in local businesses. The government also announced its "overseas deployment strategy for the power sector" in October 2017, emphasizing overseas power generation business implemented by Japanese utility companies as a priority area in its policy.

<sup>59</sup> <https://www.jbic.go.jp/en/information/press/press-2017/0328-010746.html>

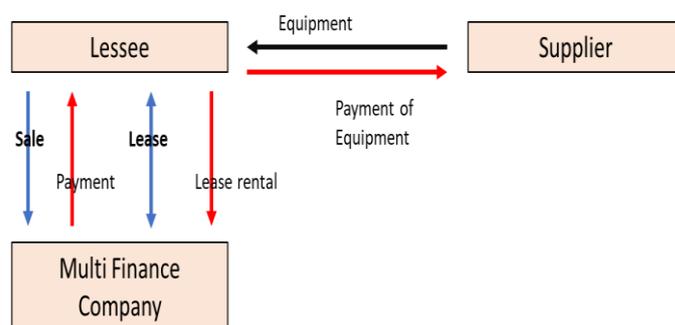
This overseas strategy states that the government will provide support for overseas power development projects through JBIC's financial instruments. Furthermore, the government's climate change policy, namely "Actions for Cool Earth: ACE2.0" announced in November 2015, aims to support developing countries which make efforts against climate change. This loan is in line with those policies of the government. This is the third geothermal IPP<sup>2</sup> project in Indonesia where JBIC has provided project financing, after the Sarulla geothermal power project<sup>3</sup> and the Muara Laboh geothermal power project<sup>4</sup>. JBIC supports power projects in Indonesia utilizing renewable energy including geothermal power.

5. In order to respond to the country's surging electricity demand, which has increased in line with steady economic growth, the Indonesian government has committed to promoting its "35 GW power plants development plans", and this project is positioned as a part of that plan. The government has been actively promoting geothermal power generation, which taps into the country's rich geothermal resources, including the issuing of a new law for geothermal power production in 2014. By generating a steady power supply, which contributes to climate change mitigation, this loan is also expected to support Indonesia's economic development as well.
6. As Japan's policy-based financial institution, JBIC will continue to financially support the expansion of overseas infrastructure business of Japanese companies, in collaboration with multilateral financial institutions, including ADB, by drawing on its various financial facilities and schemes for structuring projects, and performing its risk-assuming function.

Finance Companies will finance the equipment as part of the overall financing scheme. As Leasing companies require only the financed equipment as collateral the other fixed assets in the project such as land and building can be used as collateral for the bank which finances them and provides working capital. Leasing will therefore be only part of a financing structure as civil works and working capital will typically not be financed by Leasing companies.

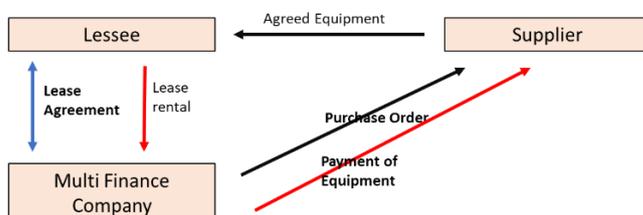
Figure 26: Typical Leasing schemes:

**Sales & Lease Back Scheme for New Equipment**



Alternatively:

**Direct Lease Scheme**



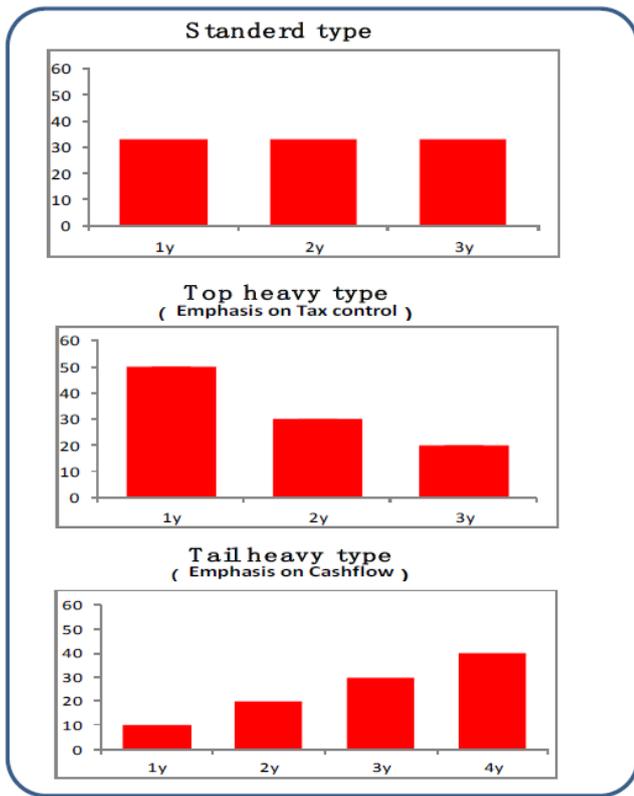
Leasing also allows for flexible repayment schemes depended on the tax and liquidity situation of the company.

Typically such flexible schemes are as follows:

### 3.10 Finance Lease

Available in Indonesia		Globally Available	
Yes 	Projects in all segments	Partner in the project:	Various Finance Companies

Leasing is potentially an interesting instrument to finance RE-projects in developing countries. Leasing or



## Accelerated taxable depreciation

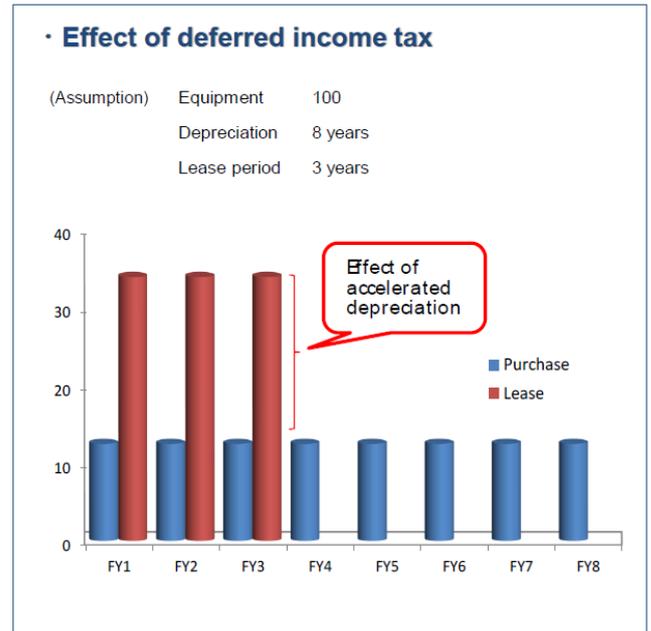


Figure 28: Tax Effect of Leasing Schemes

The minimum tenor of the Lease structure depends on the nature of the equipment:

### Lease Period

- The shortest lease period is determined by category of Equipment

	Equipment	Taxable depreciation term	Depreciation ratio	The shortest Lease period
I	Mold, Wooden Furniture, Photocopy, Computer, taxi, bus, etc	4 years	25% fixed amount or 50% fixed rate	2 years
II	Passenger Car, Truck, Light Industrial Machinery, Electrical Equipment, etc.	8 years	12.5% fixed amount or 25% fixed rate	3 years
III	Mining and Textile Machinery, Industrial Machinery and Equipment, Small Ship, etc.	16 years	6.25% fixed amount or 12.5% fixed rate	3 years
IV	Heavy Construction Equipment, Locomotives, Train, Large Ship, etc.	20 years	5% fixed amount or 10% fixed rate	3 years

Figure 27: Flexible Leasing Schemes

# 4. Multilaterals and their Programs Available for Indonesia

Multilateral development banks have been important providers of finance for renewable energy for more than a decade, often backing projects in countries where commercial banks are concerned about risk, or in technologies where commercial banks are only just starting to get comfortable.

Eight of the largest development banks, led by KfW of Germany, the European Investment Bank and the World Bank Group, lent \$55 billion between them to clean power in 2016, a figure comparable to that in other recent years. This total includes funding for energy efficiency and transmission, as well as for renewables projects. KfW was by far the largest contributor, with \$34.1 billion of commitments, up from \$30.7 billion in 2015.<sup>60</sup>

## 4.1 Importance of “cheap” Development Funds for RE Projects in the example of Germany<sup>61</sup>

Financing is a large contributor to soft costs, and Germany has some of the lowest financing costs for wind and solar in the European Union. Typical financing costs are between 3.5% and 4.5% for onshore wind

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<sup>60</sup> [http://www.iberglobal.com/files/2018/renewable\\_trends.pdf](http://www.iberglobal.com/files/2018/renewable_trends.pdf)

<sup>61</sup>

[https://www.forbes.com/sites/energyinnovation/2018/11/12/inves](https://www.forbes.com/sites/energyinnovation/2018/11/12/investment-grade-policy-de-risking-renewable-energy-projects/#2931b6a44e77)

[tment-grade-policy-de-risking-renewable-energy-projects/#2931b6a44e77](https://www.forbes.com/sites/energyinnovation/2018/11/12/investment-grade-policy-de-risking-renewable-energy-projects/#2931b6a44e77)

projects. In large part, Germany's success in driving down financing costs results from the availability of low-cost capital from state-owned development banks.

German development banks are able to provide loans at 2% or 3% interest, taking advantage of the creditworthiness of the German government.

Domestic developers finance between 80% and 100% of onshore wind projects with low-cost debt, using a low share of more expensive project equity. Climate Policy Initiative estimates that between 60% and 70% of the total funding for renewable energy investment in Germany in 2013 and 2014 was originally provided by development banks.

## 4.2 Asian Infrastructure Investment Bank (AIIB)<sup>62</sup>

Available in Indonesia	Globally Available	
Yes 	Partner in the project:	AIIB

The Asian Infrastructure Investment Bank (AIIB) is a multilateral development bank with a mission to improve social and economic outcomes in Asia. Headquartered in Beijing, it began operations in January 2016 and has now grown to 97 approved members worldwide. By investing in sustainable infrastructure and other productive sectors in Asia and beyond, it will better connect people, services and markets that over time will impact the lives of billions and build a better future.

Private Capital Mobilization as thematic priority:<sup>63</sup> Devising innovative solutions that catalyze private capital, in partnership with other MDBs, governments, private financiers and other partners.

### 4.2.1 Investment support for Renewable Energy

The Sustainable Energy for Asia Strategy sets out a clear framework for AIIB to invest in energy projects that will increase access to clean, safe and reliable electricity for millions of people in Asia. To implement the strategy, the Bank will support its members to do their part as expressed in the Paris Agreement to, "hold the increase in the global average temperature to well below 2

degrees Celsius above pre industrial levels and pursue efforts to limit the temperature increase to 1.5 degrees Celsius". It will achieve this by aligning its support with its members' national energy investment plans, including their nationally determined contributions (NDC) under the Paris Agreement.

Initially, AIIB will focus on projects in renewable energy, energy efficiency, rehabilitation and upgrading of existing plants, and transmission and distribution networks. It will cooperate with other multilateral development banks, bilateral agencies and the private sector operating in Asia. Over time, it will also develop financial instruments and engage with potential financial intermediaries in renewable energy and energy efficiency investments.

### 4.2.2 Instruments of AIIB

#### Financing Operations

According to the Articles of Agreement (AOA) of AIIB, the Bank will "provide or facilitate financing to any member, or any agency, instrumentality or political subdivision thereof, or any entity or enterprise operating in the territory of a member, as well as to international or regional agencies or entities concerned with economic development of the Asia region."

Furthermore, the AOA permits the Bank to provide financing in a variety of ways, including, inter alia, making loans, investing in the equity capital of an enterprise, and guaranteeing, whether as primary or secondary obligor, in whole or in part, loans for economic development.

In addition, the Bank may underwrite, or participate in the underwriting of, securities issued by any entity or enterprise for purposes consistent with its purpose.

Sovereign-backed financing:

- A loan to, or guaranteed by, a Member;
- A guarantee that:
  - (a) covers debt service defaults under a loan that are caused by a Government's failure to meet a specific obligation in relation to the Project or by a borrower's failure to make a payment under the loan;

<sup>62</sup> <https://www.aiib.org/en/about-aiib/index.html>

<sup>63</sup> <https://www.aiib.org/en/policies-strategies/strategies/index.html>

(b) is accompanied by a Member Indemnity.

#### Non sovereign-Backed Financing

- Non sovereign-backed financing means any financing extended by the Bank that is not a sovereign-backed financing; it includes any financing to or for the benefit of a private enterprise or a sub-sovereign entity (such as a political or administrative subdivision of a Member or a public sector entity) that is not backed by a guarantee or counter-guarantee and indemnity provided by the Member to the Bank.

#### Equity Investment

- The Bank may make direct equity investments in private or public sector companies. It may invest either in a new enterprise or an existing enterprise. The investment may take a variety of forms, including:
- Subscriptions to ordinary shares or preference shares (or a combination of both);
- A loan convertible into equity. The Bank's investment may not exceed thirty percent (30%) of the company's ownership holdings.

However:

- In exceptional circumstances, the Board may decide to approve a higher, but not controlling share;
- If the Bank's investment is in jeopardy, the Bank may take control of the company in order to safeguard its investment.

#### Example of Projects for Indonesia (non RE sector)<sup>64</sup>

##### Project Description Strategic Irrigation Modernization and Urgent Rehabilitation Project

The Project provides a platform for rehabilitation and modernization of the irrigation sector in Indonesia by increasing participatory development, improved levels of service, infrastructure upgrade and sustainable management. The Project is designed around the Directorate General of Water Resources' (DGWR) five

pillars of irrigation management modernization which are intended to support Government's efforts to address the infrastructure, institutions, information and technical issues for enhanced irrigation efficiency.

The five pillars include:

- (i) improving water security and availability;
- (ii) rehabilitation and upgrade of infrastructure;
- (iii) improvement of management system;
- (iv) strengthening of institutions; and
- (v) strengthening of human resources.

#### ❖ Project Cost and Financing Source

The Project is estimated to cost USD 578 million. The financing sources are as follows (in USD millions)

Borrower	78.00
AiIB	250.00
World Bank	250.00
<b>Total</b>	<b>578.00</b>

#### ❖ Implementation

The Project will be co-financed by the World Bank (WB). The WB will be the lead financier of the Project and will administer the Bank's loan on behalf of the Bank, including procurement, disbursements, environmental and social compliance, and project monitoring and reporting.

Procurement for the Project will be carried out in accordance with WB's Procurement Guidelines. Project Implementation Period: July 2018 – December 2023.

### 4.3 Agence Française de Développement (AFD)

The Agence Française de Développement (AFD) funds, supports and accelerates the transitions to a fairer and more sustainable world. Focusing on climate, biodiversity, peace, education, urban development, health and governance, AFD carried out more than 4,000 projects in France's overseas departments and territories and other 115 countries. In this way, AFD contributed to the commitment of France and French

<sup>64</sup>

[https://www.aiib.org/en/projects/approved/2018/\\_download/indonesia/summary/project-summary-information.pdf](https://www.aiib.org/en/projects/approved/2018/_download/indonesia/summary/project-summary-information.pdf)

people to support the sustainable development goals.

### 4.3.1 AFD and PT SMI

In 2015, AFD financed its first project with its Indonesian counterpart, PT SMI. The objective was to promote investment in green infrastructure, especially renewable energy, in order to promote low carbon growth and contribute to the fight against climate change.

With this in mind, in 2015, Agence Française de Développement (AFD) and the British Department for International Development (DfID) began supporting the efforts of the public financial institution PT Sarana Multi Infrastruktur (PT SMI) in financing infrastructure projects which contribute to reducing climate change and adapting to its effects.

Outcomes:

- 18,000 t CO<sub>2</sub>e/year is being avoided through the extension of a hydroelectric power station in the Bengkulu province, on the island of Sumatra. This extension is an addition to a 16.5 MW facility, thus increasing its capacity to 21 MW.
- 102 GWh of electricity will be generated each year by two newly-constructed biomass plants. The majority of the electricity will be used to supply two sugar processing plants in East Java and the remainder sold to the local electricity company.

The project has boosted the capacities of PT SMI in several areas: identifying projects, enhancing technical studies for applications and developing technical and financial skills within their teams in renewable energy projects or those beneficial to the climate.

### 4.3.2 AFD and Bank Mandiri<sup>65</sup>

PT Bank Mandiri and Agence Française de Développement (AFD) support development of renewable energy and energy efficiency projects in Indonesia. AFD provided banking facilities worth 100 million USD to Bank Mandiri.

Bank Mandiri has used the first loan of 97 million USD to finance projects of hydropower, biogas and combined cycle power plant. It also helped Bank Mandiri to

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<sup>65</sup> <https://en.republika.co.id/berita/en/jakarta-region-others/13/11/09/mvznhb-bank-mandiri-and-afd-to-support-renewable-energy-projects>

strengthen its long term financing structure and increases financing for environmentally friendly projects that can support increased investments in Indonesia.

# 5. GAP Analysis

The following GAP Analysis shows the major GAPs identified and solutions available which can be explored to close the gap.

No	GAP	Background	Solutions	Providers/Suggested Parties and Products	Products and Their Reference in This Report
1	Lack of experience with RE projects by local banks	So far lenders have only very limited experience with RE projects as projects are still rare and financing mainly provided to known sponsors which are already customers of the bank	<ul style="list-style-type: none"> <li>Projects which are funded by Multilaterals, Development Agencies and others should be as often as possible syndicated out and co-financed by as many commercial banks as possible to increase their exposure and experience with RE projects</li> <li>Banks should provide Senior Debt but other lenders (e.g. Institutional Lenders) should provide Junior Loans or Subordinated Debt to increase the comfort of Commercial Banks</li> </ul>	<ul style="list-style-type: none"> <li>ADB</li> <li>IFC</li> <li>IIF</li> <li>PT SMI</li> <li>World Bank</li> <li>AFD</li> <li>Development Banks e.g. DEG, FMO</li> </ul>	<ul style="list-style-type: none"> <li>Asset Aggregation, Chapter 3.2.1.10</li> <li>Subordinated Debt, Chapter 3.2.1.14</li> <li>Blended Concessional Finance, Chapter 3.2.3</li> <li>Leading Asia's Private Sector Infrastructure Fund, Chapter 3.2.4</li> <li>ASEAN Infrastructure Fund, Chapter 3.2.4</li> <li>Rating of companies or projects, Chapter 3.1</li> </ul>
2	Lack of understanding of risks involved in Renewable Energy Projects	Local lenders feel not comfortable and competent to evaluate and assess risks related to RE projects. They would appreciate ongoing TA for capacity building until their knowledge level is at a comfortable level	<ul style="list-style-type: none"> <li>Grants for Technical Assistance</li> <li>Co-financing opportunities</li> </ul>	<ul style="list-style-type: none"> <li>Development Agencies such as USAID, GIZ, AfD, ADB, GGGI etc.</li> </ul>	<ul style="list-style-type: none"> <li>Grants, Chapter 3.2.1.2</li> <li>Seed Capital, Chapter 3.2.1.1</li> <li>Blended Concessional Finance, Chapter 3.2.3</li> <li>IFC Risk Sharing Facility, Chapter 3.3.7</li> <li>Finland – IFC Blended Finance for Climate Program, Chapter 3.3.8</li> </ul>
3	Lack of experienced developers and project owners in the projects	Lenders would like to see shareholders/project owners investing in the project (minority or majority) with experience in the RE sector in the project so that they are sure that the project owners understand the	<ul style="list-style-type: none"> <li>Equity investors with existing investment portfolio in RE</li> <li>Other stakeholders in the project e.g. technology providers (suppliers)</li> <li>Equity Funds</li> </ul>	<ul style="list-style-type: none"> <li>Institutional Investors</li> <li>Private Equity</li> <li>Equity Funds</li> <li>Development Banks/Agencies</li> </ul>	<ul style="list-style-type: none"> <li>Seed Capital, Chapter 3.2.1.1</li> <li>Private Equity RE Asia Fund II, Chapter 3.2.1.11</li> <li>GEEREF Equity Investment Fund, Chapter 3.2.1.12</li> <li>Armstrong SEA Clean Energy Fund, Chapter 3.2.1.13</li> </ul>

No	GAP	Background	Solutions	Providers/Suggested Parties and Products	Products and Their Reference in This Report
		risk and can handle the project professionally		<ul style="list-style-type: none"> <li>Government Institutions as far as legally allowed</li> <li>State Owned Enterprises</li> </ul>	<ul style="list-style-type: none"> <li>Leading Asia's Private Sector Infrastructure Fund, Chapter 3.2.4</li> </ul>
4	Lack of sufficient equity	Equity buffer for cost overruns or other unexpected expenses are hardly provided by sponsors but will give lenders a higher level of comfort to finance RE projects	<ul style="list-style-type: none"> <li>Equity reserve account</li> <li>Liquidity reserve account</li> </ul>	<ul style="list-style-type: none"> <li>Government Institutions</li> <li>Development Banks/ Multilaterals as stand by facility</li> <li>RE Fund</li> <li>LC/SBLC's</li> </ul>	<ul style="list-style-type: none"> <li>Seed Capital, Chapter 3.2.1.1</li> <li>Convertible Grants, Chapter 3.2.1.3</li> <li>Equity Liquidity Facility, Chapter 3.2.1.6.1</li> <li>Mezzanine Financing, Chapter 3.2.1.6.2</li> <li>Funds and Structured Products, Chapter 3.2.1.7</li> <li>Private Equity Fund, Chapter 3.2.1.8</li> <li>Contingent Capital, Chapter 3.2.1.9</li> </ul>
5	Lack of sufficient collateral	Banks don't acknowledge the PPA as collateral but look for fixed assets which the project typically does not have	Collateral is provided by 3rd party	<ul style="list-style-type: none"> <li>GarantCo</li> <li>Government Guarantees</li> <li>Guarantees from Multilaterals</li> <li>LC/SBLC</li> </ul>	<ul style="list-style-type: none"> <li>Bank Guarantee, Chapter 3.3.2.2</li> <li>Credit Insurance, Chapter 3.3.2.1</li> <li>GarantCo, Chapter 3.3.4</li> <li>USAID, Chapter 3.3.6</li> <li>Leasing, Chapter 3.10</li> <li>Export Credit Finance, Chapter 3.8</li> </ul>
6	Project start/ COD delay	Liquidity buffer from the project sponsors are often not available. Insurance coverage for delays of the project start are available only for Operational Risks - but NOT for Commercial/Business risk e.g. in case the EPC contractor is incapable or delivers a faulty design	<ul style="list-style-type: none"> <li>Liquidity reserve account</li> <li>Insurance coverage for business risk in case the contracting party is not willing or obliged or able to pay for the cost of the delay and lost revenues</li> </ul>	<ul style="list-style-type: none"> <li>Special Insurance coverage for business risk to be developed</li> <li>Government Institutions cover that risk</li> </ul>	<ul style="list-style-type: none"> <li>Insurance Types, Chapter 3.3.3.1</li> <li>Guarantee Types, Chapter 3.3.3.2</li> </ul>
7	Under-performance of the project/ Liquidity Risk	Calculated/estimated revenues are not achieved because of overoptimistic assumptions or wrong project design and repayment of the loan is endangered	<ul style="list-style-type: none"> <li>3rd party covers the Credit Risk of default</li> </ul>	<ul style="list-style-type: none"> <li>Insurance companies</li> <li>Bank guarantees</li> <li>GarantCo provides such guarantees</li> </ul>	<ul style="list-style-type: none"> <li>Liquidity Risk Mitigation Instruments, Chapter 3.2.7</li> <li>Internal Liquidity Facilities, Chapter 3.2.7.1</li> <li>Contingent Credit Lines, Chapter 3.2.7.2</li> <li>First Loss Provision, Chapter 3.2.7.3</li> </ul>

No	GAP	Background	Solutions	Providers/Suggested Parties and Products	Products and Their Reference in This Report
					<ul style="list-style-type: none"> <li>• Letter of Credit, Chapter 3.2.7.4</li> <li>• Credit Insurance, Chapter 3.3.2.1</li> <li>• First Loss Protection Mechanisms, Chapter 3.3.10</li> </ul>
8	Foreign Investors prefer and demand revenues in US\$	Foreign investors are often experienced in investing in RE and can more accurately assess and mitigate risks involved in RE project developments. As more projects are financed by them and local banks are included/can participate the more capacity building for local banks is made	<ul style="list-style-type: none"> <li>• Hedging facilities for revenues in US\$</li> <li>• PLN has to offer US\$ tariffs to IPP's</li> </ul>	<ul style="list-style-type: none"> <li>• TCX – The Currency Exchange Fund</li> </ul>	<ul style="list-style-type: none"> <li>• The Currency Exchange Fund TCX, Chapter 3.6.2</li> <li>• Interest Rate Hedging via Interest Rate Swap, Chapter 3.5</li> <li>• Hedging facility concept with OPIC, Chapter 3.6.3.1</li> </ul>
9	Local investors demand revenues in US\$ in order to be able to get cheaper US\$ loans	Interest rates in US\$ are roughly half of the interest rates in IDR. Low long term interest rates make projects more feasible and attractive even if the electricity rate is low	Hedging facilities for revenues in US\$	<ul style="list-style-type: none"> <li>• TCX – The Currency Exchange Fund</li> <li>• Sharia Hedging Product</li> </ul>	<ul style="list-style-type: none"> <li>• The Currency Exchange Fund TCX, Chapter 3.6.2</li> <li>• Interest Rate Hedging via Interest Rate Swap, Chapter 3.5</li> <li>• Hedging facility concept with OPIC, Chapter 3.6.3.1</li> <li>• 3.6.1 PT Maybank Indonesia Tbk - Sharia Hedging Partnership with PT SMI</li> </ul>
10	Wait and see approach towards financing of RE projects – local banks don't want to be the first movers – no incentive to look for RE assets	As long as there is no “obligation” to book Renewable Energy loans as assets or there is no incentive or reward banks will receive if they do so, then their motivation to venture into RE financing is limited	<ul style="list-style-type: none"> <li>• Attractive refinancing of local banks for RE projects</li> <li>• Risks taken by 3rd parties so that investments in RE financing is of low risk and high reward</li> <li>• “Attractive” collateral which qualifies for little capital requirements for these loans</li> </ul>	<ul style="list-style-type: none"> <li>• Guarantees like ECA coverage can be a template and model</li> <li>• Interest rate subsidies for banks</li> </ul>	OJK Roadmap to Sustainable Finance, Chapter 11

# 6. Conclusions

Multilaterals have for the time being to be the drivers for RE financing in Indonesia but have to include as often as possible local banks into their lending activities to increase their exposure to RE projects in order to gain experience in that sector.

The focus of Multilaterals and specifically of PT SMI has to shift from being mainly a loan provider to de-risking partner for local banks which provides instruments for example like guarantees, LC's and liquidity / equity buffers to de-risk the exposure of commercial banks (of course against fees).

As outlined in this report there are many products and structures which can be used and are used already in the financing of RE projects in Indonesia. It is worth while to look into all instruments again and see how these can be developed and promoted further to play a bigger role in RE financing structures.

The following products/solutions are most relevant in the Indonesian context/RE sector and should therefore be explored, developed and promoted in more detail:

## 1. Provision of Mezzanine Loans/Subordinated debt

The provision of Mezzanine Loans / Subordinated Debt which increases the equity portion and provides more liquidity for the Senior Debt interest and instalments will solve a number of issues described in the GAP analysis. This can be done by all existing market participants or by a RE Investment Vehicle which will be described under "Next Steps".

Pricing could be below market rates to be attractive for all participants and make the project more feasible.

These Mezzanine Loans / Subordinated Debt can be combined with instruments which can convert these subordinated loans into real equity to participate in the upside potential of a project after completion and entering the commercial operational phase.

The provision of Mezzanine

Loans/Subordinated debt comes typically with a very detailed due diligence and might include a TA component. If professional investors provide quasi equity the other lenders are typically also more comfortable with the project.

## 2. Credit Guarantees by Insurance companies

Insurance coverage of Business/Commercial risk via Credit Risk Insurance Companies should to be used and developed and promoted further. Banks would then have Insurance Companies as guarantors which will improve the risk profile of a lender significantly.

Government owned insurance companies and re-insurance companies can play here a crucial role to diversify and share risk.

Insurance coverage of Operational Risk is fully available and frequently used/required by banks. Credit Insurance is rarely used and should be better promoted and developed – via onshore insurance companies or offshore insurance providers.

## 3. Credit Guarantees provided by GuarantCo

It has to be explored how the Credit Guarantee Facilities which are provided by GuarantCo can be used for projects in Indonesia. It has also to be explored if institutions such as PT SMI can be involved to overcome restrictions on minimum amount etc.

## 4. Long-Term Foreign Exchange Risk Facility provided by TCX, the Currency Exchange Fund

A structure has to be developed how e.g. TCX can be involved in foreign exchange hedging for smaller RE projects as PPA's are normally in IDR and many project owners get funding from offshore which comes typically only in foreign currency.

As TCX typically collaborates with the International Finance Cooperation (IFC) it should be explored who else could be involved in such a structure and be the hedging partner in Indonesia (e.g. PT SMI?).

5. **For Solar PV installations involve Multi Finance Companies for Leasing structures**

Multi Finance Companies are willing and able to offer finance lease structures for equipment. This is specifically interesting for Solar PV projects where most of the cost is related to the equipment. Advantage of that structure is that Multi Finance Companies typically accept the equipment as collateral and don't ask for fixed assets. As IPP's are often newly established companies project sponsors (often larger corporates itself) have then to provide a Corporate Guarantee to secure the lease agreement which is acceptable for Multi Finance Companies.

6. **A "Market Place for Renewable Energy Projects" has to be created**

In order to involve as many banks as possible into Renewable Energy projects and let them gain experience and get exposure a market place for Renewable Energy projects should be created. Syndications for smaller scale projects have to be created and developed and an institution has to take a lead on that.

# 7. Next Steps

## 1. Credit Guarantee Facility for Renewable Energy projects:

Besides following up on the topics mention in the previous chapters it is recommended to consider to establish own entities which provide Credit Guarantees for RE projects and an Equity Investment Vehicle for RE projects.

The development of these instruments/institutions will not only create own knowledge and experience which can be shared in the Indonesian Financial Services Industry but makes Indonesia also more independent from foreign parties and support and can be more tailor made for specific Indonesian situations:

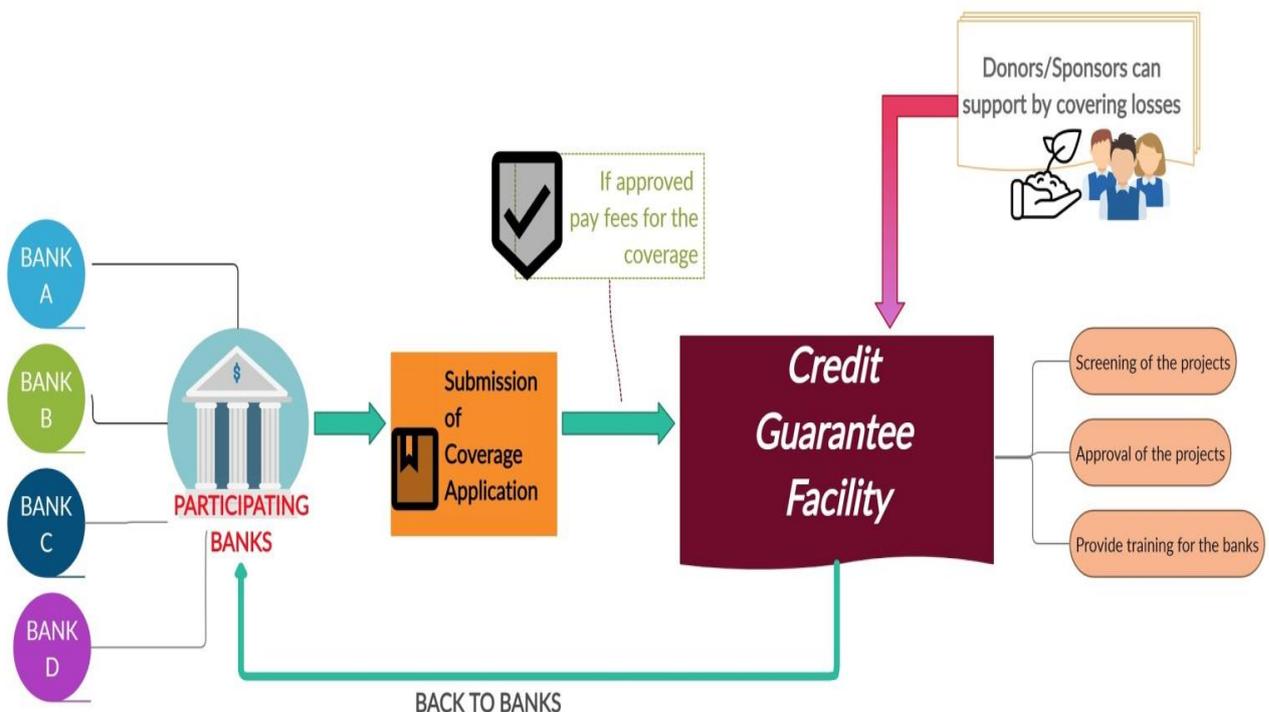
An institution should be formed to guarantee RE investments. It follows roughly the idea of Export Credit Agency schemes which cover up to 95% of the commercial risk for banks of the loan amount.

Participating Lenders would do a credit assessment as if they would take the entire credit risk by themselves and would submit their assessment to the approving Credit Guarantee institution which does its own assessment. If approved the institution would issue a Credit Guarantee to guarantee a significant amount of the loan – hence de-risk the lender.

If it's done professional and good the default ratio is lower than the fees they charge and collect (typically upfront but the amount will be included in the financing amount).

A very popular scheme for banks as e.g. up to 95% of their credit risk is insured by a trusted government agency – hence very little capital requirement for the banks for loans which have such coverage which allows the banks to offer very attractive rates to the end user.

Figure 29: Credit Guarantee Facility



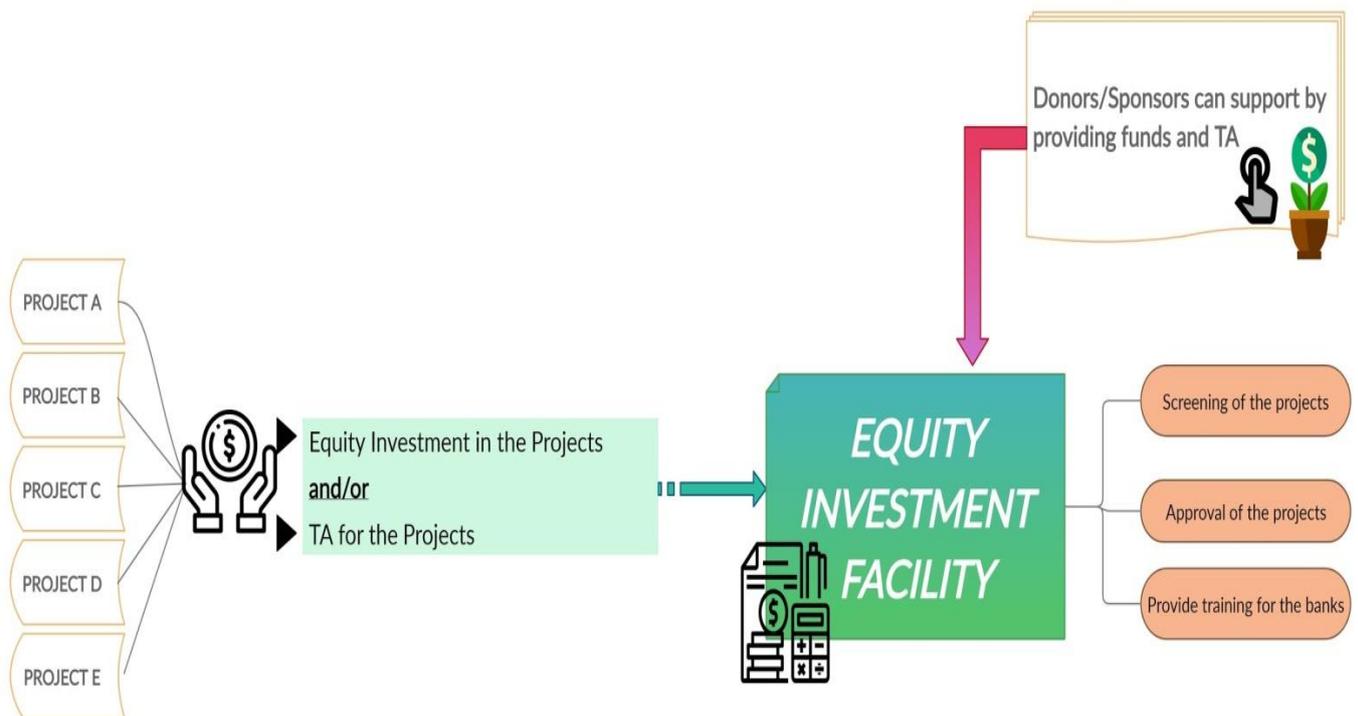


Figure 30: Equity Investment Facility

## 2. Renewable Energy Equity Investment Vehicle as Asset Aggregating Vehicle

A RE investment vehicle should be formed which invests in smaller RE projects. Objective is besides providing additional equity to the project to provide knowledge to the RE projects/sponsors by having a professional and experienced co-investor in the project who ensures a proper due diligence and Feasibility Study and brings project monitoring and supervision with them. It will not only increase the equity portion in projects but also de-risk the investment by having a professional investment vehicle as shareholder.

It also might act as “stand by” equity and liquidity buffer in case further equity injections are necessary. This vehicle can also be used as “Training Centre” for banks as they can assign staff for a limited period for training purposes.

Donors and other sponsors can participate/invest in this vehicle to provide funds and also TA to build up this investment vehicle.

**3. Kick starting the dialog with institutions like GuarantCo, TCX, Insurance companies and other institutions mentioned in the report**

An institution, and here PT SMI is recommended, has to start the dialog with existing institutions offshore and onshore how they can be involved in smaller scale Renewable Energy projects in Indonesia and what has to be done that they can offer their services to a broader project pool

# 8. Appendix

Table 14: Regulatory Framework

## Appendix A: Regulatory Framework Reform to support Green Infrastructure Development in Indonesia

The following topics have a significant impact on project development and PLN is steadily pushing the limits on new regulations in their favor and as disadvantage for IPP developers. These regulatory issues have to be tackled in parallel with the development of de-risking tools which can help to de-risk financing of Renewable Energy projects.

Topic	Situation	Impact	Institution responsible
Restrictions on foreign shareholders (Negative Investment List)	Foreign investors face significant restrictions for RE projects <10 MW in which they can only invest as minority shareholder or not at all (<1MW).	Even projects up to 10MW are often too capital intensive to be developed by local shareholder. Foreign investor typically demand a controlling stake in projects and therefore there is a lack of foreign investors in smaller scaled RE projects which are typically below 10 MW.	BKPM
Standardization of PPA's	Each PPA has to be negotiated individually which takes a lot of time and costs up to 500,000 US\$ on legal fees to negotiate. For smaller projects that puts a lot of additional cost and resources to the project and makes investments less or even unattractive. Banks also feel uncomfortable to evaluate each new PPA and identify potential risks in the contract.	All stakeholders: PLN – Developers – Banks have to come together and negotiate one standard PPA which is applicable for all projects to reduce negotiation time, legal uncertainty and costs for all parties involved	PLN
Fixed price instead of "up to X% of BPP"	PLN is negotiating for each project the price. The ceiling of up to 85% or 100% of BPP is only the maximum whereas PLN tends to offer much lower rates and all have to be negotiated individually	BPP with all its regional differences can be used as benchmark but the price for the IPP has to be a fixed % instead of individual negotiations which makes a calculation before the PPA impossible and creates massive uncertainty amongst potential investors. Specifically for smaller projects this approach is counter-productive and prevents developments.	MEMR/PLN
Grid and Government Delays	If power is not sold due to Grid or Government related causes then the take or pay clause is activated only after 20 or planned 60 days	A 20 or up to 60 day take or pay delay clause per year will have the effect that financial models have to calculate these maximum days of not generating revenues in their model – which makes many projects less or not attractive to be developed. It's a significant exposure of lost revenues.	PLN

Topic	Situation	Impact	Institution responsible
Key development milestones	Milestones set by PLN often unrealistic and too tight for Financing signed or COD maximum or earliest delivery	Risk for developers that deadlines are missed and PLN pulls Performance Bonds (10% of Project cost penalty)	PLN
Equity financing	No all equity option available	PLN requires bank financing	PLN
High financing cost for IDR	Financing in IDR is still typically > 10% p.a. in IDR for RE projects. Financing in US\$ still has hedging requirements which makes financing even in US\$ expensive.	US\$ payments by PLN would reduce the financing cost significantly for private developers and would make more projects feasible. Offshore financing is available in abundance provided the regulatory framework is acceptable and revenues are generated in US\$ for the projects.	Banks / Market / OJK
Refinancing	PLN puts restrictions and regulations on Senior Debt refinancing	Ability of developers to re-leverage the project is restricted and puts burden on further developments as source of refinancing for the developer is restricted	PLN
Carbon entitlements	PLN is entitled to all carbon benefits	Possibility of additional carbon revenues is taken, this potential revenue stream is removed from the IPP	PLN
PLN Option to buy the project	PLN has the right to buy the project at any time but purchase price is restricted to 8% IRR for the developers	Developers have no upside potential on 8% EIRR guaranteed price and risk to lose the project at any time	PLN
Share transfer restrictions	Lenders must give PLN right to match and sell to them.	Most 3 <sup>rd</sup> parties might not be willing to spend money on a due diligence to acquire a project if someone holds the right to match and take away the project. Lenders are unlikely to accept restriction on their rights to enforce share security by sale	PLN
Tariff staging	Even if a tariff price is staged PLN will only pay the average across the tenor	Staged tariff greatly assists debt service in early years and can boost the sponsors EIRR	PLN
Tariff indexation	Not all components of tariff are indexed	Sponsors will not be able to borrow full US\$ amounts due to currency mismatch, IDR borrowing rates are cost prohibitive	PLN
Cost increase due to Government events	IPP bears the first US\$ 75,000 of cost impacts, tariff only adjusted after the 75,000\$ of cost impact	Additional cost of the project which puts additional burden on profitability of the project	PLN
Payment currency risk	PLN only pays in IDR adjusted to IDR/US\$ movements up to invoice date	Any IDR/US\$ movements between invoicing and payment is IPP risk. Lenders might be concerned about currency movements during that timespan.	PLN
Build Operate Own	Project to be handed over to PLN at the end of the period	Residual value in the project model has to be 0\$, that means some projects now become uneconomical if there is no residual value for	PLN

Topic	Situation	Impact	Institution responsible
Transfer BOOT		the project owner left	
Local content requirement	Extensive provisions on local content compliance	Failure to comply can result in heavy financial sanctions by PLN (up to 10% of project cost). There is also often a lack of suitable local manufacturers which meet the quality requirements and which are price competitive	Ministry of Industry
Project Finance in Indonesia	There is no regulation on Project Finance issued by the regulator (OJK) which discourages the banks to apply Project Finance principles and accept PPA's a collateral for example	Regulation on Project Finance is urgently needed as Balance Sheet Financing by Corporates is limited. There is PF available from Offshore banks but this is only applicable and feasible for large scale power projects such as wind farms etc.	OJK

## Appendix B: Renewable Energy Trends in Asia and the World Data from 2017

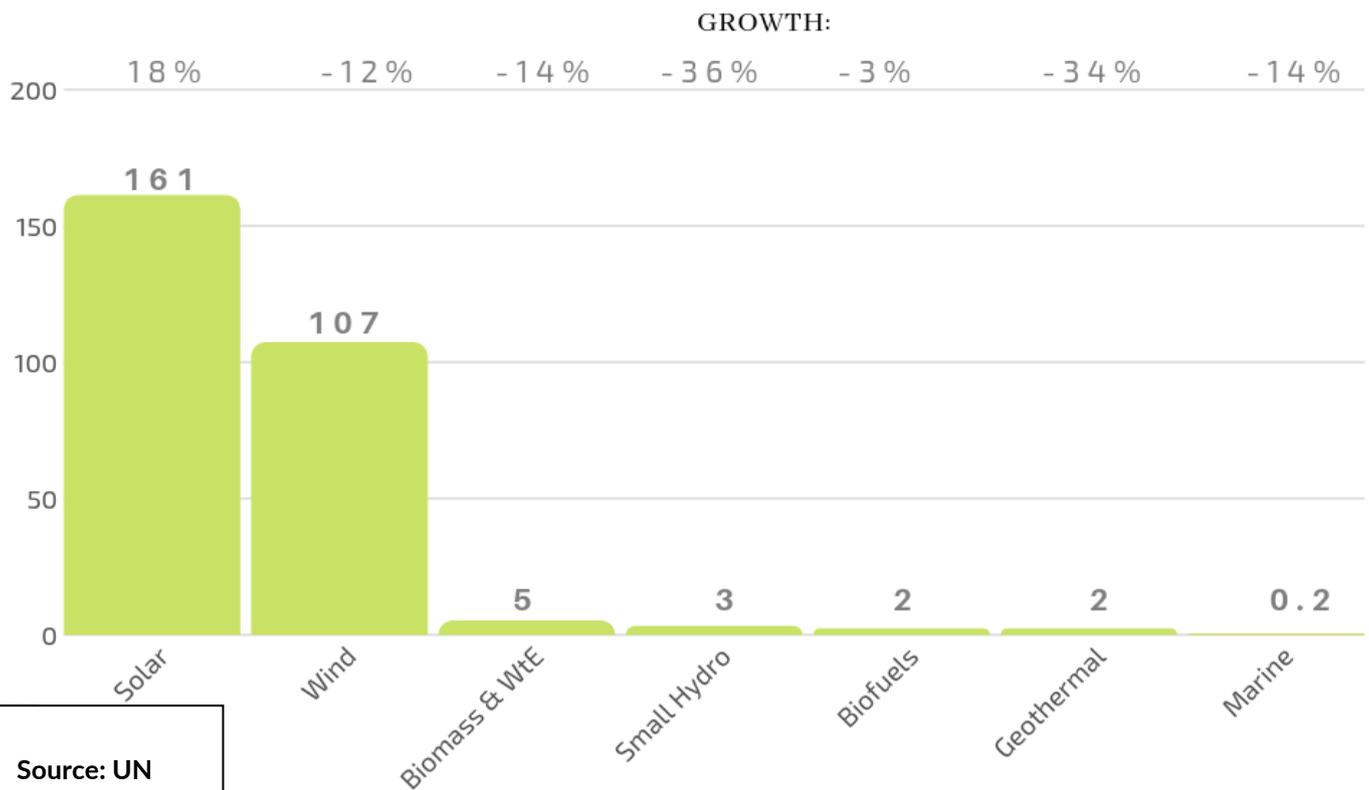
With a look at the international trend and what happens in other countries Indonesia can see where the trend is going and should also learn from that.

The \$265 billion invested globally in new green power capacity in 2017, excluding large hydro, far exceeded the \$103 billion invested in new fossil fuel generators, the \$42 billion allocated to additional nuclear reactors, or the \$45 billion to large hydro dams.

Investments in RE in 2017 have been globally dominated by investments in Solar PV and Wind energy:

### RENEWABLE ENERGY ASSET FINANCE AND SMALL DISTRIBUTED CAPACITY INVESTMENT BY SECTOR, 2017, AND GROWTH ON 2016, \$BN

Figure 31: New Investment Volume Adjust for Re-invested Equity



Source: UN Environment, Bloomberg New Energy

Main drivers for this development are the constantly significantly drops in prices for Wind and Solar PV equipment during the last few years and the global availability in nearly all countries of the world.

In 2017, costs continued to fall for solar, in particular. The benchmark levelized cost of electricity for a utility-scale photovoltaic project dropped to \$86 per megawatt-hour, down 15% on a year earlier and 72% since 2009. Some of this was due to a fall in capital costs, some to improvements in efficiency.

Development in Asia:

### RENEWABLE ENERGY INVESTMENT IN NON-OECD ASIA (EXCLUDING CHINA AND INDIA), 2017, AND CHANGE ON 2016

- Indonesia took top spot, at just \$1 billion, thanks to the Supreme Energy Muara Laboh geothermal project, at 80MW and \$610 million – continuing the country’s leading position in that technology **but also showing its lack of momentum in wind and solar.**
- Thailand was host to \$671 million of renewable energy investment in 2017, but this was down from \$2.4 billion the previous year, mainly due to a cut in the size of the country’s second Agro-Solar program and the introduction by the government of a new type of power purchase agreement less friendly to intermittent generation.
- Vietnam announced a solar feed-in tariff but developers were in cautious mood over the bankability of power purchase agreements. Meanwhile, international investors and manufacturers have announced ambitious plans for wind projects in Vietnam, but so far the tariffs on offer have been insufficient for many projects to be built
- Pakistan continued to attract investment in non hydro renewables, particularly large-scale and small-scale solar, but its total of \$695 million, while up 42% on 2016, was far below the average of \$1.7 billion achieved in 2014 and 2015. The tempo could change in 2018, since its government announced in December 2017 that it would hold auctions for 600MW of solar and 400MW of wind.

- In the Philippines, developers of more than 1GW of wind projects have been unable to progress because of the lack of a suitable regulatory framework.

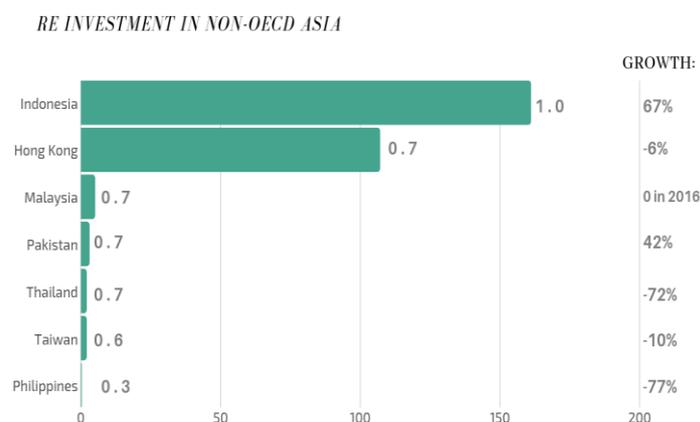
- Hong Kong owed its position in Figure 10.2 to public market activity, rather than to the build-out of renewable energy capacity.

### Conclusion:

Globally and regionally Solar PV and Wind dominate the Renewable Energy sector and are fast growing with steadily further decreasing pricing and improved technology.

**All countries seem to be able to manage this energy mix with intermittence technology such as Wind and Solar PV – only Indonesia does not seize the opportunity and is missing the opportunity to venture into diesel genset hybrid solutions.**

Figure 32: RE Investment in Non-OECD Asia



## Appendix C: Policy Support for Renewable Energy

### 1 Feed-in Tariffs (FiT's)

FiT's have been the most popular method around the world over the last decade to stimulate investment in renewable energy projects. Set by the government, they lay down an electricity tariff that developers of qualifying new projects can expect to receive for the resulting electricity over a lengthy period, usually 15 to 20 years.

They were the main policy mechanism that led to heavy deployment of solar in countries such as Spain and Italy around the turn of the decade, and of both wind and solar in Germany throughout the last decade and a half. They underpinned strong activity in small-scale PV in Japan, particularly in the 2012-15 period, when some \$84 billion was invested, and most strikingly in wind and solar in China over recent years. There was some form of feed-in tariff in operation in 35% of the emerging economies studied in the 2017 edition of the Climatescope report.

### 2 Green Certificates

Green Certificates have also been used in some countries as a way of boosting the value of output from new renewable energy projects, but also leaving open some exposure to merchant electricity prices. They were the main policy instrument for driving onshore and offshore wind additions in the U.K. up to the middle of this decade, plus also onshore wind in Romania and Italy earlier in the decade, and the same technology in Sweden and Norway right up to now.

### 3 From FiT and Green Certificates to Auctions

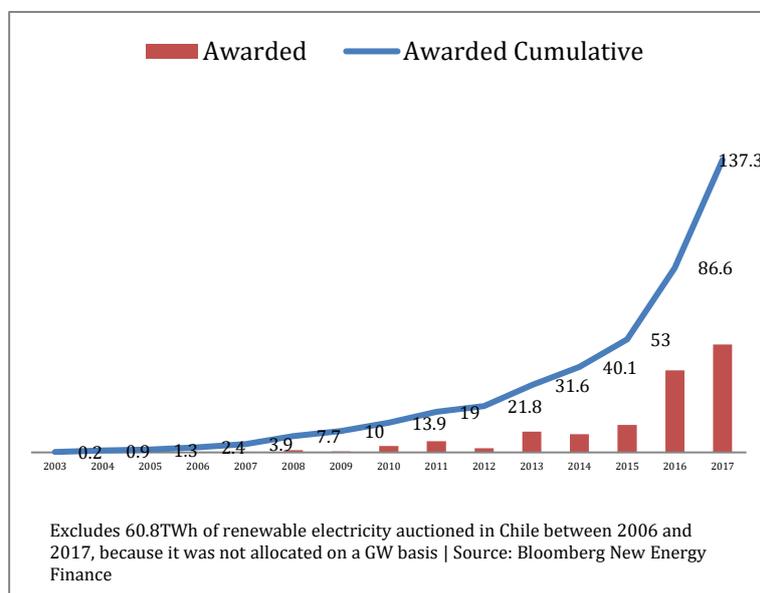
Feed-in tariffs and green certificates were both successful in driving deployment. But they ran into the criticism that the resulting electricity costs for consumers was higher than they needed to be, because there was insufficient incentive for project developers – and the supply chain behind them, including manufacturers, construction contractors, landowners and financiers – to squeeze costs. That prompted an

increasing shift by governments over recent years away from those policy support mechanisms, to auctions.

### 4 Auctions

The principle behind auctions is that they provide transparency on costs, with only the most aggressive cost-cutters among the developers submitting bids likely to be rewarded with tariffs. The chart below shows that the amount of capacity globally being awarded as a result of auctions has been increasing sharply since 2012. In 2017, a total of 50.6GW of renewables were given tariffs in auctions, up 51% on 2016 levels and 18-fold since 2012. Increasingly, auctions are being announced well in advance, giving developers a clearer sight of the opportunities ahead.

Figures 33: Auction volumes for RE



### 5 Cheap finance is key to PV deployment in the developing world<sup>66</sup>

Development banks and the Clean Technology Fund have played a key role in providing access to cheap financing for clean energy projects in many markets.

Cheap – or ‘concessional’ – finance is the vital ingredient for accelerating PV deployment in developing countries and can make solar and wind infrastructure more affordable than fossil fuels.

That was the headline finding of a BloombergNEF

<sup>66</sup> <https://www.pv-magazine.com/2019/02/22/bnef-cheap-finance-is-key-to-pv-deployment-in-the-developing-world/>

(BNEF) report commissioned by the \$8.3 billion Climate Investment Funds' Clean Technology Fund (CTF), which examined investment activity in Chile, Kazakhstan, Mexico, Morocco and Thailand.

### **Clean energy tipping points**

For a speedy clean energy transition, BloombergNEF identified two tipping points in its report.

The first is the point at which building new renewable energy infrastructure becomes cheaper than new coal or gas fired power stations.

The analysts said in developing markets not yet at that point, reaching it could take another five to ten years. However, concessional finance could reduce that waiting time. "In Thailand, for example, concessional finance has the potential to reduce clean energy costs by 5 to 7%, which would accelerate this tipping point by two years," wrote the analysts.

The second threshold identified is when building a new clean energy facility is cheaper than continuing to run existing fossil fuel assets.

To illustrate the point, the report considered hundreds of gigawatts of existing fossil fuel capacity that will continue to keep running until a more profitable choice becomes available. India, for example, has installed a coal-fleet one third the size of the United States' in just five years. Coal and gas traditionally require relatively low upfront capital investment but the operational costs of such facilities are many times higher than those needed for solar plants, and are also subject to fuel supply chain volatility.

### **6 Impact on LCOE by lower cost of financing – example Kazakhstan**

Higher initial capital requirements for renewable energy projects have impeded progress in developing nations. "In OECD countries, the benchmark weighted average costs of capital BNEF tracked for wind and PV projects in 2017-18, ranged from 2.5-6.5%. In emerging economies, the benchmark ranges from 5-11%," the authors of the report state. In 2017, the report calculated, the LCOE of a utility-scale PV plant rose \$5.8/MWh for each percentage point increase in the cost of financing.

#### **Example Kazakhstan**

In Kazakhstan, for example, the BNEF report identified CTF investments significantly helped jump start a renewable energy market by providing policy support that resulted in feed-in tariffs being introduced in 2013. That policy attracted \$1 billion of clean energy investment into the central Asian country.

Without that policy support and affordable CTF finance, investors would have faced limited-term loans, high inflation, substantial currency fluctuation and high interest rates, according to the BNEF report. However, CTF investments of \$55.5 million helped leverage a further \$200 million worth of finance from multilateral development bank joint financing, and another \$412 million in follow-up funding. Now, around 85% of Kazakhstan's PV fleet – and 40% of its wind capacity – has received CTF financial support.

After the initial feed-in tariff, the country had help holding its first competitive clean energy tenders, with development banks and the CTF again playing a critical role in ensuring successful bids were built on time and on budget.

In that vein, the BNEF report's authors found auctions were central to global renewables pipeline growth. In 2017, some 57.7 GW was auctioned in 32 markets, two thirds of them outside OECD countries. The need to deliver on the sort of record low electricity prices produced by reverse-auction bidding means affordable financing has become even more critical in countries with an auction procurement mechanism. Since the first half of last year, 29 GW of renewable project capacity has sought financing after winning a tender.

- BNI
- BRI
- Artha Graha International Bank
- BCA
- BJB
- Bank Muamalat and
- BRI Syariah

## Appendix D: OJK Roadmap to Sustainable Finance

### 1 OJK Program

Indonesia's Financial Services Authority (OJK) takes part in the promotion of policies which enables project risk mitigation for green investors and business ventures by issuing their Sustainable Finance Roadmap. The Roadmap contains guidance and policy direction for sustainable finance development in Indonesia which eventually will support sustainable development on national scale. The roadmap is also expected to facilitate financial services institutions in banking, capital markets and non-banking financial industries to continually create innovations in their products and services in accordance with the growing needs in society and also with development.

### 2 First Mover Banks in Indonesia as partner for OJK - Sustainable Finance<sup>67</sup>

A joint initiative of OJK, WWF Indonesia and Indonesia's top 8 banks – supported by EMSD (GIZ's Emerging Market Sustainability Dialogues (EMSD)). To show the commitment of eight of Indonesia's leading banks, and to implement broad sustainable finance practices, on May 31<sup>st</sup> 2018 the Indonesia Sustainable Finance Initiative (IKBI) was launched.

The process leading up to the initiative, was long. In late 2015 Indonesia's financial regulator OJK initiated a pilot project of "First Movers on Sustainable Banking". The initiative was voluntarily supported by eight banks representing 46% of national banking assets through their commitment to become pioneer in the field of sustainable banking.

The eight banks are:

- Bank Mandiri

All eight banks deemed that to continue refining a full ESG (Environmental & Social Governance) integration process as well as to encourage others to co-implement sustainable finance practices IKBI (Indonesia Sustainable Finance Initiative (IKBI)) is necessary. The initiative also intends to:

- Foster the development of Human Resource programs to empower the implementation, especially for ESG risk management functions.
- Support the development and innovation of sustainability-related financial products and services
- be a dialogue partner with the government, authorities in the field of financial service supervisory, similar global initiatives, and other stakeholders in relation to sustainable finance
- Highlight the crucial role financial institutions play for achieving the Sustainable Development Goals as well as climate change adaptation & mitigation efforts.

<sup>67</sup> <http://www.emsdialogues.org/successful-launch-of-indonesia-sustainable-finance-initiative/>

## Appendix E: Interviews done for the study – Call Reports

### 1. Call report PT. Bank Central Asia (BCA), Tbk

Date: 03.05.2019

PT Bank Central Asia Tbk, or commonly named as Bank Central Asia (abbreviated as BCA) is an Indonesian bank founded on February 21, 1957. In 2016, BCA overtook DBS Bank of Singapore as Southeast Asia's biggest lender by value, with a market capitalization of US\$24.5 billion (S\$34.2 billion).

#### Interview outcome:

The experience of BCA in RE financing is limited. They financed 1 Biomass company (fully repaid already) and roughly 10 Mini Hydro projects. The 10 Mini Hydro projects have had more or less all cost and time overruns. They have only be funded because the shareholders have been already BCA customers and fully guaranteed the project.

Key considerations to fund a project are the shareholder background and the financial strength of the shareholders. Shareholders have to step in if cost overruns happens and further funding is needed – BCA would not increase the loans or restructure the lending. The (successful) financing of projects until commercial operations depends fully on the shareholders.

Tenors for Biomass: 7-8 years, for Mini Hydro 10-11 years.

There was a project inquiry to finance Biomass together with ADB – but as ADB did not take the entire Project Risk BCA did not finance the project. Cheap refinancing is not an argument for BCA – what they want is that somebody takes the risk – “attractive financing” they have themselves....

BCA does not work with any Credit Insurance to mitigate the credit risk.

BCA would not finance any project with new technologies – all have to be proven technologies with track record.

Solar PV and Biogas was/is not financed as they lack of knowledge and cannot assess the risks involved.

If the offtaker is the Government (PLN) then they prefer to team up with Government Banks as they think they can support in case PLN defaults or delays payments.

As they have had bad experience with a Gas Fired Power Plant they would not again finance such projects.

They are open for Loan Syndications – but still would have to do a full own analysis of the project.

Debt to Equity portion: typically BCA requires 30% equity, in selected cases they can down to 25% equity portion.

Technical Assistance: they very much appreciate and demand TA with NGO's or Development Institutions. They have had projects together with USAID, ICE and ECO Asia.

#### BCA Headquarter

Menara BCA, Grand Indonesia  
Jl. MH Thamrin No. 1, Jakarta 10310

### 2. Call report PT Bank Syariah Mandiri (BSM)

Date: 09.05.2019

#### Share Ownership:

PT Bank Mandiri (Persero) Tbk : 497,804,387 shares (99.9999998%)

PT Mandiri Sekuritas: 1 share (0.0000002%).

#### Interview outcome:

BSM is focusing on 3 sectors: Education (Universities, Foundations), Health (Hospitals) and Infrastructure (Toll Roads and PLN).

So far BSM has no exposure to Renewable Energy but is interested in. But as they don't have experience and their risk appetite is very low they need assistance in all areas of Sustainable Finance to assess the risks involved. They would also be interested to issue Sustainable Bonds.

They can obtain refinancing from non-Syariah sources but so far get all of their funding from Bank Mandiri. They can participate in deals with other Syariah banks. They can also work with PT SMI.

They work with Insurance companies on General Insurance issues but have no Credit Insurance program in place.

Interest rates similar to other banks, they can offer 5-10 years loans. All is under 100% collateral coverage with fixed assets.

PT Bank Syariah Mandiri  
Wisma Mandiri I  
Jl. MH. Thamrin No. 5  
Jakarta 10340 – Indonesia

### 3. Call report PT ORIX Indonesia Finance

Date: 02.05.2019

Pioneering in lease financing in Indonesia, PT. ORIX Indonesia Finance (ORIF) is a joint venture between ORIX Corporation and Yayasan Kesejahteraan Karyawan Bank Indonesia. Living up to its mission statement, being an innovator of financial solution drives ORIF to seamlessly deliver flexible and creative financial solution in this ever changing trends and changes, even throughout all fluctuation.

ORIF's portfolio in various fields, namely industrial machines, vehicles, and office supplies has been proof of its maintained reputation in its stakeholders' point of view in being one of the best financing services in the market.

#### Interview outcome:

ORIX is providing Financial Lease which means the equipment is fully amortized within the lease period which is typically 3-5 years.

They finance "movable equipment". So far they don't have any exposure to RE financing. For them Solar PV could be potentially a business area in which they are interested in.

Their lending criteria are: track record of the company, normally 3 years (Audited) Financials.

One of their largest customer potential is in mining (also still coal mining) as there a lot of heavy equipment is needed. As collateral is besides the equipment also a Corporate Guarantee accepted. They can finance in IDR and US\$.

They see potential in Battery financing for the Power Sector which is in Japan already very active but in Indonesia just at the beginning.

In case the amounts are getting larger or risk has to be spread they syndicate amongst other Japanese Leasing companies.

In general their interest in RE financing is there, specifically as ORIX has a RE financing unit based in Hong Kong which is interested in deals in Indonesia.

PT ORIX Indonesia Finance  
Wisma Keiai 24th Floor, Jl. Jend. Sudirman Kav. 3,  
Jakarta 10220

### 4. Call report PT. Marsh Indonesia

Date: 15.04.2019

#### PT. Marsh Indonesia

Marsh is Indonesia's leading global insurance broking and risk advisory firm and has been servicing clients in the country since 1983.

Marsh is experienced in providing a comprehensive range of insurance and risk management services for virtually every type of industry, profession, and government entity throughout the Indonesian archipelago.

#### Outcome of the interview:

Marsh is solely specialized in Operational Risk insurance – NOT financial risk!

No business risk will be insured – only operational (catastrophic unforeseen) risk.

Marsh work typically on behalf of the lenders. They support all RE projects – irrespective of size. Example: they have been the insurance broker of the Windfarm Sitrap, Sulawesi, 75MW.

They also handle Geothermal projects and Mini Hydro projects.

They arrange for traditional insurance from construction to operation. General Insurance products.

The insurance premium is typically paid upfront for the entire project life for which insurance coverage is given.

In general all kind of insurance is available in Indonesia – they often source the insurance coverage from offshore e.g. via the London insurance market – but the insurance is provided by a local insurance due to regulatory reasons.

PT. Marsh Indonesia  
Sentral Senayan II 15th Floor  
Jl. Asia Afrika 8  
Jakarta

## 5. Call report PT. Bank Artha Graha Internasional, Tbk

Date: 10.04.2019

Bank Artha Graha Internasional is a private company in the form of a limited liability company and is engaged in banking financial services. This bank is based in Jakarta. Founded in 1973.

This bank was the result of a merger between Bank Interpacific and Bank Artha Graha in 2005. The Interpacific Bank was a bank established in 1973, initially a Non-Bank Financial Institution initiated by several domestic and foreign banks. In 1990 an IPO was conducted and turned into an Interpacific Bank. 8 years later, Tbk status. 1999 cancellation of listing of shares on the Surabaya Stock Exchange. And in 2005, this bank merged with Bank Artha Graha (established in 1967).

PT Bank Artha Graha Internasional Tbk is an Indonesia-based financial institution. The company operates as a commercial bank and conducts the following activities: management of savings and deposits accounts, provides credit, issues promissory notes, deals in foreign currencies, carries out treasury activities, as well as other banking activities.

### Interview outcome:

Artha Graha has so far no exposure to Renewable Energy projects. Main reason is the lack of collateral required by the bank. Main criteria to grant credit is the sponsor and the collateral. It has to be a well

established company which obtains funding, no start up financing.

In their existing credit assessment there is also NO component of an environmental assessment as risk component.

What AG is requiring: capacity building to learn more about the risks involved in RE projects. AG also waits for directions from OJK as regulator – they would only move “on instructions” towards RE exposure.

PT. Bank Artha Graha Internasional, Tbk.  
KANTOR PUSAT SUDIRMAN JAKARTA  
Gedung Artha Graha  
Kawasan Niaga Terpadu Sudirman (SCBD)  
Jl. Jend. Sudirman Kav. 52 - 53 Jakarta Selatan -12190

## 6. Call report DZ Bank AG Rep Office Jakarta

Date: 27.03.2019

DZ Bank is focusing only at Export Credit Agency (ECA) covered loans in Indonesia. They will not focus on one particular industry but finance solely based on the balance sheet and Financials of the customer.

Their customers are e.g. PJB, PLN and PT SMI.

With PT SMI they did a 2-step ECA covered loan lending to SMI and SMI taking the credit risk of the ultimate customer and lending to him.

In general they prefer to lend to listed companies due to their size and transparency in provided updated financial information. They can lend to greenfield projects provided they get a guarantee from the project owners/sponsors.

DZ will finance only proven technology – everything else is too risky for them and the ECA. Their minimum loan amount is 10min US\$.

Loans are only provided in foreign currency (mainly US\$ or Euro).

Renewable Energy financing is possible provided the sponsor is acceptable and the supplier of the equipment is known, reliable and has proven technology.

DZ Bank AG Rep Office Jakarta  
 The Plaza 20<sup>th</sup> Floor  
 Jl. M.H. Thamrin Kav 28-30  
 Jakarta, 10350

Main criteria for granting any facility are the Financials of the past 3 years! They would not take too much on commercial risk – same as all the other ECA's.

Everything project which has to be financed has to have a minimum of 20% UK content.

UK EF could also give Credit Enhancements for the Bond Issuance as long as the project fulfills the UK content criteria.

**Conclusion of the discussion:**

The option that they guarantee local banks for loans in IDR could be interesting – it will depend of the overall cost if that is really interesting for Indonesian borrowers.

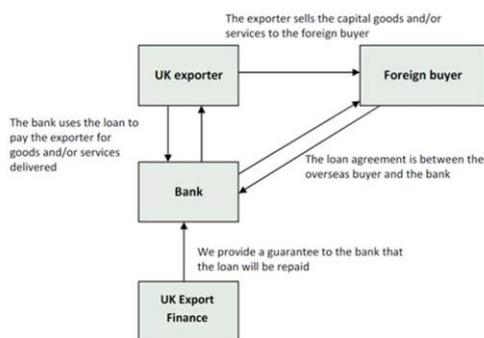
As for all ECA's: it can be interesting to be part of the overall funding mix fixed assets can be given to local banks and the ECA is ok with no/only the equipment as collateral.

UK Export Finance, British Embassy Jakarta  
 Jl. Patra Kuningan Raya Blok L 5-6  
 Jakarta 12950 Indonesia

**7. Call report UK Export Finance**

Date: 09.04.2019

Main purpose of Export Credit Finance is to support manufacturers/exporters/service providers of the respective country via financing schemes, mainly in the form of Buyer Credit which allows the importer of the goods to obtain financing.



**Figure 34 UK EF Buyer Credit Scheme**

UK EF can do financing in IDR – which is very rare and not usual for Export Credit Finance agencies in general. Normally they provide only financing in US\$ or Euro (or their home country currency). UK EF has done NO deal so far in IDR but they are working on it. They would provide a guarantee to a local bank and they would lend in IDR. The premium they would charge is similar as for a loan (which would make the overall financing rather expensive).

**8. Call report PT Bank Negara Indonesia (Persero), Tbk (BNI)**

Date: 01.04.2019

**PT Bank Negara Indonesia (Persero), Tbk**

BNI as a State Owned Enterprise was the first to become a public company after listing its shares on the Jakarta Stock Exchange and the Surabaya Stock Exchange in 1996. To strengthen its financial structure and competitiveness in the national banking industry, BNI conducted a number of corporate actions, including being recapitalized by the Government in 1999, Government share divestment in 2007, and a limited public offering in 2010.

BNI is now the 4<sup>th</sup> largest national Bank in Indonesia, based on total assets, total loans and total third-party funds. To provide financial services in an integrated manner, BNI is supported by a number of subsidiaries, namely Bank BNI Syariah, BNI Multifinance, BNI Sekuritas, BNI Life Insurance, and BNI Remittance.

BNI offers deposit and loan facilities for the corporate, medium, and small segments.

### **Interview outcome:**

BNI has financed Mini Hydro Projects but their experience was not very good. There have been time and cost overruns and in their agreements is stated that for that the owner has to fund that and no increase in the loan amount. That seems to have been difficult without that they have gone into details.

Out of this experience they have internally the following "guidelines":

Most important for each credit assessment is the Sponsor and the Financials of the borrower. Also important is the collateral given.

Minimum size of the project 5MW, for the Corporate desk the minimum loan amount is 25mio US\$ equivalent. They require 30% equity portion, for SOE's 20%. For SOE's they can provide longer tenors, for special cases 12-15 years.

Corporate Guarantees from the parent co (as long as they are Indonesian Companies) are accepted as collateral. Multilateral Guarantees would reduce the pricing – but extend is uncertain as their pricing formula is: Cost of Funds + Margin. They don't apply a risk based pricing – so their margin is determined by company policy rather than risk adjusted pricing.

Insurance coverage of project is a must and is required.

They mentioned that for 2019 there is a target of 3 trillion IDR for loan syndications for Hydro Projects without having disclosed further points.

Other RE projects have not been on their agenda.

### **Conclusion/Recommendation:**

For sizable projects support of the sponsor in respect of equity and collateral would be helpful – but the decision is more based on the reputation of the sponsor and his Financial strength and success in the past rather than mainly looking into the new project.

Gedung Graha BNI  
Jl. Jenderal Sudirman Kav. 1  
Jakarta Pusat 10220  
Indonesia

Date: 12.03.2019

The BNP Paribas Group has been present in Indonesia since 1970 and is currently the only French bank that has a fully licensed subsidiary Bank in Indonesia, in addition to Securities and Asset Management licenses.

PT Bank BNP Paribas Indonesia's Corporate and Institutional Banking capabilities range from Structured Finance, Fixed Income (Foreign Exchange and Interest Rate Swaps), Cash Management and Trade Solutions.

PT BNP Paribas Investment Partners, established in 1992, is one of the largest asset management companies in Indonesia. The company offers investment management services to both institutional and retail clients, in the form of discretionary portfolio and mutual funds.

PT BNP Paribas Securities Indonesia specializes in a wide range of investment banking products including Merger and Acquisitions (M&A), Corporate Advisory Services, Equity Research & Capital Markets. We are a member of the Indonesia Stock Exchange with a full license in Capital Market Underwriting and Equity brokerage.

### **Topic of the discussion was the market environment for Green Bonds and Asset Securitization in Indonesia.**

OJK is pushing for the implementation of their Sustainable Roadmap in Indonesia and therefore the banking industry is trying to show efforts and results to comply with that regulation.

In general loan growth in Indonesia is now slow – below 10% p.a. (which is considered to be below the normally achieved double digit growth rates in the past). That situation leads the bank to promote loans and do not push that much for global market instruments such as bonds, asset securitization etc. as the banks would like to keep their assets.

Investors are available but "sole" investment criteria for them is yield and risk – supporting green infrastructure is not a criteria itself and will also not lead to a reduced yield expectation of the investor. Tenors in IDR beyond 5 years are not sellable, for longer tenors offshore investors have to be attracted in foreign currency instruments. Local instruments beyond 100mio US\$ equivalent in IDR are also hardly placeable in the local market.

## **9. Call report Bank BNP PARIBAS Indonesia**

Green Bonds require more efforts hence higher costs and are therefore not really popular amongst issuer.

**Recommendation:**

Credit enhancements could be a tool to make Green Bonds or Global Market Instruments in general more attractive for investors as then the risk-reward profile can be positively influenced. IIGF could therefore consider to expand their mandate beyond support of PPP projects. Multilaterals, Development Funds etc. could also focus more on credit enhancement tools onshore in Indonesia to reduce the interest burden for the issuer and make the instrument more attractive for investors despite a lower yield offered.

PT Bank BNP Paribas Indonesia  
Menara BCA, 35th Floor Grand Indonesia  
JL. M.H. Thamrin No. 1  
Jakarta 10310

## 10. Call report PT SOMPO Insurance Indonesia

Date: 05.03.2019

PT Sampo Insurance Indonesia (Sampo Indonesia) is a new registered name for PT Asuransi Sampo Japan Nipponkoa Indonesia and effectively used from April 1st, 2016.

Previously, the company is formed following the merger of each parent company through the management integration of Sampo Japan Insurance Inc. and Nipponkoa Insurance Co. Ltd. Both existing company, PT Asuransi Nipponkoa Indonesia and Sampo Japan Insurance Indonesia, each has more than 40 years long history in Indonesia insurance market.

**Outcome of the discussion:**

Topic of the discussion was with which insurance tools the insurance industry can support Renewable Energy or Green Infrastructure projects in Indonesia.

In general it was confirmed that all following tools are available in Indonesia, often provided through international insurance companies based e.g. in London, but channeled through local insurance companies. All catastrophic risks can be insured, often the support of

an insurance broker is advised to cover all areas of risks in a project.

The two main areas of insurance are:

- Physical Asset Risk and
- Non-Asset, Financial Risk

**Physical Asset Risk:**

The following shows the common risks insured as examples:

- Construction all Risk Insurance
- Erection all Risk Insurance
- Delay in start-up
- Advanced loss of Profits

**Non Asset, Financial Risk**

- Credit Insurance to secure the repayment of the loan
- Trade Credit Insurance to insure the receivables of the project

The insurance industry is also offering the following bonds:

- Bid Bonds
- Advance Payment Bonds
- Warranty Bonds
- Environmental Liability Risk Bond
- Product liability
- Consultancy liability, Professional Indemnity Insurance)

It is recommended that a professional advisor or broker does a so called Risk Mapping Exercise in which all risks are mapped out and risk mitigation products are suggested.

Insurance should be driven by the project owner. Banks require individually determined insurance coverage if they finance the project.

Insurance cost with all advisory fees can be 3-5% of the CAPEX of a project, the pure risk premium is about 2-3% p.a.

**Recommendation:**

Insurance companies offer a wide variety on standardized insurance instruments and bonds. Therefore a Risk Mapping Exercise is recommended by a Professional to map all risks involved in project and to search for mitigation solutions. Many solutions are "tailor made" and individually sourced in the insurance market – so if there is no standardized product available

does not mean that no insurance solution for a specific risk is available.

**PT Sampo Insurance Indonesia**  
Mayapada Tower II, 19th Floor  
Jl. Jendral Sudirman Kav.27  
Jakarta 12920 Indonesia

## 11. Call report PT CLIPAN Finance Tbk

Date: 22.03.2019

With 36 years of operating experience, Clipan Finance is the oldest financing company in Indonesia. The Company offers a variety of investment financing products and services, working capital financing, multipurpose financing, and operating lease. Supported by reliable and professional human resources, the Company has a business network that has been spread in various parts of Indonesia.

The Company's main activities include investment financing, working capital financing, multipurpose financing and operating leases. The financing focus mainly in vehicles, both used cars and new cars, heavy equipment financing, factoring financing, housing and apartment financing, and financing with certificate guarantees

### Interview outcome:

CLIPAN Finance main focus by granting of credit facilities are the sponsors and their reputation in the market. Second important is the Credit History and the Audited Financials for the past 3 years which have to show sufficiently good results. Thirdly the collateral plays also a major role to protect the interest of the company.

CLIPAN has no exclusion list of equipment and is open for all kind of projects/equipment which has to be financed. But as their maximum tenor is 5 years their exposure to "Infrastructure" equipment/projects is quite limited so far. As long as sponsors, Financials and collateral are positive CLIPAN would support all projects or equipment financing requests. Without sufficient and acceptable collateral CLIPAN would not provide any financing to a customer. Guarantees from Banks and Insurance companies can be used as collateral as long as the issuer is reputable and known for honoring his commitments.

PT Clipan Finance Indonesia Tbk.  
Wisma Slipi Lantai 6  
Jl. Let. Jend. S Parman Kav. 12, Jakarta, 11480,  
Indonesia  
Website: www.clipan.co.id

## 12. Call report ASEI - PT Asuransi Asei Indonesia

Date: 10.04.2019

Asuransi Asei is one of the few insurance companies that have the most complete insurance products, which is of export insurance, credit insurance, underwriting and general insurance, also known as the one stop shop for insurance in Indonesia.

### Interview outcome:

Besides the fact that ASEI is providing all kind of insurance policies as general insurer the following product might be interesting also for RE and EE projects:

### Credit Guarantee and Credit Export to a Bank/NB Financial Institution

#### a. Credit Insurance

Credit insurance as a protection provided by Asei Re as the "INSURER" to a Bank/Non-Bank Financial Institution as the "INSURED" against failure risk of a Debtor to pay credit facility and cash loan disbursed by Bank/Nonbank. Credit insurance has a nature of bi-party between Bank/Non-Bank and Asei Re. In this case, the Debtor is not included as a party in the insurance agreement of Asei Re over the credit disbursed by Bank/Non-Bank to Debtor.

The indemnity of Asei Re is in the range from 70% to 80% of the loss suffered by Bank/Non Bank.

Types of Credit Insurance:

1. Working Capital Credit Insurance (KMK) for construction/non-construction projects, goods/services procurement, bill/receivable financing, stocks/goods financing and Pre-Export Financing.
2. Revolving General Working Capital Credit/Current Account Insurance

3. Aplofend General Working Capital Credit Insurance
4. Investment Credit Insurance/Project Financing
5. Micro Credit Insurance under executing pattern to Financial Institution (BPR/BPRS, Cooperative/Savings and Loan Cooperative/ Employee Cooperative/ Civil Servant Cooperative/ Sharia Financial Service Cooperative/KJKS)
6. Micro Credit Insurance under direct channeling pattern to end-users (personal/employee/civil servant)
7. Insurance of Food and Energy Security Credit (KKP-E)
8. House Ownership Credit (KPR) Insurance

Applicant/Importer in the event of default payment on the due date of SKBDN.

3. Bank Counter Guarantee and Standby L/C (SBLC) Guarantee is granted by Asei Re to the Issuing Bank of Bank-Guarantee/SLBC on behalf of the customer (Debtor/Principal) in the event the Principal/Customer experiences default..

**Benefits of Credit Insurance & Credit Guarantee are as follows:**

**a. For Banks :**

1. Non-bankable transaction due to the lack of collateral requirements but feasible can be assisted by the Asei Re's Insurance and Credit Guarantee. The Asei Re's Insurance or credit guarantee can replace part of the collateral required by the Bank to support the grant of credit to real sector.
2. requirements for the customers for non-cash transaction in particular on the basis of risk assessment conducted by Asei Re which also considers the risk analysis performed by the Bank, Asei Re may grantee (100%) of the non-cash loan value granted by the Bank and more lenient collateral guarantee up to one hundred percent
3. Reduction in risk premium so that the lending rate is more competitive. Credit risk transferred to Asei Re can be calculated as a decrease of risk element in pricing the interest (reduction in risks premium).
4. Reduction of ATMR Weight over the credit insured or guaranteed to Asei Re as a SOE engaged in insurance and credit guarantee is calculated at 50% (fifty percent) in accordance with the Circular Letter of BI No. 11/1/DPNP dated 21 January 2009, so that the credit usage does not erode Bank's capital adequacy ratio.
5. Free-based income and the placement of Debtor's cash collateral at the Bank so that the Bank may take advantage from the placement of funds.
6. Bank's safety net may avoid 100% of own retention. By utilizing Asei Re's Credit Insurance facility, Bank has developed strong strategic partnership with one of banking safety nets against risk of credit it distributed. It is not necessary for the Bank to

**b. Credit Guarantee**

It provides guarantee to the Bank against risk of Debtor's/Principal's default to repay non-cash loan facility granted by the Bank. It has a nature of Three-Party Agreement involving Bank, Debtor/Principal and Asei Re by the existence of the Indemnity Agreement which constitutes a form of Recourse Agreement to Debtor/Principal. In the event Asei Re has paid the claim to the Bank, the Debtor will have the obligation to repay to Asei Re the amount of the claim (plus interest fine) that Asei Re has paid to the Bank.

The indemnity of Asei Re is 100% of the Loss suffered by the Bank.

**Types of Credit Guarantees :**

1. Guarantee to Open Letter of Credit (L/C) for Import (Usance L/C and Sight L/C Sublimit TR/UPAS) Guarantee is granted by Asei Re to the Opening Bank of Import L/C on behalf of the Applicant/Importer in the event of default payment on the due date of L/C.
2. Guarantee to Open Letter of Credit with Domestic Documentation (SKBDN) both for Usance and Sight sublimit TR/UPAS) Guarantee is granted by Asei Re to the Opening Bank of SKBDN for the interest of the

bear alone all of the losses (100% own retention) that in the long-term may lead to catastrophically risks by transferring potential loss risk to Asei Re.

7. Second opinion in the analysis of credit granted. Asei Re performs risks assessment of coverage/guarantee that Bank will provided to Asei Re. Hence, the Bank will obtain second opinion from Asei Re.
8. Client referrals, Asei Re may provide referrals to any customers that have good track record eligible for Bank facility.
9. The function of Bank intermediacy increases. The Bank becomes more competitive, bold and passionate in extending credit to real sector with credit protection and non-subsidized incentives of the benefits mentioned above. Hence, Bank intermediacy will increase, particularly in real sector financing.

#### b. Benefit for Real Sector/Debtor

1. Real sector will be highly assisted by Asei Re's products that bridge between real sector and the Bank.
2. Competitiveness of real sector will be assisted through an adequate liquidity and better interest credit facility because of the Bank financing supported by Asei Re.
3. The new employment opportunity is created that reduces unemployment rate. c. Support of Reinsurance:

Reinsurer treaties of Credit Insurance are:

- PT Reasuransi Nasional Indonesia (leader)
- PT Reasuransi International Indonesia
- PT Tugu Reasuransi Indonesia
- PT Asuransi Bumida 1967

Guiding principle: ASEI follows the Bank! The Bank has to do the assessment first

Insurance products: Surety Bonds: ASEI can accept Guarantees instead of cash collateral from the applicant which might also be of interest for RE project owners.

Pricing: The risk premium is about 1.5% p.a. for the Credit Risk Insurance.

Banks which are already customers and have such insurances: Mandiri, BNI, Wuri, DBS, BTN, EximBank, Mandir Finance and BNI Finance.

For Bank BJB there was a Credit Guarantee issued for a Mini Hydro Project.

PT Asuransi Asei Indonesia  
Gedung Menara Kadin Lt 22  
Jl HR Rasuna Said Kav 2-3  
Jakarta 12950

### 13. Call report PERKUMPULAN ADPI

Date: 13.09.2019

ADPI was established on August 27, 1985. As of June 2015, ADPI has 230 members of Pension Funds spread throughout Indonesia.

ADPI helps improve the ability of Members in:

- Manage Pension Funds professionally and accountably
- Develop the organization and the Human Resources Pension Fund
- Invest according to the precautionary principle
- Achieve accountable fund management with the principles of the concept of Good Pension Fund Governance
- Improving the image and existence of the Pension Fund as a Non-Bank Financial Institution

#### Interview outcome:

- Pension Funds are legally allowed to invest directly in projects with up to 15% of their assets
- BUT: Pension funds invest mainly in Government Bonds, Money Market, Bonds and Time Deposits – there is hardly any investment in projects except for rare cases where they invest in land and buildings to achieve long term rental income

Pension Funds have 3 major concerns:

- Firstly their liquidity and their ability to pay out

every month the pensions of their pensioners according to their obligations

- Secondly the security of their investments and the return they have to generate
- Yield which has to be achieved for the assets under management – benchmark are Government Bonds yield

Their investment strategy is extremely conservative and everything which is not Government guaranteed or directly Government dept will be evaluated very carefully. Corporate instruments like corporate bonds – even when issued by State Owned Enterprises – will not all be acceptable to be invested into. They don't want to take any commercial risk which can result in the non-payment of the interest and which can lead to a default of the corporate debt instrument.

Investments in single power generation assets are considered as being too risky as the production risk and non-performance of the power generation unit will be too high.

Pension Funds could invest in the equity of a company but will not provide direct loans.

Bonds issued by private corporates are already too risky for them as they fear the default risk of corporates in general. They invest in bonds issued by PLN and other selected SOE's (not in all SOE's when the SOE is deemed to be too risky and not key essential for services provided by the government).

In case they would invest in private projects they would only do so if a Government guarantee is backing this investment/project.

Pension Funds are also very yield sensitive to generate the interest they need to sustain their funds and are able to fulfill their obligations. They would not compromise on yield for a "good purpose" as they are not charities.

Investments can only be done in IDR to match their liabilities.

**Conclusion:**

It will be very unlikely that Pension Funds will invest in the future in Renewable Energy assets as the performance/commercial risk will be too high for them to bear.

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