CLIMATE POLICY INITIATIVE

# Energizing Renewables in Indonesia: Optimizing Public Finance Levers to Drive Private Investment

Suzanty Sitorus
Randy Rakhmadi
Alke Haesra
Muhammad Ery Wijaya

November 2018

A CPI Report

## Acknowledgements

The authors acknowledge the valuable contributions made by Indonesia's Ministry of Finance, particularly, the Center for Climate Finance and Multilateral Policy (PKPPIM).

We would like to specially thank Dr Parjiono, PKPPIM Director and his team, Paul Butarbutar, Aidy Halimanjaya, and Fabby Tumiwa for their feedback on the draft report.

We would also like to thank our colleagues, Dr. Barbara Buchner for her review and overall guidance; Elysha Davila, Caroline Dreyer and Angela Woodall for their internal review and communications support.

This study is supported by the European Climate Foundation.

## Descriptors

| | |
|---|---|
| Sector | Energy |
| Region | Indonesia |
| Keywords | Clean energy; Renewable energy; Ministry of Finance; Fiscal Instruments; Blended finance |
| Related CPI Reports | Using Private Finance to Accelerate Geothermal Deployment: Sarulla Geothermal Power Plant, Indonesia |
| Contact | Randy Rakhmadi, Randy.Rakhmadi@cpiclimatefinance.org |

## About CPI

With deep expertise in policy and finance, CPI works to improve the most important energy and land use practices around the world. Our mission is to help governments, businesses, and financial institutions drive growth while addressing climate risk. CPI works in places that provide the most potential for policy impact including Brazil, Europe, India, Indonesia, and the United States.

Our work helps nations grow while addressing increasingly scarce resources and climate risk. This is a complex challenge in which policy plays a crucial role.

# Executive Summary

Transforming Indonesia's energy sector is becoming increasingly important to achieve the country's climate goals. According to the country's Nationally Determined Contribution (NDC) under the Paris Agreement, Indonesia seeks to reduce 834 MT $CO_2$ emissions by 2030, 38% of which will come from reduced energy emissions. This is not only an ambitious target, but a significant increase in energy emissions reductions from previous climate change mitigation commitments.

These targets will ultimately require increased use of clean energy for power generation, and indeed, Indonesia seeks to achieve 23% renewable share in its primary energy mix by 2025. The current share of renewable energy, however, is less than 8%. This means that Indonesia will need to quickly pick up the pace if it is to achieve these goals in the next six years. And while different sources of renewable energy in Indonesia hold great potential, none have been utilized at significant levels to-date.

In 2017, renewable energy capacity only reached 6.3 GW of the total target capacity of 45.2 GW in 2025. Finance for renewable energy generation will be a key driver to help Indonesia meet its clean energy goals. PLN, the state electricity company, estimates that the total investments needed to reach renewable energy targets is IDR 2,000 trillion, or equivalent to USD 154 billion (PLN, 2016). For power generation alone, investment needs amount to IDR 1,400 trillion, or an average of IDR 140 trillion per year. To meet this target, the Government of Indonesia needs to attract other sources of finance, particularly from private actors.

Blended finance instruments, which make use of public and/or philanthropic funds to mobilize multiples of additional private capital (Tonkonogy et al., 2018), offer promising finance structuring solutions to address the risks and barriers to clean energy investment. Around the world, blended finance offers more than USD 1 trillion in investment opportunities for clean energy.

This report presents the findings from the first study in a series of reports by Climate Policy Initiative Indonesia in partnership with the Indonesian Ministry of Finance that look at national opportunities for blended finance. In particular, this study aims to understand the role of public finance instruments for clean energy and identify opportunities to optimize them to spur private investment in Indonesia. The ultimate objective is to inform Indonesia's public resource allocation strategy so that it will address the most critical barriers to clean energy investment and improve public capital efficiency.[1]

The key findings of the study are as follows:

***Between 2012 and 2016, public finance provided by the Government of Indonesia to support clean energy development amounted to at least IDR 12.4 trillion.*** Tracked government funding between 2012 and 2016 amounted to at least IDR 2.5 trillion per year on average. The amount, directly and indirectly, was successful to the deployment of 2,140 MW of renewable energy projects across Indonesia. Of that additional power capacity, about 1,240 MW benefitted from guarantee instruments provided by the government, of which 910 MW have reached construction and operational stage (a potential 330 MW geothermal power plant is still under exploration).

***Public finance instruments have different roles in supporting clean energy deployment, and some are more effective in catalyzing private investment than others.*** For this study, we looked at eight public finance instruments for clean energy: budget appropriation to the Ministry of Energy and Mineral Resources (MEMR); funds transferred to regional governments under the Special Allocation Fund for Physical Development; fiscal incentives; guarantees; capital injection to state-owned enterprises; finance intermediation; viability gap funding; and feed-in tariffs.

Our assessment based on the finance provided in the period of 2012-2016 indicates that guarantees and capital injections to state-owned enterprise have the highest impact for leveraging private investment.

On the other hand, budget appropriations to line ministries and fiscal transfers to regional governments show no direct impact to address private sector barriers to renewable energy investments. Fittingly, these instruments are typically deployed to support small-scale renewable projects in remote areas in which private investment interest is absent.

***There are opportunities for public finance instruments to further address financing barriers, thereby helping unlock private capital and growing the clean energy market in Indonesia***

There are several main finance barriers in Indonesia that have prevented growth in private investment in clean energy, and which public finance instruments could help

1 The study looks at public finance measures channeled through revenue, expenditure and financing instruments provided in the period of 2012-2016. It considers all types of renewable technology excluding biodiesel.

to address. These include:

- High financing costs: Indonesia's persistently high interest rate pose a significant challenge for developers looking to raise finance that allows them to meet their target financial returns.
- Limited long-term debt funding: structural problems in Indonesia's financial system make it difficult to raise the much-needed long-term debt finance for clean energy development.
- Inefficient policy frameworks skewing risk-return profile: inefficient tariff design skews the risk-return profile of clean energy projects, and hence, becomes challenging to put together a bankable project.
- Financial sector's risk aversion: the local financial sector's inexperience with the clean energy sector and its reluctance to provide funding in a project finance scheme may increase the perception of risk when developing clean energy projects.

These barriers are spread across the life cycle of clean energy projects, making the case for more strategic use of public finance instruments to accelerate private participation in clean energy.

Figure 1 summarizes which public finance instruments have the most potential for addressing each financing barrier.

**Fiscal incentives** have good potential to improve the risk-return profile of medium-to-large scale renewable energy projects. A lower tax rate or deferred tax expenses can both directly lower generation costs and improve the risk-return profile for the project developer.

**Guarantee instruments channeled through business viability guarantee letter (BVGL) and Indonesia Infrastructure Guarantee Fund (IIGF)** primarily focus on public sector performance, BVGL is key to guarantee PLN's business viability and its ability to fulfill its financial obligation, both as an off-taker and borrower. IIGF covers political and public-sector performance risk in infrastructure projects under a Public Private Partnership (PPP) scheme. The coverage of risks by these instruments, which so far are still limited, have the potential to be expanded.

**The government's capital injection to PLN (state electricity company) and SMI (local development financial institution)** are critical to strengthen the financial foundations of these public companies but have different impacts in terms of addressing barriers to private investment. Capital injection to PLN provides a more minor impact as most power plants developed by PLN are wholly-owned by PLN. In contrast, capital injections to SMI have high impact potential because, as a quasi development financial institution, SMI has the capacity to blend capital provided by the government with external sources of capital and the flexibility to develop financial instruments to meet the needs of renewable energy projects.

**Finance intermediation** also has high potential to address many private sector financing challenges, particularly if channeled through domestic public financial institutions, like SMI and its subsidiary,

Figure ES1. Opportunities to optimize the impact of public finance levers for private investment in clean energy


Source: National Energy Master Plan, Presidential Decree No. 22/2017

Indonesia Infrastructure Finance. These instruments typically channel funds from multilateral organizations which, through their excellent credit rating, have the ability to raise and provide low-cost funding with more flexible terms compared to what the recipients would be able to get in the financial market.

**Viability Gap Funding (VGF)** has high potential application in addressing high financing cost and in improving the risk-return profile of large-scale projects but so far it has not been provided for clean energy projects. VGF, typically in the form of grant support that does not require financial return, is provided to support infrastructure projects that are economically and technically feasible but lack commercial viability. VGF is available only to projects developed under PPP scheme, and hence, typically only to large-scale projects.

**Feed-in-Tariff (FiT)** has high potential in improving the risk-return profile of renewable energy projects. FiT influences the only source of revenue for renewable energy project financiers. FiT is regulated by the Ministry of Energy and Mineral Resources and implemented through Power Purchase Agreement between PLN and Independent Power Producers.

## Recommendations

Our recommendations for more optimized public finance to leverage private clean energy investment are as follows:

***Provide sufficient revenue support***

For renewable energy developers and financiers, proceeds from electricity sales to PLN are the only source of revenue to pay interest, repay debt, and generate returns. This means that the financial viability of a renewable energy project will be very dependent on the tariff at which IPPs are able to obtain. Under the current tariff framework, many renewable energy projects are deemed not viable due to insufficient revenue support as the technologies are still more expensive than fossil fuel alternatives in Indonesia. Therefore, tariff for renewable energy projects need to be adjusted and designed to reflect the costs of the technologies, and independent of local generation costs, complemented by cost reduction strategy in the long-run. Having a competitive tender process for awarding renewable energy projects and accessing finance at competitive terms from international sources are opportunities to reduce costs in the short-to-medium term.

***Expand the role of local development financial institutions***

Finance channeled through a public financial intermediary provides the highest opportunity for addressing key private investment barriers in clean energy projects in Indonesia. A local DFI, like SMI, is well positioned to assume the role as a financial intermediary between the public and private sector. As a state-owned enterprise, SMI considers both development objectives and financial return. This allows SMI to bridge financing gaps in certain sectors until they reach a stage where full market-based solutions exist. With a strong capital base from the government and networks with international donors and DFIs, SMI can source funding with competitive terms and raise debt financing in the financial market at a lower rate than their private sector peers.

***Direct public finance to address critical early-stage project development risks***

Public finance is more effective when directed to address the most critical risks throughout the project life cycle. The risk profile of each phase of a clean energy project varies and risks typically decrease as projects move towards operation phase. Our analysis indicates that de-risking commercial risks have more impact to reducing project costs than de-risking political risks. While the importance of instruments in mitigating political and public-sector performance risks should not be underestimated, our outreach suggests that investors have become more comfortable in dealing with these risks. For example, the need for Business Viability Guarantee Letter is not as crucial as it was in the past as investors have become more accustomed to dealing with the state-owned off-taker and, in consequence, their perception of the risk has also improved.

***Expand guarantee coverage and increase focus on climate-related projects***

Expanding the coverage of guarantee instruments could help increase their visibility and reach a wider range of investors. Increasing the supply of guarantees is useful for investors as they can choose the products most suited to their needs. This means investors do not have to pay for coverage of risks they are already comfortable with.

Furthermore, increased supply of guarantee products would be more effective if underpinned by specific objectives. A mandate to increase the use of guarantee for climate-related projects could also help align the interests between policy makers and guarantee providers, and hence, improve utilization. Having specific objectives and increasing the transparency of guarantee instruments in many instances proves to have positive impacts on utilization (CPI, 2013).

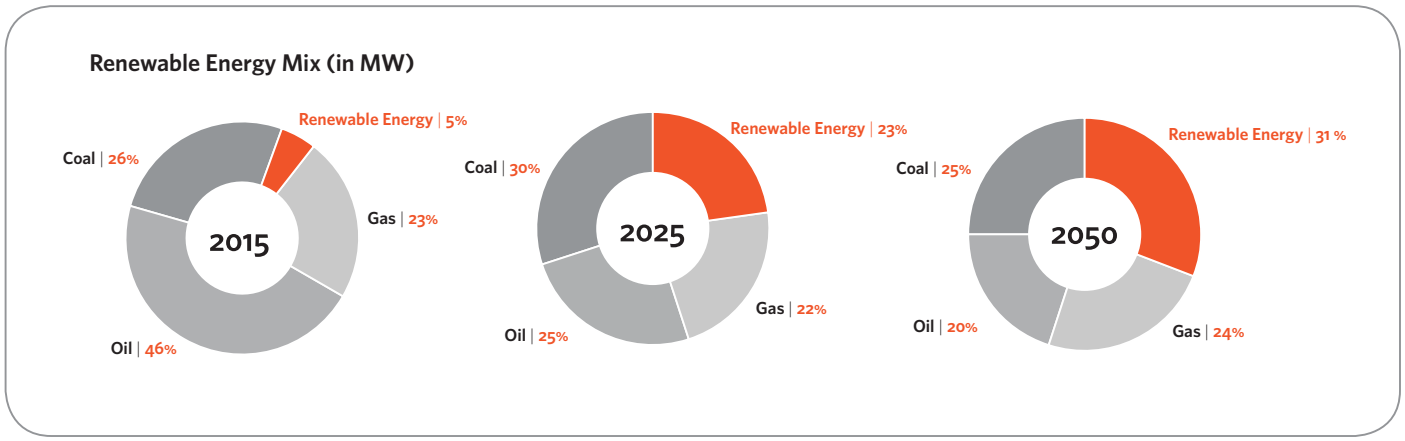
# Table of Contents

# 1. Introduction

Indonesia's Nationally Determined Contribution (NDC) under the Paris Agreement recognizes the increasing importance of our energy sector to climate change mitigation targets. About 38% of Indonesia's total 834 MT CO2e emissions reduction target will come from the energy sector. This is a significant increase from the previous climate mitigation target, which was already ambitious: Prior to the NDC commitment, the Indonesian Government National Energy Policy set a target that 23% of its electricity energy mix would be from renewable energy sources by 2025.

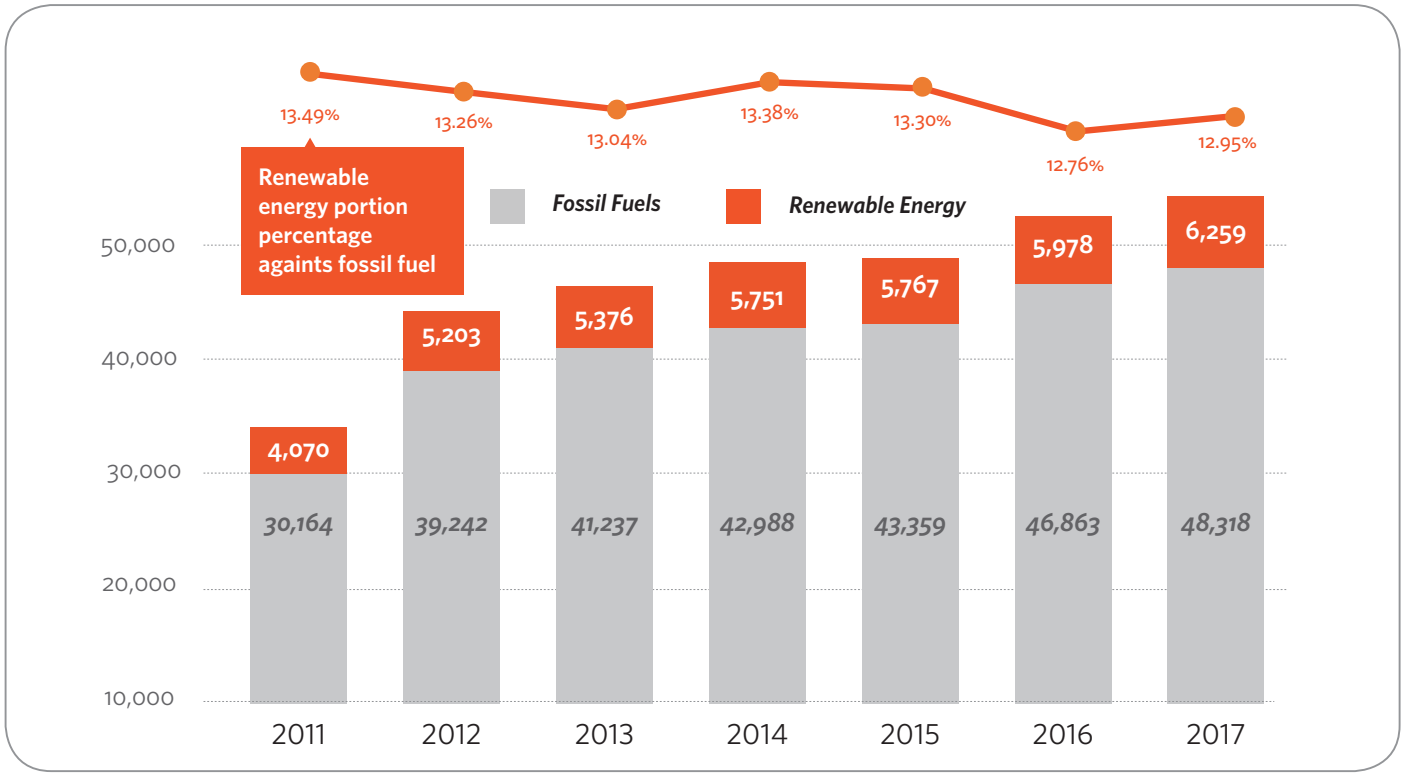
The 2025 renewable energy target is ambitious, particularly considering that by 2017 Indonesia has only reached 6.3 GW of the total 45.2 GW installed capacity required (PLN, 2017). This means that 4.3 GW of renewable energy capacity must be added every year to meet the target capacity. Hydropower and geothermal dominated the renewable energy contribution to reach a total

Figure 1. Indonesia's energy mix target by year




Source: National Energy Master Plan, Presidential Decree No. 22/2017

Figure 2. Electricity installed capacity and renewable energy contribution in 2011-2017




Source: General electricity provision plan, PLN (2018-2027)

installed capacity with 8% and 3% share, respectively, whereas other technologies significantly lag behind despite their huge potentials (PLN, 2017). More broadly, renewable energy represents a small fraction of energy compared to coal-fired power plants, which account for 40% of total installed capacity (PLN, 2017).

While renewable energy has been relatively underutilized, its potential is quite large (see Table 2). Solar and wind, in particular –technologies that have dominated in other parts of the world, and which also represent significant promise to meet energy access goals among Indonesia's remote islands – are being utilized at less than .01% of their potential.

Table 1. Indonesia's clean energy potentials

| ENERGY SOURCES | POTENTIAL (MW) | INSTALLED CAPACITY (MW) - 2017 | UTILIZATION |
|---|---|---|---|
| Geothermal | 29,544 | 1,438.5 | 4.9% |
| Hydro | 75,091 | 4,826.7 | 6.4% |
| Mini-micro Hydro | 19,385 | 197.4 | 1.0% |
| Bioenergy | 32,654 | 1,671.0 | 5.1% |
| Solar | 207,898 | 78.5 | 0.038% |
| Wind | 60,647 | 3.1 | 0.005% |
| Ocean | 17,989 | 0.3 | 0.002% |

Source: General electricity provision plan, PLN (2018-2027)

It is also noteworthy that, of existing installed renewable energy capacity, private investment has to-date contributed a small fraction of investment, about 4%, primarily through independent power production arrangements (PLN, 2017). PLN, the state electricity company, estimates that investments needed to reach renewable energy power generation targets alone by 2025 amounts to IDR 1,400 trillion, or equivalent to an average of IDR 140 trillion per year (PLN, 2016)—as an illustration, IDR 140 trillion is equivalent to 7% of total Government spending in 2017. It is, therefore, clear that Government does not have the financial capacity to deploy its own funding to meet clean energy targets and will require other sources of funding, particularly private capital. Effective use of public finance will be instrumental to unlock private investments in the clean energy sector.

## 1.1 About this report

This report presents the findings of a study that is a part of a series of studies reviewing potential use of blended finance for accelerated clean energy deployment in Indonesia. Several studies including by CPI (Tonkonogy et al., 2018) point out that blended finance instruments offer promising solutions to address risks and barriers to clean energy investment. Blended finance is defined as the use of public/philanthropic funds to mobilize multiples of additional private capital (Tonkonogy et al., 2018). For Indonesia, where renewable energy still faces a multitude of barriers and risks, blended finance is an important tool to unlock private investment.

This report outlines the government's public finance measures channeled through revenue, expenditure, and financing instruments, in the period between 2012 and 2016. It aims to identify opportunities for improving the effectiveness of public finance instruments to accelerate clean energy investment in the country. This study focuses on the power generation sector, with the exclusion of biodiesel.

Data for this study was collected from across directorate generals within the Ministry of Finance in collaboration with the Centre for Climate Finance and Multilateral Policy of the Fiscal Policy Agency. Initial data collection aimed to obtain a 5-year range of figures. CPI Indonesia analysts held discussions with several key officials in the Ministry of Finance to confirm and clarify any concerns regarding the collected data. We also consulted Ministry of Finance and clean energy experts to confirm initial findings of this study.

The report is divided into four sections:

- Chapter 1 introduces the context and objectives of the study.
- Chapter 2 outlines the key finance barriers faced by clean energy projects in Indonesia.
- Chapter 3 discusses existing fiscal instruments and their implementation to support clean energy.
- Chapter 4 identifies opportunities to optimize Ministry of Finance policy levers to accelerate private investment in clean energy.

# 2. Financing Challenges to Renewable Energy Development

In Indonesia, there are a myriad of risks and barriers to private investment in renewable energy. Based on literature reviews and discussions with experts in the clean energy sector, we have identified the key financing challenges preventing private investments from making a much-needed leap. In general, these barriers can be grouped into four categories: high financing costs, lack of availability of long-term debt funding, inefficient policy frameworks that skew risk-return profiles; and the financial sector's aversion to renewable energy markets. In this section, we discuss each of these in turn.

## 2.1 High financing costs

Overall costs for renewable energy are determined by a variety of factors, but financing costs typically play a major role. In Indonesia, financing costs for renewable energy are high primarily due to the country's persistently high interest rates.

Since the turn of the century, Indonesia's economic growth has fluctuated between 4 and 6%, with the past decade seeing growth stabilize between 5 and 6%. The stable economic growth has been accompanied by high inflation, which has prompted the central bank to maintain a high interest rate.

In addition, the ability to lower the interest rate has been constrained by the Rupiah's high volatility relative to the US Dollar. Therefore, despite efforts to control inflation, external factors such as interest rate hikes by the US Central Bank also have a significant impact to Indonesia's monetary policy, and hence, the general level of interest rates. Compared to the US and several other Southeast Asian countries, Indonesia's benchmark interest rates have been consistently higher.

The high benchmark interest rates are also indicative of the overall perception by investors of country risks, which include a combination of factors like economic, political, and fiscal strength and governance structure. The benchmark interest rates also provide an indication of the high level of cost of equity when investing in Indonesia as these rates are typically considered by investors when determining the required rate of return.

These issues have an outsize impact on renewable energy financing. Renewable energy generation is categorized by relatively high upfront costs, then more stable returns. Therefore, financing costs represent a significant share of overall energy generation costs for renewable energy — particularly in developing countries. Hence, incremental increases in financing cost tend to have a disproportionally high impact on the overall project costs compared to other costs.

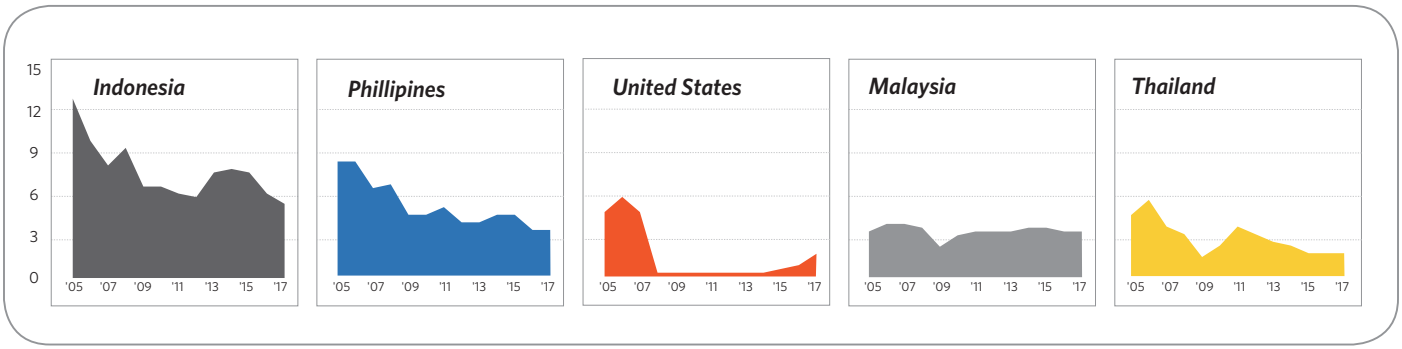
## 2.2 Long-term funding is generally unavailable

Private investment into renewable energy is also affected by whether or not long-term funding is available, and at what terms. In Indonesia, this type of long-term funding is generally unavailable.

Indonesia's financial market is relatively small and dominated by the banking sector. As of 2015, financial sector assets represented only 72% of Indonesia's GDP, a smaller figure compared to other developing countries (IMF, 2017).

Banks hold a pivotal role in the Indonesian financial system, holding around three quarters of financial sector assets (ADB, 2018). Indonesian banks are, in general, reliant on short-term deposits to fund their lending operations. This means banks are more likely to take a conservative position when it comes to negotiating loan tenor with borrowers in order to avoid

Figure 3. Comparison of benchmark interest rate between Indonesia and other countries (2016-2018)




Source: CPI Analysis

significant exposure to assets-liabilities mismatch.

On the other hand, the Indonesian bond market is also relatively underpenetrated. Indonesia bond market values represent around 16% of GDP, a smaller figure compared to those in China, India, Brazil, Malaysia, Thailand, and Philippines (IMF, 2017). This figure has stabilized since 2005, also indicating low penetration in the local bond market. Financial institutions with longer-term investment horizons, such as insurance companies and pension funds, typically invest in liquid financial instruments through the bond market. As of 2015, these institutions accounted only for 13% of financial sector assets (IMF, 2017).

This means that both banks and local bond market are generally not able to provide financial instruments with the terms that are suitable to the needs of renewable energy projects, which, in general, require long-term debt of more than 10 years. In contrast, local commercial banks tend to limit loan tenor to around eight years, while corporate bonds are typically issued with a tenor of around five years (UNDP, 2018; ADB, 2012).

## 2.3 Inefficient policy frameworks that skew risk-return profiles

In a perfect world, policy frameworks should provide the least support possible for various energy sources in order that those technologies can "crowd-in" private investment and be viable. Further, policy frameworks can help to prioritize clean energy whenever possible by providing more or less support where specifically needed. This allows the most leverage from limited public resources to meet policy goals.

In Indonesia, however, there have historically been a few factors that create less efficient frameworks for private investment in renewable energy. The end result is that the combination of policies often works against the government's own goals.

First and foremost, it is important to note that the utility sector in Indonesia is highly regulated and various government entities play a large role in setting sectoral targets as well as influencing the competitive landscape in the sector. Potentially competing goals such as increasing access to the most affordable electricity, increasing the share of clean energy, and reversing overall fiscal deficits can all create potential tensions within this landscape.

Currently, the government imposes a limit on the tariff for renewable energy projects that is dependent on the local generation costs, or "Biaya Pokok Penyediaan (BPP)," The tariff regime is designed to lower local generation costs (see Table 2 for details). Despite the obligation of PLN to purchase power from small-scale renewable energy (up to 10 MW), IPPs are still struggling to achieve financial close at these rates.

Table 2. Tariff regime for renewable energy projects in Indonesia

| TECHNOLOGY | TARIFF STRUCTURE | |
|---|---|---|
| | IF LOCAL BPP > NATIONAL BPP | IF LOCAL BPP < NATIONAL BPP |
| Solar PV | Max: 85% x Local BPP | Agreement between parties |
| Wind | Max: 85% x Local BPP | Agreement between parties |
| Hydro | Max: 100% x Local BPP | Agreement between parties |
| Biomass and Biogas | Max: 85% x Local BPP | Agreement between parties |
| Waste-to-Energy | Max: 100% x Local BPP | Agreement between parties |
| Geothermal | Max: 100% x Local BPP | Agreement between parties |

This is due to the fact that in Indonesia, most renewable energy technologies in general are still more expensive than coal-based power plants—when externalities are not taken into account. This means that the government's intention to use renewable energy to lower the costs of electricity generation can only work in certain regions of Indonesia where the predominant fuel is still more expensive than renewables, such as diesel fuel. However, it is also true that demand for electricity in those regions is generally lower than that in more developed regions, such as Java island.

As an example of how this all works in practice, take geothermal. The government has set out the ambition for geothermal to be one of the biggest contributors to achieving renewable energy targets and increase energy access. However, geothermal projects typically require very high exploration costs in their early stages, and often also have very high failure rates in these stages. These high risks and associated costs, coupled with limited potential returns through Indonesia's tariff rates and PPA system, create disincentives for private actors to invest in the sector. While the risk is significantly lower for other technologies like wind and solar, as of now, the current policies have still not proven to create the right risk-return profiles to unlock private investment.

## 2.4 Financial sector's aversion to renewable energy markets

In Indonesia, banks are generally unfamiliar with renewable energy and are more cautious when lending to the sector, which ultimately impacts financing costs, availability of capital, as well as overall viability of projects.

Hydro projects seem to be the exception here, with hydropower typically considered to have reached a mature stage and able to raise debt from the banking sector as a result.

For other technologies - solar PV, wind, geothermal and bioenergy - the number of projects already operating are very limited. This means that potential lenders have limited information from past projects to assess new ones and only have to rely on the quality of data gathered during the project preparation phase.

When a potential lender does not have full confidence on the potential resource of the project and the level of intermittency of the technology provided by the feasibility study, lenders typically take a conservative estimate for project capacity factors. This lower estimate impacts projects' estimated revenues, which in turn has negative impact on the Debt Service Coverage Ratio (DSCR), a metric that lenders use to assess the project's ability to repay debt. The bank then reduces the debt portion it is willing to provide, which necessitates the project developer to raise a different type of and potentially more expensive funding, such as equity or sub-ordinated debt.

Banks' unfamiliarity with renewable energy sector is also shown in the way financing is arranged. Project finance is rarely implemented by local banks as they tend to use corporate lending as their preferred mechanism.

Project finance is a financing technique commonly used in infrastructure development whereby the source of debt repayment and interest payment is strictly based on the project's ability to generate cash flows. The financing and development of the project is typically arranged through a special-purpose vehicle, and therefore, limits the parent company or sponsor's exposure to only how much they have invested in the project. This financing technique is typically applied to large infrastructure projects and is often preferable to project developers due to its limited impact to the balance sheet and credit rating. Projects financed through this scheme typically enjoy high degrees of leverage—up to 80% debt—which is not always accessible under a corporate finance scheme.

In Indonesia, a full non-recourse project financed by local commercial banks is very rare, particularly for renewable energy projects. Borrowing from local commercial banks usually entails providing certain securities from the project sponsors (i.e. corporate guarantee, contingent equity, etc.) in addition to pledging fixed assets as collaterals. This, to a certain extent, would have an impact to the sponsors' balance sheet and can potentially increase their cost of capital.

In a nutshell, while there's no data available, the lack of project finance in renewable energy project development implies banks' tendency to be more risk averse, exacerbated with their lack of experience in the renewable energy sector. These factors eventually lead banks to disproportionately assign a higher risk when assessing projects, thus charging higher interest rate to the borrower.

# 3. Public Finance Instruments for Clean Energy

## 3.1 Overview of the Indonesian Government's public finance instruments

The Government provides support to clean energy development through several public finance instruments and mechanisms. These include: budgets for national government agencies and regional governments, fiscal incentives, guarantees, capital injections into state-owned enterprises, finance intermediation, and feed-in tariffs (see Table 3). We have assessed the implementation of these instruments, looking at both disbursement and commitment data for 2012-2016. Data collected for each instrument varies in terms of scope and availability during the period covered. Table 3 provides an overview of each instrument, the data coverage for this study, the measured impact of the instrument, and the financing recipient of the instrument.

Table 3. Overview of public finance instruments for renewable energy

| INSTRUMENT | DESCRIPTION | STUDY COVERAGE | IMPACT |
|---|---|---|---|
| Budget for line ministry | State budget annually appropriated to line ministries and government agencies. | State budget allocated to the Ministry of Energy and Mineral Resources (MEMR), particularly the Directorate General of New and Renewable Energy & Energy Conservation.<br>Type: Financial disbursement<br>Period: 2012 – 2016<br>Activities: Physical construction of renewable power plants, capacity building and policy development. | Development of:<br>Solar PV: 21,548 KWP<br>Mini Hydro: 3,361 KWP<br>Bioenergy: 4.5 MW |
| Special allocation fund | Fiscal transfers to regional governments to carry out programs with specific mandates and objectives in line with national government priorities. | Special allocation fund (DAK) for small-scale energy which is part of DAK for physical development.<br>Type: Financial commitment<br>Period: 2012 – 2016<br>Activities: Development of small-scale renewable power plants. | N/A |
| Fiscal incentive | Government fiscal incentives in the form of income tax, import duty, and value added tax exemption for the private sector. | Due to data limitations, the study only covers income tax incentives for geothermal project development.<br>Type: Financial commitment<br>Period: 2016<br>Activities: Development of geothermal projects. | N/A |
| Guarantees | Public finance instruments provided by the government to share the risks borne by the private sector in a public-private partnership scheme. | Guarantee provided for renewable energy through business viability guarantee letter (BVGL) and Indonesia Infrastructure Guarantee Fund.<br>Due to data limitations, we are unable to gather finance amounts set aside or the total finance exposure faced by the government for extending the guarantee. | Development of:<br>Geothermal – 1,210 MW<br>Hydro – 140 MW |

| INSTRUMENT | DESCRIPTION | STUDY COVERAGE | IMPACT |
|---|---|---|---|
| Capital injection | Government capital injections to state-owned enterprises (SOEs to strengthen the companies' financial foundations. | Government capital injections to three SOEs: PLN (government utility company), Sarana Multi Infrastruktur (financing entity) and Geo Dipa Energi (geothermal developer), specifically earmarked for clean energy.<br>Type: Financial commitment<br>Period: 2015 – 2016<br>Activities: Development of clean energy projects. | Development of:<br>1,171 MW of hydro projects.<br>Geothermal exploration |
| Finance intermediation | Low-cost lending from multilateral and bilateral entities (under government-to-government schemes), channeled via the Ministry of Finance to state-owned enterprises. | Due to data limitations, we are unable to track finance committed earmarked for clean energy development through this instrument. | N/A |
| Viability Gap Funding | Public finance instrument, typically in the form of grant, provided to support infrastructure projects that are economically and technically feasible but lack financial viability. | No renewable energy projects have received viability gap funding from the government. | No clean energy project received Viability Gap Funding |
| Feed-in tariff via Power Purchase Agreement (PPA) | Electricity subsidy indirectly provided by the government to independent power producers (IPPs), channeled via PLN. | Due to data limitations, we are unable to track subsidy allocated for covering the price gap between the tariff received by renewable energy based IPPs and charged by PLN to end users. | N/A |

## 3.2 Public finance flows for clean energy

**Between 2012 and 2016, the Government of Indonesia provided at least IDR 12.4 trillion, or an average of IDR 2.5 trillion, per year to support clean energy development in Indonesia.** This financial support contributed to the development of at least 2,140 MW of renewable energy power plants across Indonesia, or equivalent to an average of 430 MW per year—less than 10% of the required 4.3 GW additional capacity per year.[2]

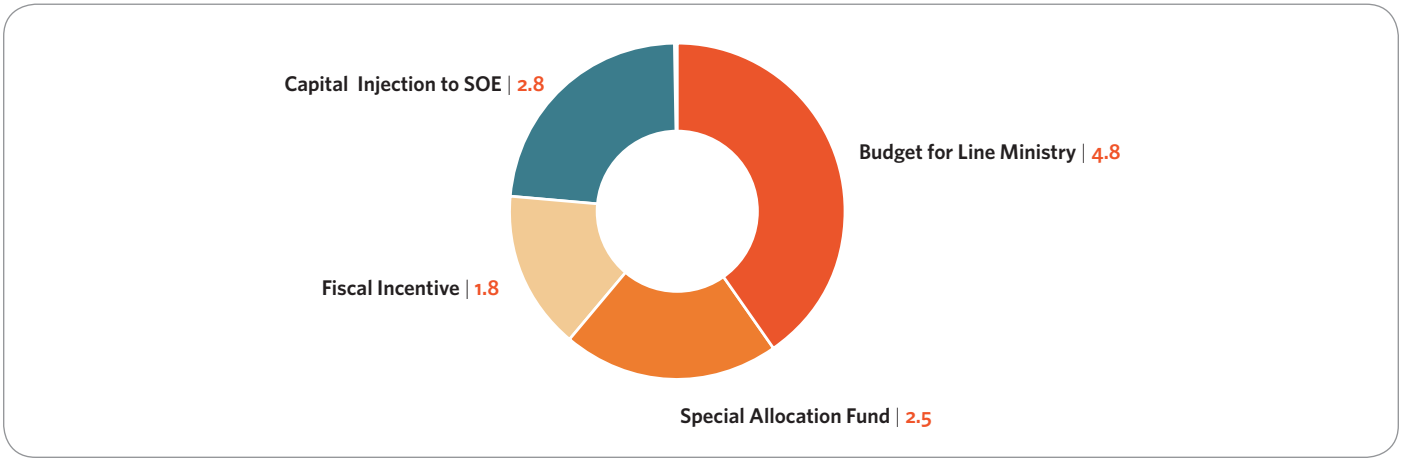
However, significant data gaps exist, particularly for financing data at the project-level, which prevent us from making an analysis on the adequacy of the finance amount in the context of meeting clean energy targets in Indonesia, as well as on the ability of Government finance instruments in attracting other sources of finance, including private investments, in clean energy development. Therefore, it is likely that the tracked Government finance amount underestimates actual finance flows due to data gaps.

Roughly 62% of tracked Government finance was channeled via Government agencies (39% through Ministry of Energy and Mineral Resources and 23% via Special Allocation Fund), 23% via State-Owned Enterprise and 15% through tax incentives. No data was available to track finance set aside by the Government when extending guarantees and no clean energy project has benefited from Viability Gap Fund.

Our analysis also shows that the overwhelming share of these funds have been channeled to support geothermal (77%) and hydropower (21%) technologies, which is

2 These projects include off-grid projects as well as those that have yet to reach financial close.

Figure 4. Breakdown of Government finance instrument focus (all numbers are in IDR trillion)




consistent with government targets as prescribed in the General Electricity Provision Plan.

### 3.2.1 FINANCE FLOWS VIA GOVERNMENT AGENCIES

Finance flows for clean energy development directly channeled from the Ministry of Finance includes budget allocations to the Ministry of Energy and Mineral Resources (MEMR) and fiscal transfers to regional governments for small-scale energy. Total finance channeled through these instruments amounted to IDR 7.3 trillion between 2012 and 2016.

- Finance disbursed via State Budget to MEMR amounted to IDR 4.8 trillion between 2012 and 2016, equivalent to an annual finance flow of a little less than IDR 1 trillion per year. The finance was used to support government programs, particularly those associated with clean energy development, administered by MEMR.
- Finance flows through the Special Allocation Fund for small-scale energy (or "DAK Energi Skala Kecil") amounted to IDR 2.5 trillion between 2012 and 2016, or an annual average finance flow of IDR 0.5 trillion per year. Finance flows through this instrument were deployed to support small-scale renewable energy projects.

The amount disbursed through state budgets to MEMR led to the development of a total of 34 MW of renewable energy projects, including solar PV, micro hydro, bioenergy, and biogas. Data is unavailable to track total projects funded via DAK for small-scale energy.

Finance disbursed by the government via these instruments shows an increasing upward trend, showing increased attention to renewable energy development during the period reported (see Figure 5): Over a period of five years, budget to MEMR more than doubled from IDR 0.6 trillion in 2012 to IDR 1.5 trillion in 2016. In the same period, the amount channeled via DAK for small-scale energy more than tripled from IDR 0.2 trillion in 2012 to IDR 0.7 trillion in 2016 as the government ramped-up efforts to increase access to electricity.

### 3.2.2 FINANCE FLOWS CHANNELED VIA STATE-OWNED ENTERPRISES

The government channels finance for energy development via capital injections to state-owned enterprises, including the state electricity company PLN, Geo Dipa Energi, a geothermal developer, and Sarana Multi Infrastruktur (SMI), an infrastructure investment company. The government also serves as an intermediary to channel finance from multilateral organizations, such as the World Bank and Asian Development Bank.

Between 2015 and 2016, tracked finance flows for clean energy to state-owned enterprises amounted to IDR 2.8 trillion and contributed to the development of at least 1,170 MW of capacity from clean energy.

Figure 5. Breakdown of public finance sector focus

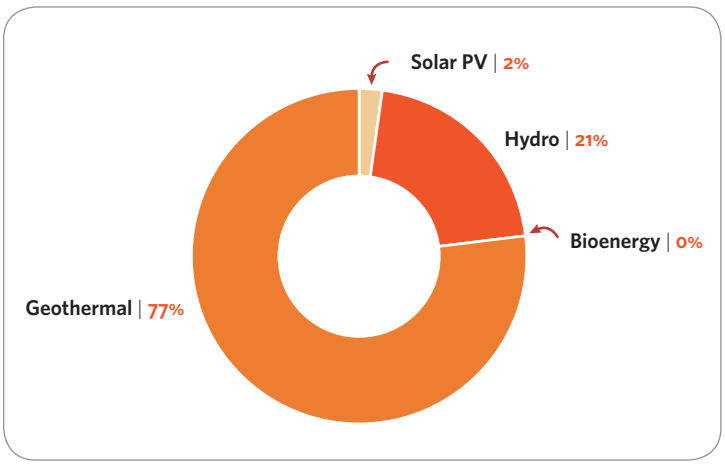
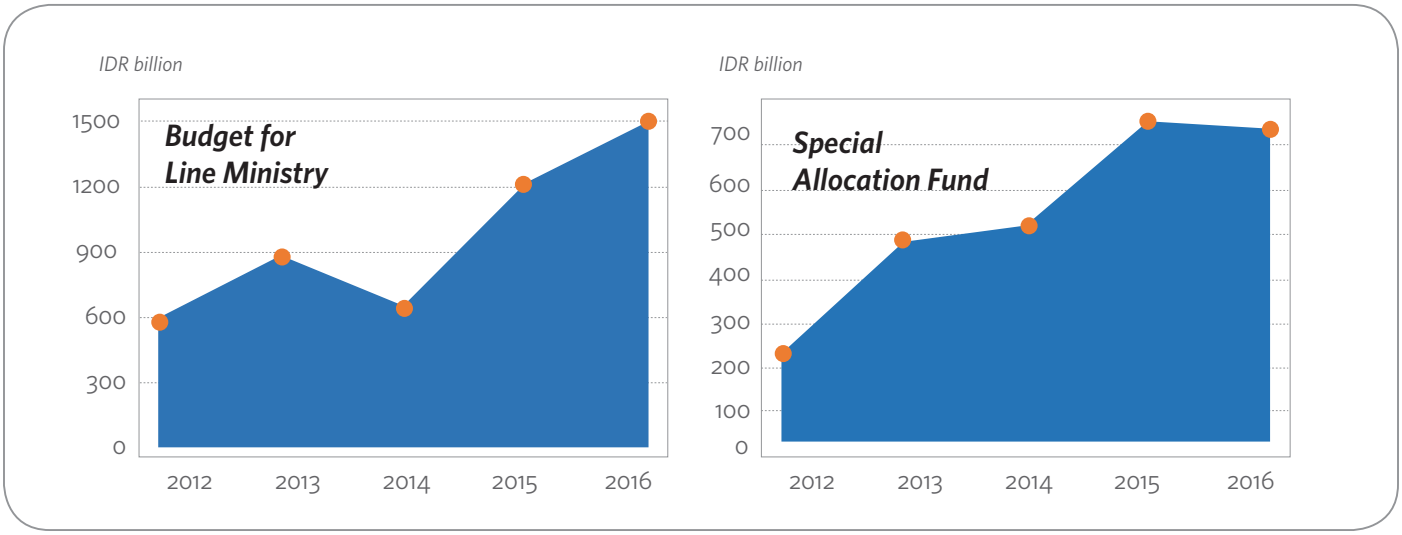


Figure 6. Trend of budget flows to MEMR and DAK for small-scale energy




Source: CPI Analysis

However, it is likely that the amount only represents a portion of overall finance flows to state-owned enterprises for clean energy—our analysis found that this amount flows to only three clean energy projects. Outside of this, data on clean energy finance for state-owned enterprises is quite limited.

In addition to capital injections, the government also serves as an intermediary to channel finance from multilateral organizations, such as the World Bank and Asian Development Bank to state-owned enterprises—to date, this finance intermediary instrument was utilized to channel finance to Indonesia Infrastructure Finance (IIF), a subsidiary of SMI. However, these financial commitments cover many infrastructure projects, not necessarily only for renewable energy projects. No data was available to track finance flows for clean energy development from these sources.

### 3.2.3 FISCAL INCENTIVE

The government provides fiscal incentives for clean energy development through income tax incentives and exemptions from import duties and the value added tax. Available data to show finance flows through fiscal incentives is limited to income tax incentives to private geothermal developers in 2016, which amounted to IDR 1.8 trillion. Compared to average annual commitments from the state budget and via intermediaries, actual finance flows through fiscal incentives are low; they represent just 17% of the levels committed by the government.

### 3.2.4 GUARANTEE AND VIABILTIY GAP FUNDING

Public finance classified as guarantee instruments includes Business Viability Guarantee Letter (BVGL) and Indonesia Infrastructure Guarantee Fund (IIGF).

BVGL guarantees to project financiers that PLN will be able to service its financial obligations, primarily as a borrower and off-taker. Between 2012 and 2016, the government has issued BVGL to eight projects, with potential size of 1,240 MW, of which 910 MW has entered into the construction and operation phase (two projects with a combined potential of 330 MW are still in the geothermal exploration phase). No data is available to track finance set aside by the government to guarantee these projects or total financial exposure to the government from issuing these guarantees.

However, it is important to note that the BVGL instrument is not only exclusively available for renewable energy projects, but also available for other large-scale power plant projects. For example, our analysis shows that around 12,600 MW of coal-fired power plants have benefited from BVGL.

To date, no renewable energy projects have received guarantees from IIGF, or received viability gap funding from the government.

# 4. Opportunities to optimize public finance to accelerate renewable energy

In countries where risks and barriers to development projects are high, private sector investment is typically low. In Indonesia, given the many competing sectors in need of development financing, strategies to ensure public capital is leveraged efficiently are especially critical. One such strategy is to place public finance instruments to catalyze much larger private investments by addressing key private investment barriers.

Chapter 3 of this report discusses the effectiveness of public finance instruments provided in the period of 2012-2016 to promote clean energy deployment in Indonesia. This chapter presents opportunities to improve the effectiveness to address the key financing barriers discussed in Chapter 2 for accelerated clean energy investment. In Table 4, we summarize the opportunities, categorizing them by potential impact on each investment barrier and strategy for public capital deployment

## 4.1 How existing public finance instruments address the barriers to clean energy investment

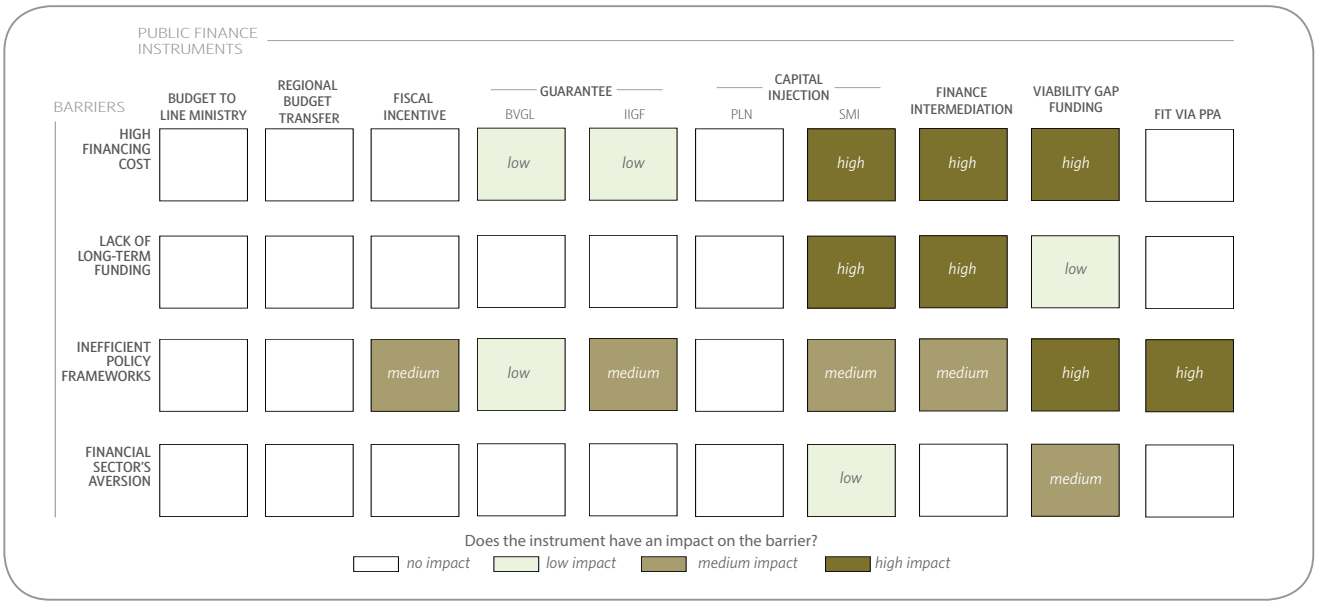
Our assessment looks at eight public finance instruments for clean energy: budget appropriations to the Ministry of Energy and Mineral Resources (MEMR); fund for small scale energy under the Special Allocation Fund for Physical Development transferred to regional governments; fiscal incentives; guarantees; capital injections to state-owned enterprises; finance intermediation; viability gap funding; and the feed-in tariff.

Broadly, our analysis shows that for the period of 2012-2016:

- Guarantees and capital injections to public financing entities like SMI, which also has the ability to attract capital from international development finance institutions, have been more impactful in leveraging private investment than other investments.
- On the other hand, budget provided to line ministry responsible for renewable energy development and fiscal transfer to regional governments for small-scale energy have no direct impact to address private sector barriers to renewable energy investment as they are available only for public projects. However, that's not to say these budgets aren't important; these instruments are typically deployed to support renewable energy projects of small-scale and therefore are more effective to support electrification in remote areas in which private sector participation is difficult to attract.

In addition, based on the current public finance instruments, we identify several opportunities for public resources to further address financing barriers that currently prevent private capital from growing the clean energy market in Indonesia.

Table 4: Opportunities to optimize the impact of public finance levers for private investment in clean energy




Source: National Energy Master Plan, Presidential Decree No. 22/2017

**Guarantee instruments including Business Viability Guarantee Letter (BVGL) and Indonesia Infrastructure Guarantee Fund (IIGF).** BVGL seeks to guarantee PLN's business viability and its ability to fulfill financial obligations, both as an off-taker and borrower. IIGF covers political and public-sector performance risk in infrastructure projects under Public Private Partnership (PPP) scheme. Both instruments primarily focus on public sector performance, which indicates a still high perceived risk of investing in a developing country. However, the coverage of risks by these instruments are still limited and thus have the potential to be expanded.

**Government capital injections to PLN and SMI.** Capital injections to the state off-taker PLN provide minor impacts currently to addressing private sector financing challenges as most power plants developed by PLN are wholly-owned by PLN. In contrast, capital injection to the public investment company SMI provides very high potential to addressing private sector financing challenges. As a quasi development financial institution, SMI has the capacity to blend capital provided by the Government with external sources of capital and the flexibility to develop various kinds of financial instruments or address renewable project needs.

**Finance intermediation** also provides high potential to address many of private sector financing challenges, particularly if channeled through domestic public financial institutions, like SMI and IIF. These instruments typically channel funds from multilateral organizations which, through their excellent credit rating, have the ability to raise and provide low-cost funding with more flexible terms compared to what the recipients would be able to get in the financial market.

**Viability Gap Funding (VGF)** is a public finance instrument provided to support infrastructure projects that are economically and technically feasible but lack financial viability. VGF is typically in the form of a grant and therefore does not require financial return. VGF is available only to projects developed under PPP scheme, and hence, typically only to large-scale projects. This instrument has high potential application in addressing high financing costs and in improving the risk-return profile or large-scale projects.

**Feed-in-Tariff (FiT)**, implemented through Power Purchase Agreement (PPA), is a government instrument to provide revenue support for renewable energy developers. Due to PLN's role as the single electricity off-taker, IPPs' only source of revenue is very much dependent on the tariff it is able to get. The instrument has high potential in improving the risk-return profile of renewable energy projects in Indonesia.

## 4.2 Opportunities for more strategic deployment of public finance resources

We identify four strategies for the government to scale-up private investments in clean energy projects in Indonesia through deployment of public finance resources to areas with highest potential impact.

### 4.2.1 PROVIDE SUFFICIENT REVENUE SUPPORT

Based on our interviews with various stakeholders involved in clean energy development, the current tariff structure for renewable energy power plant seems to be the biggest barrier to attracting investments, as most renewable energy technologies in Indonesia are still more expensive than fossil fuel alternatives, like coal. Very few projects have achieved financial close after the new tariff structure was implemented by the Ministry of Energy and Mineral Resources in 2017.

While there are many ways to lower renewable energy costs through the deployment of incentives and public finance, there are limits to effectively implement this at scale and sustainably given the limited availability of public resources. Therefore, it is important that the cost reduction strategy is implemented with a longer-term view and complemented with sufficient revenue support to ensure that there's enough room for projects to be financially feasible.

This means, Power Purchase Agreement and tariff structures need to be designed to reflect the costs of renewable energy technology, independent from local generation costs. Furthermore, the award of a project should be done in a competitive process to incentivize continuous reduction of costs in the future. Opportunities for a short-to-medium term solution for cost reduction involves the blending of public and private finance).

### 4.2.2 EXPAND THE ROLE OF LOCAL DEVELOPMENT FINANCIAL INSTITUTIONS (DFI)

Our qualitative analysis on the roles and features of various public finance instruments suggests that finance channelled through financial intermediaries provides a lot of potential for addressing key private investment barriers in clean energy projects in Indonesia.

A local DFI, like SMI, is well positioned to assume the role as a financial intermediary between the public and private sector. This is due to several main reasons.

First, SMI receives a mandate from the government to help meet the country's development targets. This means that SMI will consider development objectives in addition to financial returns on equity. Balancing these

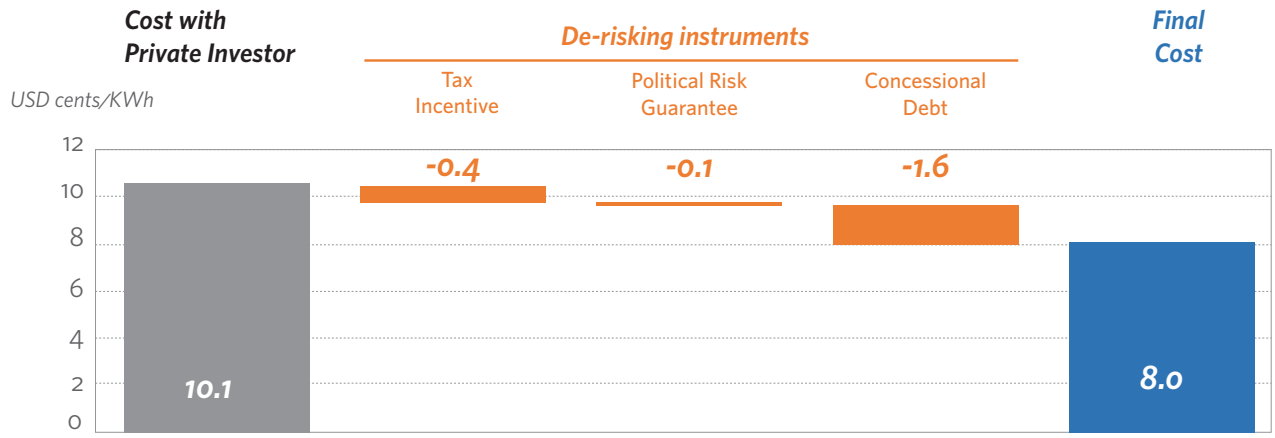
**Box 1. A simulation on how concessional finance play a critical role in reducing project costs**

The high cost of clean energy project development is one of the key challenges in developing these projects in Indonesia, and is also one of the Government's energy objectives. Narrowing the commercial gap can only be done by reducing project costs to improve potential return. Balancing these priorities becomes critical in creating an environment where business communities in the clean energy sector will be able to thrive.

There are many public finance instruments which can be utilized to reduce clean energy project costs in Indonesia. In general, these can be grouped into three instruments: fiscal incentives, credit enhancement instruments, and concessional finance. As explained in Chapter 2, the high financing costs and lack of long-term debt are key financing barriers to developing clean energy projects, which are primarily a result of deep and structural problem in Indonesia's financial and economic system.

This means that making use of concessional finance will be critical in addressing these key financing barriers—in addition to structural changes in the local financial sector. Figure 7 shows a simulation of how concessional finance had more impact in reducing project costs than other public finance instruments deployed to the project, such as tax incentives and political/public sector performance risk guarantees.

Figure 7. Illustration of de-risking application and impacts in reducing project costs




While the importance of instruments in mitigating political and public-sector performance risks should not be underestimated, our outreach suggests that investors have become increasingly more comfortable in dealing with these risks.

For example, the need for a Business Viability Guarantee Letter is not as crucial as it was in the past, as investors have become more accustomed to dealing with PLN and, as a result, their perception of the risks has also improved. Furthermore, Indonesia's improving credit rating to investment grade also indicates the improving economic conditions and political environment in the country which should also, at least theoretically, improve the perception of political risk.

dual objectives is important in bridging the financing gap in certain sectors until they reach a commercial stage where full market-based solutions exist.

Second, SMI has networks with international financiers and, therefore, has the ability to channel finance at competitive terms. In addition, SMI is equipped with a strong capital base from the government that allows it to raise debt financing in the financial market at a slightly lower rate than their private sector peers—on average, government-backed institutions receive 15 basis points discounts on the corporate bond coupon compared to private institutions of identical credit rating and tenor. Third, unlike a commercial financial institution, SMI faces less pressure from asset-liability mismatch risk because it does not rely on short-term deposits to fund its lending operation. Instead, it typically has a funding structure with a long-term horizon, which is commensurate to the needs of renewable energy projects. With this funding structure at hand, SMI has the capacity to blend development and private capital to develop financial instruments most suitable to renewable energy project needs.

Overall, expanding the role of SMI may prove to be essential to help address key private investment barriers, particularly the high financing costs and lack of long-term finance for renewable energy development in Indonesia. Box 1 provides an illustration of how low-cost debt and extended tenor play an important role in reducing project costs.

Despite its strategic position, it is important to note that expanding the role of SMI should not be done in a way that could crowd out private financial institutions. This means that concessional finance and other de-risking instruments should only be utilized in instances where market solutions do not exist and deployed with the highest leverage impact with regards to attracting private investments. Furthermore, the increased role of SMI should also be supported with the development of internal processes and procedures that allow the institution to develop financial solutions that are fit with the characteristics of clean energy project development.

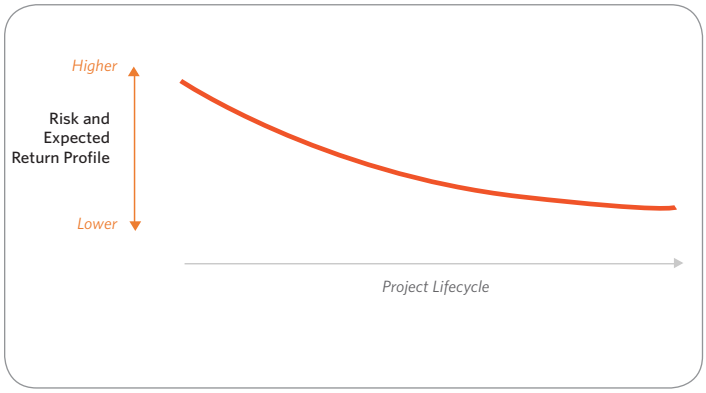
### 4.2.3 DIRECT PUBLIC FINANCE TO ADDRESS CRITICAL EARLY-STAGE PROJECT DEVELOPMENT RISKS

When risks don't match potential returns, there is clear barrier to private investment. Clean energy projects typically undergo three phases of project development - i) development; ii) construction; and iii) operation – where the earliest, development phase is the riskiest due to higher uncertainties (i.e. risk in regard to estimating renewable energy resources).

The development phase in a project life-cycle deals with all activities prior to the construction phase—for example resource estimation and feasibility studies. Depending on the scale of the project and type of technology, the cost of performing these activities typically represents a small portion of the total project costs. However, ensuring the quality of these can help address any large uncertainties about the project's potential risk-return profile and unlock private investments in the next phase of project life cycle. Risks decrease as projects move towards and post operation phase (See Figure 7).

In Indonesia, however, many projects do not make it past this first phase. Targeting different types of investors and deploying different financial instruments in each stage of a project's life cycle can remedy this situation. Here, public finance instruments can play a critical role de-risking projects and are most effective and impactful when directed to address the most critical risks in project life cycles.

Figure 8. Risk-return profile based on project life-cyclers are in IDR trillion)




There are several public finance instruments to support these activities in Indonesia, but there are opportunities for expanding coverage. For example, SMI, together with the World Bank, set up a facility to fund geothermal exploration—the riskiest phase of geothermal project development. In addition, the Ministry of Finance also provides a Project Development Facility to support pre-construction activities, albeit only available for projects developed under a Public Private Partnership (PPP) scheme and not exclusive to clean energy projects — which typically involve developing large-scale projects. Opportunities therefore exist for setting up a new project development facility specifically dedicated for clean energy projects which fall outside the PPP scheme. The facility can be set up under an intermediary (i.e. SMI) and designed to raise and blend

funding from the Government and international public finance institutions.

#### 4.2.4 EXPAND THE COVERAGE OF GUARANTEE INSTRUMENTS

Several finance instruments are available to address critical barriers to developing clean energy projects in Indonesia. However, there are opportunities to expand the coverage of existing instruments and develop more de-risking facilities specifically targeting clean energy projects.

Currently guarantee instruments provided by the government for clean energy are limited to Business Viability Guarantee Letter (BVGL) and Indonesia Infrastructure Guarantee Fund (IIGF), both of which have limited coverage. The former is available for power plant projects, while the latter is available for broad infrastructure projects under PPP scheme. Both instruments deal with guaranteeing the performance of contracting public stakeholders in a project.

Expanding the coverage of guarantee instruments could help increase their visibility and reach a wider range of investors. Increasing the supply of guarantees is useful for investors as they can choose the products most suitable to their needs. This means investors do not have to pay for coverage of risks they are already comfortable with.

However, increasing the supply of guarantee products may not be sufficient without specific objectives. A mandate to increase the use of guarantees for climate-related projects could also help align the interests between policy makers and guarantee providers, and hence, improve their utilization. Having a specific objective and increasing transparency of guarantee instruments in many instances how been shown to have positive impact on utilization (CPI, 2013).

# 5. Conclusion

Indonesia must work to accelerate investment in renewable energy to meet its various climate and energy access targets.

While Indonesia's electricity utility estimates that the total investment needs to meet the renewable energy generation target by 2025 amounts IDR 140 trillion per year, CPI's analysis finds, that tracked committed public funding for clean energy in the period of 2012-2016 amounted to an average of only IDR 2.5 trillion per year, contributing to the development of 430 MW per year. While data availability may mean the total investment is actually more than this figure, it is still clear that the current level of government spending needs to be increased. Further, given fiscal capacity constraints, the government needs to use its resources more strategically to leverage a much larger share of capital from the private sector.

This report outlines opportunities to optimize public finance levers to address four pressing financing barriers to private investment in clean energy. The barriers are: high financing costs, unavailability of long-term debt funding, inefficient policy frameworks that skew risk-return profile and financial sector's aversion to renewable energy markets.

We draw the optimization opportunities from our assessment on eight public finance instruments provided for all types of renewable energy technologies, excluding biodiesel, in the period of 2012-2016. The instruments are: budget for line ministry (MEMR); Special Allocation Fund; fiscal incentives; guarantees; capital injection; finance intermediation; viability gap funding; and feed-in tariff (through Power Purchase Agreement).

Our assessment suggests that budget allocations to line ministry and fiscal transfers to regional governments have no direct impact to address private sector barriers to renewable energy investment as these funds are available only for public projects. In contrast, guarantees and capital injections to public financing entities such as SMI, which manage to attract additional capital from international development finance institutions, have the highest potential impact for leveraging private investment.

We structure the opportunities in terms of potential to increase the impact of existing individual instruments, strategies for public capital deployment, and cross-cutting alignment for more optimized use of public finance resources.

### 1. The impact of the following public finance instruments can be advanced:

| | |
|---|---|
| Fiscal incentives | Good potential to improve risk-return profile of medium-to-large scale renewable energy projects. A lower tax rate or deferred tax expenses have direct impact to lower generation costs, and hence, also improve project's risk-return profile to project developer. |
| Guarantees | The current practice includes Business Viability Guarantee Letter (BVGL) to guarantee PLN's business viability and its ability to fulfill financial obligation, both as an off-taker and borrower. It also includes guarantees provided through the Indonesia Infrastructure Guarantee Fund (IIGF). The coverage of risks by these instruments are still limited and have good potential to be expanded. |
| Capital injection to state-owned enterprises | Capital injection to the public investment company SMI provides very high potential to addressing private sector financing challenges. As a quasi development financial institution, SMI has the capacity to blend capital provided by the Government with external sources of capital and the flexibility to develop various kinds of financial instruments or address renewable project needs. |
| Finance intermediation | High potential to address many private sector financing challenges, particularly if channeled through domestic public financial institutions, like SMI and IIF. With excellent credit ratings and networks with international DFIs, public investment companies have the ability to raise and provide low-cost funding with more flexible terms compared to what the recipients would be able to get in the commercial market. |
| Viability Gap Funding | High potential to lower financing cost and improve the risk-return profile of large-scale renewable energy projects available for projects under public-private partnership scheme. |
| Feed-in-Tariff | High potential in improving the risk-return profile of renewable energy projects. |

### 2. Strategies for more strategic public capital deployment

We identify three strategies for the government to deploy its resources to address the most critical financing risks, hence produce highest impact.

***Provide sufficient revenue support***
The existing tariff structure for renewable energy developers is deemed to be insufficient to support the financial viability of projects. Feed-in-tariff needs to be adjusted and designed to reflect the costs of technology, while complemented with long-term costs reduction strategy through competitive tender process and channeling low-cost finance from international sources.

***Expand the role of local development financial institutions***
While banks continue with a risk averse approach, public financial intermediaries provide the highest opportunity for addressing key private investment barriers in clean energy projects in Indonesia. As a local DFI, PT Sarana Multi Infastruktur (SMI), is well positioned to assume the role as a financial intermediary between the public and private sector and to bridge financing gaps, where full, market-based solutions are lacking.

***Direct public finance to address critical early-stage project development risks***
Public resources should be deployed more to address commercial risks in clean energy projects. Our analysis indicates that de-risking commercial risks has more impact to reducing project costs than de-risking political risks. While the importance of instruments in mitigating political and public-sector performance risks should not be underestimated, our outreach suggests that investors have become more comfortable in dealing with risks related to the state off-taker.

***Expand guarantee coverage and increase focus on climate-related projects***
We recommend expanding the coverage of guarantee instruments to help increase their visibility and reach a wider range of investors. Increasing the supply of guarantees is useful for investors as they can choose the products most suitable to their needs. For maximum effectiveness, increased supply of guarantees needs to be underpinned by a specific mandate, e.g. climate mitigation or clean energy, to help align the interests between policy makers and guarantee providers, and hence, improve the utilization of guarantees.

# 6. References


Asian Development Banks (ADB). 2012. "Indonesia Bond Market Guide." Available at: https://wpqr4.adb.org/LotusQuickr/asean3abmf/Main.nsf/h_Index/4CC53EFBD63D7BA3482579D4001B5CED/$file/abmf%20vol1%20sec3%20ino.pdf

Asian Development Banks (ADB). 2012. "Asian Development Bank Support to Indonesia's Capital Market Development, 2002–2017: A Background Paper." Available at: https://www.adb.org/sites/default/files/related/107606/ADB-Support-to-Indonesia-Capital-Market-Development-2002-2017.pdf

Frisari G., et al. 2013. "Risk Gaps: A Map of Risk Mitigation Instruments for Clean Investments." Climate Policy Initiative. Available at: https://climatepolicyinitiative.org/wp-content/uploads/2013/01/Risk-Gaps-A-Map-of-Risk-Mitigation-Instruments-for-Clean-Investments.pdf

International Monetary Fund (IMF) Country Report No.17/152. 2017. "Financial System Stability Assessment." Available at: http://www.imf.org/~/media/Files/Publications/CR/2017/cr17152.ashx

Kirari J., et al. 2018. "Supporting Indonesia's Renewable Energy Development in Remote and Rural Areas through Innovative Funding." Jakarta. United Nations Development Programme. Available at: http://www.id.undp.org/content/dam/indonesia/2018/Doc/ID_Supporting%20RE%20through%20Innovative%20Funding_UNDP%20Paper_IDF%202018_Smarter%20Funding.pdf

Ministry of Energy and Mineral Resources (MEMR). 2017. "Laporan Kinerja Ditjen EBTKE tahun 2016". Available at: http://ebtke.esdm.go.id/post/2017/03/09/1585/laporan.kinerja.ditjen.ebtke.tahun.2016

Ministry of Energy and Mineral Resources (MEMR). 2017. "Handbook of Energy Economics 2016". Available at: https://www.esdm.go.id/en/publikasi/handbook-of-energy-and-economic

Nelson D., et al. 2012. "Meeting India's Renewable Energy Targets: The Financing Challenges." Climate Policy Initiative. Available at: https://climatepolicyinitiative.org/wp-content/uploads/2012/12/Meeting-Indias-Renewable-Targets-The-Financing-Challenge.pdf

PT Perusahaan Listrik Negara (Persero) – PLN. 2018." Rencana Penyediaan Umum Tenaga Listrik. Available at: http://www.djk.esdm.go.id/pdf/RUPTL/03%20-%2022%20-%202018%20RUPTL%202018-2027%20PLN.pdf

Tonkonogy B., et al. 2018. "Blended Finance in Clean Energy: Experiences and Opportunities." Climate Policy Initiative. Available at: https://climatepolicyinitiative.org/wp-content/uploads/2018/01/Blended-Finance-in-Clean-Energy-Experiences-and-Opportunities.pdf