

Indonesia's Just Energy Transition Partnership: A way to mobilize capital for climate and development

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Contents

Abbreviations, acronyms and definitions	iii
Executive summary	v
Chapter 1 Introduction	1
Chapter 2 The Indonesia context: its power sector and related emissions targets frame the JETP	3
a. Power sector: some key characteristics	3
b. Indonesia’s JETP: emissions reduction targets and investment objectives	5
c. Investing in the just energy transition	8
Chapter 3 Financial dimensions: opportunities and challenges	12
a. A wide array of financial actors is active in Indonesia’s power sector: “3+1” sources of capital	12
b. International public and private capital	13
c. Domestic private and public sectors	19
d. The cost of capital: the importance of the host country perspective	23
e. The transmission/grid challenge	27
f. Can’t the private sector do more?	29
Chapter 4 Drivers beyond financial terms: opportunities and challenges	30
a. Policies matter	30
b. Government institutional effectiveness as a project counterparty	31
c. Government institutions as project counterparties	33
d. Domestic electoral and legal contexts	34
e. Proactivity of the IPG and GFANZ/private capital	34
Chapter 5 Equity, affordability and other considerations	36
a. Treatment of environmental and social aspects and of local populations	36
b. Sound and equitable development	37
c. Financial flows	39
d. The coal overhang	39
Chapter 6 Selected recommendations	41
a. What can the Government of Indonesia do?	41
b. What more should international government partners do?	42
c. What more can international private sector actors do?	44
d. Financial innovation	44
Chapter 7 Conclusions	48
Bibliography	50
End Notes	52

Abbreviations, acronyms and definitions

ADB

Asian Development Bank

CIPP

Comprehensive Investment and Policy Plan to support the I-JETP

CREA

Centre for Research on Energy and Clean Air

DFI

Development Finance Institution

ECA

Export Credit Agency

ESG

Environmental, social and governance norms applied by investors

GFANZ

Glasgow Financial Alliance for Net Zero

GFANZ Working Group

Initially, Bank of America, Citi, Deutsche Bank, HSBC, Macquarie, MUFG, and Standard Chartered

GW

Gigawatts

I-JETP

Indonesia Just Energy Transition Partnership

I-JETP Statement

“Joint Statement by the Government of Indonesia and International Partner Group members on the Indonesia Just Energy Transition Plan,” issued in Bali on November 15, 2022

IEA

International Energy Agency

IEEFA

Institute for Energy Economics and Financial Analysis

IESR

Institute for Essential Services Reform

IFC

International Finance Corporation, the private sector arm of the World Bank

IPG

International Partner Group under the I-JETP, which is made of the governments of Japan, USA, Canada, Denmark, the EU, France, Germany, Italy, Norway, and the UK

IRENA

International Renewable Energy Agency

JETP

Just Energy Transition Partnership

JET Program

Indonesia’s just energy transition program, the broad emissions reduction and development program of the Government of Indonesia to support its net-zero emissions and other longer-term goals, and which extends beyond the I-JETP

kW

Kilowatt

MEMR

Ministry of Energy and Mineral Resources

MT

Million tonnes

PPA

Power purchase agreement, a contractual structure between a power producer and electricity purchaser (such as PLN) typically underpinning private investment in power generation

PLN

PT Perusahaan Listrik Negara, the dominant public sector power utility

Pertamina

PT Pertamina, formerly abbreviated from Perusahaan Pertambangan Minyak dan Gas Bumi Negara, Indonesia's state-owned oil and gas company

RUPTL

Rencana Usaha Penyediaan Tenaga Listrik, Indonesia's Electricity Business Supply Plan

SEforAll

Sustainable Energy for All

SOE

State-owned enterprise

TWh

Terawatt-hour

Executive summary

The Indonesia Just Energy Transition Partnership (“I-JETP”) as it is currently constructed and implemented in its preparatory phase provides a potentially strong framework to raise international capital. Its ability to mobilize \$20 billion (US Dollars) from international public and private sector sources will depend on a variety of factors, many of which lie within the control of the Government of Indonesia. The international community (both public and private) has a vital complementary role to play and faces a critical question regarding the degree of concessionality it is willing to offer for energy transition investments in Indonesia to reduce global greenhouse gas emissions.

An analysis of the I-JETP needs to be placed squarely within Indonesia’s more expansive, longer-term just energy transition program designed to achieve, among other things, net-zero emissions in the power sector. This broader program (the “JET Program”) is better aligned in its scope with global climate goals but also requires substantially larger amounts of financing “commensurate” with these goals – potentially ten times more over the next 15 years. Accordingly, the \$20 billion I-JETP can be viewed as an initial downpayment on Indonesia’s longer-term transition program, but one that, if successful, will increase the Government of Indonesia’s ability to mobilize the larger investment it needs for its broader program.

The I-JETP, including the international attention it garners, provides an opportunity for the Government of Indonesia to signal to the financial community that the energy transition is a priority area going forward – that it is “open and ready for business in clean energy.” The Government of Indonesia has already initiated this signaling (for example, through its pronouncements as well as the work of the I-JETP Secretariat), but this must be accompanied by tangible action in areas such as policy reform and coal emissions. The Government of Indonesia must also demonstrate its ability to operate as an effective partner for investors during both project preparation and implementation. To this end, it must put in place the institutional and other arrangements to ensure efficient public sector action (such as timely and predictable project permitting and efficient grid management by PT Perusahaan Listrik Negara (PLN), the dominant public sector power utility).

Indonesia should look to a variety of funding sources under a “3+1” strategy that comprises multilateral development banks (MDBs) and other international public financial institutions,

international private capital, domestic private capital, and the oft under-discussed domestic public sector. The engagement of the International Partner Group (IPG) of governments under the I-JETP provides a mechanism for Indonesia to strengthen its financial ties with leading OECD countries, but the Government of Indonesia should also expand the mobilization of funds from other countries, notably China. The participation of the Glasgow Financial Alliance for Net Zero (GFANZ) in the I-JETP provides a vehicle for tapping into a broad array of private capital actors, and greater proactivity by this group can increase the supply of bankable projects. Moreover, the Government of Indonesia should draw more extensively from domestic private and public capital, including domestic private mining companies that recently enjoyed large increases in revenues, as well as the energy sector's state-owned enterprises (SOEs) that can redeploy their financial resources to the JET Program.

The I-JETP is more than just an early coal retirement effort, it is also notably a program to expand the supply of affordable renewable electricity to support growing inclusive prosperity across Indonesia. Even as the international discourse has often focused on coal, building out a low-cost, renewables-based power system is critical to meeting the country's development needs and ensuring the support of Indonesia's government and citizenry for the I-JETP. Nevertheless, the Government of Indonesia's success in reducing coal emissions (through both early coal retirement and limiting captive coal generation) will largely determine whether it is perceived as a committed climate-engaged partner – a quality that is fundamental to the I-JETP partnership.

Indonesia's JET Program is not only about power plants, but also about expanding transmission/grid to support a planned, substantially larger, generation park. The Government of Indonesia's transition program correctly identifies grid deployment as a priority area for action, as underinvestment in this segment will undermine efforts to build out its clean power system. The level of investment needed for this segment will benefit from mechanisms to attract private capital to complement public funding. In addition, the management of the overall network, including the distinct grid systems that result from Indonesia's geography, will need to be strengthened, especially as the system grows to accommodate the increase in generation under Indonesia's longer-term power expansion plan. This, in turn, will necessitate greater efficiency from PLN, along with exploring additional system management options.

Indonesia's policy and institutional frameworks need to be reformed to attract the magnitude of investments required by its JET Program, including in critical areas of policy predictability and governance. Although reforms to the tariff, power purchase agreement framework and other areas have been launched to improve the policy context, there is room for further improvement, such as streamlining permitting and procurement rules for renewables to expedite investments. Strengthening governance specifically (including transparency and predictability) will increase the Government of Indonesia's ability to raise the I-JETP's capital and, more significantly, the larger amounts needed for the broader JET Program. Recommendations in these areas are expected from the I-JETP Policy Working Group, and their implementation will not only improve conditions for investment but also send a signal regarding the government's commitment to this reform effort. Improvements will inevitably be needed regarding PLN, which not only operates the grid but is also the main procurer of electricity from independent power producers.

The Government of Indonesia's motivation to advance the I-JETP is critical to its success, and this will depend not only on the degree to which conditions are “favorable” relative to market rates but on their low cost in absolute terms. While there is often much attention paid to what is needed to attract more capital from private investors, the terms of that financing are critical to whether it appeals to, and thus ultimately is accessed by, the host government. Whether financing is being offered at a discount relative to “market rates” is relevant but, more significantly, its cost in absolute terms will often matter more as this will drive issues such as affordability of electricity, debt sustainability and other macro-economic objectives.

The recent increases in global interest rates have undermined the ability of Indonesia (and other countries) to finance the energy transition, as these higher rates raise the costs of renewables and of the financing being offered by MDBs and others. Without ascribing responsibility or proffering practicable recommendations, it is important to note that the overall higher interest rate environment is one of the critical factors which can undermine the prospects for success of the I-JETP in reducing emissions. This rise and the attendant increase in costs not only diminishes the motivation of the Government of Indonesia to “borrow”, it also reduces the amount of renewables capacity that can be built with the I-JETP’s \$20 billion.

Financial innovation is needed to create products that augment the Government of Indonesia’s access to, and the ability of investors to provide, more capital at lower cost. Potential examples of innovation include: new structures to address the currency mismatch between foreign capital and the local currency revenues generated by green projects, but at a cost to Indonesia that ensures affordability; deploying novel MDB/development finance institution/export credit agency instruments that not only increase the amount of financing offered but also lower their cost and reduce attendant sovereign financial exposure; exploring carbon market-type mechanisms to attract private capital to fund transmission (albeit, with caveats); and creating project preparation facilities and standardization programs to increase and speed investment design and execution.

The international private sector, which will benefit from lowered global emissions in Indonesia and elsewhere (thereby reducing climate risks), should consider providing enhanced preferential terms and other mechanisms to increase the availability and attractiveness of finance for Indonesia’s energy transition. A primary objective of the I-JETP is to lower Indonesia’s emissions so as to yield safer climate outcomes for the benefit of the private sector and others worldwide. Given that international private capital will benefit from the I-JETP, is it assuming its fair share of the financial burden? For example, should its return targets on these energy transition investments be discounted to account for the benefits its asset portfolios will reap from avoiding the damage that dangerous levels of climate change can cause?

While the I-JETP has a strong international funding orientation, it also provides a vehicle for the Government of Indonesia to catalyze more domestic resources, both private and public, for clean energy. This includes mobilizing local private-sector project developers who will be needed to generate the supply of new renewable investments (notably in solar where domestic small- and medium-sized enterprises are particularly active). It also means tapping into public sector funds, including redirecting PLN resources from carbon to energy transition

activities, exploring funding from the revenue rich national oil and gas company, Pertamina, and using public sector financial institutions to increase liquidity and provide favorable terms to encourage clean energy investments by other investors.

Equity and development considerations must remain central to the implementation of the JET Program to ensure continued support within Indonesia and its ongoing appeal to environmental, social and governance (ESG) concerned investors. This includes addressing affordability, environmental, social and equity-related issues. These topics will require continuing care and vigilance, especially over the longer-term implementation of the Government of Indonesia's broader JET Program, and particularly given the rising ESG norms being applied by many investors.

A successful I-JETP should generate positive outcomes not only for Indonesia's transition, but also for the JETP mechanism itself and the related global effort to fund emissions reductions in developing countries through an IPG/host country collaboration. The international JETP effort has had a rocky start, raising questions about the ability of the global community to come together to fund the low-carbon transition worldwide. A successful JETP for Indonesia could change that narrative, supporting further cooperative financing partnerships between developed and developing countries.



A solar power plant in Sulawesi, Indonesia

CHAPTER 1

Introduction

The world is facing a climate impacts crisis which will be exacerbated if greenhouse gas emissions are not dramatically reduced. From the United States to the European Union, from Canada to Chile, from Turkey to Tasmania, from China to Chad, countries are already facing the destructive force of a changing climate. The extreme flooding that overwhelmed Pakistan last year was a grim reminder to the international community of what unchecked climate change can unleash. At the same time, implementing the transition away from fossil fuels, in particular, coal to renewables and other zero-carbon energy forms, is a costly effort that exceeds the financial capabilities of many of the world's largest emerging economies, notably Indonesia, as well as South Africa and Vietnam. These countries are central to the global climate effort as their emissions are projected to grow as their populations and economies expand.¹

In response, wealthy advanced economies, together with international development institutions, have partnered with the host governments of several large emerging economies and other developing countries to propose extensive financing packages to support domestic clean and just energy transitions. The Government of Indonesia, together with its international partners, announced its own Indonesia Just Energy Transition Partnership (“I-JETP”) during last year’s G20 conference in Bali.²

Central to the I-JETP is mobilizing “\$20 billion over the next three to five years through the partnership”³ to support Indonesia’s emissions reduction targets, while also advancing its broader development goals. Notably, Indonesia will require a substantially larger and cleaner electricity system



▲ World leaders and delegates attend a tree planting ceremony, led by Indonesian President Joko Widodo ahead of the G20 Summit in Bali, Indonesia, Nov 2022.

to fuel its growing economy, power rising standards of living and otherwise meet the needs of its growing population. Central to the Government of Indonesia's objective is providing for sufficient, secure and reliable electricity, which means building out a substantially larger power system. Doing so in a low emissions manner will require an investment in power that is far larger than the I-JETP's \$20 billion – likely far exceeding \$200 billion over the next ten to 15 years. However, the I-JETP's \$20 billion constitutes an important first phase in a bigger effort, a type of downpayment with important potential catalytic impacts for the Government of Indonesia's broader long-term energy transition effort.

This paper analyzes the capacity of the I-JETP to attract capital to Indonesia for its just energy transition. It also identifies and evaluates complementary avenues to raise the larger amounts of capital required for Indonesia's broader just energy transition program designed and calibrated to achieve the government's longer-term net-zero emissions and development goals (its "JET Program"). The paper enumerates some of the key features of the domestic and international contexts that will influence success, identifies strengths and areas for improvement, and proposes actions by the Government of Indonesia and its international partners to strengthen the capital mobilization efforts.

This paper is not, however, an evaluation of Indonesia's carbon ambition, the adequacy and coherence of its climate policies, nor the sufficiency of the funding proposed under the I-JETP and elsewhere relative to Indonesia's development and climate needs or ambitions. These issues are being more fully evaluated in other fora and publications.⁴

There are, of course, connections between Indonesia's climate action and the success of the I-JETP in raising capital. For example, while Indonesia's progress in shuttering coal plants and reducing coal plant emissions are not evaluated in this paper, they are relevant in several respects, including: the government's credibility in implementing its emissions reductions agenda; as the destination for I-JETP capital (that is, the coal retirement investments themselves); and generally in terms of the positioning of Indonesia within the international community, and, notably, with respect to international advocacy that seeks to influence political capitals and international financial centers. Consequently, this specific emissions driver and similar, broader climate policy aspects are touched upon in this paper.

The paper is structured as follows: after this introductory chapter, Chapter 2 provides an overview of key elements of Indonesia's power sector, the I-JETP and its emissions targets, and the financing needs of Indonesia's JET Program. Chapter 3 analyzes various salient financial issues that will affect the capital mobilization effort, while Chapter 4 addresses non-financial dimensions, including policy and institutional frameworks, and Chapter 5 deals specifically with equity and similar types of considerations. Chapter 6 sets out some recommendations, followed by a concluding Chapter 7.

CHAPTER 2

The Indonesia context

Its power sector and related emissions targets frame the JETP

A

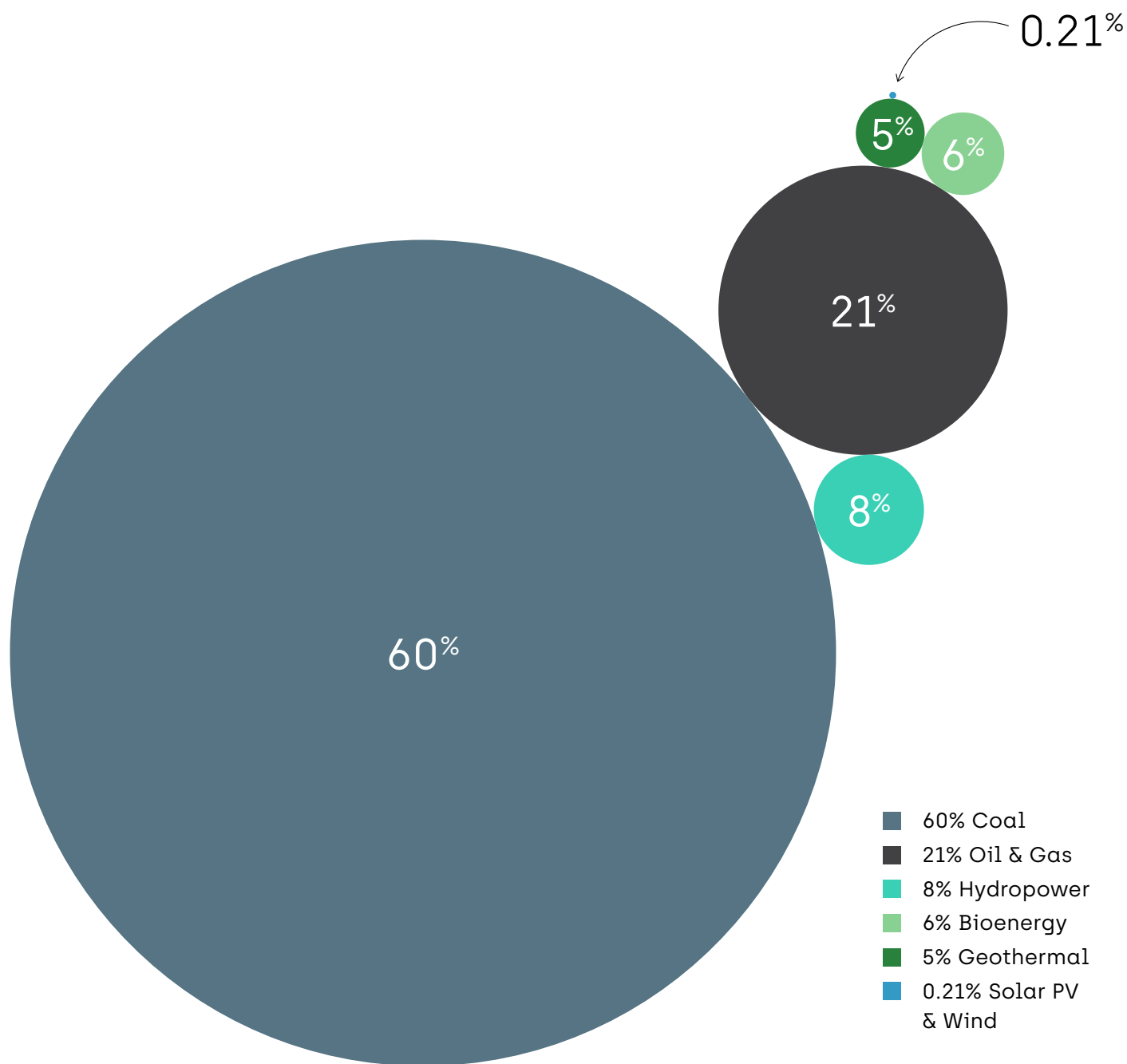
Power sector: some key characteristics

While Indonesia's energy sector includes large-scale oil, gas and coal activities (which generate substantial scope 1 and 3 emissions), the I-JETP, and by extension this paper, are focused specifically on the power sector. As Indonesia has grown into the world's fourth most populous country and the tenth largest economy (in purchasing power parity terms), its power system has followed suit.

Indonesia in many ways presents a classic successful emerging economy power sector development story, with growing installed capacity and generation. There are also several aspects of the Indonesian context that are idiosyncratic to the country. Some of the elements relevant to the I-JETP capital mobilization effort include the following:

- Indonesia's power system has grown significantly over the last 20 years. For example, electricity final consumption has more than tripled from 80 TWh in 2000 to 270 TWh twenty years later.⁵ Today, installed capacity totals over 81 gigawatts (GW), having grown by 30% in just the last five years.⁶
- Equally, if not more importantly, demand for electricity is projected to continue to grow at a robust rate, requiring more capacity. For example, the current expansion plans of the Ministry of Energy and Mineral Resources (MEMR) foresee a doubling of installed capacity in about ten years.⁷ This will require more investments in particularly generation and transmission/distribution. The targets over the longer term are similarly ambitious, with MEMR currently planning to expand capacity to over 280 GW by 2040, and to more than 500 GW by 2050 – a sixfold increase from today (figure 2.5 below).
- Indonesia's electricity generation mix is currently dominated by fossil fuels (over 80%), but with some renewables, notably 8% hydropower and 5% geothermal (figure 2.1).

Figure 2.1 Generation by technology – 2021



Source: Imperial (2023)

- There are two geographical dimensions: a system spread out over several islands, creating separated sub-systems and limiting the ability for a larger integrated network (albeit, with the Java, Bali and Sumatra systems accounting for nearly 90% of the country's demand);⁸ and significant renewables potential, including solar, wind and geothermal, as well as hydro resources.⁹
- There is overcapacity in several coal-dominated systems (creating a potential for early coal retirement), notably in the larger systems of Java and Sumatra.¹⁰

- The state-owned enterprise PLN holds a dominant role:¹¹ it is generator, purchaser/off-taker for independent power producers, and has near monopoly control of the transmission/distribution system.¹²
- The Indonesia power sector has seen significant levels of investment (for example, the IEA estimates over \$12 billion in 2019),¹³ including for renewables, but fossil fuel generation has dominated.

B

Indonesia's JETP: emissions reduction targets and investment objectives

The I-JETP is a partnership between the Indonesia government and a group of wealthy OECD government partners (the International Partner Group, or IPG)¹⁴ and the Glasgow Financial Alliance for Net Zero (GFANZ) to mobilize \$20 billion to support Indonesia's emissions reduction efforts. Its initial parameters were set out in a 'Joint Statement by the Government of the Republic of Indonesia and International Partners Group members on the Indonesia Just Energy Transition Plan',¹⁵ issued in Bali on November 15, 2022 (the 'I-JETP Statement'), which is designed as a living document that evolves over time to better deliver on its climate and development goals.¹⁶

i. Reducing emissions through a just transition

The I-JETP Statement lists a variety of 2030 emissions, renewables and other targets. Key provisions include:

- **Sector emissions**
"Peaking power sector emissions by 2030 at an absolute value of no more than 290 MT CO₂ (down from a 2030 baseline value of 357 MT CO₂) and immediately declining thereafter on an ambitious trajectory and achieving net zero emissions in the power sector by 2050, including with the accelerated retirement of coal plants, conditional on international support." Para. 3.i.
- **Renewables**
"Accelerating the deployment of renewable energy so that renewable energy comprises at least 34% of all power generation by 2030." Para. 3.ii.
- **Coal**
 - (i) Accelerating, with IPG support, the early retirement of coal-fired power plants;
 - (ii) restricting the development of captive coal-fired power plants¹⁷ and developing zero-emission and renewable alternatives for power generation outside the Java-Bali system, including captive power facilities that are, among other things, affordable (that is, priced similar or better than the non-renewable alternatives) to balance the imperative of industrial development and the

economic growth of Indonesia with the commitment on net-zero emissions; and (iii) freezing the existing pipeline of planned on-grid coal-fired power plants included in the current sector development plan (RUPTL) and reaffirming a full moratorium on any new on-grid coal power generation capacity. Paras 3.iii, 3.vii and 3.viii.

- **'Just' aspects**

“Delivering a just energy transition by developing a robust plan, in consultation with relevant stakeholders,” to support, among other things, populations most vulnerable to potential negative impacts from the transition. Para. 3.vi.

ii. Mobilizing capital under the I-JETP: amount and sources

The I-JETP Statement is explicit on the level of capital mobilization and sources. It contains the following salient targets:

- a. “Mobilizing \$20 billion over three to five years through the partnership, of which \$10 billion will be mobilized by the IPG members.” Para. 3.xi.
- b. “Working closely with the Government of Indonesia and the IPG, the GFANZ Working Group members will work to mobilize and facilitate at least \$10 billion in private finance in support of an ambitious transition path and investment plan. Private sector finance will be subject to catalytic public finance and with collective ambition by all parties, including enhanced engagement by the multilateral development banks, the public sector finance has the potential to generate significantly more in private finance than the amount above.” Para. 3.xi.
- c. “Mobilizing sufficient capital to achieve the targets through a combination of instruments that may include grants, concessional loans, market-rate loans, guarantees, and technical assistance some of which will be used to de-risk and catalyze private investments.” Para. 3.x.

iii. Uses of capital: five components that include three key power sector activities

The Government of Indonesia has identified five areas for investment (figure 2.2), which include three salient power sector activities: transmission and other grid deployment, early coal retirement, and expansion of renewables generation (both baseload and variable). The topics of coal retirement and renewables capacity have tended to dominate discussions of the I-JETP, with the former receiving particular attention in international discussions.¹⁸ However, when considering the capital requirements of the broader JET Program, investment in new renewables generation should constitute by far the largest area of need, followed by transmission.

Notably, both areas will require substantially larger investments than coal retirement. Renewables is frequently able to attract some private investment, while transmission typically draws on public sector resources given the challenges faced in mobilizing private capital for this infrastructure (the situation in Indonesia and elsewhere).¹⁹

Moreover, the early coal retirement program should eventually also support the construction of new renewable plants by creating the space for additional generation within Indonesia’s projected electricity demand profile.

Figure 2.2 Five investment focus areas including transmission/grid deployment, early coal retirement and renewables

1	2	3	4	5
Development of transmission network	Early CFPP Retirement and Managed Phase-out	Dispatchable renewable energy acceleration	Variable renewable energy acceleration [VRE]	Development of renewable energy supply chains
Development of transmission networks (intra and inter interconnection transmission system)	Phased retirement of coal-fired power plants to meet CO2 emission targets	Dispatchable renewable energy infrastructure prioritized for the short term	Acceleration of VRE development by considering the readiness of electricity system infrastructure	Enabling infrastructure and industries related to the energy transition
Developing transmission networks minimizes the necessity for captive power capacity, promoting greater energy accessibility	Decommissioning coal-fired plants allows for increased penetration of renewable energy and mitigates power oversupply	Geothermal and hydropower plants could act as a foundation for a low-carbon economy	Solar and wind power plants possess potential to be cost-effective electricity sources and can meet power demands	The energy transition presents opportunities for job creation and enhancing Indonesia's economic competitiveness

Source: Just Energy Transition Partnership Indonesia, Update on Just Energy Transition Partnership, August 2023

iv. I-JETP institutional/organizational framework

The I-JETP provides for a detailed organizational structure, including a coordinating JETP Secretariat and the establishment of several working groups, including: the Policy Working Group to develop policy recommendations for decarbonization; the Finance Working Group to propose structures and facilitate funding efforts; and the Just Transition Working Group to define environmental, social and governance principles to mitigate energy transition risks. As described in Chapter 4, the effectiveness of these groups, as well as the Government of Indonesia’s overall management of the I-JETP institutional structure, will be relevant to the capital mobilization effort.

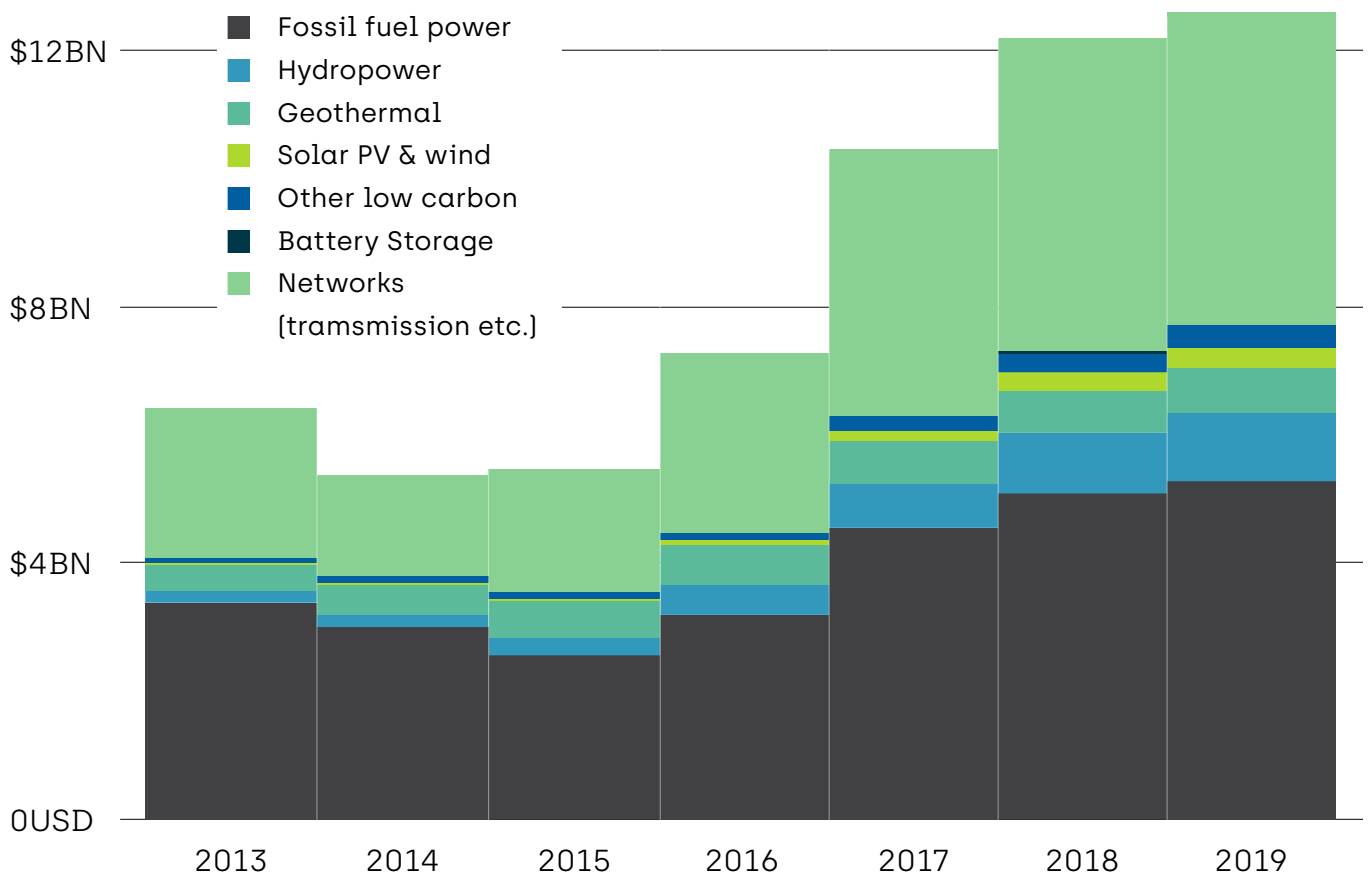
In considering the I-JETP's ability to mobilize capital, it is useful to consider Indonesia's historical investment trends, as well as the country's power sector needs going forward.

i. Current investment and financing trends in Indonesia's power sector

Indonesia's investments in the electricity sector grew substantially last decade (figure 2.3). Most of the investments were in generation, with renewables increasing but coal still dominant. There were also large investments in the transmission and distribution network, rising to nearly \$5 billion by the end of the decade.

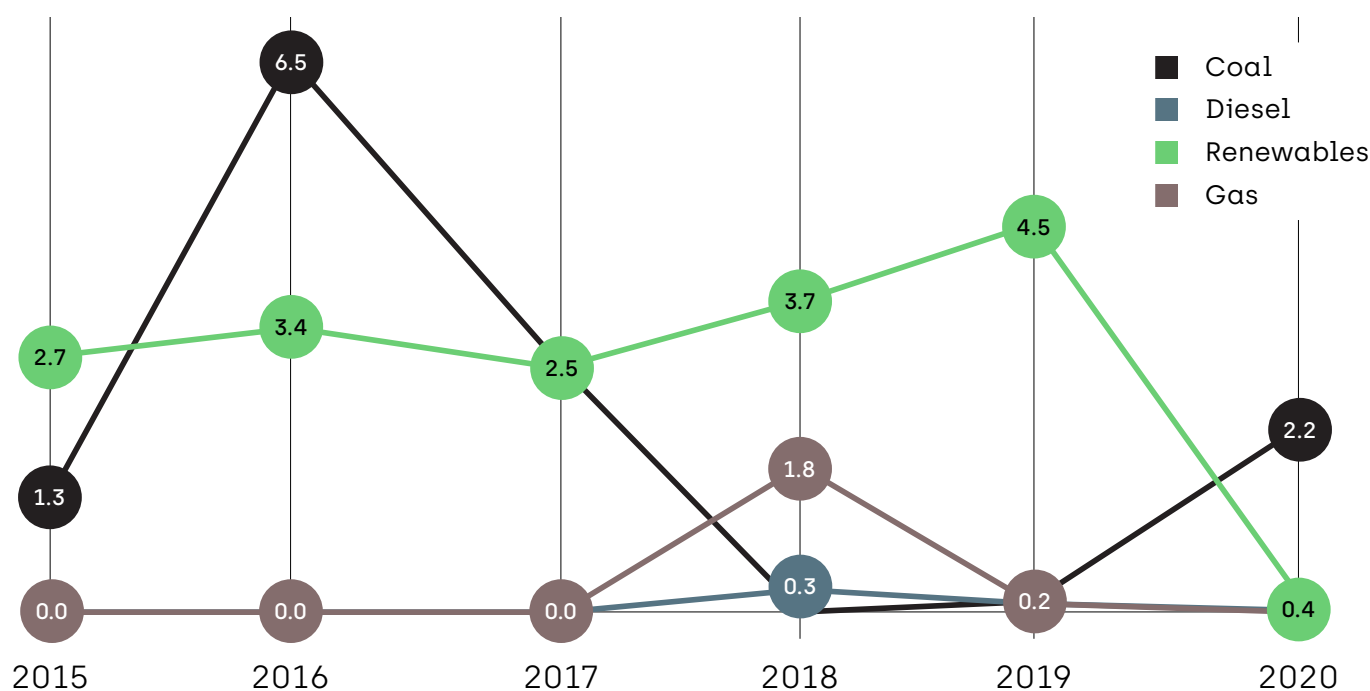
The profile of recent financing commitments (financial contracts to fund future investment spending) has looked slightly different (figure 2.4). Notably, although fossil fuels continue to dominate Indonesia's electricity generation mix (figure 2.1 above), when it comes to recent financial commitments, renewables have been attracting a large amount of the resources (\$17.2 billion from 2015 to 2020) and an important share of the total, albeit mostly for hydropower and geothermal rather than wind or solar.²⁰

Figure 2.3 Current investment and financing trends in Indonesia's power sector



Source: IEA (2020a) at p. 4.

Figure 2.4 Power sector finance commitment to renewables and fossil fuels – 2015-2020 (\$ billion)



Source: SEforAll [2022] at p. 4.

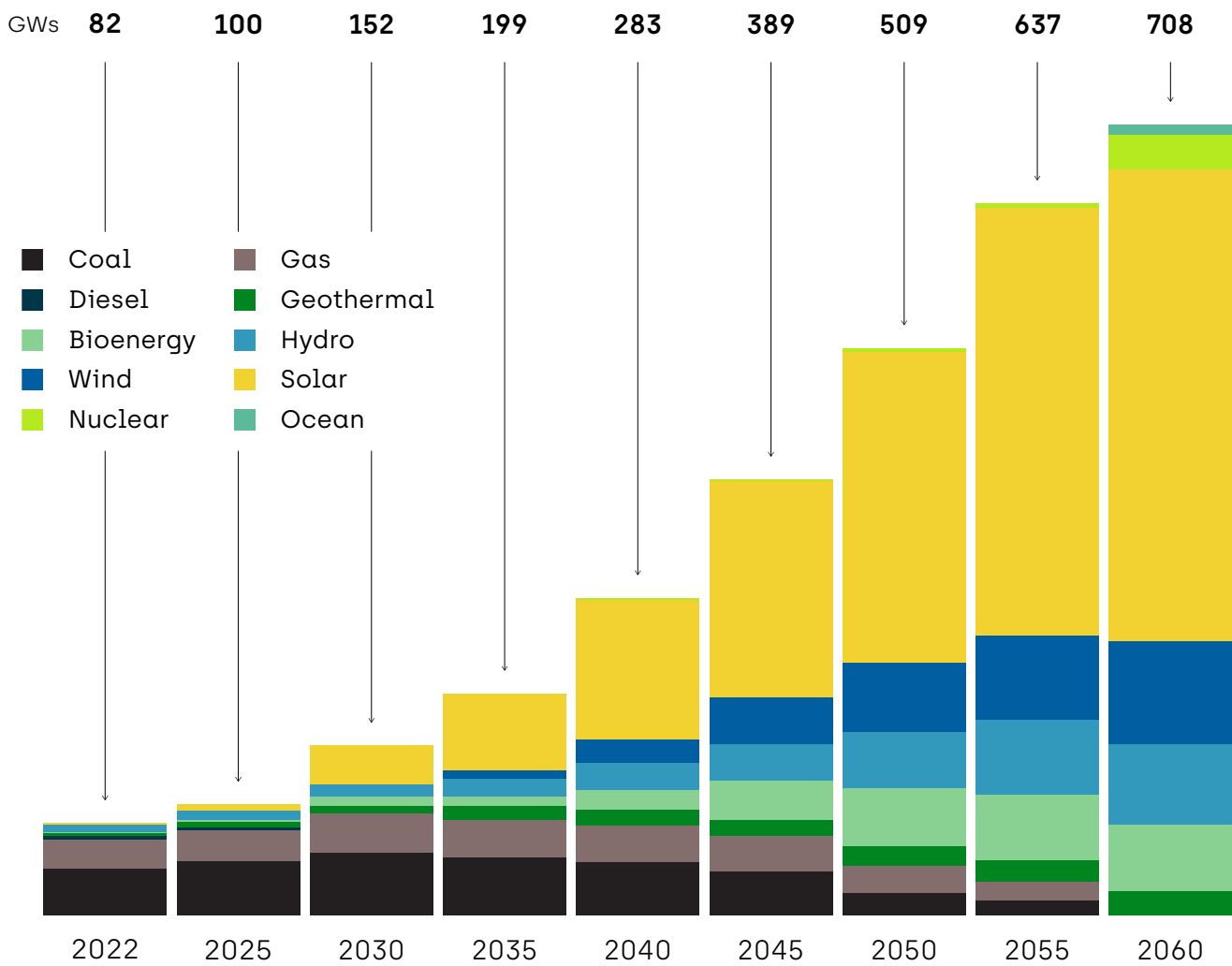
ii. Investment needs for Indonesia’s clean energy transition and the I-JETP’s \$20 billion downpayment

The I-JETP targets the mobilization of \$20 billion over a three- to five-year period, but numerous estimates point to a much larger capital requirement to achieve Indonesia’s transition goals. For example, Minister of Finance, Sri Mulyani, referenced a figure of \$243 billion to achieve the 2030 emissions reductions that the Government of Indonesia has targeted for the power sector.²¹ Sustainable Energy for All estimates that Indonesia will need to invest on average \$16.1 billion per year in renewable power plants to achieve MEMR’s net-zero emissions by 2060 target, including over \$10 billion in wind and solar.²²

These large investment levels reflect the substantial expansion of Indonesia’s installed electricity generation capacity projected by MEMR to be needed to power the country’s economic growth consistent with its net-zero emissions by 2060 target (figure 2.5).

The MEMR plan provides for, notably, a massive increase in solar capacity, as well as other renewables – at levels that may need to be advanced to meet the accelerated goal, set out in the I-JETP Statement, of achieving net-zero emissions in the power sector by 2050.²³ The MEMR targets (in GW) provide a useful context regarding the magnitude of the overall investment challenge facing Indonesia and, significantly for the purposes of this paper, signal that the \$20 billion mentioned in the I-JETP Statement is far below that which is needed for the sector’s transition. However, the successful mobilization of this \$20 billion should help the Government of Indonesia considerably in its efforts to catalyze the additional financial flows it requires.

Figure 2.5 MEMR Electricity Supply Plan towards NZE 2060



Source: CREA (2023) sourcing MEMR.

From this perspective, the billions provided for in the I-JETP Statement can be viewed as an initial installment, or a downpayment, for carrying out Indonesia’s broader JET Program. And how the Government of Indonesia and its international and other partners deliver on this amount and the overall I-JETP partnership will heavily influence Indonesia’s ability to mobilize the substantially larger amounts the country needs to advance its prosperity through a low-emissions pathway – a pathway the international community also seeks to progress in support of global climate change goals.²⁴

Finally, it is useful to note when considering the massive amounts of electricity investment Indonesia will require to achieve its power sector transition that there is already a compatible level of spending taking place across the energy sector, albeit including large amounts in oil and gas.²⁵ In this regard, the energy transition’s capital mobilization challenge can be viewed less as a question of finding new money, but rather developing ways to redirect existing investment flows to clean energy.

iii. Indonesia's impending Comprehensive Investment and Policy Plan

The JETP Secretariat is coordinating for the Government of Indonesia the preparation of a Comprehensive Investment and Policy Plan (CIPP) to support Indonesia's energy transition, as contemplated by paragraph 3 of the I-JETP Statement. The CIPP should provide a roadmap regarding the Government of Indonesia's short- and medium-term plans to implement the JET Program, including achieving its 2030 emissions targets and the accelerated net-zero emissions by 2050 goal. The plan is also expected to set out substantially larger investment levels than the I-JETP's \$20 billion, albeit over a longer period. The articulation of a sound, effective and realistic CIPP and its efficient implementation would strengthen positive investor perceptions regarding the Government of Indonesia's capacity to carry out its large-scale JET Program, while also enhancing the ability of Indonesia to raise capital under the more immediate I-JETP.

CHAPTER 3

Financial dimensions: Opportunities and challenges

In analyzing the ability of the I-JETP to mobilize capital, there are various critical financial dimensions. This chapter addresses the following four across its sections: the potential sources of funding; the terms and conditions under which that funding is being offered; the investment challenge presented by transmission/grid deployment; and issues surrounding the terms under which the private sector engages in the energy transition.

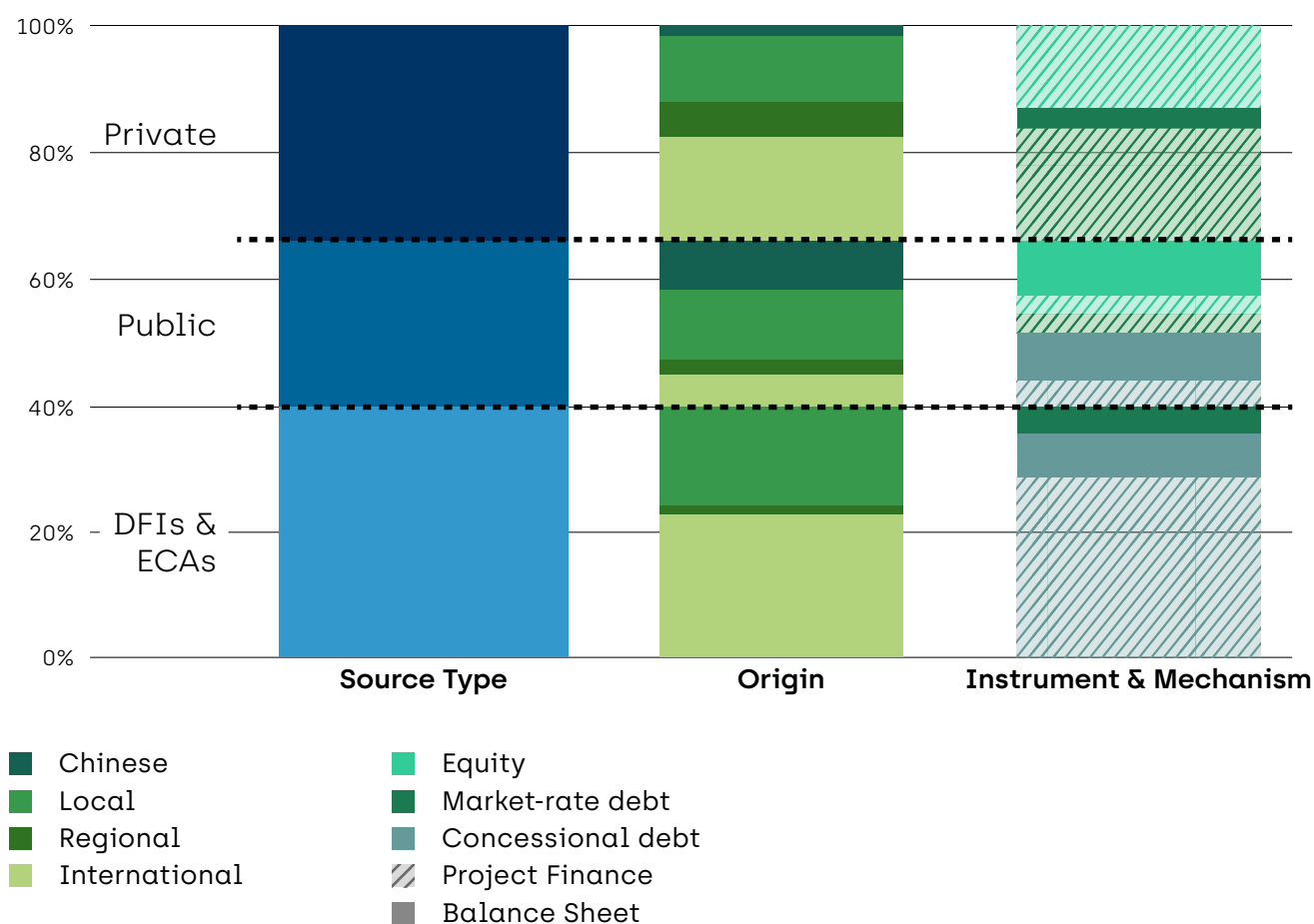
A

A wide array of financial actors is active in Indonesia's power sector: "3+1" sources of capital

There are three types of financing that typically receive much of the attention in the international discourse when exploring avenues to fund investments in Indonesia and other similar emerging economies: international public finance, including from multilateral development banks (MDBs), international (that is, foreign) private sector capital, and domestic private sector sources. Given in part the substantial weight of state-owned enterprises (SOEs) in the Indonesian economy, and specifically in its electricity sector, a fourth source needs to be included: the Indonesian public sector. This framework is referred to in this paper as the "3+1" construct. The I-JETP is focused on mobilizing international public and private capital, but Indonesia will need to tap into all four types of funding sources to successfully implement the broader JET Program.

To date, Indonesia has attracted capital from a wide array of actors, most notably for generation (figure 3.1). In an IEA survey of plants commissioned between 2016 and 2019, only one-third of funding came from private sources, while 40% was from development finance institutions (DFIs) and export credit agencies (ECAs), with the balance from other public sector sources. Notably, less than 30% was from domestic sources, public and private combined, with the bulk of the public sector portion (mainly from SOEs) directed at fossil-based plants.²⁶

Figure 3.1 A variety of public and private sources for power generation commissioned 2016-2019



Note: DFI= development finance institution; ECA = export credit agency. Concessional debt = loans with more generous lending terms. Analysis based on project-level data for three quarters of capacity commissioned during 2016-2019 period (with focus on medium- and large-scale plants). **Source:** IEA figure at p. 5 of IEA [2020a].

Three-quarters of these generation assets were financed with debt, a dominance that is likely to continue; accordingly, banks and other financial institutions are a critical set of actors in advancing clean energy investments. However, equity investors and, specifically, generation project developers (whether in the private or public sectors) will be needed, particularly to play the critical catalytic role of developing and executing projects.

Transmission/grid deployment investment, for its part, has largely fallen to the public sector. PLN has funded most of the large network investments, supported by financing from DFIs and ECAs.²⁷

B International public and private capital

The I-JETP partnership expressly targets two sources of capital: international partners made up of several wealthier OECD governments and international private investors. It is these two groups that are charged with mobilizing the I-JETP’s \$20 billion.

i. The IPG and the international public sector: MDBs, ECAs and more

The I-JETP provides for the mobilization over a three- to five-year period of \$10 billion from the IPG members and, by extension, their associated public sector institutions.²⁸ This should notionally include MDBs, such as the World Bank and the Asian Development Bank (ADB), as well as ECAs and other DFIs, which are all already active funders of Indonesia's power sector.



▲ Asian Development Bank headquarters in Manila, Philippines

World Bank and ADB

Inevitably, much of the discussion about mobilizing this \$10 billion will revolve around the two historically pre-eminent development institutions in the region, the World Bank and the ADB. However, as reflected in table 3.1, the historical lending levels for energy from both these banks are far below what the \$10 billion target would seemingly imply.

Can and will these institutions have the capacity to increase their lending to I-JETP projects? There are two

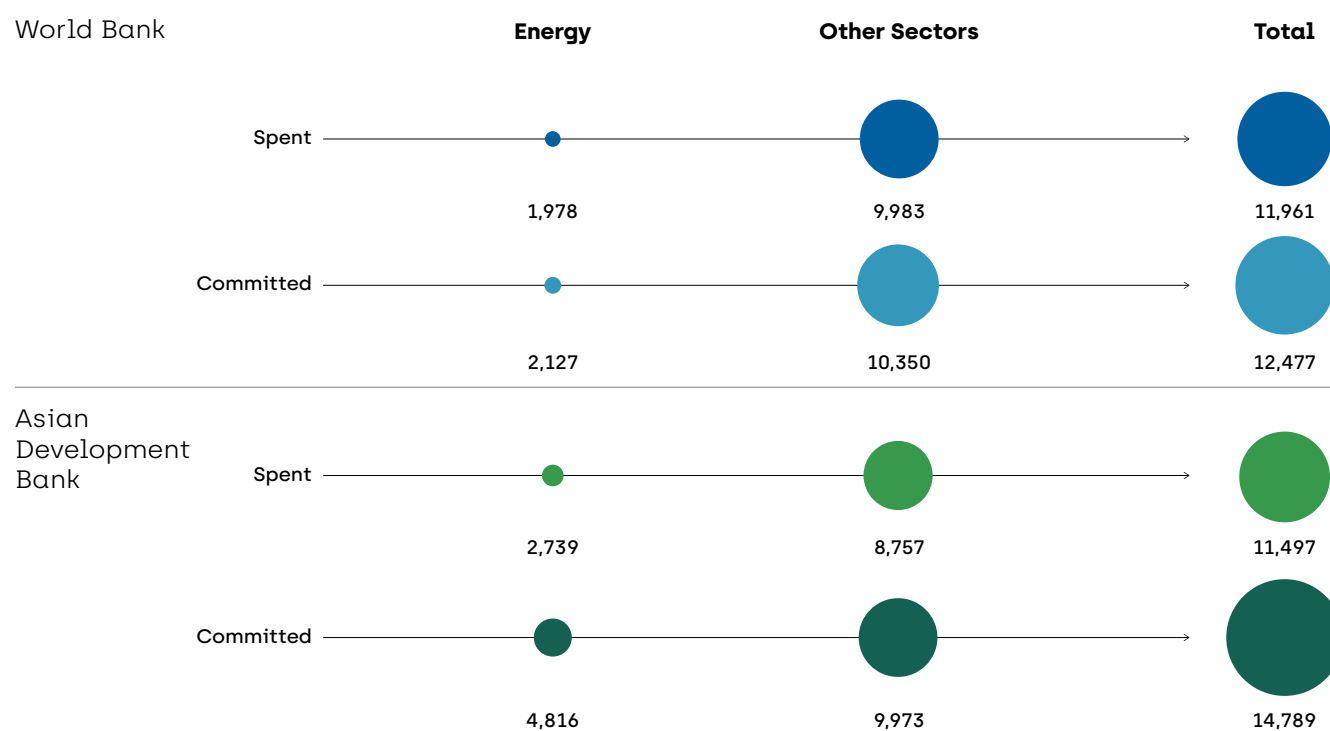
obvious possible paths. The first is to reallocate from other sectors, something that would support the literal terms of the I-JETP but would undermine its development objective and spirit. Second, these institutions could increase their overall lending levels to Indonesia to accommodate a larger energy portfolio. Arguably, this is consistent with discussions about reforming the prudential and other practices of MDBs to increase their capacity to lend for climate activities,²⁹ but it will inevitably present its own set of challenges, which lie beyond the scope of this paper.³⁰

While the implementation of mechanisms that augment the ability and willingness of MDBs to lend under the I-JETP will increase the capacity of the partnership to mobilize the targeted \$10 billion, making more funds available does not mean that the Government of Indonesia will be motivated to access those funds. In this regard, the financial terms under which those funds are offered will be a relevant factor, as discussed in sub-section 3.d below.

Additional IPG sources

As reflected in Indonesia's current experience of mobilizing funding for its power sector, there are a variety of other important potential sources of international public sector capital, notably ECAs and DFIs broadly. In fact, as noted above, this group (including development banks) provided 40% of the identified funding for new generation commissioned over the 2016-2019 period (figure 3.1). In addition, when looking at overall development finance flows for the entire energy sector (which extends beyond, but mostly includes, power),³¹ levels are higher than the I-JETP's \$10 billion target for the IPG members (table 3.2).

Figure 3.2 World Bank and ADB lending to Indonesia for Energy and Overall 2015-2021 [\$ millions]



Source: A. Prasetyo analysis based on World Bank and ADB data. <https://projects.worldbank.org/en/projects-operations/projects-home>, and, <https://www.adb.org/projects>.

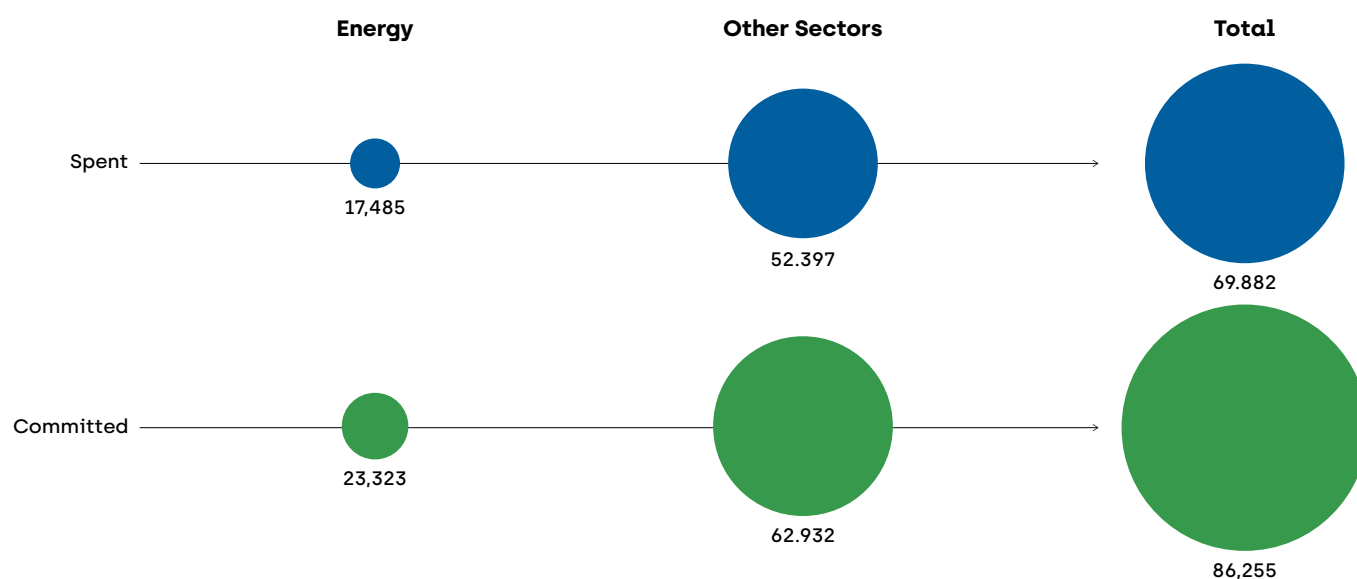
Expanding the call beyond the IPG to China, regional players, Gulf States and others

While the I-JETP is, by definition, oriented through the IPG to the governments of OECD countries, there are other important foreign public sector sources of funding that the Government of Indonesia could and should pursue to meet its broader JET Program investment needs. This includes China. Others include, potentially, the resource rich Gulf States as well as geographically closer regional actors. Importantly, not only can this help increase the amount of available capital, it can potentially help to reduce the cost of foreign capital to the Government of Indonesia as it expands and diversifies the pool of investors.³²

- **China**

The constellation of the world's leading economies is changing, notably with the rise of China as the second-largest economy in US Dollar terms and the biggest economy in terms of purchasing power parity. China is already present in Indonesia (see figure 3.1), albeit historically often for coal plants (for example, it financed over 40% of the surveyed coal plants commissioned between 2016 and 2019).³³ However, given China's 2021 decision to halt financing for overseas coal plants, and other factors, the Government of Indonesia could potentially increase the amount of funding it mobilizes from China substantially, but for clean energy projects rather than coal investments.³⁴

Figure 3.3 Overall development finance flows to Indonesia – 2015-2021 (\$ millions)



Source: A. Prasetyo analysis based on review of compiled sources. Lowy Institute, Southeast Asia Aid Map, available at <https://seamap.lowyinstitute.org>

There is also a potential opportunity to engage Beijing in an early coal retirement program akin to the ADB’s program,³⁵ but one that leverages the participation of China’s SOEs in the original project.³⁶ For example, since China’s SOEs are all affiliated companies, a Beijing-sponsored early coal retirement program could involve lower transaction costs and be structured as a type of ‘debt-for-coal retirement’ vehicle that reduces the expense associated with the upfront payments that would typically characterize an arms-length private investor-dominated restructuring.³⁷

- **The Gulf region**

COP 28 is being hosted this year by the United Arab Emirates. Finance is an area of focus for the hosts.³⁸ Similarly, in parallel, the UAE (through its SOE, Masdar), as well as Saudi Arabia and other countries have the financial resources and an apparent increasing interest in supporting international development and emissions reduction efforts (albeit, without significantly adversely affecting their petroleum revenues). For example, on January 22, 2023, Masdar agreed to develop 5 GW of renewable energy in Africa,³⁹ while other Gulf region actors have been exploring low carbon fuel production projects in Indonesia.⁴⁰ These initiatives point to the potential to mobilize funding from the Gulf Region to support Indonesia’s JET Program.

- **Other Global South actors**

Regional public sector actors are already funding Indonesia’s power generation,⁴¹ and consequently enjoy a familiarity with the sector that could facilitate

additional investments in clean energy in the country. Moreover, the Islamic Development Bank currently provides financing to Indonesia⁴² and could potentially increase its lending to the country for JET Program projects, in parallel to similar World Bank and ADB action.

ii. GFANZ and other sources of international private capital

A massive global market in which Indonesia already participates

The I-JETP explicitly looks to the GFANZ Working Group members, in coordination with the Government of Indonesia and the IPG, to mobilize at least \$10 billion. There is more than enough capital available within the international private sector to meet this target, which pales by comparison to the overall liquidity of the market. For example, green bond issuance in 2021 totaled about \$500 billion globally.⁴³ These numbers reflect the large amount of international capital potentially available to fund energy transition investments.

Indonesia already enjoys a relatively strong standing in international capital markets. For example, the country has an investment grade rating (for instance, BBB long-term and A-2 short-term sovereign credit ratings from S&P) and the outlook is relatively positive.⁴⁴ Armed with this credit rating, Indonesia has been repeatedly successful in tapping into the global bond market (as have other emerging economies).⁴⁵ For example, in January 2022, the country raised \$3.3 billion, the highest level in a decade.⁴⁶ Additionally, PLN has accessed capital through the bond market. It enjoys a credit rating similar to that of Indonesia,⁴⁷ and has issued bonds not only in Rupiahs, but also in US Dollars, Japanese Yen and Euros.⁴⁸



▲ Jakarta's Central Business District. Indonesia is poised to become an increasingly attractive business destination for foreign investment.

Arguably, within this context, the \$10 billion mentioned in the I-JETP is easily achievable from a liquidity perspective. The challenges lie elsewhere, such as generating a robust supply of bankable clean energy projects. In this regard, international private capital should not be a passive player, but rather increase its efforts to proactively build out this pipeline, as discussed in Chapter 4.

Non-traditional sources: countries and investors

There is an opportunity to deepen Indonesia's financial ties with private investors outside the OECD, including notably other Global South investors. For example, a variety of banks from Southeast Asian countries are already present in Indonesia's power sector. As the economies of these and other Global South countries grow, the capacity of their banks and other financial institutions to invest in Indonesia will also grow. Moreover, investors beyond traditional commercial banks can also constitute sources of liquidity going forward, including pensions funds and others. Similarly, there may be opportunities to expand Indonesia's issuance of green and other ESG bonds. Any significant increase in funding from the development of these avenues would likely occur beyond the relatively limited timeframe of the I-JETP, but they may prove useful for the longer-term JET Program.

iii. Additional channels: IPG country regulations and carbon markets

Investment regulations within IPG countries can spur energy transition investments in Indonesia

Another factor that can drive the willingness and interest of international private capital to fund renewables is the extent to which renewables receive preferential treatment – or, alternatively, the extent to which fossil fuel investments are penalized – through regulatory and other mechanisms in their home countries. This is an area where IPG government action can incentivize international private capital to invest in clean energy in Indonesia.

Carbon markets and certified emissions reductions

Another potential avenue to catalyze private capital is through carbon markets and their variants. Although significant uncertainties surround the use of carbon market-type mechanisms for renewables, including concerns from Indonesian regulatory authorities,⁴⁹ they remain a topic of focus in the international discourse on ways to attract private capital to clean energy investments in developing countries. This is evidenced, for example, by the extensive discussions about Article 6 of the Paris Agreement⁵⁰ or the Energy Transition Accelerator proposed by US Special Envoy for Climate, John Kerry.⁵¹ Moreover, carbon market-type mechanisms have the potential to not only increase the amount of capital available, but also to lower the cost of that capital for the host country, in this case Indonesia.

Article 6 of the Paris Agreement, given its UNFCCC umbrella, should provide a process in which the governments of the countries where projects will take place, such as Indonesia, can better engage in the international discourse to determine whether and how their emissions reductions could potentially be traded and are otherwise treated. This, in turn, may lead not only to greater clarity and certainty regarding the treatment of certified emissions reductions by host country governments, but

also greater receptivity of these products by these governments. Moreover, carbon instruments can specifically help to catalyze domestic private sector investment, thereby avoiding concerns about emissions reduction credits being “exported.” Given, however, the current modest pace of reform in the international carbon market architecture, these types of mechanisms are likely to be less relevant for the shorter-term I-JETP than for the longer term and larger funding requirements of Indonesia’s JET Program.

C

Domestic private and public sectors

While the focus of the I-JETP partnership is on mobilizing capital from international sources, domestic resources will ultimately have a large role to play in Indonesia’s broader longer-term energy transition. For example, the IEA’s analysis indicates that the majority of financing for the energy transition in emerging economies and other developing countries will need to come from domestic capital, potentially over 70%.⁵² Accordingly, the domestic private and public sectors are important actors to consider in the effort to fund Indonesia’s broader JET Program.

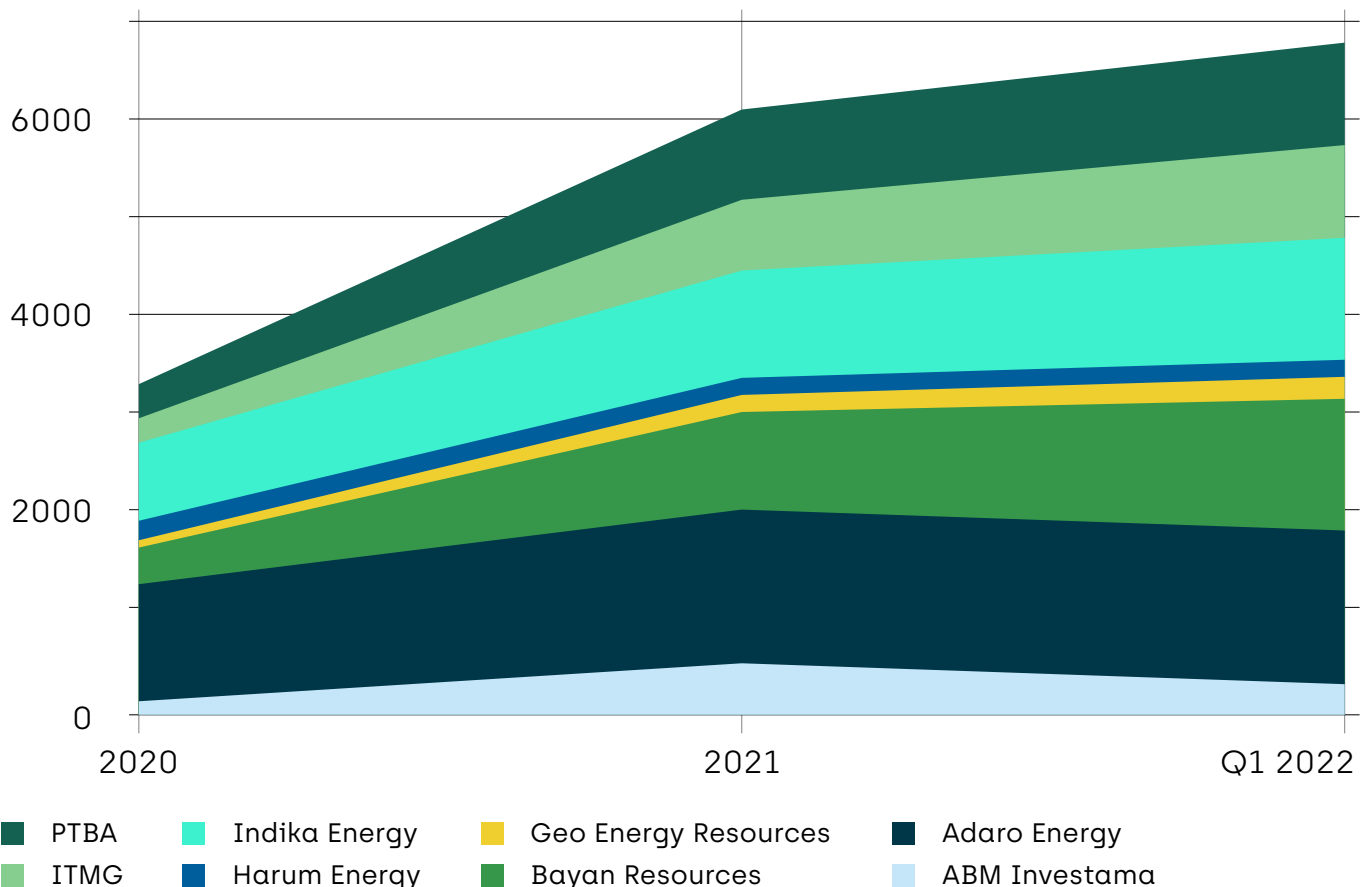
i. Domestic private investors

The Indonesian domestic private sector is present in the energy sector, but currently only to a limited degree. For example, local banks provided less than 10% of the financing for new generation commissioned in the 2016-2019 period and surveyed by the IEA (see figure 3.1). This also is not a group targeted by the I-JETP which is oriented to bringing in foreign capital. Yet, there are several reasons why the domestic private sector merits significant attention from the Government of Indonesia as it looks to implement its energy transition program.

- First, the substantial expansion of renewables generating capacity, including the massive planned expansion of solar and wind (see figure 2.5 above), as well as specifically off-grid solutions,⁵³ will often rely on local developers. For example, many solar projects are modest in size and will involve small- and medium-sized domestic enterprises, in contrast to large-scale generation projects that have the volume to attract international developers. This includes the household solar segment and many off-grid projects.
- Second, there are untapped and underutilized resources within Indonesia’s domestic economy that could be redirected to financing renewables generation and grid expansion. One of these, perhaps ironically, is Indonesia’s coal sector, which saw a surge in revenues as coal prices rose (figure 3.2). Just as many international oil companies increase their spending on renewables, there is also room for Indonesia’s coal companies to use their resources to support I-JETP activities – particularly if incentivized through fiscal and other policies and programs.

- Third, the “last mile” of connection to customers is a segment within the essentially public sector-financed grid deployment sector where the Government of Indonesia has sought to engage the domestic private sector.⁵⁴
- Fourth, the participation of Indonesia’s domestic private sector can generate broader economic and development benefits for the country and its people, including retaining sectoral profits within its economy rather than exporting them, and creating employment and training opportunities for local workers.
- Finally, as Indonesia’s economy continues to grow, its capacity to finance its own energy investments will increase. China’s robust economic growth of the last twenty years now allows it to finance much of its clean energy needs through domestic funds. India (a larger economy than Indonesia, albeit with a lower per capita income level) also funds a significant portion of its energy investments from domestic sources.⁵⁵ This is a relevant prospect for Indonesia with attendant benefits (such as avoiding the risk premium for currency depreciation often required for foreign investors). Its domestic private sector will need to play an important and growing role if Indonesia is to raise the massive amounts of capital needed for the broader JET Program.⁵⁶

Figure 3.4 A surge in financial resources available to Indonesia’s coal companies



Source: IEFA, August 23, 2022, available at <https://ieefa.org/articles/combined-us68-billion-cash-balance-indonesian-coal-companies-could-provide-timely>.

ii. Domestic public sector capital

While Indonesia's domestic public sector is also not the target of the I-JETP, it nevertheless constitutes a major source of funding that can be better mined by the Government of Indonesia to advance the JET Program. Even as Indonesia will, like most other emerging economies, face budgetary and macro-economic management constraints that will limit its ability to use public resources to fund its energy transition (thus necessitating efforts to catalyze private investment),⁵⁷ the public sector has been, and will remain, an important source of financial resources going forward. In this regard, there are various noteworthy dimensions:

- First, the public sector and its SOEs have substantial financial resources to invest or otherwise contribute to the energy transition. For example, there are already significant resources being deployed by Indonesia's public sector to finance investments in generation and transmission/distribution (see discussion in Chapter 3.a, and figure 3.1). Moreover, Indonesia's SOEs play a major role in its economy, estimated to have accounted for over 56% of GDP in 2019.⁵⁸ Included in these SOEs is Pertamina, Indonesia's resource rich national oil and gas company, the revenues of which soared to \$85 billion in 2022 from \$58 billion the year before⁵⁹ – buoyed like other oil companies by the windfall from high international oil prices. Indonesia also has a variety of state-owned mining companies and other industrial players that could invest or otherwise carry out energy transition projects.
- Second, PLN (like other power companies worldwide) generates substantial revenues from the sale of electricity, which it then allocates to different expenditures items. For example, in 2021, PLN had over \$19 billion in revenues from the sale of electricity (notwithstanding an operating deficit, which was compensated through a government's subsidy payment), and it spent nearly \$15 billion on fuel purchases to run its largely fossil-fuel fleet and on the procurement of electricity from mostly coal plants (table 3.3). This context presents an often overlooked opportunity and challenge: is there a way to restructure PLN business to redirect its revenues from fossil fuel suppliers to clean energy sources? In this regard, the early coal retirement program is part of the answer (provided that it doesn't entail unfunded liabilities for PLN). Other mechanisms are worth pursuing, especially as PLN's electricity revenues are likely to rise as Indonesia's power system expands.
- Third, another often overlooked aspect of public sector funding is the fact that, while the World Bank and other similar development institutions can provide capital under the I-JETP and otherwise, it is generally in the form of loans to governments involving repayment commitments.⁶⁰ Consequently, they too entail the mobilization of public sector resources, albeit in a manner where the government's payment is delayed relative to a prior disbursement by the MDB that funded the investment. It is also why the lending terms under which MDB financing is provided is a critical issue.

Figure 3.5 PLN's revenues and key expenditures – 2020-2021 (\$ millions)

Million USD @ 14,950 IDR	2020	2021
REVENUE		
Sales of electricity	18,388	19,322
Customer connection fees	21	33
Government electricity subsidy	3,210	3,331
Compensation income	1,198	1,645
Others	288	296
Total revenue	23,105	25,627
OPERATING EXPENSES		
Fuels and lubricants	7,091	7,921
Purchased electricity	6,438	6,927
Subtotal	13,529	14,848
Others	6,605	6,765
Total operating expenses	20,134	21,613
OPERATING PROFIT (including government subsidy)	2,970	3,014

Source: <https://web.pln.co.id/statics/uploads/2022/08/laporan-tahunan-2020.pdf>, and, <https://web.pln.co.id/statics/uploads/2022/08/Laporan-Tahunan-2021.pdf>

- Fourth, state-owned banks and other public sector financial institutions are another important set of public actors that can contribute to the JET Program. For example, they can increase liquidity and provide favorable terms to encourage domestic investments in clean energy projects.
- Fifth, public sector resources can, if effectively deployed under the right project structure, catalyze international capital. For example, because domestic public sector actors are typically more willing to absorb domestic political risk, currency depreciation,⁶¹ and other similar risks, they can assume “first loss” exposure for these, helping lower the exposure for the international capital partners in a project. This and other similar types of public/private partnerships can leverage domestic public sector resources to raise more foreign capital for clean energy investments.
- Sixth, there exist traditional budgetary resource transfers, such as the operating income subsidy paid to PLN. The Government of Indonesia has also established

budgetary mechanisms that have a broader scope than energy, but which can be used to fund JET Program activities. For example, it has a fund that villages can tap into (commonly referred to as the “village fund”)⁶² for resource management, economic development, and environmental protection. This fund can be used to pay for decentralized clean energy projects and other activities supporting the JET Program.

As a general proposition in emerging economies, public sector resources currently provide about half of clean energy investments, a much larger share than the 20% in advanced economies.⁶³ While this proportion is not viewed as sustainable by the IEA and IFC given the need for substantially larger investment levels going forward,⁶⁴ it is equally clear that the public sector generally, and SOEs specifically, will need to play a major role in financing the clean energy transition in countries like Indonesia – a role that will be bigger than in advanced economies.

D

The cost of capital: the importance of the host country perspective

While the previous section described the availability of capital, execution requires not only a supplier of capital, but also a willing taker. And in that regard, the JETP international experience has demonstrated that the terms of financing, and notably the willingness of the host government to accept the cost, is critical to the program’s success.⁶⁵

i. Pivoting from investor to host country concerns

The challenge of attracting investment for clean energy projects has been framed frequently in terms of the cost of capital.⁶⁶ These discussions are typically oriented to investor requirements. For example, the IEA’s 2023 report on mobilizing financing for the clean energy transition analyzes “risk adjusted returns” for investors.⁶⁷

While there is a tendency in donor countries to focus on the terms under which they or their private sector investors would be willing to provide funding, it is critical to acknowledge that Indonesians must also be satisfied with the terms. In fact, the Government of Indonesia’s motivation to access financing made available under the I-JETP is arguably probably the most important single factor that will determine the partnership’s success (also discussed in Chapter 4). This reflects the often unstated but critical underlying dynamic in which a country needs to determine whether it makes financial and economic sense to take on the additional financial liabilities of a particular investment – a determination which will be influenced in part by the cost of accessing those funds (as well as the projected returns).

In this regard, there are potential concerns surrounding the I-JETP. For example, as reported by Bloomberg in May, the Government of Indonesia’s Luhut Binsar Panjaitan was quoted as saying: “[I]f we get the money with good terms, we proceed. If not, we will go ahead with our own plans,”

reflecting concerns that there wasn't sufficient concessionality in the blended finance package being discussed.⁶⁸ This is one of the issues that has already undermined the South Africa JETP.⁶⁹

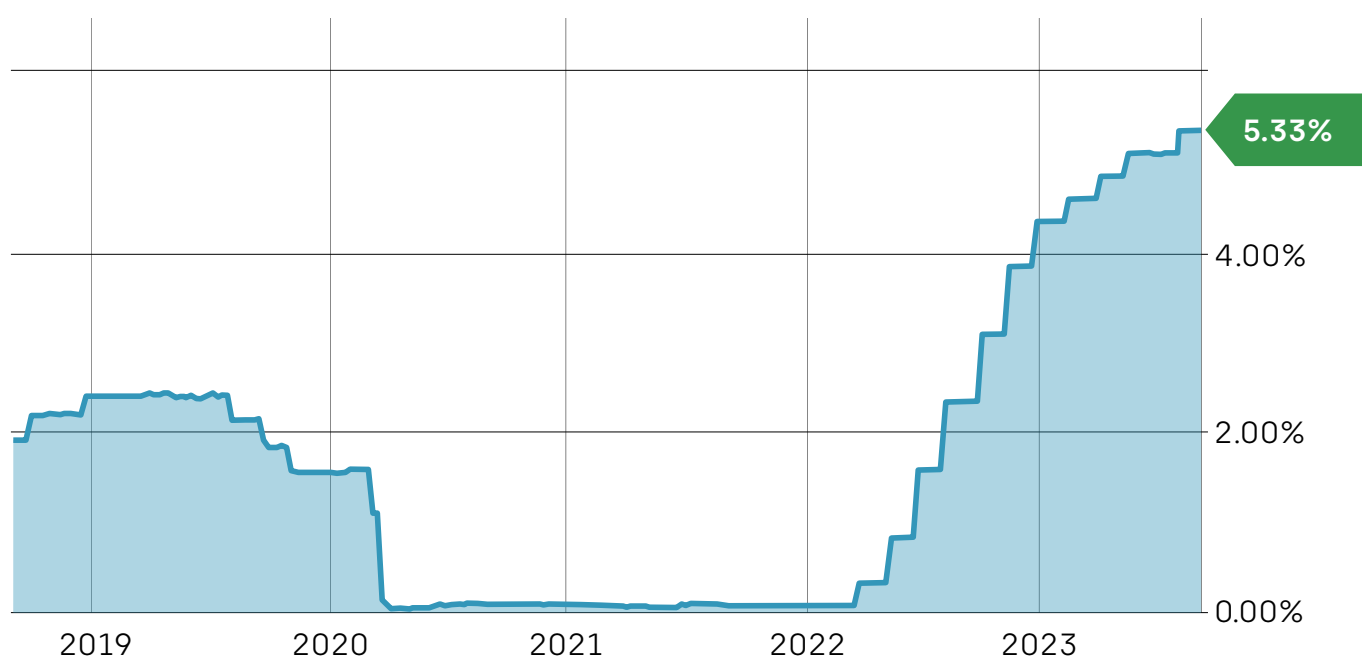
Moreover, there are troubling financial evolutions which may hamper the success of the I-JETP, as well as the pace of Indonesia's overall clean energy transition. In particular, these include rising interest rates that are increasing costs for the Government of Indonesia, especially for renewables.⁷⁰

ii. Rising global interest rates

As concerns about inflation and other dynamics rippled across various advanced economies, their central banks responded by raising interest rates. For example, figure 3.3 depicts the evolution in the effective US federal funds rate over the last five years. Notably, the rates for 2023 are substantially higher than at any period between 2018 and 2022. This increase (also seen in the actions of the European Central Bank) is significant because it translates into higher borrowing rates for Indonesia's projects.

For example, higher rates increase the cost to the World Bank of raising funds in the bond market, which it passes on to its own borrowers. The net effect is that the World Bank and other MDB loans have become – as a general proposition and following an extended period of low rates – more expensive for the Government of Indonesia and other emerging economy borrowers. Irrespective of the cause, the impact is clear: World Bank loans are no longer as affordable as they were. [NB: This is a reason why discussions regarding World Bank reform

Figure 3.6 US Effective Federal Funds Rate 2018-2023



Source: Ycharts at https://ycharts.com/indicators/effective_federal_funds_rate, accessed July 29, 2023.

need to go beyond making more funding available, and look also to the issue of the terms under which those loans are offered, as discussed in Chapter 6.] These changes in interest rates ripple through the cost of renewables in various ways, as described next.

iii. Turbulence for renewables from rising interest rates

Rising global interest rates undermine the attractiveness of renewables for the I-JETP as a result of several distinct but interrelated dynamics.

- First, the cost to projects of funding from both international private and public sector sources increases.⁷¹ For example, as described above, because the World Bank’s lending terms are influenced by market rates, as those rates increase, the terms the World Bank offers to its borrowers rise (namely, deteriorate).



▲ An engineer at the Itera Campus solar power plant in Lampung Province, Sumatra

- Second, rising interest rates increase the cost of building renewables. Even if we assume that capital costs remain unchanged,⁷² the “all-in-cost” per installed megawatt increases as interest rates rise when taking into account “interest during construction” of debt financing and other elements.⁷³ While rising interest rates also increase the cost of fossil fuel generation, renewables will be particularly affected given their heavy upfront capital cost structure.⁷⁴

- Third, and significantly, this higher cost per megawatt and, by extension, per produced kWh, drives up the cost of electricity.⁷⁵ This will undermine affordability objectives, and potentially broader economic development and growth objectives.

While “a rising tide lifts all boats”, a rising interest wave will sink some renewables projects and reduce affordability.

iv. The significance of absolute versus concessional / preferential terms

These increases point to another significant related concept: the importance of the cost of borrowing in absolute terms, not just relative ones. There is often a tendency to articulate issues regarding concessional financing in terms of the amount of the discount being proposed relative to market rates. This hides a critical dimension: absolute terms matter, arguably even more, as they drive affordability⁷⁶ and other economic costs.

And in this regard, the context is very different today than it was several years ago. Because of the rise in interest rates over the last several years, even a discount from today’s levels can produce a higher effective rate than the non-concessional rate the Government of Indonesia would have faced earlier.⁷⁷ The result of this higher “concessional” rate is (all else being equal) a higher cost of electricity than the government could have delivered to its consumers before. Put another way, even a consequential financial effort today under the I-JETP partnership by the IPG members to provide a concessional rate to the Government of Indonesia can still result in a higher cost of electricity than Indonesia would have enjoyed just a couple of years ago.

The willingness of the IPG members to provide concessional financing terms to the Government of Indonesia under the I-JETP partnership does matter, but the absolute level of the rates facing Indonesia arguably should matter more, notably for issues of affordability and other development impacts. Unfortunately, those rates have deteriorated over the last several years as concerns about inflation in several leading advanced economies have driven their central banks to act. Future decisions by these same central banks and others to lower interest rates should similarly benefit Indonesia, as they would also lower the cost of borrowing for building out a clean electricity system.

v. A willingness to “borrow” that differs depending on the type of project

The acceptability of cost levels will likely differ depending on the type of activity to be funded, particularly when comparing new renewables generation to coal retirement, as well as to transmission/grid deployment.

- Typically, a new generation project to meet rising electricity demand will result in net economic gains because of the value of the additional kWh produced and

then consumed (in which case, the issue often becomes one of finding the most cost-effective supply option).⁷⁸

- In contrast, the proposed coal retirement activities present a different set of dynamics: the removal of megawatts of capacity and the related kWhs of production. Arguably, this is one reason why South Africa has looked to substantially larger levels of grant financing for shuttering its coal generation than for building new renewable power generation projects.⁷⁹ Indonesia is in a slightly different situation given its current overcapacity (in places), and some analysts have argued that the country can even generate substantial savings through early coal retirement (especially since the Government of Indonesia is now paying for generation capacity it does not need).⁸⁰
- However, given the Government of Indonesia's projections regarding growth in electricity demand, and the corresponding need for additional generation eventually, it remains likely that more concessional terms will be sought for coal retirement projects than for new renewable capacity ones.
- It is also intuitively easier to explain to stakeholders the rationale for borrowing money to build new generation projects for a growing economy than to justify eliminating existing capacity. Arguably, this may in practical terms result in calls for more concessional terms for the financing being offered for the latter, notwithstanding projected economic and financial benefits (as referenced above).
- Transmission and grid deployment have tended to be treated as basic infrastructure which produce lower returns than generation. They also create less excitement than new power plants (a ribbon cutting ceremony for a new concentrated solar power plant is more captivating than for transmission towers). For these and other reasons, transmission will generally look to, require and receive lower cost financing provided by public sector sources (as reflected in the heavy public and DFI contributions to this segment, as described in Chapter 3.a.).

Consequently, when considering the issue of the cost of capital for the host country, the acceptability of proffered financial terms will differ depending on the type of activity to be financed.

E

The transmission/grid challenge

The Government of Indonesia's enumeration of grid deployment as a priority area for its just energy transition is a positive element of the program because it reflects a recognition that expanding power generation capacity generally requires network system upgrades. This is an underappreciated critical element in building out a power system, one that often runs the risk of

underinvestment. Moreover, as described in Chapter 2, Indonesia faces an unusual geographic challenge with its population and attendant electricity network spread out over numerous islands characterized by a number of separated and distinct grids. This presents a variegated and complex transmission challenge in which government leadership and expertise (including at decentralized levels) will be key. The Government of Indonesia's early attention to this area should help to comfort potential investors in new renewable power plants.



▲ Indonesia's many islands pose a challenge to building and operating the transmission network.

However, this sub-sector presents a variety of challenges in raising capital, notably from private sector sources. For example, grids often generate modest utility infrastructure type returns that have difficulty accommodating private sector risk-adjusted return targets. Moreover, these power sector infrastructure projects tend to involve geographically dispersed assets (for example, a long transmission line) with the attendant environmental, social and even physical risks this presents.⁸¹ This stands in marked contrast to the relatively limited footprint of typical power plants favored by the independent power producer (IPP) model which has succeeded in attracting substantial private sector investment worldwide.

A critical question is whether Indonesia can create the conditions to attract private capital or will the needed investments continue to fall in the traditional manner to the public sector, at times supported by multilateral

development bank partners, with potential budgetary strains. This is an area where financial innovation can potentially help, for example through the application of carbon market-type mechanisms to mobilize private investment (as discussed in Chapter 6).

Moreover, it is also a segment facing operational and financial challenges under the virtual monopolistic control of PLN (as described in Chapter 2) and where reforms will be needed (as discussed in Chapter 4). Having recognized the importance of the grid and the need to raise capital for this segment, the Government of Indonesia must focus on finding ways to create a transmission network that can meet the operational and other needs of the vastly larger generation park reflected in figure 2.5 above.

F

Can't the private sector do more?

Discussions regarding private sector engagement in energy transitions in emerging economies have frequently focused on “de-risking” the investments to make them appealing to these investors. There has, in contrast, only been limited “asks” of the private sector. Yet, the private sector has also recognized the negative impact of climate change on its investments,⁸² which would be avoided by a successful global emissions reduction effort. In fact, the private sector benefits twice under a JETP structure: indirectly, by reducing/removing the negative climate externalities that would otherwise adversely affect its portfolios; and also directly, from the financial returns generated by new attractive investment opportunities in clean energy in Indonesia and elsewhere. This context raises the following question: given these benefits, is the private sector doing enough? Is it assuming its fair share of the financial burden of advancing the global energy transition?

For example, should the private sector apply a lower risk-adjusted return target for clean energy investments given the benefits its asset portfolios will reap from avoiding the damage that dangerous levels of climate change can cause? Are there other ways that the private sector can nurture investment in these just energy transitions? This might include committing more resources to finding investment opportunities, as well as designing mechanisms to spread and otherwise reduce risks to attract more capital, once again with the private sector assuming its “fair share” of the exposure. Finally, is there a new “preferential” cost of capital equilibrium to be developed for clean energy investments that also better responds to the affordability concerns of emerging economy host countries?

Posing the questions is easier than finding the solution. However, failing to find a solution will hurt the private sector, and us all. Given these dynamics, this is an area where the GFANZ Working Group can provide some leadership.



▲ The Charging Bull statue outside Wall Street, home of the New York stock exchange.

CHAPTER 4

Drivers beyond financial terms

Opportunities and challenges

T

he success of the I-JETP and the broader JET Program in raising capital will depend on a variety of non-financial elements, including policy, institutional and other factors.

A

Policies matter

As Minister of Finance, Sri Mulyani, has explained: "The role of the private sector is very important, the role of international finance is very, very important. And that's why it's a question of how you can make policies to enable and attract financing that doesn't just come from the government."⁸³ In looking outwards, Indonesia must look inwards: its policies matter.

i. Sectoral policies

Notwithstanding efforts at electricity reform,⁸⁴ Indonesia's power sector policy framework presents a number of areas where further improvements are important. Areas that have previously raised concerns include: the framework for power purchase agreements, a recurring theme that ultimately will hamper the ability to attract private investors, both international and domestic;⁸⁵ renewable energy tariffs; policy consistency and predictability;⁸⁶ and local content requirements that, among other things, anticipate a domestic manufacturing capacity that has yet to sufficiently mature relative to the potential needs.⁸⁷

These efforts will inevitably involve revisiting the operational and incentives frameworks of PLN⁸⁸ (including providing for strengthened regulatory oversight, potentially) and the interaction of PLN corporate preferences with government/MEMR policy priorities.⁸⁹ Given PLN's central role in the power sector, creating the robust policy framework and institutional arrangements that the large-scale JET Program needs will require the Government of Indonesia to further strengthen the efficiency and effectiveness of PLN, and to potentially re-examine the

appropriate role for the utility in the substantially expanded electricity system to be created under the government's sectoral expansion plan.

These various aspects are described in fuller detail in a number of other reports⁹⁰ and are not restated here. However, it is critical to recognize the central role that the power policy environment will have in attracting capital.

Significantly, in a context of building out an unprecedented large program of investment, improving the policy framework is not simply a case of eliminating constraints and distortions. Rather, the effort must also include actions to speed the pace of investments and their operations (while respecting safeguard and other considerations), for instance, by streamlining and making more transparent and predictable key items such as equipment procurement, permitting and other areas that have a big impact on how projects are executed in reality.

Arguably, these are some of the motivations for the establishment of a Policy Working Group under the I-JETP. The outputs from this group, and the government's follow-up implementation, will send an important signal as to the Government of Indonesia's willingness to remedy weaknesses.

ii. Macro-economic and other policy contexts

While seemingly outside the scope of this paper, it is important to recognize the important role that Indonesia's overall macro-economic framework will have in attracting capital under the I-JETP. Poor fiscal and other economic management can undermine strong sectoral policies. In this regard, Indonesia's management of its economy is currently enjoying favorable assessments based on "judicious policy dynamics" and other factors.⁹¹

Another important but often overlooked policy context is the customs and import regulatory framework, including specifically the rules governing the import of inputs needed for clean energy investments, such as solar panels, wind turbines, etc. Even as Indonesia works to enhance its domestic renewable value chain (one of the five areas identified by the Government of Indonesia for the energy transition), import tariffs and other rules and restrictions applicable to the inputs required for clean energy investments will affect the ease with which, and the rate at which, projects can be executed.

B

Government institutions as project counterparties

Another often overlooked, but key, determinant of success for energy projects is the quality of services provided by host governments, including their SOEs and other agencies. The Government of Indonesia and its instrumentalities will be central actors throughout project preparation and implementation, even for private sector-led investments. This is because government/public sector agencies play key roles throughout a project's lifetime, from tendering

and the execution of required environmental and social assessments during the development phase, through permitting and processing imports during construction, to paying for electricity and dispatching generated power during operations. This is particularly the case in Indonesia's power sector given PLN's dominant role. How these various public sector entities operate and interact with investors and their projects will affect the ability of the Government of Indonesia to attract capital, particularly over the longer term and at the substantially larger levels inherent in its broader JET Program.

i. Central and sub-national governmental authorities

Indonesia's central government will inevitably be a major player in mobilizing capital for the energy transition both within and outside the contours of the I-JETP structure. This includes deploying budgetary resources and taking regulatory actions (such as permitting). Moreover, in the Indonesia system, and given the geography of the country, provincial, municipal and other local authorities will also have an important role to play.



▲ Indonesia's Parliament building in Jakarta

ii. PLN

PLN has a central role in attracting capital to the energy transition by performing its power utility role in an efficient manner. This includes as the purchaser of electricity generated by others (for example, the nearly \$7 billion it spent in 2021 to this end)⁹² and delivering that power to customers. An efficient PLN in technical and commercial terms, operating on a sound financial footing, will give comfort to prospective investors in the electricity sector who will generally inevitably need to interact with Indonesia's dominant power utility. Unfortunately, there are existing concerns regarding PLN's performance in a variety of areas, including as power purchaser and grid operator.⁹³ As a consequence, strengthening and otherwise reforming PLN is often at the center of discussions to improve the operation of Indonesia's power sector and the exploration of ways to advance the country's transition from coal-dominated generation to a low-emissions future.⁹⁴ Moreover, PLN's positioning needs to be viewed within a dynamic context in which Indonesia's power system expands substantially. For example, will the regulatory framework continue to look to PLN to play a dominant role in a massively larger system, or will reforms permit greater diversification with a heightened involvement of other actors in transmission and other areas?

iii. I-JETP bodies

The I-JETP involves a number of specialized committees, including various JETP specific working groups. The ability of the Government of Indonesia to organize an efficient institutional structure will reflect well on its ability to operate as an effective counterparty for investments. Similarly, the ability of these committees and groups to advance effective and actionable proposals, ones that are in fact implemented, will enhance the effectiveness of the JETP. The Policy Working Group and Finance Working Group, as well as the analytic work of the JETP Secretariat, are likely to be particularly important. In some ways, the CIPP itself can be viewed as the Government of Indonesia's investment prospectus for potential investors, a document that will likely be carefully scrutinized. Moreover, the work of the Just Working Group and the considerations it addresses will also be very important to efforts to raise capital for this "just" energy transition, as discussed in Chapter 5.

While the JETP Secretariat and Working Groups will be important in building the foundation for I-JETP success, dedicated JETP organs can also be helpful during implementation. When investors look for help during execution (whether for permitting, import licenses, interpreting local regulations, etc.), or when there are differences of view and disagreements, or when complaints arise (as they inevitably will in this type of large-scale effort), the ability to have agencies to facilitate resolution and expedite things is important. Ultimately, the I-JETP and the broader JET Program not only will benefit from sound policy reforms and other ex-ante actions, but also from a type of JETP promotion agency to help during implementation.

C

Degree of government motivation and business environment

The motivation of the Government of Indonesia to carry out the I-JETP will be one of the most important factors determining the partnership's success. The degree of government motivation will be largely driven by the cost and other financial considerations discussed in the preceding chapter. However, it will also be affected by other types of factors. These include the government's own commitment to the international effort to address climate change, as well as potentially broader reputational drivers, such as the degree of the Government of Indonesia's interest in advancing its standing in the international community. Moreover, sustaining government commitment over the longer term will be key to the success of the broader JET Program, though this will remain vulnerable to factors exogenous to the energy sector, both domestic (political and other) and international (including shifting priorities of the Government of Indonesia's foreign partners).

In considering factors that affect success in raising capital for investment, there is often a tendency to underestimate the importance of intangible/soft aspects that are not easily quantifiable or translatable into objective financial terms. And yet these are often critical, including the government's attitude to investors and the country's overall business environment – including the receptivity (or antagonism) of local populations to projects and investors.

Nurturing a positive business environment will support the ability of the I-JETP to attract capital, but this also means addressing the equity and other considerations described in Chapter 5. As an overarching dynamic, the JETP process attracts greater international attention to Indonesia and its power sector. It provides an opportunity for the Government of Indonesia to market to an international community that is paying special attention to the country by saying “we are open for business on clean energy; come and invest.”

D

Domestic electoral and legal contexts

Indonesia will be holding its next presidential election on February 14, 2024. This has the potential to create a dynamic that may affect the deployment of the I-JETP. For example, will the I-JETP be made an element of the domestic political discourse? Arguably, the more the partnership is perceived to support Indonesia’s development interests, the less vulnerable it is to attack. But politics tend to present uncertainties. Indonesia will have a new president and administration in 2024 and their views regarding the just energy transition, the role of international capital, and other aspects, will inevitably have an impact on the success of the I-JETP. Furthermore, the terms of financing provided under the partnership and its ability to support Indonesia’s development goals will likely also affect how the I-JETP is received by Indonesia’s new administration.

It is moreover important to recognize that in Indonesia (as in other countries) there are various entrenched political and other interests that may feel a greater motivation to support the fossil fuel-heavy status quo rather than advance the transition to clean energy alternatives. Understanding and overcoming these potential obstacles will be critical to allowing a large-scale transition effort.

As the degree of interest in the energy transition and climate issues generally can fluctuate, including across successive governments, the nature of the legal standing of the JETP’s provisions within the Indonesia legislative/regulatory context may be a dimension to consider in evaluating ways to sustain their force over time. Are they set out in a law passed by the legislature, or expressed in a presidential regulation or other formal governmental decree, or implemented merely through a ministerial program? There may be advantages to codifying the JETP principles in law, but there are also important additional considerations and caveats. For example, moving from a governmental regulation or a line ministry program to a more political deliberative body increases the potential for politicization of issues.

E

Proactivity of the IPG and GFANZ/private capital

The success of the I-JETP, while primarily dependent on action by the Government of Indonesia, is not solely dependent on it. In this regard, the effectiveness of the IPG and the GFANZ Working Group in mobilizing capital and other resources will be key.

Stronger action by the IPG members can only help strengthen the prospects for success of the I-JETP. COP 28 this winter provides an opportunity to solidify their engagement, but the reality is that the I-JETP requires longer sustained attention and nurturing. Key IPG members should organize themselves accordingly.

GFANZ can also be more proactive. For example, there is an opportunity and need for international private capital to do more to help to build the project pipeline. Notably, the multitude of private investor companies that populate the international financial landscape can and should allocate a larger amount of staff, management and intellectual resources to identifying, structuring and delivering on clean energy projects in Indonesia and other developing countries.⁹⁵ They should also look to innovate more across a range of areas, including project structures and business approaches, as well as credit enhancement, de-risking and other financial products. The track record of private capital to innovate is remarkable. Redirecting its energies to the I-JETP and similar challenges could produce surprising gains.

Another factor that will determine the success of the I-JETP will be the quality of the project sponsors. To this end, the IPG and GFANZ should support the Government of Indonesia in attracting high quality companies to lead projects.



▲ G7 leaders attend a summit in Bali, Indonesia, November 2022.

CHAPTER 5

Equity, affordability and other considerations

In seeking to mobilize capital through the I-JETP, it is critical to remain sensitive to concepts of equity and similar considerations inherent in the concept of “just”, the first term in the “JETP”. This presents various dimensions, some of which pertain to the impacts of investments on people, while others relate to the broader context in which the I-JETP is to be carried out.

A

Treatment of environmental and social aspects and of local populations

i. Environmental and social dimensions

Environmental and social considerations is an area that requires ongoing attention. Even though renewables generate important anti-poverty/development, climate and local air quality benefits, they also potentially generate various negative social and environmental impacts. Many of these devolve from the significant amount of land that solar, wind and hydropower projects often require, and the related potentially adverse effects on the local and often marginalized communities where these projects are frequently located. These projects can also create the potential for deforestation (including through the construction of access roads), as well as other negative impacts. Whether it is complying with the safeguard policies of the World Bank and other international financial institutions, the Equator Principles followed by international banks, the internal ESG standards adopted by investors, or domestic legislation, this is a sensitive area that can slow and even block clean energy investments. The proper management of these aspects will be central to the success of the I-JETP and the longer-term JET Program in mobilizing capital, especially given the prospect of ESG norms strengthening over time (as has occurred in the past).

ii. Treatment of local populations, workers and other general issues of justice

International experience has illustrated that ensuring the proper treatment of local populations and workers is important to sustain investment, even for green projects. This has been illustrated by the repercussions from claims of labor abuse in the mining of cobalt for batteries and in the manufacture of solar panels.⁹⁶ Moreover, the potential of renewables projects to adversely affect local populations (including because of the land issues mentioned in the previous sub-section) requires ongoing care. Indonesia's ability to attract, in particular, concessional and climate-motivated funding from OECD countries will be affected by the impact its power sector projects have on local populations and workers. All the more so given the explicit references in the I-JETP Statement to protecting vulnerable populations and workers potentially adversely affected by the transition.⁹⁷

These types of concerns, however, are not limited to what is happening in the power sector. Rather, Indonesia's overall track record on issues of equity and justice will inevitably affect the eagerness, let alone willingness, of investors to put their resources into the country. Moreover, as with environmental and social issues, these are topics where ESG attention and norms can be expected to increase.

These are also issues where the context and requirements can change quickly and in unforeseen ways. They require ongoing attention from the Government of Indonesia.

B

Sound and equitable development

i. Affordability

Ensuring affordability is a key objective of the I-JETP. There are two interrelated components to the affordability issue: for households and for the economy. Part of the challenge at times with private investment is that while it can be a critical source of liquidity, private actors frequently seek higher returns relative to MDB and other loans, which drives up the cost of producing electricity. The situation has recently been exacerbated by the rise in interest rates (as described above). Governments can lower costs for households through subsidies, but this can often create difficult budget burdens, as well as lead to inefficient overconsumption. Finding the right balance between these factors is critical. The ability to mobilize concessional financing, as well as low (or lowered) cost of private capital, will enhance affordability – or, at least, the ability of the government to pay for affordability. As a general proposition, the various partners of the I-JETP, including the IPG members, should remain sensitive to the Government of Indonesia's concerns regarding affordability in considering the financing they are proposing.

ii. Poverty alleviation and inclusive equitable growth

As a corollary to the issue of affordability, it is important to recognize that expansion of the power sector is designed to raise standards of living and produce economic benefits for the broader consuming population (as distinct, for example, from enclave projects benefiting directly a specific industrial user and its investors). As with affordability, there will inevitably be the potential of a tension between investors (notably foreign ones) seeking high returns and local consumers needing low tariffs. It will be important that projects provide for balanced returns otherwise they will be subject to criticism domestically that, in turn, may dampen the motivation of the Government of Indonesia to support them, while creating concerns for investors that their projects will be targeted.



▲ A farmer and her child walk in Gerung, a village in Lombok, part of the Lesser Sunda Island chain.

iii. Reliability of electricity supply

As noted in the introduction, one of the key objectives of Indonesia is to ensure the development of an electricity system that provides a secure, reliable supply of quality electricity to businesses and households. This is and will remain an overarching objective of the power sector, one which the I-JETP will need to support. Any perceived tensions between the two will sap support from the latter.

iv. Governance and transparency

The need to strengthen governance and transparency is a concern that reappears regarding Indonesia.⁹⁸ Although the I-JETP downpayment might advance in a mixed governance context, this is an area that requires progress to mobilize the massive levels of financing required for Indonesia's broader JET Program.

i. Additional financing or a mirage that continues the past

One of the significant questions is how much of the I-JETP's \$20 billion is additional. At this stage, the amount of additionality is uncertain, especially given the recent substantial levels of financial commitments already being made to clean energy – albeit primarily for hydropower and geothermal generation, rather than for the massive expansion of particularly solar needed going forward (see discussion in Chapter 2.c above). There is clearly an opportunity for MDBs and the GFANZ members especially to increase their investments in Indonesia's clean energy through the I-JETP. Greater clarity on the degree of the “additionality” of funding under the I-JETP would be useful to all parties to gauge the impact and effectiveness of the JETP partnership as an approach to mobilizing capital for energy transition efforts.

ii. Financial flows to whom

One of the under-discussed issues when it comes to donor flows is what country ultimately receives the proceeds. This has been an issue that at various points has dogged the World Bank when the proceeds of loans to poor developing countries are funneled back to consultants and suppliers from wealthy advanced economies. A similar potential exists for the I-JETP, meaning concerns could arise about who ultimately receives and thereby directly benefits from the financial inflows mobilized through the partnership. For example, the I-JETP will suffer to the extent that the early coal-retirement program is criticized for funneling massive amounts from donor countries back to donor-country companies.

Although this paper is not intended as an evaluation of Indonesia's efforts to shutter its coal power plants, this is a dynamic that is integral to the I-JETP and will inevitably affect the ability of the Government of Indonesia to mobilize financing for its energy transition. For example, as the I-JETP itself provides:

“The continuation of the partnership is expected to be contingent on no new coal power capacity for instances where timely, zero-emissions, affordable, and reliable alternatives are available, including developing a strategy to avoid new captive coal and to successfully identify investments in renewable electricity supply as alternatives for all new captive projects.”⁹⁹

Progress in advancing the early retirement of coal power plants will strongly affect how many of the Government of Indonesia's international partners view its credibility. Similarly, shuttering coal



▲ Workers preparing coal for train transportation in Sumatra, Indonesia.

plants but pursuing a significant expansion of captive coal plants in other areas (for example for nickel production) will undermine the Government of Indonesia's posture as a sponsor of an effective energy transition. Similarly, the I-JETP international partners will be wary in general of efforts to use domestic coal for captive power production to support domestic industrial development.¹⁰⁰

In Indonesia, coal plants are a big part of the landscape – as was the case for South Africa's JETP, and will likely be the case for Vietnam's. Moreover, the coal story regarding power is complicated by the fact that Indonesia is a leading global producer of coal.¹⁰¹ As a result, the Government of Indonesia will likely face close scrutiny from its I-JETP partners about how it addresses coal.

CHAPTER 6

Selected recommendations

T

here are numerous actions that the Government of Indonesia and its international partners can take to strengthen the prospects for success of the I-JETP. Some are new actions, while others involve strengthening what is already being done. Below are some selected recommendations.

A

What can the Government of Indonesia do?

- When considering actions by the Government of Indonesia, it is important to once again stress that it is the central actor in the I-JETP effort. As with most development successes, the key remains effective government action and local ownership. Similarly, the ability of Indonesia to achieve its broader JET Program will largely depend on what happens domestically, more than internationally.
- The Government of Indonesia's capacity to act as a reliable partner to investors will be critical to both the I-JETP's success and its longer-term effort to mobilize the much larger amounts it requires to advance its broader JET Program.
- In this regard, the Government of Indonesia should begin by issuing in a timely manner a CIPP that is sound, effective and realistic. This will send a strong message to prospective investors regarding the government's commitment to the energy transition and its appreciation of what needs to be done. In contrast, long delays in the plan's issuance could diminish credibility.
- The Government of Indonesia needs to continue to strengthen its ability to operate as a predictable and efficient counterparty to international and domestic investors.

This includes:

- (iii) Promoting consistency, transparency and predictability in the development and implementation of sound policies;
 - (iv) Establishing stronger tendering processes for renewables;
 - (v) Further enhancing the efficiency and effectiveness of PLN, given its central role in the power sector; and
 - (vi) Strengthening the management of the grid – including revisiting the dominance of PLN, especially given the need to substantially expand the electricity network over the next 20 years under the JET Program to support a virtual quadrupling of generation capacity.
- The Government of Indonesia should expand its outreach to partners beyond the IPG members, including China, Gulf States and other wealthy nations. In this regard, there is notably more that China can do on early coal retirement.
 - The Government of Indonesia should explore incentives to catalyze more domestic private investment in clean energy, including from its financially endowed mining sector. These incentives need to also be structured to simultaneously advance inclusive equitable development objectives.
 - The Government of Indonesia should tap into its own public sector resources, notably by redirecting resources from fossil fuel and emission-producing activities to low-carbon alternatives.
 - The Government of Indonesia must strengthen efforts to ensure the fair treatment of local populations and to promote sound social and environmental outcomes consistent with the notions of justice and equity inherent in the concept of a “just energy transition.” Inclusive equitable growth remains an important driving paradigm for a successful and sustainable long-term development strategy.

B

What more should international government partners do?

- There is a need for a better awareness and internalization in IPG countries about how the I-JETP’s emissions-reducing investments will benefit them by avoiding the negative impacts of more severe climate change on their own populations and economies.

- Greater recognition in IPGs can help raise their motivation to act, including increasing their willingness to provide financial and other forms of support to the I-JETP. This includes raising more funding beyond the I-JETP’s \$20 billion downpayment to support the broader low-carbon transition Indonesia will need to implement to achieve global climate goals.
- IPG members also need to improve the terms of the financial support they are offering to better appeal to the Government of Indonesia in its efforts to ensure affordability and advance inclusive equitable development throughout the country.
- IPG members can do more to improve MDB, DFI and ECA financing. This includes: supporting World Bank/MDB reforms to increase funding and lower its cost to Indonesia, including potentially through more grant-like products; paying the guarantee fees and other transaction costs the Government of Indonesia would typically incur in accessing MDB instruments; increasing the amounts and improving the terms of ECA financing; and advancing the financial innovations presented in sub-section 6.d below.
- The IPG should also support action by the Government of Indonesia to engage China and other funders. A “big tent” effort that includes all major donors and other investor countries, rather than a disjointed approach, would better advance Indonesia’s JET Program and the global climate effort.



▲ A boy points towards a helicopter fighting forest fires in Mandra, north east of Athens, Greece. Forest fires have burned out of control across large parts of Mediterranean Europe and North America in 2023.

C**What more can international private sector actors do?**

- As with the IPG, better recognition and internalization by international private capital companies that they will reap benefits from the Indonesian JET Program and similar efforts to reduce emissions can increase their motivation to fund emissions reduction investments in Indonesia.¹⁰² This increased motivation can potentially result in more funding and even support preferential terms for just energy transition investments.
- The GFANZ and other private sector parties should do more to develop a big and strong pipeline of bankable energy transition projects. This includes:
 - (i) Dedicating more staff to identifying and analyzing clean energy investment opportunities in Indonesia and other emerging economies;
 - (ii) Realigning internal incentives to support this business line; and
 - (iii) Developing new products and mechanisms, and expanding existing ones, to increase the availability and to lower the cost of funding for Indonesia's JET Program investments.

D**Financial innovation**

The just energy transition effort in Indonesia and globally would benefit from financial innovation. Several ideas follow:

- **Currency depreciation coverage**

While Indonesia and other countries have been able to attract large amounts of international capital to their export-oriented oil and gas activities, electricity projects present a particular challenge: a currency mismatch between foreign capital and the local currency revenues generated by selling electricity into domestic markets. Given the massive amounts of new investment required for the just energy transition, this will become an acute impediment to attracting the needed foreign investment.¹⁰³ One potential structure to overcome this hurdle is an exchange rate coverage facility funded through a blended finance structure that is, significantly, only activated if and to the extent there is a depreciation of the Rupiah (as distinguished, for example, from various hedging products that require upfront payments).¹⁰⁴ Other avenues exist as well, such as expanding, and lowering, the cost of the donor-supported currency hedge provider, TCX.¹⁰⁵

- **World Bank reforms beyond lending levels: notably on pricing, as well as sovereign liability.**

Reforms of the World Bank and the overall international architecture need to look beyond the issue of making more funds available for lending and instead also to the financial terms under which those loans are offered. Notably, this should include mitigating the impact of recent rising global market rates on the costs emerging economies will face when borrowing to fund their clean energy transitions. Given the positive externalities from investing in energy transition infrastructure that this would generate for all (for instance, the avoidance of negative climate externalities), there should be some room for improving the financial terms offered to incentivize emerging economy borrowing. This can even include increasing the availability of grant-like funding. In addition, the World Bank should explore financing facilities that can forego the need for sovereign counter-guarantees and other similar indemnities that increase the debt burden of host countries.¹⁰⁶



▲ The World Bank headquarters in Washington DC.

- **Carbon markets for transmission**

Expansion of the transmission network is a priority area under Indonesia's JET Program. Unfortunately, it is difficult to attract private capital to this critical segment of the power system, creating the risk of underinvestment that can constrain the expansion of renewables generation.¹⁰⁷ To date, although carbon credit-type instruments have been oriented to generation, its principles could potentially be applied to grid assets – for example, by recognizing the emissions reduction contribution of transmission lines to remote renewables generation sites and other similar infrastructure that enable the delivery of additional clean kWhs to consumers in lieu of carbon-based generation. This avenue of innovation will also require the other hurdles that have hindered the use of carbon markets for renewables to be overcome.

- **Project preparation funding and standardization**

Embedded in the I-JETP, and more pointedly in the Government of Indonesia's longer-term JET Program, are a large number of new investment projects. Improving the speed with which new projects can be developed (including design and negotiation) will support the timely execution of Indonesia's large-scale energy expansion and transition program. Consequently, consideration should be given to creating and expanding specialized project preparation facilities.¹⁰⁸ Greater standardization of terms can also help to expedite the negotiation and delivery of a larger volume of projects. This will require finding the right balance between the interests of the Government of Indonesia and of investors, while also avoiding some of the problems that have adversely affected Indonesia's procurement processes to date.¹⁰⁹



Aerial view of Tolo Wind Farm, Jeneponto, South Sulawesi, Indonesia

CHAPTER 7

Conclusions

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he I-JETP is a very visible and potentially powerful tool to mobilize additional capital for the clean and just energy transition in Indonesia. Although its success, like that of most development efforts, will ultimately depend largely on Government of Indonesia action, its international partners have a critical role to play.

The international community, both public and private, must do more – much more in Indonesia and elsewhere – to achieve the climate goals of the Paris Agreement. As the various IPCC reports have shown, all have a strong interest in helping Indonesia to succeed in its low-carbon transition. However, the problems that have plagued other JETPs, notably South Africa’s (including the inadequate level of concessional financing),¹¹⁰ have the potential to undermine the entire JETP process and, more broadly, the concept of a collaborative developed/developing country framework to reduce emissions in emerging and other developing economies. In this context, the I-JETP stands at a crossroad.

Whether the I-JETP will be a springboard for success, or a final nail in the JETP process, will depend in large part on what the international partners are willing to do. The time has come for the international private and public sectors to better internalize into their project and portfolio assessments the negative climate externalities they will endure without emissions reductions in emerging economies, and the corresponding imperative that they provide more funding on appropriate terms to support the clean energy projects needed in countries like Indonesia to protect our collective future prosperity.

For its part, the Government of Indonesia has recognized that economic growth done in a manner which exacerbates emissions will ultimately undermine the country’s prosperity. It has also recognized that the country’s energy transition must be a just one that is inclusive and takes into account those vulnerable populations potentially adversely affected by the energy transition. The effective incorporation of these considerations into its planning will be to the credit of the Government of Indonesia and to the benefit of Indonesia more broadly, provided that it translates into tangible actions and positive outcomes.

Even as the I-JETP targets \$20 billion, the Government of Indonesia must work to mobilize a substantially larger amount of financial resources in order to fund the massive investment needs of its broader JET Program. These investments are key, not only to advancing Indonesia's emissions reduction efforts, but also its overall development, including fighting poverty, catalyzing sustainable business activity and promoting inclusive equitable growth. The key actors that will determine success are not abroad, but rather in Indonesia, starting with the Government of Indonesia. Just as more is needed from international partners, stronger action is required from Indonesian stakeholders, notably the government and other public sector actors.

The I-JETP and the international attention it brings provides Indonesia with an opportunity to attract large amounts of capital to its overall development effort and, notably, to its just energy transition. Indonesia and its I-JETP are now in the limelight. It is important that the Government of Indonesia take advantage of this situation.

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accelerate the clean-equitable energy transition and enhance natural resource governance.

End Notes

- 1 The current policies scenario of the International Energy Agency (IEA) projects that emissions in China will plateau by 2040 but increase by 5 Gt in other emerging economies and developing countries (IEA 2021).
- 2 See the I-JETP Statement.
- 3 Paragraph 3.xi of the I-JETP Statement.
- 4 For example, see IEEFA (2022), CREA (2023), IEA (2020).
- 5 IEA data browser:
- 6 Figure 4 in CREA (2023).
- 7 For example, see figure 2.5 below regarding projections on the expansion of installed power capacity by technology type. Note that an updated plan from MEMR is expected shortly.
- 8 IRENA (2022), p. 31.
- 9 For example, see figure 21 in IRENA (2022).
- 10 CREA (2023): based on analysis of data from ESDM, PLN and Global Energy Monitor.
- 11 PLN has faced a variety of financial and operational challenges. For example, see 'Running out of options: Six questions for PLN', M. Brown, October 24, 2020, available at: <https://ieefa.org/resources/running-out-options-six-questions-pln>. See also ADB (2023).
- 12 Participation of the private sector in transmission/distribution is currently extremely limited, for example, in the distributed electricity subsector; see IEA (2020a) at p. 12.
- 13 IEA (2020a) at p. 4, and figure 2.5 below.
- 14 See abbreviations/acronyms for full listing of IPG governments.
- 15 I-JETP Statement.
- 16 This includes a biannual review process (para 2.b of the Annex to the I-JETP Statement).
- 17 These are plants that serve a particular industrial or other user, rather than the broader grid and customer base.
- 18 This includes the ADB Energy Transition Mechanism, which predated the inauguration of the I-JETP. For example, see 'Indonesia, ADB launch first coal power plant retirement deal', David Lawder, Reuters, November 14, 2022, available at <https://www.reuters.com/business/cop/exclusive-indonesia-adb-launch-first-coal-power-plant-retirement-deal-2022-11-14/>, and also GFANZ (2023).
- 19 For example, see IEA (2020a) at p. 12. See also challenges facing Vietnam in its efforts to attract private capital to transmission described in 'Private investment in grid expansion: Vietnam', Bloomberg (2021), available at <https://www.bloomberg.com/netzeropathfinders/best-practices/private-investment-in-grid-expansion-vietnam>.
- 20 See SEforAll (2022) at p. 11.
- 21 'Sri Mulyani: Indonesia needs Rp 3,500 trillion to reduce carbon emissions', July 13, 2022, available at <https://www.liputan6.com/bisnis/read/5013332/sri-mulyani-indonesia-butuh-rp-3500-triliun-untuk-tekan-emisi-karbon>.
- 22 See figure 6 in SEforAll (2022).
- 23 Paragraph 3.i of the I-JETP Statement.
- 24 For example, see paragraphs 2 and 10 of the I-JETP Statement.
- 25 For example, see MEMR 2017-2022 oil and gas, coal and new and renewable energy investments. Information available at <https://databoks.katadata.co.id/datapublish/2023/02/21/investasi-di-sektor-energi-terbarukan-masih-minim-sampai-2022/> and <https://drive.esdm.go.id/w1/?id=0wkgH9GoznLHQM5AZNfCf76VygSj1dy>.
- 26 IEA (2020a) at p. 6 and p. 8.
- 27 IEA (2020a) at p. 13

- 28 Paragraph 3.xi of the I-JETP Statement.
- 29 See 'Boosting MDBs' investing capacity: An Independent Review of Multilateral Development Banks' Capital Adequacy Frameworks', Capital Adequacy Frameworks Panel – G20, 2022, available at <https://www.github.org/resources/publications/boosting-mdb-investing-capacity-an-independent-review-of-multilateral-development-banks-capital-adequacy-frameworks>.
- 30 For example, see 'World Bank may loosen loan ratio to free up \$4 billion a year', Reuters, February 16, 2023, available at <https://www.reuters.com/business/finance/world-bank-may-loosen-loan-ratio-free-up-4-billion-year-2023-02-16>.
- 31 For example, see table 4 in 'Indonesia Energy Sector Assessment, Strategy and Road Map – Update', ADB, December, 2020.
- 32 Without evaluating whether a collaborative or a more competitive framework among investor countries will produce the better result (although the former would seem preferable, as it can generate other important benefits), what is clear is that Indonesia needs large amounts of money and that expanding the potential sources of funding should help, particularly if all funders accept the participation of the others – a “big tent” approach. In this regard, many, if not most, of these funders are already present in Indonesia's economy (for example, see figure 3.1 in Chapter 3).
- 33 IEA (2020a) at p. 7.
- 34 For example, see discussion in 'Less Overseas Coal Is Good, But Developing Countries Still Need More Electricity', P. Benoit, Inter Press Service, October 5, 2021, available at <http://www.ipsnews.net/2021/10/less-overseas-coal-is-good-but-developing-countries-still-need-more-electricity>.
- 35 For example, see 'ADB, Indonesia, the Philippines Launch Partnership to Set Up Energy Transition Mechanism', ADB news, November 3, 2021, available at <https://www.adb.org/news/adb-indonesia-philippines-launch-partnership-set-energy-transition-mechanism>.
- 36 For example, see table 5 of 'China Investment in the Coal Power Plant Sector in Indonesia', AEER, August, 2022, available at <https://aeer.info/wp-content/uploads/2022/08/China-FDI-in-Coal-Power-Plant-Sector-in-Indonesia.pdf>.
- 37 For additional details, see 'How China Can Retire Coal Early in Pakistan and Elsewhere Through the BRI', P. Benoit, Inter Press Service, October 26, 2022, available at <https://www.ipsnews.net/2022/10/china-can-retire-coal-early-pakistan-elsewhere-bri/>.
- 38 For example, see 'COP-28: UAE's Sultan Al Jaber advances innovative climate finance, leveraging public, business and philanthropic capital', R. AlGhoul, Zawya, July 13, 2023, available at <https://www.zawya.com/en/business/energy/cop28-president-designate-advances-innovative-climate-finance-leveraging-public-business-and-philanthropic-agsstj8b>.
- 39 For example, see 'Masdar to develop 5GW of renewable energy projects to advance Africa's clean energy objectives', Zawya, January 22, 2023, available at <https://www.zawya.com/en/press-release/companies-news/masdar-to-develop-5gw-of-renewable-energy-projects-to-advance-africas-clean-energy-objectives-off8cub3>.
- 40 For example, see 'Saudi Aramco and Indonesia's Pertamina to explore hydrogen and ammonia value chain', November 14, 2022, available at <https://www.saudigulfprojects.com/2022/11/saudi-aramco-and-indonesias-pertamina-to-explore-hydrogen-and-ammonia-value-chain>.
- 41 For example, see IEA (2020a) at p. 5.
- 42 For example, see 'Indonesia, Islamic Development Bank sign \$150 million loan for Java highway', Reuters, June 6, 2022, available at <https://www.reuters.com/markets/rates-bonds/indonesia-islamic-development-bank-sign-150-million-loan-java-highway-2022-06-06>.
- 43 For example, see Baker (2022) citing Maino, 'Financing the Energy Transition: The Role, Opportunities and Challenges of Green Bond', A Maino; OIES, 2022. See also figure 4.1 in IEA (2023).
- 44 For example, see S&P Global Ratings, Research Update, July 4, 2023, available at https://www.bi.go.id/id/publikasi/ruang-media/news-release/Documents/sp_2517823_SPGlobalRating_55295303_Jul-04-2023.pdf.
- 45 For example, see figure 3 in Baker (2022).
- 46 See 'Analysis: Indonesia's renewed dalliance with global bond investors may be brief', Ankur Banerjee and Patturaja Murugaboopathy, Reuters, February 22, 2023, available at <https://www.reuters.com/markets/asia/indonesias-renewed-dalliance-with-global-bond-investors-may-be-brief-2023-02-22>.
- 47 For example, see 'S&P Global Ratings affirms Perusahaan Listrik Negara at "BBB" (Local Currency LT credit rating); outlook stable', Cbonds, June 17, 2022, available at <https://cbonds.com/news/1857101>.
- 48 For example, see PLN bond information at <https://web.pln.co.id/en/bond-information>.

- 49 For example, see 'Carbon credit issuances from Indonesia on hold, developers await clarity', S&P Global Commodity Insights, April 7, 2022, available at <https://www.spglobal.com/commodityinsights/en/market-insights/latest-news/energy-transition/040722-carbon-credit-issuances-from-indonesia-on-hold-developers-await-clarity>.
- 50 For example, see discussion about Article 6.4 at <https://unfccc.int/process-and-meetings/the-paris-agreement/article-64-mechanism>.
- 51 For example, see US Department of State announcement at <https://eg.usembassy.gov/u-s-government-and-foundations-announce-new-public-private-effort-to-unlock-finance-to-accelerate-the-energy-transition>.
- 52 See IEA (2021a).
- 53 For example, see figure 13 in IRENA (2022).
- 54 IEA (2020a) at p. 13.
- 55 IEA (2023) at p. 147.
- 56 See IEA (2023) at p. 20.
- 57 See IEA (2023) at p. 20.
- 58 ADB (2022).
- 59 For example, see 'Pertamina Reports Revenue of USD 84.89 billion in 2022', June 9, 2023, available at <https://www.pertamina.com/id/Pertamina-Reports-Revenue-of-USD-84.89-billion-in-2022-09-June-2023>.
- 60 Note that a private sector-funded transaction, in contrast, does not typically involve a similar direct explicit governmental repayment obligation, although there are often contractual undertakings, financial indemnities and other credit enhancements that also can entail financial exposure for the host government.
- 61 For example, see CGEP (2022).
- 62 See Cabinet Secretariat of the Republic of Indonesia statement at <https://setkab.go.id/alokasi-capai-rp468-triliun-presiden-dana-desa-pacu-pertumbuhan-ekonomi-di-desa/>. As of 2022, the Government of Indonesia had disbursed village funds totaling Rp 468 trillion (approximately US \$30 billion) over 7 years. For 2023, it plans to allocate an additional Rp 70 trillion (see Ministry Statement at <https://djpk.kemenkeu.go.id/?p=27451/>).
- 63 Figure 1.1 in IEA (2023).
- 64 See discussion in IEA (2023) at p. 20.
- 65 For example, see the discussion regarding South Africa's view of its JETP: 'South Africa fumbles \$8.5 billion renewables deal', Bloomberg/Daily Investor, April 25, 2023, available at <https://dailyinvestor.com/business/15559/south-africa-fumbles-8-5-billion-renewables-deal/>. See also the considerations echoed in the Government of Indonesia's statements: 'Indonesia warns \$20 billion climate deal looks too expensive', F. Mokhtar, E. Listiyorini and N. Harsono, Bloomberg, May 16, 2023, available at <https://www.bloomberg.com/news/articles/2023-05-16/indonesia-warns-20-billion-climate-deal-looks-too-expensive/>.
- 66 For example, see Imperial (2023), as well as the IEA/WEF observatory at <https://www.iea.org/data-and-statistics/data-tools/cost-of-capital-observatory-data-explorer>.
- 67 See IEA (2023) at p. 78.
- 68 See 'Indonesia warns \$20 billion climate deal looks too expensive', F. Mokhtar, E. Listiyorini and N. Harsono, Bloomberg, May 16, 2023, available at <https://www.bloomberg.com/news/articles/2023-05-16/indonesia-warns-20-billion-climate-deal-looks-too-expensive>.
- 69 For example, see 'South Africa fumbles \$8.5 billion renewables deal', Daily Investor-Bloomberg, April 25, 2023, available at <https://dailyinvestor.com/business/15559/south-africa-fumbles-8-5-billion-renewables-deal>.
- 70 Another issue is the relative attractiveness/return of renewables for the Government of Indonesia as compared to fossil fuel generation competitors. For example, see 'Projected costs of generating electricity, 2020', IEA and Nuclear Energy Agency (December, 2020), available at <https://iea.blob.core.windows.net/assets/ae17da3d-e8a5-4163-a3ec-2e6fb0b5677d/Projected-Costs-of-Generating-Electricity-2020.pdf>.
- 71 The drivers of domestic borrowing rates are different. Their analysis is beyond the scope of this paper.
- 72 Arguably, a conservative assumption in a higher inflation environment.

- 73 As a result, fewer megawatts of capacity can be built for each dollar of investment (all else being equal). Consequently, either less renewables capacity will be built for the originally planned amount of investment or larger amounts of funding will be required to build the same amount of renewables capacity (putting strains on budgets).
- 74 The relative cost of different generation technologies under a higher interest rate environment will depend in part on the portion of overall costs that are allocated to up front capital costs as opposed to future fuel costs (for example, natural gas), and projections regarding those future fossil fuel prices. However, as a general proposition, given that a larger portion of renewables is in the upfront capital costs (with the corresponding need to borrow to fund that cost), renewables are particularly sensitive to rising interest rates.
- 75 For example, a simplified levelized cost of electricity (LCOE) calculation indicates that every 1% rise in interest rates for solar plants increases the resulting LCOE by about 10% (based on a gross estimation using the IEA LCOE calculator, available at <https://www.iea.org/data-and-statistics/data-tools/levelised-cost-of-electricity-calculator/>). More refined analysis is required.
- 76 For simplicity, this discussion equates the cost of electricity to the amount charged to customers – that is, it does not take into account possible subsidies to protect customers, but these also drag on budgetary resources.
- 77 By way of illustration, using the US Effective Federal Funds (EFF) Rate as a proxy, a 3% discount from the EFF in effect in August 2023 yields a “concessional” lending rate of 2.33%. However, that rate is higher in absolute terms than the undiscounted EFF rate in effect throughout 2020, namely 1.55%. Consequently, a renewables project financed with the large 3% discount from the August 2023 EFF rate would result in a higher cost of electricity for the consumer than if the same project were financed with the non-concessional EFF rate in effect in 2020.
- 78 For example, see discussion in ‘Projected costs of generating electricity, 2020’, IEA and Nuclear Energy Agency, (December, 2020), available at <https://iea.blob.core.windows.net/assets/ae17da3d-e8a5-4163-a3ec-2e6fb0b5677d/Projected-Costs-of-Generating-Electricity-2020.pdf>.
- 79 For example, see, ‘South Africa fumbles \$8.5 billion renewables deal,’ Bloomberg/Daily Investor, April 25, 2023, available at <https://dailyinvestor.com/business/15559/south-africa-fumbles-8-5-billion-renewables-deal>.
- 80 For example, see discussion in CREA (2023). See also ‘Two billion reasons: How Indonesia can get ahead of the net zero curve’, May 24, 2023, available at https://static1.squarespace.com/static/63d1607c35efbd5cbfee1529/t/646b9d61e956c71af2cf5815/1684774244879/Technical+Deck+FEO+Indonesia_FINAL.pdf.
- 81 In many countries, including the United States, transmission lines often face long permitting delays because of these impacts. For example, see ‘Western transmission line breaks ground after 18-year wait’, J. Plautz, Energy Wire, June 21, 2023, available at <https://www.eenews.net/articles/western-transmission-line-breaks-ground-after-18-year-wait>.
- 82 As BlackRock Chairman and CEO Larry Fink explained in his 2022 letter to CEOs: “We focus on sustainability not because we’re environmentalists, but because we are capitalists and fiduciaries to our clients. That requires understanding how companies are adjusting their businesses for the massive changes the economy is undergoing. As part of that focus, we are asking companies to set short-, medium-, and long-term targets for greenhouse gas reductions. These targets, and the quality of plans to meet them, are critical to the long-term economic interests of your shareholders.” Available at <https://www.blackrock.com/corporate/investor-relations/larry-fink-ceo-letter>.
- 83 See ‘Sri Mulyani: Indonesia needs Rp 3,500 trillion to reduce carbon emissions’, Arief Rahman Hakim, July 13, 2022, available at <https://www.liputan6.com/bisnis/read/5013332/sri-mulyani-indonesia-butuh-rp-3500-triliun-untuk-tekan-emisi-karbon>.
- 84 For example, see analysis of Presidential Regulation 112/2022 regarding renewables development at table 1 of IEEFA (2022).
- 85 As described by the IEA (2020a) at p. 10: “Concerns around the bankability of PPAs (the way risks are allocated among actors) combined with low remuneration incentives have also hampered the ability to raise finance for projects. More than a third of the 75 renewable PPAs signed between 2017 and 2018 had not reached financial close by the end of 2019, and five were terminated (IESR, 2019), many of which were for small-scale projects with higher transaction costs.”
- 86 For example, see the uncertainties regarding net-metering for rooftop solar, as discussed by IESR at <https://iesr.or.id/en/tag/minister-of-energy-and-mineral-resources-regulation-no-26-2021>.
- 87 For example, see IEA (2020a) at p. 10.
- 88 For example, see ADB (2023).
- 89 For example, see IEA (2020a), and IESR (at <https://iesr.or.id/en/tag/minister-of-energy-and-mineral-resources-regulation-no-26-2021>).
- 90 For example, see ADB (2023) and IEEFA (2022). See also IEA (2020a), which enumerates at p. 10: “policy and regulatory risks (permitting and project preparation barriers; ... evolving regulatory landscape which makes long-term planning difficult; complex tariff design; etc.) [and] revenue risks (or uncertainty of payment, which adds the largest premium to financing costs, arising from PLN’s financial situation and its history of renegotiating contracts in the past).”

- 91 For example, see S&P Global Ratings, Research Update, July 4, 2023, available at https://www.bi.go.id/id/publikasi/ruang-media/news-release/Documents/sp_2517823_SPGlobalRating_55295303_Jul-04-2023.pdf.
- 92 See discussion regarding PLN in Chapter 3, including table 3.3 which presents PLN's income statement for 2020 and 2021.
- 93 For example, see discussion of PPAs that failed to achieve financial closure in IEA (2020a) at p. 10.
- 94 For example, see ADB (2023).
- 95 To date, international private capital has too often remained concentrated in wealthier OECD economies, such as the US and the EU, and not merely because these economies provide better risk-adjusted returns. Rather, it can at times reflect less financial factors, such as: greater familiarity and comfort of staff with the business and political economic practices in large OECD economies (even in the face of policy uncertainties that these countries have on occasion presented); where staff and management are physically headquartered and live; or language barriers (for example, Indonesia's local language reports can be more difficult to access and interpret than English language ones). Arguably, the growth of transactions in China reflects in part a positive reinforcing dynamic between increased familiarity with and presence in China, on the one hand, and more transactions, on the other. This provides some potentially relevant lessons for the Indonesian context.
- 96 For example, see discussion in 'To Meet Global Cobalt Demand, Companies Must Reform Mining Practices In The Congo', Michael Posner, Forbes, February 9, 2023, available at <https://www.forbes.com/sites/michaelposner/2023/02/09/as-demand-soars-for-cobalt-used-in-electric-car-batteries-heres-what-companies-need-to-do-in-the-democratic-republic-of-congo>. See also 'How Responsible Labor and Trade Issues Affect the Solar Energy Industry', Morgan Lewis, February 8, 2023, available at <https://www.morganlewis.com/blogs/powerandpipes/2023/02/how-responsible-labor-and-trade-issues-affect-the-solar-energy-industry>.
- 97 For example, see paragraphs 7-9 of the preamble to the I-JETP Statement.
- 98 For example, see '2022 Investment Climate Statements: Indonesia', US Department of State, available at <https://www.state.gov/reports/2022-investment-climate-statements/indonesia/>.
- 99 I-JETP Statement at paragraph 3.xi.
- 100 The JETP Statement provides in part: "Restricting the development of captive coal fired power plants in [a manner that] balance[s] the imperative of industrial development and economic growth of Indonesia with the commitment on net zero." Paragraph 3.vii.
- 101 See 'Indonesia's coal production to grow by 2.6% in 2022 amid strong demand from Europe', Mining Technology, September 13, 2022, available at <https://www.mining-technology.com/comment/indonesia-coal-growth>.
- 102 For example, see 'Larry Fink's Letter to CEOs: The Power of Capitalism', cited in endnote 85 and available at <https://www.blackrock.com/corporate/investor-relations/larry-fink-ceo-letter>.
- 103 For example, see IEA (2021a).
- 104 See CGEP (2022) for a fuller discussion.
- 105 See description at <https://www.tcxfund.com>.
- 106 The World Bank has at different points considered various related financial innovations that failed to materialize. For example, it considered as part of a guarantees action plan the establishment of an off-balance sheet facility to lend to sub-sovereign entities without requiring a sovereign guarantee. The Multilateral Investment Guarantee Agency has now developed similar products – for example, see https://ieg.worldbankgroup.org/sites/default/files/Data/Evaluation/files/MIGA__NonHonoringGuarantees.pdf – but without the impact that a World Bank-sponsored product would have in advancing the global clean energy transition.
- 107 The IEA has announced an upcoming publication for this fall that will analyze how underinvestment in transmission presents a risk for renewables deployment and ways to address it.
- 108 For example, see IRENA press release on COP28 partnership to help 'Accelerate the Global Energy Transition', available at <https://www.irena.org/News/pressreleases/2023/May/Bloomberg-Philanthropies-IRENA-Announce-COP28-Partnership/>.
- 109 See discussion regarding policy reforms in Chapter 4, including the reference therein to IEA (2020a) at p. 10.
- 110 For example, see 'South Africa fumbles \$8.5 billion renewables deal', Bloomberg/Daily Investor, April 25, 2023, available at <https://dailyinvestor.com/business/15559/south-africa-fumbles-8-5-billion-renewables-deal/>.

