

POLICY BRIEF

What Can Indonesia Learn from South Africa's Experience of the Just Energy Transition Process?

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Just Energy Transition Partnerships and the Importance of Accelerating Energy Transition

Just Energy Transition Partnerships (JETPs) are essentially a financing mechanism agreed between a group of industrialized countries and a developing country, designed to fund a transition of the coal-dependent developing nation away from fossil fuel production and consumption toward low-carbon energy while addressing the social consequences involved. As of May 2023, JETP deals have been announced for South Africa, Indonesia, and Vietnam.

In a nation where coal plays an important role in the economy, robust social and economic measures must be taken and included in the JETP plans, as transitioning away from coal will affect a significant portion of the population.

Finance provided under the JETP may include grants, loans, and investments, and, as of March 2023, the donor group includes the International Partners Group (IPG) and the Glasgow Financial Alliance for Net Zero Working Group. The IPG represents the donor countries, made up of Canada, Denmark, the European Union, France, Germany, Italy, Japan, Norway, the United Kingdom, and the United States. The Glasgow Financial Alliance for Net Zero Working Group represents over 550 major financial institutions from 50 countries, such as HSBC and Citibank (Kusuma, 2023).

The JETP scheme was first announced at the UN Climate Change Conference (COP 26) in November 2021. It was described at the time as a long-term partnership designed to support the Republic of South Africa in decarbonizing its energy system—preventing up to 1–1.5 gigatonnes of emissions over the next 20 years—and help the country accelerate its transition from coal to a low-emission, climate-resilient economy. It was launched with a funding commitment of USD 8.5 billion in the first phase of financing, with the comprehensive investment plan made public a few days before COP 27 (European Commission, 2022).



The second JETP deal was announced during the G20 Summit in November 2022. The IPG—led by the United States and Japan—pledged to mobilize USD 20 billion (around IDR 300 trillion) over the next 3–5 years to accelerate Indonesia's energy transition through early retirement of coal power plants and deployment of renewable energy. The deal appears to herald a dramatic shift in energy policy, setting a new target for renewables—which will need to account for 34% of the country's power production by 2030.

Indonesia is currently in the process of preparing its comprehensive investment plan. This brief will assess the JETP process South Africa went through 1 year after it was announced to highlight any relevant findings and lessons to assist policy-makers implementing the Indonesian JETP.

Process and Organizational Structure of South Africa's JETP

Since the announcement of the JETP at COP 26 in November 2021, several policy reforms that will benefit and enable the South African JETP have been started or announced. These reforms include the following:

- an updated Climate Change Bill;
- proposed changes to electricity sector regulations;
- release of a Just Transition Framework and a just energy transition investment plan;
- green hydrogen developments, including a Hydrogen Economy Roadmap;
- the South African Green finance taxonomy and Sustainability and Climate Change Disclosure Guidance, with the carbon tax rate expected to increase progressively every year;
- a National Mine Closure Strategy and discussion on South African Renewable Energy Master Plan;
- further rounds of bids for renewable energy projects are underway, and the licensing threshold for new generation capacity has been raised to 100 MW, opening new ways for private sector investment in renewable energy projects (Presidential Climate Finance Task Team & IPG, 2022a, 2022b).

Collectively, these policy measures aim to reduce barriers to clean energy deployment and to align energy policy with the agreed phase-down of coal generation. Despite the high-level agreement and moves toward policy reform, these reforms are still controversial.

The South African JET Investment Plan (JET IP) was developed throughout the course of 2022, and it articulated the need for ZAR 1,48 trillion (USD 98 billion) investment in three priority sectors over a period of 5 years. It is important to note that the JET IP only sets out the guiding principles for implementation of the Just Transition Framework and is not exhaustive of all the transition needs in South Africa. The USD 8.5 billion in the first phase of financing will be spent on the most urgent programs identified under the IP.



In the past few years, South Africa has been undergoing the process of electricity sector reform. This reform process is also recognized to be one of the key measures to support the implementation of the JET IP. In the 12 months following the announcement of the JETP (Presidential Climate Finance Task Team & IPG, 2022), the president announced several steps in the transformation of the electricity sector, such as

- removing licensing thresholds for embedded generation to enable private investments in large, utility-scale generation projects;
- reviewing the Integrated Resource Plan 2019 to reflect the need for additional generation capacity and South Africa's climate commitments;
- reducing designated local content for solar panels from 100% to 35% (The Presidency Republic of South Africa, 2023);
- offering incentives for rooftop solar, developing feed-in tariffs for the purchase of electricity surplus from residential customers, and further work on tax incentives;
- enhancing the effort to restructure Eskom as well as addressing crime and corruption through a law-enforcement team;
- using climate funding provided through the JETP to invest in transmission grid and repurpose coal power plants that have reached end of life;
- establishing a National Energy Crisis Council to strengthen Presidential oversight of delivery against announced reforms. South Africa's severe load-shedding due to the ongoing energy crisis is also partly the reason for the establishment of the National Energy Crisis Council (Proctor, 2023).

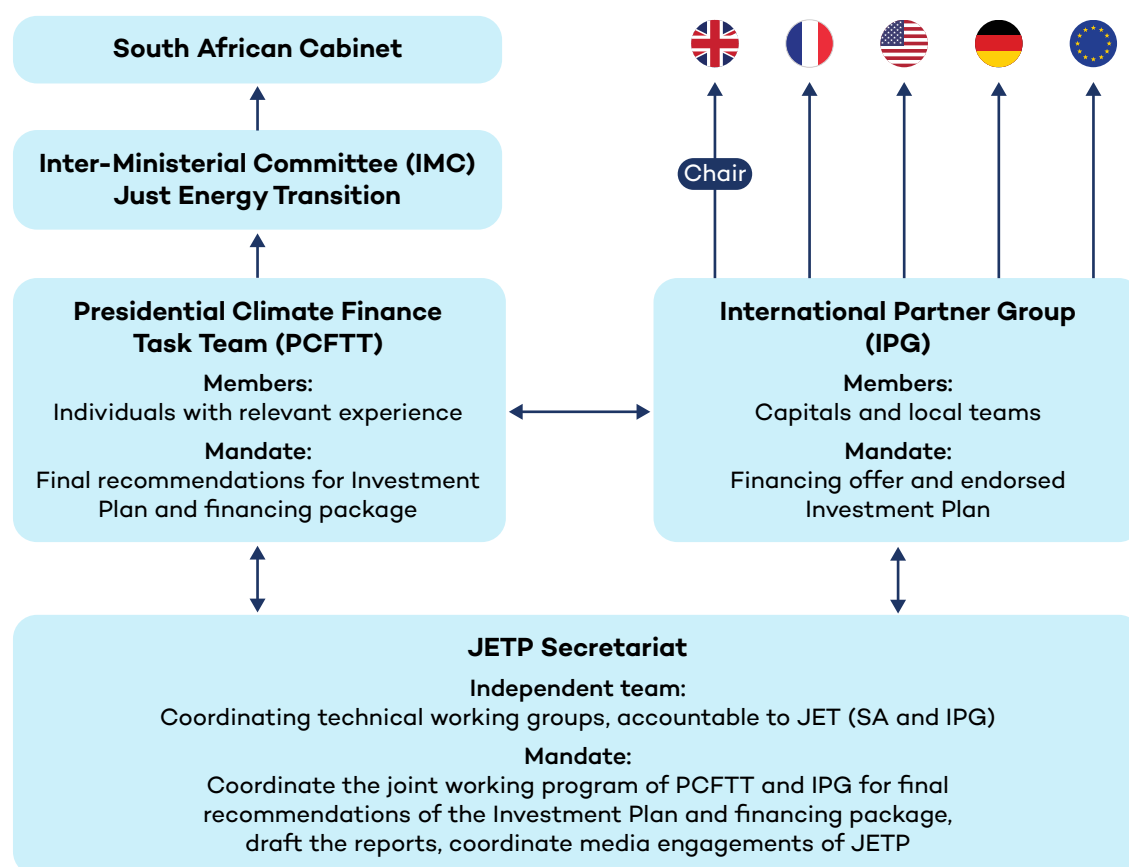
The electricity sector reform measures are also broadly aimed at increasing the rate of deployment of new (and, in many cases, privately owned) generation, much of it renewable. However, there are still elements within the government who are opposed to reforms, remaining unconvinced that renewables can replace thermal generators. These elements may continue to seek to undermine or reverse the reforms. As in many countries, in South Africa, there is often a gap between policy and implementation, and not all of these initiatives have translated into practical changes.

Organization Structure and Roles

Chaired by the United Kingdom, the IPG was established to coordinate the partnership announced at COP 26 between its members and the government of South Africa. In February 2022, the Presidential Climate Finance Task Team was formed, and it serves as a counterpart for the IPG. It engages with the IPG to advise Cabinet on the financing package's composition, affordability, and alignment with the regulatory environment. It also coordinates with relevant government departments and the private sector to develop relevant financing mechanisms and facilities to enable international climate finance.



Figure 1. South African JETP governance structure



Source: European Commission, 2022.

The JETP secretariat is tasked with providing technical and coordination support to the partnership in a neutral and objective manner. In order to assist with the secretariat's work, the Climate Investment Fund Board will provide the support and resources needed. Several consultations covering key issues—such as the nature of the financial offer, shared understanding in priority areas, JETP IP outline and contents, and the scope and responsibilities of the secretariat—were held in May 2022. They involved the Presidential Climate Finance Task Team, IPG, government focal points, and development finance institutions.

These consultations included an assessment of relevant policies and guidelines, preliminary review of investment and policy implications, and mapping development financiers' activities and programs that can support the just energy transition. At the same time, the second mission of the Accelerating Coal Transition Investment Programme (funded by the Climate Investment Fund and led by the World Bank Group and The African Development Bank) was held in order to align the program and support the broader JETP.

To support the secretariat, JETP has also established five working groups to gather technical expertise and experience in the following areas: finance, implementation, power, green



hydrogen, and transport. Terms of reference for each working group are still being developed, but they will centre around investment sequencing in relation to South Africa's goals and challenges.

Highlighted Shortcomings of the South Africa JETP Process

The JETP deal may serve as a catalyst for energy transition and could also open the door to more climate funds. However, because it is a new mechanism where all the details are still under development, there is always the risk of the deal failing to deliver on its potential. One of the aspects that must be met in order to fulfill the “just” aspect of the energy transition is to ensure a balance between tackling clean energy issues and delivering a socially just transition. Raising finance simply for energy infrastructure is relatively easy due to the prospect of favourable investment returns, but the same cannot be said about raising finance to support coal workers and communities. Ensuring that JETP programs are able to deliver a just energy transition as well as infrastructure investment is a significant challenge (Halsey, 2022).

Box 1. The policy implementation gap and the South African JETP

The gap between stated targets and policy objectives and their implementation (the policy implementation gap) is an often-observed phenomena. New initiatives, particularly those that are ambitious and unprecedented, face a tough journey to realization.

Three key factors influence the likelihood of delivery; Indonesian policy-makers should consider and, where possible, mitigate these factors in the development of the JETP.

1. **Shortcomings at the feasibility stage.** Policies developed without full understanding of the economic, social, and institutional barriers may prove impossible to implement. To avoid this, transparency and consultation at the design stage are critical. The reported lack of civil society consultation in South Africa may have given rise to policy-making blind spots.
2. Misestimation of the **political landscape and cross departmental coordination.** Proposals are typically developed by a lead government ministry. Without adequate coordination, the proposals may not carry the support of all government stakeholders. In South Africa, the original premise of the deal—early phase-out of coal generation in exchange for international finance for clean energy—is currently being openly questioned by government ministers. This indicates that the political landscape was not factored into the deal at the inception phase.
3. As the JETP moves towards implementation, further problems will arise. **Monitoring and evaluation** will become increasingly important to identify problems and develop mitigation measures. The development of structures to monitor and evaluate the JETP will become increasingly important.

The South African JETP design process has been criticized for not being inclusive of the people most affected by its implementation. Prior to the publication of the JETP IP in



November 2022, even though various policy documents had been discussed and formalized (and the South Africa task team and the working groups had been working on the investment plan), the general public did not have the chance to consult these documents, nor had any representatives of affected communities. The JET forums convened by the Presidential Climate Commission are also seen as not yet sufficient to address these concerns.

There is also the fact that even with the inclusion of a comprehensive definition of “just” transition, there is a very narrow focus on the mitigation of decarbonization and the historical impacts of coal mining in South Africa. The current state of the energy system—where there is still “unjustness” in terms of access to and affordability of electricity—is also not addressed in the JETP deal, since universal, affordable access is not identified as a JETP focus area. This shows a lack of alignment between the interests of the JETP with the self-identified interests in the power of the majority of South Africans (Public Affairs Research Institute, 2023).

The issue of vested interests and widespread continued (and possibly even increasing) support for coal in South Africa would also be a relevant issue for policy-makers in Indonesia to consider. In the case of South Africa, the electricity supply crisis, which would have been an ideal argument for transitioning toward renewables, is driving demands to extend the life of coal assets and possibly even build out more coal infrastructure (Public Affairs Research Institute, 2023). The ruling African National Congress went as far as issuing a recommendation for Eskom to delay the decommissioning of its aging coal power plants to minimize load-shedding. The contradiction between the discussion of accelerated phase-outs under the JETP and life extensions reflects the controversy around electricity planning and the implementation of the energy transition.

Despite announcements and targets, many policies do not come to fruition. Box 1 outlines three drivers for this gap between policy and implementation.

Overview of the South Africa JETP IP and Comparison with the Indonesian Context

This section describes the key features and challenges of South Africa's JETP IP and identifies key similarities and differences with the Indonesian context.

Budget Allocations and Priority Sectors

South Africa created the JETP IP to define its primary investment needs in the fields of electricity, new-energy vehicles, and green hydrogen for the next 5 years to support the objectives of energy security, economic growth, and just transition. The JETP IP also highlights initiatives related to the electricity sector's transition in the Mpumalanga Province, as well as outlining two crucial cross-cutting priorities (skills development and municipal capacity).

The JETP IP estimates that total investment in the identified sectors is USD 98.7 billion. It should be noted, therefore, that the IPG's pledge of USD 8.5 billion cannot fund all the investments listed. Instead, the most catalytic programs and projects that are ready to be implemented in the JET IP's portfolio of needs should be prioritized. In addition, there is a need for additional funding to implement all the identified actions.



Tables 1 and 2 show the total JET IP funding requirements per sector for the next 5 years, as well as the indicative allocation of the pledged USD 8.5 billion.

Table 1. South Africa JET IP funding requirements per sector, 2023–2027

Funding requirements 2023–2027	ZAR billion (USD billion)
Electricity sector	711.4 (47.2)
New energy vehicle sector	128.1 (8.5)
Green hydrogen sector	319 (21.2)
Skills development	2.7 (0.18)
Municipal capacity	319.1 (21.3)
TOTAL	1,480 (98.7)

Source: The Presidency, Republic of South Africa, 2022.

As Tables 1 and 2 show, high priority is given to the electricity sector, which takes up 48% of the total budget allocation. The primary investment areas for infrastructure in the electricity sector are as follows:

- to handle the decommissioning of the retiring coal generation fleet in accordance with the revised Integrated Resource Plan while simultaneously implementing the rapid and large-scale generation of renewable energy;
- to promptly enhance the transmission grid infrastructure to accommodate the transition to renewable energy;
- to update and modernize the electricity distribution system.

Table 2 shows that over 73% of the budget for electricity goes toward new solar PV and new wind, while about 20% of the budget goes to transmission.

Table 2. South Africa national electricity sector's infrastructure investment needs, 2023–2027

National electricity sector's infrastructure investment needs	ZAR billion
Coal plant decommissioning	4.1
Transmission	131.8
Distribution	13.8
New solar PV	233.2
New wind	241.7
New batteries	23.1
TOTAL	1,480 (98.7)

Source: The Presidency, Republic of South Africa, 2022.



The Importance of Upgrading the Transmission Grid

The South Africa JETP IP allocates ZAR 647.7 billion (35.4 USD billion) to electricity infrastructure, or 48% of the total JETP investment needs of ZAR 1,480 billion (USD 98.7 billion). Around 20% of the infrastructure fund is allocated for the development of transmission system. South Africa's electricity landscape operates similarly to Indonesia's in terms of the strong presence of the government, where its state utility company, Eskom, controls the supply chain from generation to distribution and is the sole buyer of power. However, recent regulatory changes have gradually eroded this monopoly. For example, independent generators are now permitted to develop projects and sell output directly through the Eskom-owned power network to large consumers.

Since 2019 the President of South Africa, Cyril Ramaphosa mandated the split of Eskom into three divisions: generation, transmission and distribution (Paton, 2019). This move, part of larger reform efforts, will spread the control over the three functions and may create opportunities to accelerate grid strengthening and upgrade. However, implementation remains difficult and controversial.

In terms of transmission, the two countries' situations are somewhat comparable. South Africa's transmission infrastructure lacks the capacity to accept electricity, especially from the new renewable energy power plants. Indonesia also urgently needs to upgrade its outdated transmission system to adapt to the flexible nature of the increased share of renewables in the grid.

Transforming Indonesia's electricity transmission system is critical to ensuring the reliability of power supply from renewable sources: therefore, the JETP IP could be a key opportunity to raise ambitions in this area. Currently, Java–Bali is the only interconnected grid system in Indonesia, with other systems remaining isolated. Indonesia aspires to complete the interconnection of all major islands to be followed by inter-island power grid connection as stated in the Grand Strategy of Energy (National Energy Council, 2022). However, the feasibility of the plan remains questionable due to the lengthy planning and development times and capital-intensive nature of interconnection projects. It will be even more challenging if it is to be adopted as part of JETP. The brief time window of JETP (only 3 to 5 years) demands quick wins to be included in the project pipeline. Only certain transmission projects are likely to meet the criteria, such as an upgrade or an expansion of existing systems or a connection between two systems like the ongoing Java–Bali connection project. Generally, it takes around 10 years to build a greenfield transmission line. This can even take longer considering the time-to-build delays.

The current transmission plan is still not in line with the ambition to have interconnected grid systems that are desirable for an increased share of variable renewable energy. In the National Electricity Company (Perusahaan Listrik Negara/PLN)'s current business plan (National Electricity Supply Business Plan/ Rencana Usaha Penyediaan Tenaga Listrik/ RUPTL 2021–2030), PLN plans to build 1.4 times the current transmission lines' length and 2.2 times the current capacity of main substations between 2021 and 2030 (PLN, 2021) This number is based on the objective of building reliable transmission systems that connect locally available energy sources with demand, minimizing the need for an interconnected grid. With a higher



target of renewable energy, as agreed in JETP, PLN needs to build more than what it has already planned.

One potential barrier to expansion is the current ownership structure. The current system is owned and operated by PLN, allowing little room for private sector participation. Grid improvement will require a large amount of investment that PLN needs to recover. The development of Nusantara Grid will need investment of USD 100 billion until 2050 (Institute for Essential Services Reform [IESR] et al., 2021) which does not include inter-island connectivity (Guitarra, 2022). PLN's smart-grid program, aimed at improving the efficiency and productivity of the grid, requires capital expenditures of up to IDR 25 trillion (around USD 1.7 billion) in the first phase. The second phase, which focuses on resilience, customer engagement, sustainability, and self-healing, will require capital expenditure of up to IDR 50 trillion (around USD 3.4 billion) (Arifin, 2021). The total investment of USD 5 billion is almost six times PLN's net profit of USD 887 million in 2021. Delivering these volumes of investment will require innovation.

Overall, the moves in South Africa to prioritize the development of the transmission network alongside institutional reforms to enable additional models of ownership and investment should be included in policy-making discussions in Indonesia.

Focus on Coal-Dependent Regions

South Africa's JETP IP puts an emphasis on just transition measures in its coal-dependent province, Mpumalanga, which accounts for more than 80% of the country's coal production. Transitioning into clean energy will affect around 90,000 people employed in the coal mines and power plants in this region, more employees in the coal supply chain and services, local communities affected by the coal phaseout, and small and medium-sized enterprises, as well as people self-employed either formal or informally in coal-related businesses. Mpumalanga is home to 12 of Eskom's 15 CFPPs, including the largest CFPP in the country, Kusile Power Plant. After starting operation in 2017, Kusile's last two units will be completed in 2024, for a total capacity of 4,800 MW.

Meanwhile, East Kalimantan, the largest coal-producing province of Indonesia, has 21 CFPPs that supplied more than 45% of the province's electricity in 2022 (East Kalimantan Provincial Government, 2023). The largest CFPPs are mostly located on Java island, home to 55% of Indonesia's population. To lower the share of coal in power production (and hence increase renewable energy's share of the energy mix), PLN planned to retire old and inefficient CFPPs in Java and Sumatra, with a total capacity of around 4.8 GW. Even with this goal, it will not meet the JETP's target of reaching 34% of renewable energy share by 2030. To meet the JETP target, Indonesia should consider cancelling all CFPPs currently in RUPTL's pipeline (2.9 GW), retire more CFPPs (including those owned by independent power producers and captive plants up to 8.2 GW), and replace the lost coal capacity with renewable energy (IESR, 2023).

Indonesia has been the world's largest exporter of coal since 2005, with total production of 687 million tonnes in 2022, of which 72% (494 million tonnes) was exported (Ministry of Energy and Mineral Resources, 2023a), mainly to China, India, Japan, and South Korea



(Kusnandar, 2022). The lucrative coal market of the past 2 years boosted the state's non-tax revenue from the minerals and mining sector to record levels: IDR 124.4 trillion in 2021 (Syahputra, 2022) and IDR 183.35 trillion in 2022, around 25% of the total non-tax revenue (Ministry of Finance, 2023). More than 80% of the non-tax revenue is from coal royalties alone (Julian, 2023). In 2022, the mining sector had 244,945 local employees and 5,355 foreigner employees (Ministry of Energy and Mineral Resources, 2023b).

Coal phase-out will affect regions that have a high dependence on coal. For example, Sangatta Mine and Paser Mine, which have been in commercial operation since 1992 and 1993, respectively, have created economic dependence for the local people, not only in the immediate area but also in neighbouring regions with interlinked supply chains.

Indonesia's complex relationship with coal calls for the transition to be carefully managed to prevent detrimental socio-economic impacts. To be able to transition away from coal to renewable energy, more attention needs to be given to just transition aspects in both coal-producing and coal-reliant regions. In addition to direct and indirect employees of the overall coal value chain, local communities more generally need to be actively engaged in decision making over the closure of coal mines and retirement of CFPPs.

A key lesson from the experience in South Africa is that a mechanism is needed to make sure that local communities are consulted first before deciding on the investment plan and to make sure to facilitate direct and meaningful input on the investment plan from the local community. The social justice element is important because that is what sets JETP apart from previous financing cooperation. It emphasizes the justice element, not merely focusing on the measure of tonnes of CO₂ equivalent (Kramer, 2022).

The Financial Mechanism

Indonesia should consider the financing principles set out in the South Africa JETP IP while developing its own approach. These principles include, among others, technology transfer, additionality, and mainstreaming of just transition components. Accounting for these principles will ensure the quality of JETP finance while at the same time addressing financing impediments to Indonesia's energy transition efforts, such as the lack of bankable and sizable projects and the high cost of funds. More strategies need to be developed to overcome outstanding issues that hamper Indonesia's renewable energy development, including fossil fuel subsidies and local content requirements.

It is critical to develop financing principles that strike a balance between ensuring credibility of supported projects and programs and protecting national interests. JETP IP finance should also consider United Nations Framework Convention on Climate Change principles that not only focus on the financing itself but also offers broader supports to build capacity and ensure technology and skills transfer to improve Indonesia's climate response considering its capabilities, national circumstances, and priorities. Finance should also be additional to existing commitments and avoid relabelling of ongoing, planned, and committed supports. One criticism of the South African JETP has been the difficulty in clearly distinguishing how much of it is genuinely additional.



While the IPG and Indonesia have agreed to split the total commitments into 50% private funding and 50% public funding, the splits between grants and concessional loans still need to be agreed on to reflect the enormous financing needs to implement just transition measures. In South Africa's JETP IP, grants and technical assistance make up a tiny percentage (slightly below 4%), while concessional loans make up the majority of the commitment (63%), followed by commercial loans and guarantees (18% and 15%, respectively).

Both parties also need to make sure that financing comes in the form of concessional loans and avoids more expensive commercial loans, something that is seen as a barrier to renewable energy development in Indonesia. Indonesia should also follow South Africa in requiring more advantageous risk-sharing arrangements, including providing debt in local currency and limiting the use of government guarantees.

Another important financing issue to be considered is that financing for just transition components, which address the impacts on livelihoods, local governments, and small businesses, shall be mainstreamed and integrated into all JET IP programs and projects.

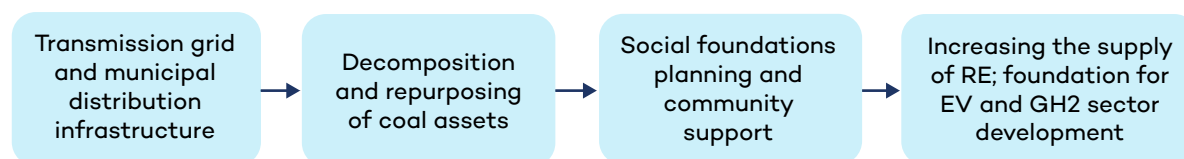
In South Africa's case, the social component receives around 26% of total funding and the larger portion (74%) goes toward infrastructure development. Private funding will naturally prefer investment with tangible returns, such as infrastructure, but this should be accompanied with just transition components. Public funding, including grants, will be used as seed funding and will help prepare the social foundation for just transition. Recognizing the importance of this, it deserves to receive a higher portion of funding.

South Africa makes investment in transmission and distribution systems a priority that should be tackled first. Meanwhile investment in renewable energy supply is set as the last of the investment sequencing (Figure 2). South Africa started the Renewable Energy Independent Power Producers Program in 2011 and introduced renewable energy auction schemes to increase power capacity through private sector investment, mostly in renewable energy. The auction scheme has managed to reduce the price of renewables, notably solar PV and wind, by 75% for PV and 54% for onshore wind, in just three rounds of auctions, or about 4 years (Kitzing et al., 2022). With a lot of projects in the pipeline, it is understandable that investment on renewable energy supply is placed last in investment sequencing.

A key difference between South Africa and Indonesia is that the renewables industry in South Africa is significantly more mature, due to a longer history of deployment and procurement. Indonesia has not yet arrived at the point of cheap renewables, although it seems that auctions on floating solar PV projects have managed to lower the price to USD 0.0368/kWh, the lowest in the country's history (Christian et al., 2021). Also, the current share of renewable energy (10.4% in 2022) means that it is still struggling to achieve its own renewable energy target of 23% by 2030, let alone 34%. At the same time, transmission will take a long time to build and needs to be prioritized. With these challenges, Indonesia needs to be extra cautious in selecting investment priorities and sequencing.



Figure 2. Investment sequencing of South Africa's JETP



Source: The Presidency, Republic of South Africa, 2022.

Recommendations for Indonesia's JETP Process

1. Select Projects to Be Included in the JETP IP Carefully and Be Able to Demonstrate Results

Both Indonesia and South Africa need to answer the challenges in delivering energy transition results within the JETP period of between 3 and 5 years. Programs and projects that are eligible to be included in JETP need to be carefully selected to be able to show progress within short period of time despite their long-term characteristics. Infrastructure projects, notably power transmission projects, have time-to-build delays that need to be taken into account.

2. Agree on a Strong Energy Policy That Binds the Power Sector in Indonesia to the Coal Phase-Out Plan as Laid Out in the JETP IP

South Africa's energy crisis and the ongoing debates around potential delays shutting down coal power plants (Sguazzin & Burkhardt, 2023) may look a bit different from Indonesia. Indonesia has been experiencing oversupply in electricity since 2020, especially in Java, Bali, and Sumatera (National Energy Council, 2022). However, delaying coal phase-out is also unlikely to happen if a strong policy that binds PLN and IPPs is absent. Indonesia's energy planning and policy are vulnerable to global geopolitical change, as evidenced by the effects of Russia's invasion of Ukraine on national energy policies around the world. Global fossil energy prices have driven Indonesia's domestic energy policy to respond to the market by increasing production targets, as evidenced in various government planning documents, including MEMR's strategic plan. The challenge is how to make policy more aligned with long-term planning and the commitment to the transition from coal.

PLN's internal plans to gradually shut down coal plants, starting with 6.17GW of CFPPs in Java and Sumatera by 2030 (Setiawan, 2022) are a good sign, indicating that perhaps there will be fewer difficulties when it comes to implementation. However, the South African example shows that if key actors are not aligned with the agreed targets and plans, implementation may be a challenge.

For the development of transmission systems, there is a big gap between what PLN has planned in its 2021–2030 business plan (RUPTL) and the need to build more transmission systems that are interconnected and modern to support more variable renewable energy coming into the system. Currently, PLN plans to build 1.4 times the current length of transmission lines and 2.3 times the current capacity of substations by 2030. For energy



transition to materialize, PLN needs to multiply the speed and financial capability to build even more transmission capacity than it has already planned. This can only be achieved with private sector support and attractive profit-sharing mechanisms that work for the business models of both PLN and private companies. The South African JETP IP allocates 20% of its electricity infrastructure funds to grid investment. Indonesia should consider adopting a similar approach for its IP.

3. Focus Clearly on the Social Impacts of JETP

It needs to be emphasized again that JETP is not simply an infrastructure finance package. It also aims to address the social impacts of the clean energy transition, and as such, should be structured to prioritize projects' social benefits: employment, support to local economies, and the best use of resources. Support for coal-dependent regions such as East Kalimantan should be well planned and focus on people and communities beyond workers and potential repurpose of coal mines and plants. The support should also ensure that the process is participatory, transparent, and protective towards marginalized communities.

In practice, this could mean that projects can receive more generous financial support if they are addressing energy access barriers, are located in former coal-producing regions, or are linked to community energy schemes. Projects that make use of existing infrastructure—like repurposing of grid infrastructure near former coal plants to host new renewable energy generation—could also be singled out for support. Finally, projects that avoid the use of scarce resources, such as agricultural land, could also be prioritized, for example, through the deployment of solar PV on warehouse roofs and above car parks.

While the JETP is a fantastic opportunity to rethink the energy system, the upcoming 6-month period to develop the comprehensive investment plan will be critical for the success of Indonesia's energy transition. Without serious reforms to remove structural barriers to renewable energy deployment, the deal will not succeed, and, without a method for balancing the social and economic benefits of projects, the transition may not be as "just" as intended. One of the highlighted issues in the South African JETP process is how the government seems to neglect the hard work of negotiating with the labour unions, which understandably resulted in concerns and pushback from the local communities whose livelihoods depend on coal mining and coal power plants. Therefore, Indonesia needs to ensure that input from civil society, affected communities, and the research community are taken into account—it is essential to address concerns and avoid potential pitfalls.

4. Seize the Opportunity of the JETP IP and Use Public Funds to Leverage Private Investment

The South African JETP IP serves as a blueprint for the entire energy transition roadmap. It identifies the financial requirements of USD 98.7 billion over the next 5 years, to come from both public and private sectors, and that the USD 8.5 billion pledged under the JETP deal is just one funding source to carry out the entire sector transformation.

Indonesia is in the same situation. The USD 20 billion pledged in the JETP deal accounts for only a small percentage of the total funding required to deliver a just energy transition. Different estimates of the actual need for energy transformation are much higher—roughly



USD 240 billion to reduce emissions by 2030 (Ministry of Finance estimate) (Sukarno, 2022), or USD 22 billion/year (IESR et al., 2021), or USD 1 trillion until 2060 (Ministry of Energy and Mineral Resources, 2022). Therefore Indonesia should replicate South Africa's effort to come up with the total numbers for required finance, and include this in the JETP IP. This would serve as a guidance for how much financing should be raised and how to best prioritize the projects.

Indonesia should carefully allocate public finance to leverage maximum private investment. Limited fiscal space should not be an excuse for a lack of public funding to support energy transition when Indonesia continues spending lavishly on fossil fuel subsidies. In 2022, these subsidies reached a record IDR 551.2 trillion (USD 37 billion (Kristianus, 2023), which could have been diverted to development priorities, including energy transition measures.

5. Mitigate Risk and Ensure Smooth Implementation of the JETP by Prioritizing the Achievement of a Broad Consensus Across Government

Among the challenges South Africa is facing in the implementation of JETP are vested interests and a growing widespread support for coal. There is a trend of exploiting the current energy crisis as an argument to extend and expand the lifetime of coal operations. One crucial factor contributing to this dilemma is the lack of agreement within the government itself. The absence of a unified stance between the government entities involved has caused discord, leading to conflicting policies and objectives. To prevent the same scenario from happening in Indonesia, it should be a priority to achieve a broad consensus across the government, especially among the line ministries responsible for executing the programs that fall under the JETP's scope. By fostering agreement and alignment among these key stakeholders, the issues of coal retirement can be proactively addressed and the country can chart a coherent path toward sustainable energy alternatives.

6. Translate the Commitment to JETP Into Legislation

JETP is designed to be a multiyear deal, and the USD 20 billion pledged at COP 27 was just the first phase of funding. To ensure the country's commitment to decarbonization and coal phase-out will continue throughout multiple administrations, it should be translated into legislation similar to UU No. 17/2004 on the Kyoto Protocol and UU No 16/2016 on the Paris Agreement. Another alternative is to issue a presidential mandate that regulates the governing body of the Indonesian JETP to carry out its task until a predetermined period.



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