

STRENGTHENING INDONESIA'S JETP: OPTIMISING CLEAN ENERGY FINANCE AND INVESTMENT TO ACHIEVE NET- ZERO EMISSIONS

A Thesis

**Submitted to the Master's Study Program of Public Policy Specializing
in Climate Change at the Faculty of Social Sciences in partial
fulfillment of the requirements for the degree of**

Master of Public Policy (M.P.P)



by:

Ahmad Sabirin

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UNIVERSITAS ISLAM INTERNASIONAL INDONESIA

DEPOK

2025

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ABSTRACT

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Indonesia faces a major challenge in realizing a just energy transition towards the Net Zero Emissions (NZE) target by 2060, amid the dominance of fossil energy and bureaucratic complexity. Through the Just Energy Transition Partnership (JETP) initiative, with a funding commitment of USD 20 billion, Indonesia seeks to accelerate the use of renewable energy. However, the implementation of the Clean Energy and Investment (CEFI) policy still lags behind neighboring countries, such as Vietnam and Thailand. Based on existing research, this study identifies barriers in access and allocation of CEFI, and formulates optimal strategies to strengthen JETP in accelerating inclusive and equitable energy transition. This study uses a systematic literature review (SLR) from 72 selected publications, interesting findings show that the limitations of green financial infrastructure, regulatory uncertainty, exchange rate risk, and the performance of off-takers such as the National Electric Company (PT PLN) and state-owned oil and gas companies (PT Pertamina) are the main factors in the slow achievement of net-zero emissions. In addition, social inequality and lack of community involvement in clean energy projects also add to the achievement of the energy transition in the net-zero emission target. Therefore, this study provides recommendations for the need for pro-investment policy reform, strengthening existing legal frameworks, developing innovative financial instruments, and strengthening collaboration between central and local governments, the private sector, and local communities. The integration of CEFI and JETP is believed to accelerate the adoption of clean technology and ensure that the energy transition in Indonesia takes place in a sustainable and equitable manner, so as to contribute to reducing national and global emissions.

Keywords: *Clean Energy, Financing, Indonesia JETP, Investment, and NZE*

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ABBREVIATION DIRECTORY

ADB	: <i>Asian Development Bank</i>
CCS	: <i>Carbon Capture Storage</i>
CEFI	: <i>Clean Energy Finance and Investment</i>
CIPP	: <i>Comprehensive Investment and Policy Plan</i>
DFI	: <i>Development Finance Institutions</i>
ETM	: <i>Energy Transition Mechanism</i>
GFANZ	: <i>Glasgow Financial Alliance for Net Zero</i>
GCF	: <i>Green Climate Fund</i>
JETP	: <i>Just Energy Transition Partnership</i>
NRE	: <i>New and Renewable Energy</i>
NZE	: <i>Net-Zero Emissions</i>
PLTU	: <i>Coal-Fired Power Plants</i>
PT SMI	: <i>PT Sarana Multi Infrastruktur</i>
SDGs	: <i>Sustainable Development Goals</i>
SLR	: <i>Systematic Literature Review</i>

CHAPTER I

INTRODUCTION

1.1 Research Background

Indonesia is a developing country that faces significant challenges in the transition from dependence on fossil fuels to renewable energy. Indonesia's target is to achieve net-zero emissions (NZE) by 2060. In fact, Indonesia has committed to accelerating this transition through various policies and programs, especially the Just Energy Transition Partnership (JETP), which provides USD 20 billion in funding to support energy development in Indonesia, especially in Cirebon and Sukabumi (Sutikno, Suhanan, and Setiawan 2024).

Although Indonesia has great potential in renewable energy sources, such as solar power, which reaches 442 GW, the contribution of renewable energy to the national energy mix is still below 14% to 35%. Indonesia's reliance on fossil energy, which supplies nearly 80% of total power generation capacity, results in high carbon emissions and slows down efforts towards environmental sustainability (Keumala et al. 2025). The slow transition process is caused by various factors, including bureaucratic complexity, a lack of understanding of clean energy funding mechanisms, and challenges in implementing new technologies (Sweeney 2024). This creates an urgent need for more effective strategies for harnessing renewable energy's potential. However, Indonesia has experienced an increase in investment every time it is known, as stated in the following table.

Table 1.1: Indonesia's and Vietnam's investment in JETP

Country	Total JETP Commitment Fund (2022)	Funding Composition	Information
Indonesia	\$20 billion	- Low grant funds (~\$160 million) - A mix of loans and grants, partly commercial facilities	The grant is very small compared to the total funds, so the government has to bear most of it through the state budget. The investment climate is still considered less conducive, requiring improved tariffs and regulations to attract investors.
Vietnam	\$15.5 billion	- Mixed commitments from developed countries	Vietnam receives considerable funding compared to Indonesia, with better policy execution in

			support of the energy transition.
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Source: Just Energy Transition Partnership Indonesia Comprehensive Investment and Policy Plan 2023; Institute for Essential Services Reform (<https://iesr.or.id/>); Wind Energy Development in Indonesia: Investment Plan 2024; Marthen et al., 2022; Fauzianto et al., 2025; Ha-Duong, 2025; Izham et al, 2023; and UNESCAP, 2024

Based on the data above, we can conclude, Indonesia received the largest JETP funding commitment of \$20 billion in 2022, but the grants received were very small (around \$160 million), so the energy transition faces funding challenges and an investment climate that needs to be improved. Vietnam also received a sizable JETP fund of \$15.5 billion with a blended financing mechanism, and showed better energy transition performance than Indonesia. This comparison is concrete evidence that Indonesia is still lagging in the scale of clean energy funding when compared to Vietnam.

Therefore, this study is very important in identifying effective ways to leverage Clean Energy Finance and Investment (CEFI) in supporting JETP in Indonesia, by increasing global energy needs and commitments to reducing carbon emissions. This research aims to provide insights into funding that can accelerate the adoption of clean technology and increase Indonesia's contribution to global emission reduction targets. As in previous research, Indonesia still faces challenges in the application of renewable energy. Research conducted by Yuan et al. (2024) states that JETP is effective in bridging the funding gap and accelerating energy transition in Indonesia. Its studies show that although there is great potential for solar development, its implementation is still minimal compared to global trends (Yuan et al. 2024b).

This research's differentiator is its focus on integrating CEFI's funding mechanism with the government's policy strategy to achieve NZE. While previous research focused more on technical or policy aspects separately, this study examines the relationship between clean finance and policy implementation holistically. This study aims to produce practical recommendations that the government and the private sector can implement to accelerate the clean energy transition in Indonesia. It is hoped that this research can make a significant contribution to the development of a more effective and sustainable energy transition strategy in Indonesia. Therefore, this research will focus on three research objectives, namely, what are the main barriers to accessing and allocating CEFI to support a JETP? How can JETP accelerate Indonesia's energy transition while ensuring fairness and inclusivity? What strategies can be implemented to increase private and public investment in clean energy projects in Indonesia?

1.2 Research Question

Therefore, this research will focus on three research questions, namely:

1. What are the main barriers to accessing and allocating CEFI to support a JETP?
2. How can JETP accelerate Indonesia's energy transition while ensuring fairness and inclusivity?
3. What strategies can be implemented to increase private and public investment in clean energy projects in Indonesia?

1.3 Objectives

Therefore, this research will focus on three research objectives, namely:

1. What are the main barriers to accessing and allocating CEFI to support a JETP?
2. How can JETP accelerate Indonesia's energy transition while ensuring fairness and inclusivity?
3. What strategies can be implemented to increase private and public investment in clean energy projects in Indonesia?

1.4 Scope and Limitations

This study specifically discusses the strengthening of JETP in Indonesia with a focus on optimizing CEFI to achieve the NZE target by 2060. The scope of the research includes the analysis of clean energy policies, the identification of barriers in access and allocation of funding, as well as the formulation of strategies that can be implemented by governments and the private sector in promoting a just and inclusive energy transition. The study area covers energy transition projects in Indonesia, with the main case studies on the Cirebon-1 and Sukabumi coal-fired power plants as part of the implementation of the JETP.

However, this study has some limitations. *First*, the approach used is a Systematic Literature Review (SLR) with a secondary database and does not involve primary data from the field at large, so the findings are highly dependent on the availability and quality of the published literature being analyzed. *Second*, this study does not present an in-depth quantitative economic analysis of the JEP project financing scheme, but is more descriptive-analytical and policy-oriented. *Third*, the discussion is still limited to the electricity sector and has not yet reached other energy sectors such as transportation or industry, which also contribute greatly to emissions. Another limitation lies in the geopolitical context and evolving international policy dynamics, so some findings and recommendations may change in the medium to long term. Nevertheless, this research

remains relevant as a starting point in formulating an energy transition policy framework based on social justice, funding efficiency, and sustainability.

CHAPTER II

LITERATURE REVIEW

2.1 A Definition of a Just Energy Transition Partnership

The Just Energy Transition Partnership (JETP) is an initiative that aims to support a just energy transition, with a focus on reducing carbon emissions and utilizing renewable energy sources. JETP emphasizes the importance of investing in sustainability and environmental protection in the energy transition process (Ha-Duong 2023). This initiative aims to help developing countries overcome the challenges faced during the transition from fossil energy to renewable energy. In fact, JETP serves as a collaboration platform that involves various stakeholders, including the government, the private sector, and civil society, in formulating effective strategies in achieving sustainable renewable energy goals (Steadman et al. 2024).

Through the JETP, these developing countries can access the financial and technical support needed to accelerate their energy transition. It also includes the development of renewable energy projects, increased energy efficiency, and reduced reliance on fossil fuels. This is proof that JETP plays a role in helping developing countries achieve the carbon emission reduction targets set by the Paris Agreement (Azhgaliyeva 2023). In addition, JETP also emphasizes the importance of social justice in the energy transition. This means that this transition process must consider the social and economic impact on vulnerable communities, including workers in the fossil energy sector who may be out of work. Therefore, JETP encourages the development of training programs and the creation of new jobs in the renewable energy sector to ensure that all parties can participate in this transition (Gürtler 2025).

Table 2.1: The main definition of JETP

Aspects	Explanation
Main Definitions	- International partnerships that support developing countries in accelerating the transition to just, sustainable, and inclusive energy, with financial and technological assistance, from policies of developed countries.
Main Objectives	- Reducing dependence on fossil energy - Increasing the use of renewable energy - Ensuring social and economic justice in the transition process
The Principle of Justice	- Leaving workers and communities vulnerable - Ensuring community involvement - Protection of vulnerable groups
Partnership	- Collaboration between donor countries and recipient partner countries in the

Approach	form of public and private funding
Forms of Support	- Climate finance (grants and loans) - Technology transfer - Strengthening capacity and transition policies

Sources: The data is managed based on multiple references (Ha-Duong, 2023; Steadman et al, 2024; Azhgaliyeva, 2024; Gürtler, 2025)

2.2. A Definition of Clean Energy Finance and Investment (CEFI)

Clean Energy Finance and Investment (CEFI) is a collection of financial activities, mechanisms, and instruments specifically aimed at supporting the development, implementation, and expansion of clean energy technology (Ha 2024). Clean energy refers to energy sources that significantly reduce greenhouse gas emissions and negative impacts on the environment compared to fossil fuels. CEFI includes mobilizing financial resources from the public and private sectors to finance renewable energy projects, energy efficiency, and other green technology innovations that can accelerate the transition to a low-carbon economy (Tian 2018).

Therefore, CEFI encompasses processes that link capital flows and investments into clean energy projects and infrastructure that have a positive impact on the climate and contribute to the Sustainable Development Goals (SDGs). With a focus on risk-taking investments and long-term returns, CEFI aims to create a financial ecosystem that supports the growth of green energy technologies such as solar, wind, bioenergy, and energy storage technologies, while ensuring affordable and sustainable energy access (Latif et al. 2023). In other words, CEFI covers various forms of financing for bank loans, green bonds, special investment funds, and yield-based financing. This approach focuses on innovation in financial instruments and the role of public policies that create incentives to reduce investment risks in clean energy projects, thereby increasing investor interest and accelerating the adoption of energy-efficient and low-carbon technologies (Tacheva et al. 2025).

In fact, this CEFI not only facilitates direct funding of renewable energy projects, but also encourages research and development of new technologies as well as institutional and social capacity building. CEFI plays a strategic role in overcoming financial and structural barriers to achieving global emission reduction targets and accelerating the transformation of energy systems in an inclusive and sustainable manner (Maulidia et al. 2019).

The relationship between CEFI and JETP is very important in achieving a consensual and effective energy transition. CEFI provides the necessary financial resources to run the JETP, while the JETP ensures that these projects are carried out in a socially responsible

and equitable manner. Together, the two have created a framework that not only mitigates climate change but also promotes financial mechanisms with social considerations that are essential in achieving long-term sustainability and justice in energy transition programs (Karka, Johnsson, and Papadokonstantakis 2021). In simple terms, CEFI and JETP can be understood as two things that are interrelated and play an important role in facilitating the transition to a sustainable energy future. CEFI focuses on mobilizing financial resources for clean energy initiatives, while JETP emphasizes the importance of social justice and equality in the energy transition process within the JETP itself. Together, the two provide an undivided approach to addressing the challenges of climate change and ensuring a fair and inclusive energy transition for all.

2.3 A Definition of Indonesia's Net-Zero Emission

Net-zero emissions can be understood as conditions in which the total greenhouse gas emissions released into the atmosphere can be offset by the amount of emissions that are successfully absorbed or expelled from the atmosphere; therefore, there is no net increase in greenhouse gases that contribute to global warming. In the context of Indonesia itself, which is a developing country with an economy based on natural resources, achieving net zero emissions is a major challenge that requires fundamental transformation in various economic sectors (Fankhauser et al. 2022). In the Indonesian context, net-zero emissions mean achieving a balance between carbon emissions generated by human activities, such as industry, transportation, and listeric plants, and carbon sequestration capacity through forests, peatlands, and other carbon mitigation technologies, including carbon capture and sequestration (Siregar 2024).

The importance of this definition is supported by Indonesia's commitment in the Nationally Determined Contributions (NDC) in the Paris Agreement, which sets an emission reduction target of 29% nationally and up to 41% with international support by 2030 (Tacconi, L., & Muttaqin, M. Z., 2019). The strategy to achieve net-zero emissions includes the energy transition from fossil fuels to renewable energy, improving energy efficiency, rehabilitating forests and land, and developing green technologies. Furthermore, the achievement of net-zero emissions in Indonesia needs to pay attention to aspects of social justice and the welfare of the people affected by these activities, so that the energy and economic transition process does not leave vulnerable groups vulnerable and continues to prioritize inclusive economic growth (Hastuti 2024).

In detail, Indonesia's net-zero emission efforts include:(Rahmanta et al. 2023) 1) Reducing emissions from the energy sector by reducing the use of coal and developing

renewable energy sources such as solar, wind, and bioenergy. 2) Increase carbon sequestration through sustainable forest management, peatland restoration, and biodiversity conservation. 3) Technological innovations for energy efficiency and emission capture (CCS and other carbon-negative technologies). 4) Strengthening policies and regulations that support national and international climate targets.

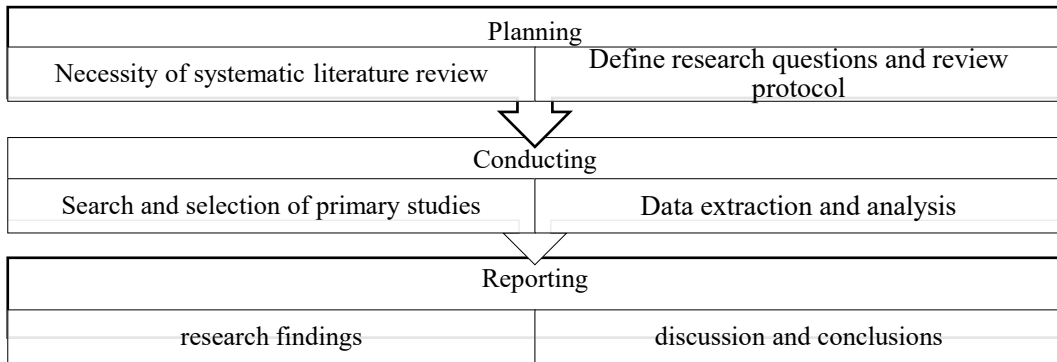
CHAPTER III

APPROACH

3.1 Research Design and Approach

This research used the systematic literature review (SLR) method, broadly divided into three stages starting from planning, conducting, and continuing with reporting (Wardeh and Marques 2021).

The Table 3.1: Main of SLR



In the Planning stage, the researcher determines the urgency of conducting an SLR and formulates research questions and study protocols. Furthermore, in the Conducting stage, a search and selection of relevant primary studies is carried out, followed by the process of data extraction and analysis. Finally, the Reporting stage includes reporting research findings, as well as discussing and drawing conclusions based on the results of systematic studies. This process helps ensure transparency, objectivity, and replication in literature-based research.

Table 3.2: The SLR framework

Stages	Sum	Database	Keywords
First Stage	753 (estimation)	- Google	Indonesia and Energy Transition
Second Stage	327 (estimation)	Scholar	CEFI, Indonesia, and Energy Transition
Third Stage	121 (estimation)	- Elsevier	Indonesia, Net Zero Emissions, and JETP
Fourth stage	96 (estimation)	- Nature - Scopus	Climate Change, Indonesia, JETP, and CEFI
Fifth stage	83 (estimation)	- SSRN	Climate Change, Net Zero Emissions, and CEFI

This stage consists of five stages of literature screening. In the first stage, there were an estimated 753 documents obtained from various databases such as Google Scholar,

Elsevier, Nature, Scopus, and SSRN with the general keyword "Indonesia and Energy Transition". The second to fifth stages showed a further screening process based on more specific keyword combinations, such as "CEFI", "JETP", and "Net Zero Emissions", resulting in 72 selected documents in the final stage. This process reflects a gradual and systematic approach to screening thematically and methodologically relevant literature (van Dinter, Tekinerdogan, and Catal, 2021).

Table 3.3: SLR study selection of literature using inclusion and exclusion criteria

Decision	Criteria
Inclusion	When the predefined keywords exist as a whole or at least in the paper's title, keywords, or abstract section.
Inclusion	The paper was published in a scientific, peer-reviewed journal.
Inclusion	The paper should be written in the English language.
Exclusion	Papers that were published after 2018
Exclusion	Papers that are not primary/original research
Exclusion	Papers that are not accessible, review papers, and metadata
Exclusion	Papers that are duplicated within the search documents
Inclusion	When the articles address at least one MES indicator
Inclusion	Studies that present pieces of evidence on synergic/trade-off studies

In the table above, at this stage, it determines the inclusion and exclusion criteria are determined and used in the literature selection process. inclusion includes articles published in accredited scientific journals written in English, as well as studies that discuss MES (multi-environmental sustainability) indicators or present evidence related to synergies and trade-offs. On the other hand, the exclusion criteria exclude articles published after 2018, which are not primary research, are not accessible, are reviews or metadata, or are duplicates in search results (Kocaman and Coşgun 2024).

3.1 Scope and Variables

This research focuses on efforts to strengthen the Just Energy Transition Partnership JETP in Indonesia through the optimization of CEFI to support the achievement of the NZE target by 2060. The scope of the research includes the identification of structural and policy barriers in access to and allocation of clean energy financing, the analysis of the role of key actors, such as central and local governments, the private sector, international donors, as well as the evaluation of policy reform strategies and innovative financial instruments that can accelerate the energy transition in a just and sustainable manner.

Geographically, this study focuses on Indonesia, with special case studies in two areas of JETP implementation, namely PLTU Cirebon-1 and PLTU Sukabumi. These two locations were chosen because they represent a pilot project for the early retirement of coal steam power plants that are a priority in the JETP scheme. This research not only discusses technical and economic aspects, but also pays attention to the social dimension and inclusive governance of the energy transition.

The main variables in this study include:

Table 3.4: Kind of Variables

Independent variables	- The existence and implementation of clean energy support policies. - Financing and investment schemes - Capacity of central and local government institutions - Availability of de-risking instruments for clean energy projects.
Depend variable	- Access and allocation of CEFI funding for energy transition projects. - Acceleration of the realization of projects within the framework of JETP. - Social justice in the implementation of the energy transition.
Moderation variable	- The involvement of local stakeholders, such as the community, NGOs, and local business actors. - Regulatory stability and legal certainty. - International support in the form of grants and soft loans

CHAPTER IV

FINDINGS

4.4 The barriers to accessing and allocating CEFI to JETP

To achieve a just energy transition in Indonesia, access to and allocation of clean energy financing and investment a significant challenges (Setyowati 2021). The main factors, such as lack of adequate infrastructure, regulatory uncertainty, and limited knowledge and capacity among stakeholders, are major barriers to accessing the financing needed to support this transition. In addition, challenges in the allocation of clean energy financing and investment are also influenced by the unequal distribution of resources and access to finance and investment in various regions (Resosudarmo, Rezki, and Effendi 2023).

Table 4.1: The kinds of barriers to accessing and allocating CEFI to JETP

Category	Obstacles	Explanation
Regulation and Policy	Policy uncertainty	Energy policy inconsistencies, for example, there is still support for coal despite the transition commitment.
	Licensing barriers	The licensing process for clean energy projects is often slow and complex.
Government Capacity	Low technical capacity	Local governments and related agencies often lack the expertise to prepare proposals that are worthy of funding.
	Fiscal limitations	The state budget is limited to accompany private investment or finance initial projects.
Financial Sector	High investment risk	Clean energy projects are considered high-risk, especially in emerging markets.
	Lack of de-risking instruments	Lack of risk guarantees from the government or donor institutions.

Source: The data is managed by the author.

4.4.1 Regulation and Policy

a. Policy Uncertainty

In the implementation of the JETP in Indonesia, policy uncertainty is a major challenge, especially in the regulatory and energy policy sectors. This inconsistency in energy policy can be seen from the government's continued support for the use of coal, even though Indonesia has committed to making the transition to clean energy (Wardhana et al. 2024).

This condition creates uncertainty for investors and business actors because inconsistent policy direction changes can affect the feasibility of long-term investments. This uncertainty is contrary to Article 3 of Law Number 30 of 2007 concerning Energy, which expressly mandates the government to increase the use of new and renewable energy. The discrepancy between the policies implemented and existing regulations casts doubt on the government's commitment to supporting a sustainable energy transition. In addition, Government Regulation Number 79 of 2014 concerning National Energy Policy has set a renewable energy mix target of 23% by 2025 (Budiarto, A. W., & Surjosatyo, A., 2021). However, in practice, the implementation of this policy is certainly still inconsistent and has not been fully reflected in the field. This certainly shows that there is a gap between policy targets and retaliation in the energy sector today (Rizky et al. 2024). This condition requires human resources and policy certainty from the government, especially in encouraging stable investment and supporting the acceleration of the energy transition. Consistency in the implementation of energy policies is essential to realize renewable energy targets and meet Indonesia's commitments in the JETP effectively.

b. Licensing Barriers

In addition to policy uncertainty, licensing barriers are also a crucial issue. The licensing process for clean energy projects is often slow and complex, thus hindering the acceleration of the realization of JETP-supported projects (Yuan et al. 2024b). This is exacerbated by the low technical capacity of local governments and related agencies, which often lack the expertise to draft viable project proposals. In fact, Article 7 of Law No. 30 of 2007 affirms the role of local governments in energy management, but without training support and capacity building, funding opportunities are difficult to optimize. In terms of the financial sector, fiscal limitations are a big obstacle. The limited state budget makes it difficult for the government to assist private investment or finance initial clean energy projects. In addition, clean energy projects in Indonesia are often considered high risk by investors, especially in emerging markets (Khoirunurrofik et al. 2025).

Articles 12 and 14 of Law No. 30 of 2007 actually regulate funding and incentives for the development of new and renewable energy, but the implementation is still not optimal. The lack of de-risking instruments (risk guarantees) from the government or donor institutions is also a big obstacle, so investors are reluctant to invest without adequate risk guarantees. This can be seen in JETP projects in Indonesia that face these challenges, namely the early retirement plan of the Cirebon-1 coal-fired power plant in West Java and the Sukabumi coal-fired power plant (Yuan et al. 2024b).

These two projects are included in JEP's energy transition priority list because they are part of efforts to reduce carbon emissions through the early termination of coal-based steam power plant operations. However, the implementation of early retirement of coal-fired power plants in Cirebon and Sukabumi faces various obstacles, ranging from regulatory uncertainty, a lengthy licensing process, to negotiations with owners and investors regarding compensation and financing schemes (Yuniza et al. 2025). In fact, accelerating the implementation of JETP, including in projects in Cirebon and Sukabumi, requires strengthening regulations, harmonizing sectoral policies, simplifying the licensing process, increasing the technical capacity of local governments, and providing effective de-risking instruments so that the clean energy transition in Indonesia can run smoothly and sustainably.

4.4.2 Government Capacity

a. Low-Capacity Technical

Local governments and related agencies often lack technical expertise, particularly in drafting clean energy project proposals that meet the standards of international funding institutions or investors. As a result, many project proposals are not feasible to fund because they do not meet the technical, administrative, or environmental requirements set by JETP donors or investors (Seiler, Brown, and Matthews 2023). This causes the opportunity to obtain financing from the JETP scheme or global financial institutions to be very limited. In addition, the lack of understanding of the mechanisms of blended finance, green finance, and innovative investment instruments also hinders local governments in accessing non-state budget funding sources (Ha-Duong and Cassen 2024).

b. Fiscal Limitations

The fiscal limitations of the central and regional governments are a big challenge in assisting private investment or financing initial energy transition projects (Leonhardt et al. 2022). The limited state budget makes it difficult for the government to provide co-financing, which is often the main requirement in international financing schemes, including JETP. In addition, fiscal limitations also hamper the government's ability to provide fiscal incentives, subsidies, or risk guarantees that can reduce investment risks for the private sector. As a result, many clean energy projects end up unable to run due to a lack of seed funding or inability to attract investors (Falcone 2023).

Impact on the JETP Project: A real example of this challenge can be seen in the early retirement plans of the Cirebon-1 and Sukabumi coal-fired power plants. To gain access to JETP funding, local governments need to prepare a mature proposal, including an analysis

of social, environmental, and worker transition plans. However, limited technical and fiscal capacity makes this process slow and often does not meet international donor standards. As a result, the process of distributing JETP funds and realizing investments has been slow. In fact, the low technical capacity of local governments and fiscal limitations are the main obstacles to accessing financing and investment for JETP (Schoenmaker and Schramade 2019).

4.4.3 Financial Sector

In the financial sector, there are actually several challenges, especially in accessing investment financing and investment to JETP in Indonesia. These challenges consist of high investment risk and a *Lack of De-risking Instruments*.

a. High Investment Risk

Clean energy projects in Indonesia, including those supported by JETP, are considered to have high investment risks. This is mainly due to ongoing policy uncertainty, fluctuations in the rupiah exchange rate against the US dollar, and income uncertainty from renewable energy projects. This condition, of course, will make investors hesitant to invest capital, especially in emerging markets such as Indonesia, where infrastructure is not fully adequate and initial investment costs are high. The investment risk is even greater when the clean energy project involves the early completion of coal-fired power plants (PLTU), such as the early retirement of the Cirebon-1 PLTU and the Pelabuhan Ratu PLTU, which are part of the JETP (Yuan et al. 2024a).

This early termination of relations requires the certainty of compensation and fair treatment for workers and the affected community so as not to cause social and economic conflicts to occur. The cost of early retirement of coal-fired power plants is estimated to reach billions of US dollars, so international funding support is essential to ensure that this funding runs smoothly and in line with expectations. The early retirement of the Cirebon-1 coal-fired power plant with a capacity of 660 MW has been announced and is scheduled to cease operations in 2035, seven years earlier than the original schedule (Yuan, et., al, 2024).

This coal-fired power plant will be replaced by a combination of renewable energy plants, such as solar, wind, and waste energy. This transition is expected to prevent an economic burden of up to US\$8.1 billion and significantly reduce deaths from air pollution (Erdiwansyah et., al., 2021). However, the success of this transition is highly dependent on policy certainty and adequate investment support.

b. Lack of De-risking Instruments

The lack of de-risking instruments or risk guarantees from the government and donor institutions is still a major obstacle in attracting private investment to the renewable energy sector in Indonesia. De-risking instruments such as revenue guarantee, political risk insurance, and credit guarantee are needed to reduce risk perception in the eyes of investors, especially considering the high risk of default, policy changes, and regulatory uncertainty that still often occur in Indonesia (Steyn 2024).

Without adequate risk guarantees, many international financial institutions and investors are reluctant to finance energy transition projects because they are worried about the stability of their investments in the future (“Supporting State-Owned Enterprise Reform in the Philippines” 2025). The Indonesian government has actually begun to respond to this need by issuing Minister of Finance Regulation Number 5 of 2025, which provides default risk guarantees for renewable energy projects. This policy is expected to make it easier for PLN and private electricity developers to obtain funding with lower interest rates, while increasing investor confidence in energy transition projects. In addition, the government also provides fiscal incentives and financing facilities through assigned SOEs, as part of risk mitigation efforts in the renewable energy sector (Yan, Qamruzzaman, and Kor 2023).

However, the implementation of de-risking instruments in Indonesia is still limited and not optimal enough to support the scale of investment needed. Of the nine recommended de-risking instruments, ranging from project and financial guarantees, performance-based lending, asset securitization, green bonds, to soft credit, only a small number have actually been widely adopted in Indonesia (Volz, Lo, and Mishra 2024). In fact, around 80-85% of the national energy transition financing needs are expected to come from the private sector, so the role of the government in creating a policy framework that is able to reduce investment risks is very crucial (Al Irsyad 2019).

Both of these challenges have led to limited access to financing and investment for JETP projects. Investors and international financial institutions tend to choose projects in countries with a more stable investment climate and strong risk guarantee instruments. As a result, despite the large funding commitment from the JETP scheme, the realization of investment in the field is slow and not optimal.

4.5 Accelerate Indonesia’s Energy Transition in Ensuring NZE Through JETP

4.5.1 Emission Reduction Targets and Renewable Energy Acceleration

The JETP program in Indonesia is designed to accelerate the clean energy transition to NZE 2050, with an initial funding commitment of USD10 billion from donor countries and USD10 billion from the private sector via the Glasgow Financial Alliance for Net Zero

(GFANZ) (Gould, Takashiro, and Storey 2024). Despite obtaining such donors, on the other hand, its implementation faces significant challenges, including delays in disbursement of funds and global political uncertainty, such as the United States' exit from the Paris Agreement post-Trump leadership. However, the Indonesian government and partners such as Japan, Germany, and multilateral financial institutions remain committed to continuing this program (Burrows and Braml 2025).

The electricity sector's emission target is pegged to reach a peak of 290 million tons of CO₂ by 2030, with a portion of renewable energy at least 34% (Gould, Takashiro, and Storey 2024). To achieve this, the Comprehensive Investment and Policy Plan (CIPP) is the main roadmap, identifying a funding need of USD97 billion through 2030 for renewable energy projects, power grids, and a just transition (Gould, Takashiro, and Storey 2024). Projects such as the early retirement of the Cirebon-1 coal-fired power plant and the development of the Saguling floating solar power plant are priorities, even though the process is hampered by bureaucracy.

Global political dynamics, especially the withdrawal of the United States from the JETP, have sparked concerns over dependence on foreign funding. However, the government responded by exploring alternative sources such as the Asian Development Bank (ADB) and the Green Climate Fund (GCF), as well as potential collaborations with China. Parallel efforts include the establishment of a National Energy Transition Task Force (TEN) to strengthen inter-ministerial coordination and revise regulations that inhibit renewable energy (Darma 2025).

Currently, the aspect of a just transition is Indonesia's focus, through a multi-stakeholder framework, such as economic diversification and protection of affected communities. Mechanisms such as retraining coal-fired power plant workers, inclusion of marginalized groups, and strengthening renewable energy MSMEs are integrated in CIPP. However, we need to acknowledge that the main challenge remains Indonesia's dependence on coal (60% of the energy mix) and the risk of an energy crisis due to the impact of climate on coal logistics (Kurniawan, R., Trencher, G. P., Edianto, A. S., Setiawan, I. E., & Matsubae, K. 2020).

Nowadays, there has been strong support from international partners despite geopolitical dynamics. Countries, such as Japan and Germany, reaffirmed financial contributions, while GFANZ continued to encourage private investment. On the domestic side, the alignment of the JETP target with planning documents such as the PLN Electricity Supply Business Plan (RUPTL) 2025-2034 is still being prepared based on the National Electricity General Plan (RUKN), is the key to ensuring policy consistency. Despite

criticism of the slow implementation, the JETP remains a vital instrument for Indonesia to achieve NZE while maintaining long-term energy security (Irbah et al. 2025).

3.2.2 Financial Mobilization and Coal Phase-Down

The Cirebon-1 coal-fired power plant is a prime example with early retirement funding of USD198 million from ADB, cutting the operating period to 7 years faster (2035 vs 2042) (Yuan et al. 2024b). The coal phase-down strategy does not only rely on the early retirement of coal-fired power plants, but also on the integration of technologies such as ammonia co-firing and Carbon Capture Storage (CCS) (Sun et al. 2023). On the other hand, we need to see that this approach has the risk of increasing operational costs and has not been proven to be effective in reducing emissions significantly. Nevertheless, the Indonesian government accelerated the retirement of 13 other coal-fired power plants through the Energy Transition Mechanism (ETM) managed by PT Sarana Multi Infrastruktur (PT SMI), although the process was hampered by the complexity of contract negotiations and the risk of increasing electricity tariffs (Hakim, 2024).

Here, we can see that GFANZ plays a critical role in raising private capital through special working groups involving global banks such as Citi, Deutsche Bank, and MUFG. Initiatives such as the USD60 million Saguling Floating Solar Power Plant project (as of April 2025) are concrete evidence of this collaboration, with funding from Proparco (France) and DEG (Germany). The main challenge lies in investment risk imbalances, where 78% of JETP projects still rely on government guarantees to attract private parties (JETP, 2024).

Indonesia itself responded positively by issuing supporting policies such as Minister of Finance Regulation No. 103/2023 concerning the Energy Transition Platform and electricity tariff revisions aimed at creating a more attractive investment climate. However, implementation in the field is still constrained by overlapping regulations and resistance from PLTU shareholders. Although progress can be seen in the pilot project, only 15% of the total JETP fund commitment has been realized as of May 2025. Geopolitical dynamics such as the uncertainty of the United States' contribution after the 2024 election exacerbate the challenges, forcing Indonesia to optimize blended finance schemes and South-South cooperation with China (Franczak and Warner, 2024).

Financial mobilization and reduction of dependence on coal through JETP are crucial strategic steps for Indonesia in achieving the NZE target in 2050 (Yuan et al. 2024b). While technical, financial, and political challenges are still considerable, synergies between governments, international institutions, and the private sector open up opportunities to

accelerate a just and sustainable energy transition. The author found, the success of this program will depend heavily on Indonesia's ability to manage investment risks, overcome regulatory barriers, and ensure the active involvement of the affected communities and workers in the transition process.

4.2.3 Policy Alignment and Just Transition Framework

The establishment and implementation of the Comprehensive Investment and Policy Plan (CIPP) is an important milestone in the framework of a just energy transition in Indonesia through JETP. CIPP, which was launched in November 2023, serves as a living document that provides a strategic roadmap to support the decarbonization of the electricity sector. The document not only contains technical and policy recommendations, but also highlights the social, financial, and investment needs that must be met to achieve ambitious targets, such as a 44% renewable energy mix and a reduction in electricity sector emissions to 250 million tonnes of CO₂ by 2030 (McKinsey, 2024; IESR, 2025).

CIPP is designed to be updated annually, adapting to market developments, policy priorities, and global dynamics. Thus, the CIPP becomes a flexible reference for governments and international partners in identifying priority projects, formulating policies, and allocating funding effectively. It is predicted that by 2030, the identified investment needs will reach USD 97 billion, including renewable energy generation projects, transmission networks, energy storage, and equitable transition programs (The Institute for Essential Services Reform, 2025).

In its implementation, JETP itself forms various multi-stakeholder working groups involving technical, policy, financial, and fair transaction elements. This working group ensures policy harmonization across ministries and institutions, as well as encourages civil and local community involvement. This process also emphasizes the importance of coordination in infrastructure development, early retirement of coal-fired power plants, and the acceleration of the integration of renewable energy into Indonesia's national electricity system.

In fact, it is one of the main pillars in the JETP, with an emphasis on the protection of communities and workers who are affected by the impact of the transition from fossil energy to renewable energy. Workforce retraining programs, diversification of the local economy, and empowerment of MSMEs in the renewable energy sector are integral parts of this strategy. The government also seeks to ensure that the transition process does not create social and economic inequality, but rather opens up new opportunities for inclusive and sustainable growth (Castaneda Rodriguez et al. 2024).

In addition to the social aspect, CIPP also recommends various policies to overcome regulatory barriers and strengthen investment. One of them is the alignment of planning documents, such as PLN's RUPTL, with the JEP target, as well as the preparation of regulations that support the development of renewable energy and energy efficiency. CIPP also identified more than 400 priority projects ready to be funded, with nearly 50 projects selected as top priorities based on their strategic value to the national energy transition pathway (Rudolph, Maulidia, and Busyrah 2025).

4.6 The Strategies to Increase CEFI Through JETP to Achieve Net-Zero Emissions

4.6.1 Regulatory and Policy Reform

Indonesia has a strong commitment to developing renewable energy as part of the national strategic program to achieve energy security and sustainable development. The legal framework underlying renewable energy policy in Indonesia is regulated in Law Number 30 of 2007 concerning Energy (Law No. 30 of 2007). In addition, Government Regulation Number 79 of 2014 concerning National Energy Policy (Government Regulation 79 of 2014) is also an important foundation. Law No. 30 of 2007 establishes the legal basis for energy management in Indonesia, including the development and utilization of renewable energy.

Article 2 of Law 30 of 2007 emphasizes that energy is managed based on the principles of utility, rationality, equitable efficiency, increasing added value, sustainability, community welfare, preservation of environmental functions, national resilience, and integration by prioritizing national capabilities. As a derivative of Law 30 of 2007, Government Regulation Number 79 of 2014 regulates the National Energy Policy, which serves as a guideline in energy management until 2050. This Government Regulation targets an increase in the portion of NRE in the national energy mix to at least 23% by 2025 and a minimum of 31% by 2050, as long as the economy is met (The Indonesian Ministry of Energy and Mineral Resources, 2019). This policy includes energy development priorities, such as maximizing the use of renewable energy, reducing dependence on petroleum, and optimizing the use of natural gas and new energy.

The government strengthens its commitment to the energy transition through Presidential Regulation Number 112 of 2022 concerning the Acceleration of Renewable Energy Development for the Provision of Electricity. This Presidential Regulation is a new regulation that strengthens the Government's commitment to implementing the energy transition towards Net Zero Emission (NZE). Article 20, paragraph (2) of the Energy Law states that the provision of energy by the Government and/or local governments is

prioritized in undeveloped areas, remote areas, and rural areas by using local energy sources, especially renewable energy sources.

Presidential Regulation 112 of 2022 aims to accelerate the development of NRE-based power plants with an emphasis on accelerating licensing, simplifying regulations, and setting competitive selling prices for NRE electricity. Ministerial Regulation No. 10 of 2025 is a legal umbrella in efforts to reduce greenhouse gas emissions and strengthen the role of new and renewable energy (NRE) in Indonesia. The government targets the contribution of NRE in the national energy mix of 23% by 2030 (Wuryandani, 2024). This policy encourages the priority development of renewable energy plants, such as solar power plants, solar power plants, and Bioenergy power plants.

The government and the House of Representatives continue to draft regulations that support the development of NRE in Indonesia. The current RUPTL has only 30% NRE composition, while the one we are compiling has jumped to 48% (The Indonesian Ministry of Energy and Mineral Resources, 2024).

4.6.2 Government Capacity Strengthening

Strengthening government capacity is one of the important pillars in accelerating the clean energy transition in Indonesia, especially within the framework of the JETP (Chotimah 2023). The central and regional governments must continue to coordinate and cooperate in increasing technical capacity through training and mentoring in order to be able to prepare renewable energy project proposals that are worthy of financing. Although for the period of 2024-2025, various intensive trainings have been carried out in collaboration with international institutions, which bring knowledge transfer and global best practices in the preparation of feasibility studies and management of clean energy projects. Especially in areas that are pilot projects of JETP, such as Cirebon and Sukabumi, strengthening this technical capacity is very crucial.

In Cirebon, the development of solar and hybrid power plants is being accompanied by international consultants to ensure technical standards and investment feasibility are met. Meanwhile, in Sukabumi, the local government, together with the Ministry of Energy and Mineral Resources and JETP partners, held an intensive workshop to improve capabilities in the management of renewable energy projects and monitoring socio-economic impacts. This approach ensures that the project is not only technically ready, but also supported by the local community according to the principle of just transition. On the other hand, it is still seen that the JETP project needs to be evaluated, especially regarding financing and investment.

In addition to increasing technical capacity, strengthening fiscal support is the main strategy of the current Indonesian government to attract private investment in clean energy projects. In the 2025 State Budget, the government allocates a larger budget for the project preparation stage, including funding for feasibility studies and pilot projects. The Ministry of Energy and Mineral Resources proposed an indicative ceiling of IDR 5.19 trillion (VOI, 2024), most of which is intended for the development of clean energy infrastructure in areas such as Cirebon and Sukabumi, including solar power plants and coal-fired power plants, as well as the development of natural gas networks (Karman et al. 2024). This allocation is an important initial capital to reduce investment risks and accelerate project realization.

The government also leverages grants and international assistance obtained through JETP to support pilot projects in the region. The USD 1.1 billion grant that has been committed by JETP partners is used to finance clean energy projects in Cirebon and Sukabumi, which are models for a just energy transition (Tanahair.net, 2025). This assistance not only helps with technical and financial aspects but also supports community engagement programs and the protection of vulnerable groups so that the benefits of the energy transition can be widely felt (Fünfgeld and Wischermann 2024).

Until now, despite budget efficiency in several ministries due to Presidential Instruction Number 1 of 2025, the government continues to prioritize funding for energy security and energy transition in disadvantaged, frontier, and outermost areas (Putra 2025). In Cirebon and Sukabumi, renewable energy projects continue to run with the support of the State Budget and Regional Budget, albeit on an adjusted scale. This shows the commitment of the Indonesian government to maintain the sustainability of the energy transition program while ensuring the effectiveness of the use of the budget.

Cross-sectoral collaboration between the central government, local governments, the private sector, and international institutions in the JETP strengthens the governance and implementation of clean energy projects. The JETP task force, involving various ministries, state-owned enterprises, and international partners, routinely coordinates to supervise the implementation of projects in Cirebon and Sukabumi. This approach ensures that technical capacity building and fiscal support run synergistically, so that emission reduction targets and increasing the renewable energy mix can be achieved as planned.

4.6.3 Innovation in the Financial Sector

Indonesia is developing innovations in the financial sector to accelerate the clean energy transition, with a main focus on developing blended finance schemes. This scheme combines public, donor, and private funds to reduce investment risk (de-risking) so that

clean energy projects become more attractive to investors. Currently, blended finance is the key to mobilizing the large funds needed by Indonesia (Mukhtasor et al. 2023), considering that the investment needs of the energy sector reach USD 25-30 billion until 2030 (AEER, 2024)

Development Finance Institutions (DFIs) play an important role as the first loss guarantee in this blended finance scheme. With the risk guarantee from DFI, private investors are more confident in investing their capital in renewable energy projects that have been considered high-risk. PT Sarana Multi Infrastruktur (PT SMI) is an example of an institution that actively manages blended finance in Indonesia, facilitating more than 62 projects with funding commitments of USD 3.19 billion through the SDG Indonesia One platform (PT SMI, 2025). PT SMI also collaborates with various national and international banks to support clean energy infrastructure projects, including the issuance of green bonds and green sukuk worth trillions of rupiah (Kahina, H., & Lamya, B. 2025).

The Government of Indonesia also provides innovative de-risking instruments to support clean energy investment. One of the important instruments is the payment guarantee for off-takers such as PLN, which ensures that electricity payments from renewable energy projects run smoothly and reduces credit risk for investors. In addition, exchange rate risk insurance also needs to be developed to protect both foreign and local investors from currency fluctuations that can affect the financial feasibility of the project. The institution is part of the government's strategy to create a friendly, stable, and attractive investment climate for foreign and local investors.

The development of other green financial instruments such as green bonds, green sukuk, and climate funds is also accelerating. The government and the Financial Services Authority (FSA/OJK) need to be active in encouraging the issuance of this instrument as an alternative to sustainable financing (Setyowati 2023). By early 2025, several green sukuk and sustainable bond issuances will have managed to raise trillions of rupiah allocated for renewable energy and energy efficiency projects. This innovation not only expands sources of financing but also increases capital market awareness of the importance of sustainable investment.

There needs to be strong and continuous collaboration between governments, international financial institutions, and the private sector within the framework of the JETP to be the main catalyst in the development of this financial innovation. Through this JEP, Indonesia will gain access to multilateral funding and technology transfer from partners such as the World Bank, the Asian Development Bank, and the GFANZ. The blended finance scheme in the JETP allows the consolidation of various sources of funds and

financial instruments to reduce risks and accelerate the realization of clean energy projects that have a major impact on reducing national carbon emissions (Chen, Wu, and Zhang 2024).

In addition, innovative programs such as the Catalytic Climate Finance Facility, which will be launched in 2025, will actually open up opportunities for academics and innovators to propose blended finance-based projects that support climate action. The scheme provides funding for market-ready climate change adaptation and mitigation projects, including the development of renewable energy technologies and energy efficiency. This effort strengthens Indonesia's climate finance ecosystem and accelerates the implementation of inclusive and impactful green solutions. Therefore, financial innovation in the clean energy sector supported by blended finance and de-risking instruments must be an important pillar for Indonesia in the development of JETP.

4.6.4 Collaboration and Stakeholder Engagement

Strengthening collaboration between the government, the private sector, and the community is the main foundation in accelerating Indonesia's energy transition through the Just Energy Transition Partnership (JETP). The government has established a JETP Secretariat that serves as a coordination and planning center, connecting various stakeholders from the policy level to project implementation. The governance structure of the JETP consists of three layers, namely the Indonesia Decarbonization Task Force, the JETP Secretariat, and the implementation of the project, which jointly regulate the acceleration of the energy transition program, including social justice aspects. The establishment of this task force ensures effective policy and financing synergy as well as strict oversight of the implementation of clean energy projects.

The involvement of the community, especially vulnerable groups, is an important concern in every stage of the energy transition so that the principle of just transition can be realized. The need to involve various stakeholders, including local governments, state-owned enterprises, and international organizations, to develop guidelines for the operationalization of the just transition framework in the JETP is important to build public trust and the success of the JETP itself from various sides, such as the national economy, justice, and especially the energy transition itself. On the other hand, there is also the need for the active participation of communities, women, and vulnerable groups in policy formulation as well as transparent monitoring and evaluation mechanisms. This approach can ensure that no party is left behind in the national energy transformation process.

In order to encourage international investment, Indonesia must also actively collaborate with various global financial institutions and initiatives such as the GFANZ (Broekhoff and Verkuijl 2024). The Indonesian government also needs to be consistent in providing various fiscal and non-fiscal incentives to attract foreign and domestic investors. This incentive must also include ease of licensing, tax reduction, with regulatory support that is conducive to the development of clean energy projects, including JETP. The strategy is based on efforts to strengthen the domestic component level in encouraging the independence of the national industry while creating new jobs (Melkysedek et al. 2024).

Coordination between stakeholders continues to be strengthened through the gas energy transition, both in the JETP project and in other projects. This task force is led by the Coordinating Minister for Maritime Affairs and Investment, which involves relevant ministries and strategic SOEs. This task force acts as a policy director and supervisor of the implementation of the energy transition program, which ensures the integration between technical, social, and economic aspects that are intertwined in harmony. Thus, it is hoped that the implementation of JETP can run inclusively and sustainably. Private sector involvement is also key to the success of JETP. Through innovative financing mechanisms and strategic partnerships, clean energy projects, such as the development of solar, wind, and energy efficiency power plants, can be realized with generous capital support. This collaboration will also open up opportunities for technology tariffs and capacity building of man-made resources, so that Indonesia is able to accelerate the energy transition through JETP.

4.6.5 Clean Energy Project and Infrastructure Development

The development of clean energy projects and infrastructure in Indonesia is now increasingly closely related to the JETP initiative. Through JETP, Indonesia is committed to accelerating energy tariffs in a fair and equitable manner. One of the main pillars of JETP, which was partially mentioned in the previous discussion, is to support pilot projects and innovations in the field of renewable energy. This initiative is in line with JETP's target to increase the share of renewable energy to at least 34% of all national power generation by 2030 (Institute for Essential Services Reform, 2023), almost double the previous plan. Projects such as the Solar Power Plant, Nusa Pinida Hybrid, and the development of a high-tech solar panel factory in Kendal are tangible examples of this strategic imperative (Hidayat et al. 2024).

JETP also needs to emphasize the importance of supporting local industries in supporting the renewable energy supply chain. By strengthening domestic production

capacity, such as in the manufacture of solar panels and wind pipes, Indonesia not only reduces import dependence but also creates new jobs and strengthens the competitiveness of the national industry. It is an integral part of the investment and policy framework formulated in the JETP's Comprehensive Investment and Policy Plan (CIPP), which is designed as a living document and will be updated annually.

Modernizing electricity network infrastructure is an important agenda in the JEP framework. Major investments are directed at digitization and strengthening the network to be able to integrate renewable energy sources optimally. PLN, as the main operator, is accelerating the implementation of smart grids and NRE-based electricity solutions, including for areas outside Java-Bali. This effort is crucial so that the national electricity system can accommodate the variability of renewable energy sources and ensure the reliability of the electricity supply (Purba 2022).

JETP also targets a maximum electricity sector emission limit of 290 million tons of CO₂ by 2030, down significantly from the baseline projection of 357 million tons of CO₂ (Yuan et al. 2024b). In addition, Indonesia is committed to achieving Net Zero Emissions in the electricity sector by 2050, ten years earlier than the previous national target. To support the achievement of this ambitious target, JETP involves various independent working groups.

However, a number of challenges are still faced, especially related to the adequacy and effectiveness of JETP funding. The need for more competitive funding schemes and more inclusive stakeholder engagement to strengthen public support for the energy transition. This is the main concern, so that JETP is not only an elite agenda, but also provides real benefits to the wider community, including workers in the energy sector. In fact, the development of clean energy projects and infrastructure in Indonesia cannot be separated from the JTP framework. With national policy synergy, international support, and technological innovation, Indonesia has a great opportunity to accelerate the energy transition in a just manner, while strengthening national energy security and independence towards a greener and more sustainable future.

Table 4.2: Summary of the strategy for strengthening CEFI for the JETP Project

Category	Obstacle	Strategy
Regulation & Policy	Policy uncertainty	Regulatory reform, phase out coal support, and harmonize policies
	Licensing barriers	Streamline and digitize licensing, a one-stop investment service.
Government Capacity	Low technical	Technical assistance, capacity building, and international collaboration

	capacity	
	Fiscal limitations	Prioritize clean energy in the budget, leverage public funds, and use blended finance.
Financial Sector	High investment risk	Blended finance, de-risking instruments, government guarantees
	Lack of de-risking	Develop risk-sharing facilities, insurance schemes, and engage DFIs
Social/ Institutional	Social inequality	Inclusive project design, community engagement, and just transition programs
	Institutional weakness	Strengthen JETP secretariat/task force, improve coordination and transparency.

CHAPTER V

CONCLUSION

5.1 Conclusion

The results of the study show that the major challenges faced by Indonesia are in realizing a just energy transition towards the NZE target by 2060. Through the JETP initiative with a funding commitment of USD 20 billion, Indonesia seeks to accelerate the use of renewable energy and reduce dependence on fossil energy. However, the implementation of CEFI policies and investments in Indonesia is still lagging behind neighboring countries such as Vietnam and Thailand. The main obstacles identified include the limitations of green financial infrastructure, regulatory uncertainty, exchange rate risk, and the performance of off-takers such as PT PLN and PT Pertamina. In addition, social inequality and lack of community involvement in clean energy projects are also challenges for achieving a truly just and inclusive transition. Although investment in the renewable energy sector in Indonesia shows an increasing trend from year to year, the value of the investment is still relatively small compared to Vietnam and Thailand. This shows the need to accelerate funding reforms, policy support, and investor engagement to support the national energy transition. Collaboration between the government, the private sector, and local communities is crucial so that JETP is not only a funding mechanism but also a platform for structural transformation towards a just and sustainable energy system.

Based on the findings of the research, to strengthen the role of JETP and CEFI optimization in supporting Indonesia's JETP: 1) Carry out pro-investment policy reforms, including strengthening legal certainty and regulatory frameworks that support clean energy investment and reducing bureaucratic barriers. 2) Develop innovative financial instruments, such as green bonds, blended finance, and results-based financing schemes, to attract more investment from the public and private sectors. 3) Increase collaboration between the government, private sector, financial institutions, and civil society to ensure that every clean energy project runs in an inclusive manner and considers aspects of social justice. 4) Strengthen the capacity of local institutions and increase community engagement, particularly among vulnerable groups and workers in the fossil energy sector, through new skills training and social protection programs. 5) Make JETP a platform for structural transformation, not just a funding mechanism, by emphasizing the integration of financial, policy, and social justice aspects in each stage of the energy transition.

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